MEMO			
TO:	Board of Directors	**FROM:**	Brian Donlon
CC:		**DATE:**	17 November, 2004
SUBJECT : Clare County Council, Doora Landfill site - Reg. No. 31-1			

Application details

Event	Issue Date(s)
Proposed decision	25/9/00
Objections received	20/10/00, 23/10/00
Article 25(1) Circulation of objections	24/11/00
Article 25(2) - Submissions on objections	15/12/00, 21/12/00, 22/12/00, 28/12/00

Objections received

Objection by Applicant	1
Objection by third party/parties	6
Submission in relation to Objection	4

A total of 7 objections were received from the following:

1. Clare County Council
2. Kilrush UDC
3. Ennis UDC
4. Jack O Sullivan
5. Clean (Irl) Refuse & Recycling Co. Ltd
6. IPODEC Ireland Ltd
7. Shannon Environmental Services

A Technical Committee was established to consider the objections.

The Technical Committee included;

Brian Donlon, Chairperson
Regina Campbell, Inspector
Malcolm Doak, Inspector

This is the Technical Committee's report on the objections.

1. Clare County Council

Ground 1.1a (Scope/Groundwater Effects)

The applicant contends that the landfill in its current form is not causing significant environmental pollution. They further state that the continued operation of the landfill until June 30th 2001, the date by which the landfill must close by High Court Order, will not cause significant environmental pollution.

The applicant summarises monitoring results for Doora Landfill from February 1998 to August 2000. They explain that they have selected EU MAC values and also threshold values to indicate situations where there is significant contamination on the landfill site. They include a discussion on the Shannon Estuary Water Quality Management Plan and the Agency's Draft EQO/EQS (1997) document and state that " for waters the principal objective is that quality is and should be maintained as, wholly suitable for the beneficial use listed."

They state that an assessment of the macroinvertebrate study and the physico-chemical monitoring indicates that there has not been environmental pollution to a significant extent.

The applicant states that there is clear evidence of local contamination at the landfill site but state that there is no downstream beneficial user of the water in the aquifer and that there is not a public health risk associated with the use of these waters.

They use the risk definition in Section 57 of the UK Environment Act and state that the existence of a hazard, pathway and receptors are essential elements in assessing the risk. They point out the existence of the hazard, the confined groundwater pathway and that the only downstream receptors are the macroinvertebrate populations in the Fergus and Gaurus Rivers.

The applicant included results that indicated that cadmium levels (List I substance) in OB3 exceeded both of the relevant limits (Drinking Water MAC levels and the Dutch Intervention Limits) in August 1998 and May 2000. They state however that the neighbouring well (BR3), although it exhibited elevated cadmium levels, did not exceed either of the aforementioned standards and they further contend that OB3/BR3 are situated up hydraulic gradient of the landfill and therefore should be considered unaffected by the landfill. They further state that high solids in OB3 may account for the observed fluctuations in metal concentrations in OB3. They state that occasional flooding from the rear of the landfill did occur and that drainage modifications effected in April 1999 eliminated this problem.

They state that there have been occasional instances of List II substances exceeding either or both of the relevant limits (Drinking Water MAC or Dutch Intervention limits) in a number of boreholes. They state that the most elevated groundwater parameter is ammonia (see Table 1 (p 27 of Objection) for summary details).

They further state that cessation of the landfilling activity eight months ahead of schedule will not positively affect the groundwater quality.

The applicant states that the Bunnow South Well (which was chosen as the only abstraction point) is not a downgradient well. They further discuss the water quality of this well.

[Note: The applicant provided a summary on the effects of saline intrusion into the landfill in their submission on the objection (See Ground 4.1, Appendix 1 for further details).]

Technical Committees Evaluation

The TC note the clear evidence of local contamination at the landfill site.

The TC consider that OB3/BR3 are cross-gradient but not upgradient of the landfill (see Appendix 2 for further details). The presence of landfills often results in local reversals and variations in groundwater flow due to the presence of a head of leachate within them. The TC note the exceedances of MAC and Dutch I value for cadmium (List I) and copper, nickel, lead (List II substances) at OB3 since the April 1999 drainage modifications referred to by the applicant. The TC consider that there is no other explanation for these exceedances other than by the effects from the landfill. There are no known users of these List I/II substances within the immediate vicinity of this borehole and the applicant has not stated in their objection that there is any on-going investigation into the exceedances.

Further, the TC have noted the decrease in the Q-rating on the River Gaurus from Q4 (unpolluted) upstream to Q3 (moderately polluted) downstream and on the River Fergus from Q3-4 upstream to Q3 downstream of the facility.

The TC have assessed the mercury results in 2000 for the leachate sampling points (L1, L6 and Laa). The maximum mercury detected was 17µg/l, whereas the mean value (n=7) was 2.57µg/l. This level of mercury **is high** when one considers that the mean mercury value in leachates from landfills (accepting domestic and some industrial wastes) in an extensive UK study was 0.17µg/l and that the maximum concentration detected in that study was 1.0 µg/l(UK DOE, 1995).

The TC consider that an aquifer is any groundwater and must be protected under the law, regardless of beneficial users. The reference to beneficial users is of no relevance.

The TC agree with the applicants contention that Bunnow South is not a downgradient well due to a review of the groundwater contour plan (see Appendix 2 for further details)**.** However, the licensee is required under Condition 4.17 of the licence to install two permanent groundwater monitoring boreholes downgradient to the south/south east of the facility. See response to Ground 1.8.

The TC consider that the active abstraction and off-site treatment of leachate would have an immediate positive effect on groundwater quality beneath the landfill.

The TC consider that on the basis of the underlying regionally important aquifer, the existing MAC excedances for List I/II substances in borehole wells and the high mercury content of the leachate, that the continued disposal of waste will result in environmental pollution and the contravention of the Drinking Water Standards and the Groundwater Directive.

The TC note that the Agency is precluded legally (under Section 40(4) of the WMA 1996) from granting a licence unless they are satisfied that the activity concerned (i.e. landfilling of waste in this instance) will not cause environmental pollution or that any emissions from the disposal activity will not result in the contravention of the relevant standards. Consequently, we consider that Condition 1.1, which does not allow the continuation of landfilling at the facility, should not change.

Recommendation

No change

Ground 1.1.b Surface Water

The applicant has compared surface water results for List I and II metals, ammonia and BOD with the relevant standards. They state that there has been no instance of levels of mercury or cadmium exceeding the MACs for A1 waters and that only trace levels of these metals were detected.

They state that elevated ammonia and BOD levels have been detected at SW2, which is a landfill boundary drain that discharges to the Gaurus River. There have been instances of elevated ammonia and BOD levels at SW3 (a sampling location on the Gaurus River) and an isolated ammonia and chromium breach at SW7. They state that there has been no excedances of the relevant limits SW5 (a location on the River Fergus which they state can be considered downstream of the landfill). They state that there is no evidence that continued landfilling will cause any adverse change or that an early cessation will cause any short-term improvements.

Technical Committee's Evaluation

The comments regarding the surface water quality are noted. The TC have noted in the application form that the Q-ratings on the Gaurus River decreased from 4 (unpolluted status at two locations upstream of the landfill) to 3 downstream of the landfill. There was also a disimprovement in biological quality on the River Fergus downstream of the facility.

The TC note that the Proposed Decision required an additional surface water monitoring location and an additional biological monitoring location immediately downstream of the Gaurus/Fergus confluence (Schedule E.4). The TC consider that these additional monitoring requirements are necessary to provide a clearer indication of the impact of facility on the receiving waters.

Recommendation

No change

Ground 1. 2 (Condition 4.3.1)

The applicant states that the Agency are aware that public recreation facilities (e.g. parkland and/or sports ground) shall be provided on the restored landfill under High Court Order from 31st December 2002. They further state that the landfill is currently separated from surrounding landuse by watercourses and existing hedgerows and that further security fencing is not required.

Technical Committee's evaluation

The comments are noted. . As the facility will have to close by June 30 2002, the TC consider that the construction of further security fencing may not be required. However, the TC recommend that there should be a review of security arrangements within three months of the date of grant of the licence.

Recommendation

Amend Condition 4.3.1 as follows:

Remove 2nd and 3rd sentences.

Include the following text:
Within three months of the date of grant of this licence, the licensee shall carry out a review of the site security arrangements for the site and shall carry out any necessary improvements within six months of the date of grant of this licence.

Ground 1.3: (Condition 4.5)

The applicant states that the wording in this condition is more in keeping with an on-going activity.

Technical Committee's evaluation

The TC consider that it is essential to maintain an office on site for the duration of the waste transfer operations and the restoration works at a minimum. The wording of this condition could be amended slightly to reflect this situation.

Recommendation

Amend Condition 4.5

The licensee shall provide and maintain an office on the facility. The office shall be maintained in a manner suitable for the processing and storing of documentation. **This office shall be maintained at the facility until such time as otherwise agreed with the Agency.**

Ground 1.4: (Condition 4.6)

The applicant states that is the intention of the Council to provide a telephone at the facility until 30th June 2002.

Technical Committee's evaluation

The TC consider that it is necessary to maintain a telephone and facsimile machine at the facility for the duration of the waste transfer operations and the site restoration works.

Recommendation

Amend Condition 4.6:

Add second sentence:
This equipment shall be maintained at the facility until such time as otherwise agreed with the Agency.

Ground 1.5 (Condition 4.11)

The applicant states that this condition requires that a bunded fuel storage be provided. The applicant intend not to store fuel on site.

Technical Committee's evaluation

The comments are noted. However, the term "unless otherwise agreed" caters for this situation. The applicant should note that this bunded fuel storage requirement requirement also holds for any outside contractor employed for the construction of the transfer station and/or restoration works that intends to store fuel on -site.

Recommendation

No change

Ground 1.6 (Condition 4.13.1)

The applicants state that they do not understand this condition in that "representative" is uncertain.

Technical Committee's evaluation

The TC note that there is a noticeable deficiency in groundwater/leachate monitoring in the centre part of the landfill footprint. Consequently, the TC consider that as a minimum, an additional three boreholes should be installed in the current landfill area and in the vicinity of the current gas monitoring wells, (numbers 4, 5 and 6). These locations should be agreed with the Agency.

Recommendation

Amend Condition 4.13

Within six months of the date of grant of this licence, the licensee shall provide, **as a minimum, three** boreholes in the landfilled area, in the waste, at locations to be agreed with the Agency. These boreholes shall be used to facilitate the measurement of leachate levels and for the removal and abstraction of leachate.

Ground 1.7 (Condition 4.14)

The applicant states that they are currently investigating the feasibility of utilisation of landfill gas. They further state that upgrading of the existing open flare would be wasteful in this situation.

Technical Committee's evaluation

The TC welcome the commitment to utilise landfill gas where it is determined to be feasible. Consequently, we consider that the decision to upgrade to an enclosed flare should be delayed pending the outcome of the "landfill gas utilisation feasibility trials". As the applicant have stated that they are currently investigating the feasibility of utilisation of landfill gas the TC consider that this report be submitted to the Agency for agreement at an earlier timeframe.

Recommendation

Remove the existing Condition 4.14.1

Include as a new Condition 4.14.1:
Within four months of the date of grant of this licence, the licensee shall submit a report to the Agency for its agreement on the quantities/levels of landfill gas which are likely to be generated at the facility and its suitability for conversion into electricity. Subject to the agreement of the Agency, the licensee shall maintain and operate the existing landfill gas flare at the facility.

Include as a new condition 4.14.2
Unless otherwise agreed with the Agency, landfill gas shall be collected and flared (using an enclosed flare unit) within 12 months of date of grant of this licence. The **Enclosed Landfill Gas Flare** efficiency shall be tested within three months of installation and once every three years thereafter.

Amend Heading to Schedule E.6 as follows:
Enclosed Landfill Gas Flare Unit/**Utilisation plant**

Include as footnote 4 to this table. Continuous CO monitor for landfill gas utilisation plant.

Amend Heading to Schedule F.4 as follows:
Emission Limit Values for Enclosed Landfill Gas Flare Unit/**Utilisation Plant**
Location: Landfill Gas Flarestack / **Utilisation Plant**

Amend Table (NO2, CO) to reflect possibility of combustion plant installation

Parameter	Emission Limit Value Note 1
Nitrogen oxides as (NO_2)	**500 mg/m^3 for Combustion Plants** 150mg/m^3 for Flare Stacks
CO	**650 mg/m^3 for Combustion Plants** 50mg/m^3 for Flare Stacks
Particulates	130 mg/m^3
TA Luft Organics Class I (Note 2)	20 mg/m^3 (at mass flows > 0.1 kg/hr)
TA Luft Organics Class II (Note 2)	100 mg/m^3 (at mass flows > 2 kg/hr)
TA Luft Organics Class III (Note 2)	150 mg/m^3 (at mass flows > 3kg/hr)
Hydrogen Chloride	50 mg/m^3 (at mass flows > 0.3 kg/h)
Hydrogen Fluoride	5 mg/m^3 (at mass flows > 0.05 kg/h)

Note 1: Dry gas references to 5% oxygen by volume.

Note 2: In addition to the above individual limits, the sum of the concentrations of Class I, II and III shall not exceed the Class III limits.

Ground 1.8 (Condition 4.17)

The applicants state that they are uncertain of the Agency's requirements with regard to the installation of groundwater monitoring boreholes both up and down gradient and whether they should be installed to monitor groundwater quality in bedrock, in overburden, or in both.

Technical Committee's evaluation

The comments are noted. The TC views the wording in Condition 4.17 as unambiguous. The four permanent monitoring wells must be completed as nested piezometers. The TC note that the Bunnow South well is not a downgradient well. However, because of the lack of well completion data and technical issues as to well screen levels this well cannot be regarded as an alternative to one of the two upgradient monitoring wells.

Recommendation

No change

Ground 1.9 (Condition 4.18)

The applicant states that they already operate a civic waste facility, including recycling facilities at Doora. They further state that under the High Court agreement that the civic amenity centre shall be removed by June 2002.

Technical Committee's evaluation

The comments are noted. However, the term "unless otherwise agreed" caters for this situation.

Recommendation

No change

Ground 1.10 (Condition 4.19.1)

The applicant states that they are bound by a High Court Agreement as referred to under Ground 1.9 above.

Technical Committee's evaluation

The comments are noted. However, the term "unless otherwise agreed" caters for this situation. See also response to Ground 4.2 with regards to the timeframe for the construction of the transfer station.

Recommendation

No change

Ground 1.11 (Condition 4.19.2)

The applicant states that because of a High Court Agreement that the handling of waste at the Transfer Station will be carried out for 12 months and that they will be to concrete standard.

Technical Committee's evaluation

The comments are noted. See also response to Ground 4.2 with regards to the timeframe for the construction of the transfer station.

Recommendation

No change

Ground 1.12 (Condition 5.1.1)

The applicant objects to this condition in that is compromises its responsibilities under Section 33 of the WMA 1996. They further state that they have applied for a licence for an alternative facility at Inagh, Co. Clare but that no PD has been issued to date. They reiterate their contention that there is no measurable benefit to be gained by the environment by closing the landfill in advance of the June 30th 2001 deadline.

Technical Committee's evaluation

The comments are noted. However, the Agency cannot grant a licence unless it is satisfied that compliance with Section 40(4) of the Act is achieved. A PD for the Inagh facility was issued on 28th December 2000.

Recommendation

No change

Ground 1.13 (Condition 5.2.2)

The applicant states that the timeframe be increased to 72 hours to take account of Bank holidays.

Technical Committee's evaluation

The TC consider that the condition should be amended to cater for waste removal off-site on Bank Holiday weekends.

Recommendation

Amend Condition 5.2.2

All wastes for disposal off-site shall be removed from the facility within forty-eight hours of its arrival on-site, unless otherwise agreed with the Agency. **On Bank Holiday weekends all wastes for disposal off-site shall be removed from the facility within seventy-two hours of its arrival on-site.**

Ground 1.14 (Condition 5.3)

The applicant notes that there is no schedule for submission of the detailed written procedures listed in this condition.

Technical Committee's evaluation

The TC consider that procedures for the acceptance of these four waste streams should be submitted to the Agency for its agreement.

Recommendation

Amend Condition 5.3.1 as follows:

The licensee shall submit **written procedures to the Agency for agreement, within two months of the date of grant of this licence**, for (i) the acceptance of inert wastes for restoration purposes at the facility (ii) acceptance of wastes at waste transfer station (iii) agreed wastes at the Civic Waste Facility and **(iv)** degassing of CFC's from white goods accepted at the Civic Waste Facility.

Ground 1.15 (Condition 5.12)

The applicant states that newspapers are presently being stored and other waste types may be stored pending recycling (5.12.b). They state that Condition 5.12.f is at variance with Condition 5.2.2.

Technical Committee's evaluation

The term "unless otherwise agreed" caters for waste types to be accepted at the Civic Waste Facility. The TC note that Condition 5.2.2 relates to waste acceptance at the Transfer Station whereas Condition 5.12 relates to waste acceptance at the Civic Waste Facility.

Recommendation

No Change

Ground 1.16 (Condition 6.1 and 6.2)

The applicant states that they already carry out the inspections listed in these conditions and that the frequency should be reduced after June 2001 and further reduced after June 2002.

Technical Committee's evaluation

Condition 9.7 caters for the amendment of the frequency of monitoring, sampling, analyses and investigations (such as nuisance monitoring).

Recommendation

No change.

Ground 1.17 (Condition 6.3.1)

The applicant states that after June 2001 that the only potential source of litter will be the transfer station and that after June 2002 that there will be no source of litter.

Technical Committee's evaluation

There may be confusion regarding the existence of a working face. As there will be no further landfilling at the facility we recommend that this condition be reworded.

Recommendation

Amend Condition 6.3.1 All loose litter accumulated within the facility and its environs, shall be removed subject to the agreement of the landowners and appropriately disposed of on a daily basis.

Ground 1.18 (Condition 7.6)

The applicant states that if their assessment of leachate monitoring results in the need to abstract/treat leachate that they will consider treating this leachate on site.

Technical Committee's evaluation

The comments are noted. However, there is no information on the type of treatment proposed, the quality and quantity of leachate to be discharged, the location of the emission points etc. The treatment of leachate on-site even on a temporary basis may require a review of this licence.

Recommendation

No Change.

Ground 1.19 (Condition 9.1)
The applicant states that they consider that (i) the required frequencies are excessive in the context of site aftercare (ii) that the biological monitoring required is excessive.
Technical Committee's evaluation

The TC have noted in the application form that that the Q-ratings on the Gaurus River decreased from an unpolluted status at two locations upstream of the landfill to moderately polluted downstream of the landfill. However, Condition 9.7 caters for the amendment of the frequency of monitoring, sampling, analyses and investigations.

Recommendation

No change.

Ground 1.20 (Condition 9.9)
The applicant states that this condition requires a void space assessment and that after 30th June 2001 that there will be no void space available.
Technical Committee's evaluation

The TC consider that an estimation of the void space should not form part of the topographical survey and that this requirement be excluded. However, the survey should also be undertaken upon cessation of waste acceptance at the facility and also upon completion of site restoration works.

Recommendation

Amend Condition 9.9 as follows:
A topographical survey shall be carried out within three months of the date of grant of this licence. **It shall be repeated on cessation of waste acceptance at the facility and the completion of site restoration.** The survey shall also address slope stability and integrity and shall be in accordance with any written instructions issued by the Agency.

Ground 1.21 (Condition 9.10)
The applicant states that this condition relates to the development of an undisturbed area and that they do not intend to develop any further area of the site for landfilling purposes.
Technical Committee's evaluation

The applicant's comments are noted. However, this condition also covers the possibility of disturbing areas for the purposes of installing landfill gas utilisation infrastructure.

Recommendation

No change.

Ground 1.22 (Condition 11)
The applicant states that the annual contribution should be reviewed on 30th June 2001 and 30th June 2002 as the level of activity on the site will reduce significantly on both of the above dates.

Technical Committee's evaluation

The TC consider that the contribution required is appropriate for the activities licenced. The annual contribution will be reviewed annually. Provision is made in Condition 11.1.2 of the licence to take account of the level of activity at the facility and also any changes in the monitoring regime.

Recommendation

No Change.

Other Items

1. The applicant made comments on the Inspectors Report.
2. The applicant in their submission on the objections listed the concerns of many of the other objectors in general terms in the text.

Technical Committee's evaluation

1. Where references in this section relate to specific conditions of the PD they were considered under the relevant grounds outlined above. The TC consider that the reference on page 33 in the applicants objection (first paragraph) in the sentence beginning *"It was explained to the previous inspector…"* is inaccurate. All relevant correspondence in relation to this application should have been submitted in the form of an original and five copies during processing of the application. The Inspectors report accurately records the position. The obligation to apply by the prescribed date rests solely with the applicant.
2. Under the following objections (2 to 7) we have included a section on the applicant's response to the objections.

2. Kilrush UDC

Kilrush UDC state that they are not in position to make alternative arrangements given the very short notice of the proposed decision. They state that Doora Landfill is a traditional style landfill and that the operational and management practices are now first class. They state that many of the conditions in the draft licence are not reasonable given the short life-span remaining. They fully support the implementation of the statutory waste management plan "for Clare" which was adopted in June 2000.

Applicant's Response

Clare County Council agree and reiterate Kilrush UDC's objection.

Technical Committee's evaluation

The comments of Kilrush UDC are noted. The TC consider that there should be no further landfilling of waste at Doora (see responses to Grounds 1.1 and 4.1). The objector did not list the specific conditions that they considered unreasonable. The TC have made amendments to some conditions that were specifically highlighted in other objections.

Recommendation

No change

3. Ennis UDC

Ennis UDC is a major customer of the landfill. They are currently reviewing the provision of waste management services and are not in a position to make alternative arrangements given the very short notice of the closure of the facility. They do not accept that there is any diminution in the water quality of the River Fergus solely due to landfill operations. They accept that Doora is scheduled to close in any event in June 2001 and that a new facility at Inagh is very unlikely to be in place by that date. They state that many of the conditions in the draft licence are not reasonable given the short life-span remaining.

Applicant's Response

Clare County Council agrees with Ennis UDC's objection and state that the effect of the premature closure would have a major impact on local commerce and industry.

Technical Committee's Evaluation

The comments of Ennis UDC are noted. The TC note the decrease in biological activity in both the Gaurus and Fergus Rivers and the impact that the landfill has had on groundwaters under and in the vicinity of the landfill. The TC consider that there should be no further landfilling of waste at Doora for the reasons outlined in Grounds 1.1 and 4.1.

4. Environmental Management Services (Jack O' Sullivan) on behalf of the Doora-Ballaghboy-Gaurus Residents Association

EMS agrees with many of the conditions of the Proposed Decision but consider that the conditions need to be strengthened. They want to strengthen and expand the Agency's reasons for refusing to licence Class 1, Class 2 and Class 3 of the WMA (1996), to urge the Agency to retain Condition 5.1.1, to urge the Agency to retain other conditions which will ensure that the landfill will cease to be a nuisance and will eventually be rehabilitated to become a public amenity and to advise the Agency that the terms of the High Court Consent Order governing the landfill are not being properly complied with.

EMS state that the landfill has been the subject of frequent complaints and legal action by nearby residents. Submissions received by the Agency during the application process are referred to again.

The objection goes on to outline the history of protests and legal action taken by local residents culminating in the Consent Order given by the High Court in December 1998. The details of this Consent Order are outlined. The objection also states that Condition

5.1.1 should come as no surprise to the applicant, as the County Council had been receiving advice for many years that the landfill should be closed. The Waste Management Strategy prepared for Clare County Council in 1996 is referred to. They state that the applicant has had enough time to develop and implement a waste management plan which is not heavily dependent on landfilling and which emphasises more environmentally appropriate methods of dealing with wastes. They believe that there are other landfill sites available nearby which may be used temporarily.

The objection outlines recent observations made during a visit to the landfill in August 2000. These observations included the following; uncovered waste, birds, odour, wind-blown litter, blocked drains, uncovered sludges, visual intrusion and flies. The Residents Association believe that these observations mean that Clare County Council does not appear to be fully complying fully with the terms of the High Court Consent Order and they raise some doubt as to the Council's ability to comply with the conditions of the proposed waste licence.

Ground 4. 1 (Condition 4.13 and Condition 4.17)

The Residents are concerned that evidence shows that the Doora landfill has caused deterioration of surface water and groundwater quality especially as ListI/II substances have been detected in the groundwater. The Inspector's Report is referred to which states that the discharge of List I substances to the groundwater is in breach of Article 40 of the Local Government (Water Pollution) (Amendment) Regulations, 1999. They are also concerned that the landfill will continue to cause environmental pollution and nuisance even after the deposit of waste has ceased. They want Conditions 4.13 (Leachate Management) and/or Condition 4.17 (Groundwater Management) of the proposed decision to be expanded to require the licensee to contain and remove both leachate and contaminated groundwater.

They state that a licence condition should be imposed requiring the licensee to install a number of drawdown wells so as to create a cone of depression under the site, thereby reducing the piezometric level of groundwater within and beneath the landfill and creating a "hydraulic trap" to contain leachate. They also state that a pipeline should be constructed which would allow direct pumping of groundwater and leachate to Ennis UDC sewerage treatment works.

Applicant's Response

The applicant states that there is no conflict with the statutory environmental standards contained in the Local Government (Water Pollution) Regulations at Doora Landfill site. They state that there is an incorrect reference to the Local Government Regulations 1999 and that Article 40 does not apply in the context of waste licence applications. They refer however to Article 47(1) which state allows the Agency discretion to vary the standards set down. They make reference to case law in the European Court of Justice in relation to the Groundwater Directive which indicates that this sub- Article is not relevant in the context of landfill sites. They further state that Article 47(2) can consider a discharge standard different from that set down in Article 41 where: " the results of a prior investigation show that the water in the aquifer is permanently unsuitable for agricultural, commercial, domestic,

fisheries, industrial or recreational uses, and all practical technical precautions have been taken to prevent the entry of the harmful substance to other waters so as to avoid the risk set out in article 40(2)(b)(viii).”

The applicant contends that the landfill in its current form is not causing significant environmental pollution since the discharges to groundwater of List I/II substances do not breach the standards set out in the Local Government (Water Pollution) Regulations because of the existence ***of saline intrusion*** *under the landfill caused by tidal effects on both the River Fergus and the River Gaurus. Further, they state that the introduction of cellular tipping and the capping of completed areas represent “all practical technical precautions” in the context of a dilute and disperse landfill.*

The applicant believes that there is no justification for requiring landfill activities to cease prior to 30th June 2001 in order to ensure compliance with Section 40(4)(a) of the Waste Management Act.

The applicant also states that the proposed decision makes adequate provision for leachate management.

Other submittors’ response

Ennis UDC state that the residents have already received substantial damages, with a Court Order also requiring the landfill to be closed in June 2001 and the transfer station removed in 2002.

Technical Committee’s evaluation

Condition 4.13 requires boreholes to be installed in the landfilled area that will be used to measure and abstract leachate. Condition 4.17 requires permanent groundwater monitoring boreholes to be installed upgradient and downgradient of the landfill. Condition 7.6 covers the transport of the “abstracted leachate” to a wastewater treatment plant.

The TC consider that the term saline intrusion is a clear overstatement of the case in the knowledge that the only observable change of groundwater quality in the vicinity of the landfill is for an aquifer block 250m wide and on the east side of the River Fergus. The status of the remainder of the groundwater under the landfill footprint cannot be changed. Doora landfill and its entire working mound **lie over a regionally important karstic aquifer which is not permanently unsuitable for use (see Appendix 1 attached for discussion on salinity intrusion into Doora Landfill).**

The TC consider that there are two options for the authorisation of the discharge of List I substances to aquifers, under Article 47 of SI 42 of 1999: namely (i) declare the groundwater permanently unsuitable or (ii) declare that the quantity and concentration of List I substances to be discharged into the groundwater are so small to obviate any present or future danger to the quality of the groundwater. As discussed under Appendix 1 of this report the TC consider that the groundwater is not permanently unsuitable for use. As further discussed under Ground 1.1 the detection of cadmium, (a List I substance), in groundwater well (OB3) and the high concentration of mercury (another List I substance) in the leachate and indicates that there is present and potential for future danger to the quality of the groundwater.

Consequently, the TC consider that the Agency do not have the discretion to allow this direct discharge of leachate on an unlined site overlying a regionally important aquifer. Further, the TC consider that other measures such as the installation of cut-off walls and active abstraction of leachate are precautionary measures that can and are being used at other facilities to prevent the entry of List I/II substances into the underlying groundwater body.

Recommendation

No change

Ground 4.2 (Condition 4.19.2)

The Residents Association urges the Agency to retain Condition 4.19.2 which requires the licensee to carry out all waste processing activities within an enclosed building. They want the 'activities' to be specified in more detail to include the unloading of wastes from vehicles and the re-loading of waste onto other vehicles.

Applicant's Response

The applicant stated that they believe that the unloading and reloading of wastes is covered within the condition as it stands. The applicant also states that finalisation of the design of the transfer station falls within Schedule D of the proposed decision – Specified Engineering Works.

Technical Committee's Evaluation

The TC consider that the recording of incoming and outgoing waste loads are dealt with under Conditions 3.10 and 3.13. The timeframe for its construction should be no more than 3 months. Details of the final design should be submitted to the Agency under Specified Engineering Works (Schedule D).

Recommendation

Amend Second Sentence of Condition 4.19.2 as follows: **Within three months of the date of grant of this licence, all wastes accepted at the waste transfer station shall be processed within an enclosed building. All wastes destined for onward disposal shall be stored within this enclosed building. Wastes destined for recovery off-site may be stored outside this building.**

Ground 4.3 (Condition 5.2)

The Residents Association object to Condition 5.2. They want this condition amended so that a) all wastes should be processed within a maximum period of 24 hours, b) no wastes should be stored overnight outside the transfer station building, c) no wastes

should be stored within or outside the transfer station building during a weekend, d) the doors of the transfer station should be kept generally closed except when vehicles are entering or leaving, and e) rodent, bird and fly control measures should be implemented to ensure they are not a nuisance at the transfer station.

Applicant's Response

The applicant reiterates their original objection to this condition and requests that all waste should be removed off-site 72 hours after its arrival on-site.

The applicant also states that if no waste is not allowed to be stored outside the transfer station building overnight and at weekends then this would result in a more extensive and more visually intrusive structure than that proposed. It is also an unnecessary constraint considering that C & D waste may also be stored on-site. The applicant also states that finalisation of the design of the transfer station would fall within Schedule D of the proposed decision – Specified Engineering Works.

The applicant stated that any nuisances at the transfer station are already covered under Condition 6 – Environmental Nuisances.

Technical Committee's Evaluation

See response to Ground 1.13 regarding the timeframe for the storage of waste loads at the facility.

It is considered unnecessary to require all wastes to be stored within the transfer station overnight and at weekends. The finalisation of the design of the transfer station would fall within Schedule D – Specified Engineering Works. The timeframe for its construction is dealt with under ground 4.2 above. Potential nuisances are controlled under Condition 6 – Environmental Nuisances.

Recommendation

No change

Ground 4.4 (Traffic Hazard)

The Residents Association is concerned that the operation of the proposed transfer station will cause a significant traffic hazard especially if the maximum annual tonnage of 60,000 tonnes is accepted. They want the licensee to be required to calculate the number of daily and weekly truck movements at the facility. They also state that the present exit from the landfill onto the public road is inadequate to deal with the traffic movements. They request that a condition be included that the licensee provides a road improvement and traffic management scheme to the satisfaction of the EPA with an opportunity for public consultation.

Applicant's Response

The applicant states that the transfer station will be served by the existing landfill entrance. They believe this is adequate as traffic flows to the transfer station are unlikely to be greater than those at present and the transfer station is also required to be removed in 2002 by the High Court Ruling.

Technical Committee Evaluation

Conditions 3.10 and 3.13 require that records are maintained of each load of waste arriving and departing from the facility. As the facility will have to close by June 30 2002 it is deemed unnecessary to condition that the access road to the facility be upgraded.

Recommendation

No change

5. Clean (Irl) Refuse & Recycling Co. Ltd, Kilrush, Co. Clare.
Nigel Barnes & Associates made an objection on behalf of Clean (Irl) Refuse & Recycling Co. Ltd. This company operates a waste collection and haulage business within the functional areas of Clare and Limerick County Councils and Limerick Corporation. They state that they currently haul c. 200 tonnes per week of collected waste from the Clare area to Doora.

Ground 5.1 Conflict with the "polluter pays" principle in the context of annual service charges

They state that the customary practice of charging for waste collection and disposal services is in advance on an annual basis. They state that the closure of the Doora facility will burden the company with an additional and unanticipated expense of haulage of waste a further 53 miles to Gortadroma, Co. Limerick. They state that they would be forced to subsidise the collection and disposal costs until renewal of contracts falls due. This is clearly at odds with the "polluter pays" principle.

Ground 5.2 - Insufficiency of time to implement a temporary or permanent waste transfer station.

They have been made aware by the local authority that the landfill would close in July 2001. They are concerned that since the local authority does not have a waste transfer station in place, that there would be a time delay in implementing a transfer station

Ground 5.3 – Short-term flexibility
They make reference to section 5.5.1 of the DOELG publication "Changing our ways" and state that an interim solution would be facilitated by allowing landfilling at Doora until mid-year 2001.

Applicant's Response
Clare County Council reiterate and agree with C.I.L.'s objection. On page 10 of their submission they refer to Section 52(2)(e of the EPA Act 1992 which refers to a proper balance to be held between: " the need to protect the environment (and the cost of such protection) and the need for infrastructural, economic and social progress and development"
They state that they wish to make a submission on references to objectors references to costs. They state that the total loss of the premature closure of the facility would be £1.5 million to Clare CO Co and to all stakeholders may be about £2 million. They refer to Section 5(2)(b)(ii) (A to C) of the WMA 1996 : In particular to emissions from the facility,

the Agency's requirement to consider BATNEEC and the costs of replacing or removing the facility.

Other submittor's response

IPODEC agree with C.I.L.'s objection particularly in relation to the unavailability of a transfer station.

Technical Committee's evaluation

The Agency are not satisfied that emissions arising from the landfilling of waste will comply with and not contravene any of the requirements of Section 40(4) of the WMA 1996. Consequently, the Agency are not legally entitled to grant a licence for that aspect of the application.

The TC consider that the applicant had adequate notice of the possibility of maintaining a temporary transfer station at the facility since the High Court Order in December 1998. The timeframe for the installation of the enclosed Transfer Building is altered under Ground 4.2.

Recommendation

No Change

6. IPODEC Ireland Ltd

IPODEC Ireland Ltd object on their own behalf and on behalf of their clients. They state that the decision of the Agency to close the facility 6/7 months ahead of the date set by the High Court seems strange considering that the facility has been operating for 56 years. They further state that while they and most people accept that the facility should be ultimately prevented from disposing of waste, it is the decision to close the facility with little or no notice that is of concern to the commercial sector. They further state that there is no guarantee that the landfills in the region operated by other local authorties will accept the waste from Clare. The Agency should be under no illusions that fly tipping will occur (not by IPODEC) and that the construction of a transfer station prior to the closure of the landfill is required as the nearest landfill is over 50 miles from Doora.

They note that waste recycling takes time. They note that the High Court in making its decision provided for the installation of a transfer station prior to the closure of the landfill. They state that the Agency acts as a regulator and its role in monitoring and minimising environmental pollution is a most definite necessity. They Agency should consider the consequence of all decisions that it takes and the availability of alternatives.

Applicant's Response

Clare County Council reiterate and agree with IPODEC's objection. They state that construction of the waste transfer station by them was considered premature until the licence was issued so that any Agency requirements could be incorporated into the design of the building.

Technical Committee's evaluation

The Agency are not satisfied that emissions arising from the landfilling of waste will comply with and not contravene any of the requirements of Section 40(4) of the WMA 1996. Consequently, the Agency are not legally entitled to grant a licence for that aspect of the application.
The provision of a transfer station is also covered in this licence (see response to Ground 4.2).

Recommendation

No Change

7. Shannon Environmental Services Ltd.

SES state in their objection that they have been disposing of filter-cake from the treatment of wastes at Doora Landfill for 15 years. They have investigated alternative landfill sites for the disposal of this waste but have had little or no response from other facilities. If Doora closes then the implications for SES are very serious as the treatment of waste may have to cease and this will result in redundancies at SES and would also have adverse effects on the ability of some of their 3000 customers to find alternative economical disposal routes. It will also mean that inorganic wastes will have to be exported for treatment. They also state that they have audited management practices at the landfill and find the operation and management of the landfill to be at an acceptable standard.

Applicant's Response
Clare County Council state that it is not possible to quantify the additional cost of the alternative disposal of the sludge from SES and that it may prove difficult for SES to find a suitable substitute disposal site, especially prior to June 2001. This may have major knock-on effects to their customers, which include major industrial concerns in the Clare/Limerick region.

Other submittors' response
EMS Ltd. on behalf of the Residents Association state that it is very unsatisfactory that spent filter cakes and possibly other industrial wastes deposited by SES at Doora have been stated as coming from industries all over the country.

Ipodec Ireland Ltd. state that they use SES to dispose and/or treat sludge from clients and if SES cannot deposit its filter cake at Doora then this will have serious implications for Ipodec's clients and may even lead to production loss and ultimate closure.
All the companies were aware of the summer closure date and were preparing for this rather than a February closure date.

Technical Committee's evaluation

The Agency are not satisfied that emissions arising from the landfilling of waste will comply with and not contravene any of the requirements of Section 40(4) of the WMA

1996. Consequently, the Agency are not legally entitled to grant a licence for that aspect of the application. The licence caters for the operation of transfer station at the facility. It was widely known that the landfill was to close before June 30th 2001 by High Court Order of 1998.

It is noted that there is scope in the waste licence of SES (Reg. No. 41-1, Condition 5.19) to dispose of their sludge waste at facilities other than the unlined Doora landfill facility.

Recommendation

No Change

Signed: _____

Brian Donlon
Technical Committee Chairperson

Appendix 1: Discussion on Salinity and tidal effects at Doora Bridge and Doora Landfill

The Article 16 (1) further information (Section C6) received from the applicant on 11th February 1999 among other things presents details on groundwater levels for 11 monitoring wells about the landfill footprint and the River Fergus at Doora Bridge, for the dates 13th January 1999 and 6th February 1999. Conductivity results are included for the later date. The monitoring wells are (see drawing number 09.B for their location):

Overburden Series: OB 1 – OB 6 incl (sum of 6 overburden wells);
Bedrock Rotary Series: BR 1 – BR 3 incl, BR 5, and BR 6 (sum of 5 bedrock wells).

The groundwater level results show that for the 13th January 1999 period only three of the five bedrock wells (BR 1, BR 2, BR 5), and two of the shallow overburden wells (OB 1 and OB 5) showed a response to river stage movements (0.4m rise and fall). All five wells lie close to the River Fergus at the western extremity of the landfill. The Article 16 (1) further information concludes that the maximum influence of river level fluctuations on groundwater in the underlying aquifer is 250m to the east side of the River Fergus (this can be illustrated as a line running through Gas 2 and Gas 3. Drawing Number 09.B). The data and information supplied with the Article 16 (1) document does not support the opinion in the **submission on objections** received by the Agency on 22 December 2000 that groundwater in the vicinity of the Gaurus River is impacted by river stage movements.

The information contained in the Article 16 (1) information on conductivity values for all eleven wells is discussed in further detail in the applicant's submission on the objections. The **December 2000** submission also includes an Appendix on other conductivity data for Doora Bridge and Clarecastle supplied by Clare County Council for the 1999 calendar year. Both sets of conductivity data are used by the applicant to suggest that 'saline intrusion is observable' in the vicinity of the entire landfill footprint (page 13 of 20) with noticeable tidal effects, and that 'salinity may well significantly contribute to the elevated chloride readings observed in certain groundwater boreholes'(bottom page 13 of 20).

Saline intrusion is the hydrogeological term used to describe seawater intrusion into an aquifer adjacent to coastlines and estuaries either under natural flow controls or because of flows induced by abstraction. Lloyd and Heathcote (1985) specify average seawater compostion worldwide. The typical seawater concentration for Chloride is 19,000mg/l and for Electrical Conductivity is 15,000 – 150,000 µS/cm. Furthermore Lloyd and Heathcote specify that water with a conductivity of less than 1,500µS/cm is classed as fresh, and water with a conductivity of the range 1,500 – 15,000 µS/cm is classed as brackish water.

The Technical Committee considers that the two conductivity data sets contained in the Article 16 (1) information and the Appendix to the December submission do not demonstrate that water quality at Doora bridge is saline or brackish. For ten months of 1999 year, the conductivity at Doora bridge was in the region of 400µS/cm, apart from

July and August 1999 which showed a conductivity in the region of 1,500µS/cm. Furthermore these figures should be compared to the conductivity results presented in the December submission, for three bedrock wells presented below:

Adjacent to River Fergus: BR5	Chloride 467mg/l; Conductivity 1,510 µS/cm
At landfill boundary (east): BR 6	Chloride 35.8mg/l; Conductivity 862 µS/cm
At landfill boundary (south): BR 3	Chloride 35.1mg/l; Conductivity 576 µS/cm

Both conductivity data sets appear to show that the water and groundwater in the vicinity of Doora Bridge can best be described as fresh since all readings are less than the 1,500µS/cm specified by Lloyd and Heathcote (apart from the individual conductivity reading for BR5 which extends slightly into the brackish range). The chloride data indicates that even at BR5 that the chloride level was less than 2.5% of the typical seawater chloride concentration.

The 1999 set of conductivity data for Clarecastle in the Appendix to the December submission show higher conductivity values than for Doora Bridge. This is to be expected given that Clarecastle is geomorphologically at the mouth of an estuary where tidal seawater ingress may occasionally move up and over the weir at Clarecastle Bridge. Clarecastle Bridge lies 2.7km downstream of Doora Bridge. For nine months of 1999 year, the conductivity at Clarecastle Bridge was in the region of 400µS/cm, apart from June to August 1999 which showed a conductivity in the range 2,000µS/cm to 12,700µS/cm. By comparison the conductivity at Doora Bridge showed a conductivity in the range 441µS/cm to 1,526µS/cm for the same period. By virtue of the geomorphological setting of the two bridges and their conductivity readings over June to August 1999, the TC consider that the water quality at Doora Bridge is <u>not</u> related to the water quality at Clarecastle.

The discussion on page 14 of 20 (top paragraph : Clare Co. Co. submission on objection) appears to suggest that saline intrusion is widespread and the aquifer should be considered permanently unsuitable for use and so setting up the argument that the Groundwater Directive is inapplicable. This is a clear overstatement of the case as the only observable and limited change of water quality in the underlying aquifer is for a block 250m wide and on the east side of the River Fergus. The status of the remainder of the groundwater under the landfill footprint cannot be changed. Doora landfill and its entire working mound lie over a regionally important karstic aquifer which is not permanently unsuitable for use.

Appendix 2: Discussion on Groundwater Flow at Doora Landfill

A groundwater flow map was determined by the applicant using the water levels in the five bedrock wells taken on 6th February 1999 and is presented as Drawing Number 09.B (Article 16 (1) further information (Section C6) received from the applicant on 11th February 1999). The groundwater flow direction is generally to the north west, but veers west/south west as it discharges into the River Fergus and Gaurus River confluence. Drawing Number 09.B should be viewed in order to determine the status of monitoring

wells OB3/BR3. Both lie downgradient of the 1.9m groundwater contour. Hence both wells lie down and cross-gradient of the very south east corner of Doora landfill.

The main receptors to groundwater flow are the River Fergus and Gaurus River confluence and a narrow triangle of land with apexes at '1.6; BR 5; and do not scale' (Drawing Number 09.B). The Technical Committee does not consider that the 'Bunnow South Well' (approx 500m south) is hydraulically downgradient of the landfill footprint.