

NB** A large number of Submissions have been received on this application & are available to view on the web/edms or a hardcopy can be viewed on the office correspondence file

This report has been cleared for submission to the Board by the Senior Inspector Tom McLoughlin.
Signed Julie Date 29/9/10



OFFICE OF CLIMATE, LICENSING & RESOURCE USE

INSPECTOR'S REPORT ON A LICENCE APPLICATION

TO: DIRECTORS

FROM: Brian Meaney - Licensing Unit

DATE: 29 September 2010

RE: Application for a waste licence from:
Oxigen Environmental Limited, Merrywell Industrial Estate,
Ballymount Road Lower, Dublin 22,
for a waste management facility at:
Lismagratty and Corranure Townlands, Cootehill Road, Cavan.
Licence Register Number **W0248-01**

Type of facility:	Integrated waste management facility including non-hazardous landfill, materials recovery facility, biological treatment facility and civic amenity facility.
Class(es) of Activity (P = principal activity):	3 rd Schedule: 4, 5, 11, 12 & 13 4 th Schedule: 2, 3, 4(P), 9, 11, 12 & 13.
Category of Activity under IPPC Directive (2008/1/EC):	5.4
Quantity of waste proposed to be managed per annum:	335,000 tonnes
Classes of Waste:	Mixed municipal waste Dry recyclable non-hazardous household, commercial & industrial wastes Biodegradable municipal waste Household and similar hazardous waste (at civic amenity site)

Location of facility:	Lismagratty and Corranure Townlands, Cootehill Road, County Cavan.
Licence application received:	22 September 2008
Third Party submissions:	141
EIS Required:	Yes
Site Inspection:	10 November 2009

1. FACILITY

This is an existing development authorised as a landfill under a waste licence. Cavan County Council operated a landfill at this location since 1988. The first waste licence was granted for the existing landfill on 12 June 2001 (W0077-01). Reviewed licences were granted on 10 May 2005 (W0077-02) and 24 March 2010 (W0077-03). Since September 2007, the landfill has been operated by Oxigen Environmental Limited under a concessionary agreement with Cavan County Council.

The landfill is located c.3km northeast of Cavan Town on the Cavan-Cootehill road (R188) and is c.47.5 hectares in size. The predominant land use surrounding the site is agriculture pastureland. The site is located in a drumlin area and the topography is said to contribute to the number of odour complaints received about the facility and the fact that residents located at some distance are affected by odour. There are approximately 12 residences within 500m from the boundary of the landfill site. Four of these houses are under the ownership of Cavan County Council. The site is 47.5 hectares in size with 10 hectares in use for the existing landfill (including closed cells) and civic amenity site.

The original landfill (called 'cell 0') is unlined and remediation works began in cell 0 in 2001. The cell has been capped in accordance with the first waste licence granted for the facility (W0077-01). Cells 1 and 2 were both lined and are closed and capped since 2006 and 2007 respectively. A reviewed licence was granted in May 2005 (W0077-02) to include increased landfill capacity (cells 3 and 4), increase waste intake to 90,000 tonnes/annum and provide for a civic amenity (CA) facility. The licence was further reviewed by the Agency in 2009 (W0077-03) for the purpose of implementing certain provisions of the Landfill Directive¹ and imposing limitations on the acceptance of biodegradable municipal waste. As part of a separate licence review application (W0077-04) Cavan County Council have requested that their responsibility is restricted to the aftercare and management of the closed cells 0, 1 and 2. That review is the subject of a separate application progressed in parallel with this one. The two applications are inextricably linked and I will necessarily cross-reference between the two as appropriate.

In addition to cells 0, 1 and 2, the existing licence (W0077-03) held by Cavan County Council authorises the development of two further cells – cell 3 and cell 4:

- Cell 3 of the landfill was completed by Oxigen under the concessionary agreement with Cavan County Council. The cell is full since March 2010 and has been

¹ Council Directive 1999/31/EC of the 26th April 1999 on the landfill of waste.

temporarily capped since April 2010. It will receive its final cap in due course in accordance with the existing licence (or the new licence if granted).

- Construction of Cell 4 of the landfill was authorised by the EPA in February 2010 under SEW (Specified Engineering Works). The cell has been substantially excavated. Construction of the basal liner and associated works has commenced.

At present, no waste is being accepted for disposal at the landfill facility pending construction of cell 4. The civic amenity site is open.

The landfill employs 11 people. The landfill waste acceptance and opening hours are standard and are specified in the RD. The civic amenity site hours are also restricted by the RD and opening on Saturdays is permitted.

2. OWNERSHIP OF THE FACILITY

In the waste licence application, the applicant states the following:

“In 2005 Cavan County Council sought expressions of interest from waste management contractors for the design, build, operation and finance of an integrated waste management facility to be provided on a site adjacent to Corranure Landfill. ... In 2007 Oxigen Environmental Ltd were given ‘preferred bidder’ status and in subsequent negotiations agreed a deal to develop the facility in accordance with the invitation to tender [issued in March 2005] and also for the purchase of the landfill subject to licensing and planning.”

In correspondence with the Agency, Cavan County Council (in licence review application W0077-04) outlined the agreement between the Council and Oxigen Environmental Ltd as follows:

“In September 2007 Cavan County Council entered into a Contract for Sale Agreement with a third party private waste management firm, Oxigen Environmental Ltd, whereby Cavan County Council agreed to sell certain lands in the townlands of Corranure and Lismagratty subject to the necessary licences and planning permissions being in place. The lands to be sold subject to the contract terms include Cell 3 and Cell 4 at Corranure Landfill which are currently licensed under the existing Waste Licence W0077-02 [since superseded by W0077-03]. Under the terms of the Agreement both parties are required to provide environmental indemnities to each other which will become effective on the completion of the sale. The liability in respect of Cells 0, 1 and 2 will therefore remain with Cavan County Council while liability for Cells 3 and 4 will transfer to Oxigen Environmental Ltd upon successful completion of the sale. In September 2008 Cavan County Council and Oxigen Environmental Ltd both entered into a separate legal contractual agreement whereby both parties agree to offer the EPA joint and several liability in respect of any environmental issue relating to the Cell 2 / Cell 3 Interface Area as defined by the attached drawing DG0020-01 Rev. F01.” I have attached this drawing as Appendix 1.

To avoid any ambiguity over ownership of the landfill in the period after the RD may be granted as a licence, condition 1.10 stipulates that further development of the facility, including commencement of landfilling in cell 4, shall not commence until such time as ownership of the facility has demonstrably transferred to the applicant.

The applicant has confirmed that planning permission is subject to a decision by An Bord Pleanála. The applicant sought permission from the Board to have the development at the

facility considered under the Planning and Development Strategic Infrastructure Act 2006. On 10 July 2009, the Board decided to allow this route to be followed. To date no permission has been granted to develop the facility beyond cell 4. This means that no planning permission has been granted to develop the biological treatment and materials recovery facilities.

3. REASON FOR LICENCE APPLICATION

Oxigen Environmental Ltd is applying for a new waste licence to operate the existing landfill currently owned by Cavan County Council. The recommended decision (RD) is for the capping and aftercare management of the landfill at cell 3, the development and operation of cell 4, the development of a materials recovery facility (MRF) and a biological treatment facility (BTF) and the continued operation of the civic amenity site. The proposed MRF and BTF will occupy 3.8 hectares within the bounds of the existing facility.

The development and operation of cells 3 and 4 has already been approved by the Agency (in licence register number W0077-02). This report proposes certain amendments to the previously granted approval for cell 4.

4. SITE VISIT

On 10 November 2009, I conducted a site visit at the facility in the company of Kealan Reynolds of the Office of Environmental Enforcement. Before visiting the facility, Mr Reynolds showed me around the vicinity of the facility and the location of odour complaints. I also met with John Brannigan and Eoin Doyle of Cavan County Council, Jim Dowdall and Joan Harrington of Oxigen Environmental Ltd and Willie Madden of RPS Consulting. Both this application and Cavan County Council's application (W0077-04) were discussed with the representatives of the respective organisations.

5. OPERATIONAL DESCRIPTION (INCLUDING INTERACTION WITH ADJACENT SITE)

Oxigen Environmental Ltd have applied for a waste licence for the operation of an existing landfill and civic amenity site and associated infrastructure at the facility. Oxigen have also applied for the operation of a biological treatment facility for the treatment of organic waste and a materials recovery facility for the recycling of municipal, industrial and construction and demolition waste. Continued integration with the operation of the adjacent closed landfill will be a feature of Oxigen's operations, as described below.

Landfill

As described above, four landfill cells have been filled at the facility to date (cells 0, 1, 2 and 3). A fifth cell, cell 4, is under development. On 4 February 2010, specified engineering works for the construction of cell 4 were approved by the Agency. Construction of cell 4 is ongoing and it is to be expected that filling of cell 4 will commence in accordance with the existing licence and the operator's operational plan agreed with the Agency. The design of cell 4 [submitted to OEE in correspondence dated 17 August 2009 and updated on 1 February 2010] shows a maximum depth of waste of 30.9m. It identifies a number of mechanisms designed to reduce the potential for odour from cell 4 during its operational phase, including the installation of temporary capping on completed (filled) parts of cells, side slopes and cell interfaces within 10 months of the commencement of waste disposal in that cell/sub-cell (this is proposed in the RD as condition 3.4.2(i));

The proposed use of a proprietary membrane system as intermediate cover is adequate for the control of odour nuisance if applied in accordance with the timescales expressed in the RD (and in the existing licence).

Several changes to the operational plan for cell 4 are recommended in the RD and it is important that the licensee be afforded appropriate opportunity to incorporate the changes into the operational plan. The principal change relates to the maximum depth of waste that can be deposited in the cell. Condition 3.4.3 of the RD proposes that depth is limited to 15m of deposited waste. This is to ensure that depth of waste in the cell is not a contributory factor to odour emissions.

Civic amenity site

A civic amenity site accepts a normal range of household recyclable waste as well as black bag waste for disposal. There are no significant changes to the regulation of the civic amenity site proposed in the RD.

Proposed biological treatment facility

The applicant has identified that the biological treatment facility will incorporate anaerobic digestion, aerobic composting and pasteurisation steps. Internal layout and technology has not been decided by the applicant and will be subject to tendering and design proposals at a later stage. Operation of the biological treatment facility is governed by conditions 3.34 and 3.36 and emissions to air controlled by the schedules to the RD. Biological treatment facilities have the potential to cause odour nuisance and extensive engineering controls on air emissions from the building are necessary to mitigate this. More detail on the control of air emissions are provided below. The standard to be achieved in the treatment of biodegradable waste is set out in Schedule F. The standard requires a high quality compost to be generated ready for use as a product.

Interaction between biological treatment facility and landfill

The presence of a biological treatment facility at the facility presents an opportunity to greatly enhance the operation of the landfill at the facility. The application states the intention to treat all waste prior to landfilling. I note that this is in any event a requirement of all landfill licences. However with a high level of treatment achieved at the biological treatment facility, it is recommended that the permitted deposit of biodegradable municipal waste be restricted at the landfill. To this end, it is recommended in condition 8.3.2 of the RD, that once the materials recovery facility has been commissioned and is operating, no residual waste, including that sourced from the equivalent of a 2-bin or 3-bin black bin from household and commercial sources, may be disposed of in the landfill unless it has been mechanically treated for the purpose of removing biodegradable fines. The objective is to limit as far as possible the deposit of biodegradable waste in the landfill.

However having recommended this condition, it is possible and would appear likely, given lead time for design, construction and commissioning of the materials recovery facility, that cell 4 will be filled prior to the materials recovery facility being commissioned for any length of time. Therefore the benefits to be gained from this restriction might not in fact materialise until quite late in the operation of cell 4. It is therefore important that the operation of cell 4 is, from day one, such that it will not generate odours at the level experienced during the filling of cell 3.

Proposed materials recovery facility

A materials recovery facility is proposed for the mechanical treatment of households, commercial, industrial and construction and demolition waste. Condition 3.35 is proposed for

the control of this activity. To ensure the process is fully contained, condition 3.35 requires management of extracted gases and treatment in the biofilters, or alternative as may be agreed.

Site boundary

The boundary between the Oxigen and Council facilities is between cells 2 and 3. The boundary is not vertical but follows the plane of the sloping flank of cell 2. Cell 3 was constructed on top of this flank of the closed and fully capped cell 2. The boundary is therefore 3-dimensional. In the event of pollution or an incident being attributed to this area, condition 1.14 requires that Oxigen and Cavan County Council take joint liability and co-operate on any investigations of pollution incidents.

Import of leachate and landfill gas from adjacent landfill

Oxigen Environmental and Cavan County Council have agreed that leachate and landfill gas generated at the adjacent Council site (incorporating the closed cells of the older landfill and subject to a separate licence application W0077-04) will be managed at the Oxigen facility. Leachate collected from leachate extraction wells and a perimeter drain at the old landfill will be pumped to the Oxigen leachate storage tank from where they will be discharged to the Cavan County Council sewer for treatment at Cavan Town waste water treatment plant. Landfill gas extracted from the closed cells will be drawn to the gas flare and/or utilisation plant operated on the Oxigen facility. This scenario represents business as usual at the facility. However in order to ensure that Cavan County Council are not left without a leachate and landfill gas service, condition 1.13 of the RD sets out the steps to be followed prior to termination of the service.

Opening and operating hours

The applicant has proposed operation hours outlined in Table 1 below. These hours represent a significant shift from the currently authorised hours. I propose alternative hours to those requested, as set out in the table in bold text, principally with the objective of observing night-time hours as defined in the existing licence and the RD (22:00 to 08:00). I propose allowing the civic amenity site hours to be extended to better facilitate public access to the facility. I also propose limiting waste acceptance at the materials recovery and biological treatment facilities to 21:30. It is not proposed to operate or accept waste at the facilities on Sundays or bank holidays except in emergencies.

Table 1 Operating hours

Facility	Operating Hours (Mon-Sat)	Waste Acceptance Hours (Mon-Sat)
Landfill	Requested: 6.30 – 19.30 Proposed: 8:00 – 19:30	Requested: 7.00 – 19.00 Proposed: 8:30 – 19:00
Civic amenity facility	Requested: 8.00 – 17.00 Proposed: 8:00 – 19:30	Requested: 8.00 – 16.30 Proposed: 8:00 – 19:00
Materials recovery facility	Requested: 6.00 – 22.30 Proposed: (indoor operations only during night-time hours)	Requested: 6.30 – 22.00 Proposed: 8:00 – 21:30
Biological treatment facility	Requested: 24 hours Proposed: (indoor operations only during night-time hours)	Requested: 6.30 – 22.00 Proposed: 08:00 – 21:30

6. EMISSIONS

6.1. Emissions to Air

The principal sources of potential emissions to atmosphere from the facility are:

- uncontrolled landfill gas emissions and resultant odours;
- biological treatment and materials recovery facilities;
- the combustion products of landfill gas;
- dust emissions.

I will deal with these items in turn.

6.1.1. *Uncontrolled landfill gas emissions and resultant odours*

Uncontrolled gas emissions are possible via three routes, namely, (a) the working face where waste is deposited on top of previously deposited and decomposing waste, (b) off-site migration of landfill gas and (c) poor management of the landfill gas management system and infrastructure.

Odour has been an issue of considerable concern at this facility for some years and is the principal issue identified by local residents in submissions. The main source of odour is landfill gas generated from the decomposition of biodegradable waste in the landfill. A landfill gas leakage survey was undertaken on 24 January 2008 and 4 June 2008 by Odour Monitoring Ireland to identify the key mechanisms that lead to the release of landfill gas from the site and to identify on a site map the locations of landfill gas leakage in order to perform remediation of the identified leakage areas. The survey identified eleven leakage zones. Each leakage zone was given a remediation strategy to mitigate the individual leakage areas. The applicant confirmed in the waste licence review application that these works were ongoing and improvements achieved in the active landfill. However it is a fact that since this statement was made in the licence application of the 22nd September 2008 odour complaints continued. The OEE have confirmed that since completion and temporary capping of cell 3 and the consequent cessation of landfilling at the facility, odour complaints have dramatically decreased. Therefore it is evident that odour was arising principally from the active cell 3. In order to avoid similar odours arising from cell 4, it is proposed in the RD that the following new controls be applied during operation of that cell:

- a highly qualified site manager and deputy manager are employed [condition 2.1.1];
- temporary capping to be installed within 10 months of commencement of any cell/sub-cell [condition 3.4.2];
- the total depth of waste in cell 4 is limited to 15m (compared to the 30m currently approved for cell 4) [condition 3.4.3];
- a network of horizontal gas wells is installed at each 3m depth of waste [condition 3.16.2];
- an odour management plan to be prepared that imposes tight trigger levels for methane surface emissions and requires close management, monitoring and reporting [condition 6.20, in existing licence]; and

- further limitations on the acceptance of waste vis-a-vis treatment and source [conditions 8.2.3, 8.2.12, 8.3.2 and 8.3.3].

Off-site migration of landfill gas is monitored at perimeter boreholes. The trigger levels for off-site gas migration in the existing licence are 1% v/v for methane and 1.5% v/v for carbon dioxide. The annual environmental report for 2009 (for waste licence W0077-02) states that methane levels were exceeded in perimeter borehole G01 in July and August 2009 but all other monitoring results during the reporting period were within the 1% v/v limit. Carbon dioxide levels were exceeded during the reporting period on a number of occasions at boreholes G01, G05 and G06 with values of up to 9.2% v/v recorded.

In correspondence with the Office of Environmental Enforcement dated 1 February 2010 the applicant announced the employment of a landfill manager and a landfill gas manager at the facility. Condition 2.1 of the RD recommends new conditions on the level of qualification and experience required in the key management staff at the facility. Condition 2.1.5 proposes that landfilling and operation of key elements of the facility cannot be operated in the absence of appropriately qualified managers. The employment of a professional and competent management team allied with the new conditions outlined above will ensure that odour emissions will be minimised to the greatest extent possible.

6.1.2. *Biological treatment facility*

The aerobic and anaerobic decomposition of waste, even under controlled conditions, is a potentially odorous process (depending on feedstock, operating parameters and management) and emissions from such operations are to be closely regulated. The design of the interior of the biological treatment facility has not been decided by the applicant. However, condition 3.34 of the RD requires the following controls to be installed at the biological treatment facility:

- All biogas extracted from anaerobic digestion cells to be combusted in a combined heat and power (CHP) plant or flared off if the CHP is out of service. Emission limit values for this combustion process are proposed in *Schedule B.1.2*. The location of the emission point is to be agreed;
- Each individual aerobic (composting) cell is to be self-contained and head gases collected and treated in a biofilter. Emission limit values for the biofilter are proposed in *Schedule B.1.3* and *Schedule C.1.2* includes monitoring for ammonia, hydrogen sulphide and mercaptans, dust, bacteria, *Aspergillus fumigatus* and PM₁₀. Drawings submitted with the application show the biofilter located adjacent to the biological treatment building. The final location of the emission point is to be agreed;
- The biological treatment building is to be operated under negative pressure and quick closing doors installed. Vented gas from the general space within the building is to be diverted for treatment in the biofilters [condition 3.34];
- Biofilters are to be appropriately sized that capacity is doubled up in the event of a single unit being taken out of service for replacement of the treatment medium or other circumstance [condition 3.36.2];
- The storage of untreated and partially treated biodegradable waste is to be indoors. Only treated product (compost) that meets the treatment standard proposed in the RD can be stored outdoors and subject to condition 8.6; and

- The odour management plan [condition 6.20] for the facility will include the biological treatment facility in its scope.

6.1.3. *Materials recovery facility*

The materials recovery building is to be subject to similar controls including:

- The materials recovery building is to be operated under negative pressure and quick closing doors installed. Vented gas from the general space within the building is to be diverted for treatment to avoid odour;
- The storage of untreated and partially treated waste is to be indoors [condition 8.6].

Active odour management at the materials recovery facility will come under the facility odour management plan required by condition 6.20.

6.1.4. *Landfill gas management and combustion (flaring and utilisation)*

There are two 1500m³/hr flares at the facility burning gas from all cells. The concentration of methane (CH₄), carbon dioxide (CO₂) and oxygen (O₂) as well as temperature and flow are continuously monitored through the SCADA system. *Schedule B.1.1* of the RD proposes emission limit values at the flare and utilisation plant (not yet installed) as per the existing licence (W0077-03). Condition 3.16.8 requires submission of a feasibility study for a gas utilisation plant.

6.1.5. *Dust monitoring*

Ambient dust monitoring is proposed in the RD [*Schedule C.6*] and condition 5.4 requires attention to be paid to potential dust emissions.

6.2. **Emissions to Sewer**

The leachate storage tank is connected to the existing foul sewer via a rising main that discharges at emission point SE1. The sewer connects the landfill to Cavan County Council's Waste Water Treatment Plant at Cavan Town. A sewage conditioner product, Septiox (ferric nitrate), is dosed into the discharge as an odour suppressant.

Cavan waste water treatment plant is a conventional activated sludge plant which provides preliminary and secondary treatment with phosphate removal. It has a design capacity of 22,000 population equivalent (p.e.). The population equivalent of the Cavan agglomeration is reported as 13,850¹. The leachate load is equivalent to approximately 700 p.e. and 63% of the ammonia load entering the treatment plant. Ammonia concentrations in the final effluent to the Cavan River were reported by Cavan County Council as at an average of 14.7 mg/l in 2007. The upgrade of the Cavan sewerage scheme is included in the Water Services Investment Programme 2010-2012.

¹ *Urban Waste Water Discharges in Ireland for Population Equivalents Greater than 500 Persons - A Report for the Years 2006 and 2007*, EPA, 2009.

Cavan County Council have consented to the sewer discharge under Section 52 of the Waste Management Acts 1996 to 2010 subject to emission limit values (*Schedule B.3*) and additional conditions which have been incorporated into the RD as Condition 5.6 and *Schedule C.3 Leachate Monitoring*.

Cootehill waste water treatment plant is available as an alternative facility. Leachate can be transported to either treatment plant by tanker in the event of a failure in the pumping system.

Condition 6.17.8 of the RD requires the licensee to examine the feasibility of providing leachate treatment capacity at the facility.

6.3. Emissions to Surface Waters

6.3.1. Water quality

The Corranure Landfill is in the north western river basin district and the catchment area of the Annalee River to the north and the Cavan River to the south-west.

Two small streams are present in the boggy area to the north-west and east of the facility. Both these streams flow towards the northwest and, as the Lismagratty stream, become tributaries of the Annalee River. The Lismagratty stream drains the area of the facility around cells 3 (filled) and 4 (under construction). The southern half of the site, including the closed landfill and the hardstanding infrastructure, is drained by the Corranure stream which flows south-west towards the Cavan River. The Cavan River flows for seven kilometres through Cavan Town to its confluence with the Annalee River west of Butler's Bridge. After merging with the Cavan River, the Annalee River flows 3km to the Erne River which drains to Upper Lough Erne.

There are no process emissions from this facility to surface waters. There are two surface water run-off emission points from the facility, SW1 and SW2. Figure 1 illustrates the location of the emission points and surface waters in the area. Map 2 shows the surface water monitoring points stipulated in the existing licence and proposed in the RD.

The following information is based on data submitted by Cavan County Council as part of the 2009 Annual Environmental Report (AER) required by waste licence registration number W0077-02:

In the 2009 AER biological water quality in the Corranure Stream was reported as Q3 at three monitoring points (A2, A3 and A4 - nearest the facility) and Q2-3 further downstream at point A5. EPA biological monitoring of the Cavan River 1.2km upstream of its confluence with the Corranure Stream has shown a moderately polluted water quality status conditions (Q3) since 2001. Downstream of Cavan Town, and 2.3km downstream of the confluence with the Corranure Stream, water quality is moderately polluted (Q2-3) since 1997. Further downstream of the confluence, c.7km, water quality has remained moderately polluted (Q2-3) since 1997. There is no evidence that the Corranure Stream is having a negative impact on the biological status of the Cavan River.

The 2009 AER indicates that biological water quality remained a consistent Q3 at monitoring points B1 to B5 on the Lismagratty Stream. EPA biological monitoring of the Annalee River at a point 3.2km upstream of its confluence with the Lismagratty Stream has shown slightly polluted water quality status conditions (Q3-4) since 2001. Water quality remained slightly polluted (Q3-4) since 2001 at a point 2.7km downstream of the confluence. Further downstream of the confluence, 10km, water quality has remained slightly polluted (Q3-4) since 1997. These results indicate no negative impact from the Lismagratty Stream on the biological status of the Annalee River.

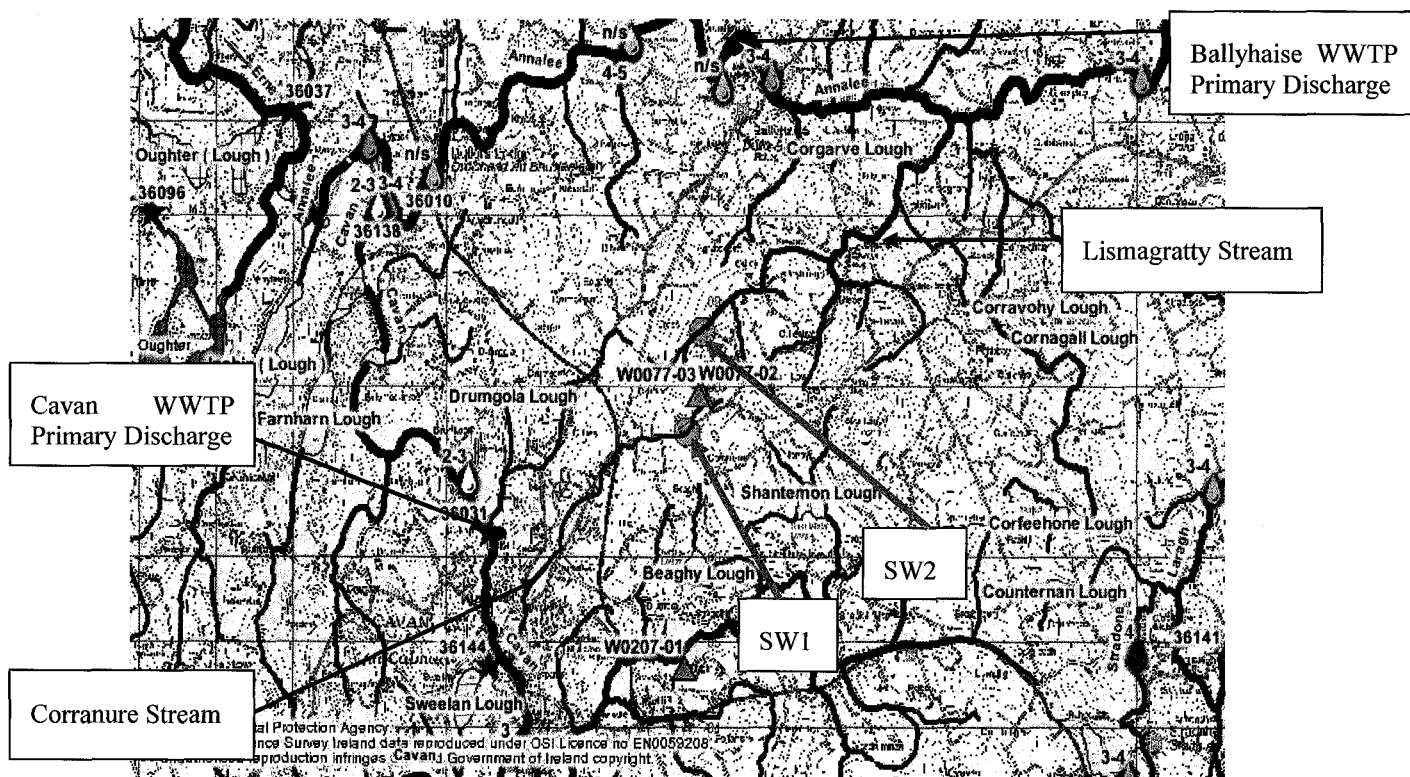


Figure 1 Overview of surface waters in the vicinity of the facility.

The Annalee River, 700m downstream of its confluence with the Cavan River, has a biological quality rating of Q3-4 since 1997 (although it increased to Q3 in 2001 only). The Annalee River has maintained a moderate biological status both upstream and downstream of its confluence with the Cavan River which has maintained a poor biological rating since 1997.

Cavan County Council chemical monitoring data for 2009/2010, the 2009 AER submitted in accordance with licence reg. no. W0077-02 and the 2010 quarter one surface water monitoring results submitted by Cavan County Council in accordance with waste licence reg. no. W0077-03 indicates the following:

- Corranure Stream:
 - Monitoring in the first quarter of 2010, supplied by Cavan County Council, demonstrates that results for BOD are within the environmental quality standard in the *Environmental Objectives (Surface Waters) Regulations 2009*. Results for the parameter ammonia were within the environmental quality standard threshold at discharge location SW1 and surface water monitoring location S5; however, the result at surface water monitoring location S4 exceeded the standards above. As monitoring location S4 is between locations SW1 and S5 it is unlikely that these high ammonia levels originated from the landfill facility.
- Cavan River:
 - The average of the results supplied by Cavan County Council for 2009 and 2010 for BOD, orthophosphate and ammonia (as N) demonstrate that monitoring stations both upstream (Station ID 0040) and downstream (Station ID 0300) of the Corranure Stream's confluence with the Cavan River meet the environmental

quality standard in the *Environmental Objectives (Surface Waters) Regulations 2009*.

- The primary discharge from Cavan waste water treatment plant is located c.2km downstream of the confluence of the Corranure Stream and the Cavan River. The EPA's report on *Urban Waste Water Discharges in Ireland for Population Equivalents Greater than 500 Persons - A Report for the Years 2006 & 2007* identifies that Cavan WWTP was not in compliance with the Urban Waste Water Treatment Regulations 2001 as amended in 2006 and 2007 because of poor effluent quality for BOD, COD and suspended solids. Station ID 0300 is located c. 0.6km downstream from the primary discharge and the parameters BOD, orthophosphate and ammonia (as N) met the required standards in the *Environmental Objectives (Surface Waters) Regulations 2009* as previously outlined.
- Lismagratty Stream:
 - Monitoring in first quarter of 2010, supplied by Cavan County Council, demonstrates that results for BOD are within the required standard outlined in the *Environmental Objectives (Surface Waters) Regulations 2009* and the results for ammonia exceeded these standards at discharge location SW2 and surface water monitoring location S3.
- Annalee River:
 - The average of the results supplied by Cavan County Council for 2009 and 2010 demonstrate that monitoring stations both upstream (Station ID 0900) and downstream (Station ID 01000) of the Lismagratty Stream's confluence with the Annalee River meet the environmental quality standard in the *Environmental Objectives (Surface Waters) Regulations 2009* for orthophosphate and ammonia (as N). However, the standard for BOD is exceeded. Both monitoring locations upstream and downstream of the Lismagratty Stream's confluence had an average BOD result of 3.2mg/l over the same time period, which implies that the Lismagratty Stream is not impacting the Annalee River's BOD levels.
 - Ballyhaise waste water treatment plant was reported as compliant with the Urban Waste Water Treatment Regulations 2001 as amended in 2007. It discharges to the Annalee River 3.3km downstream of the confluence of the Lismagratty Stream. Station ID 01000 is located 0.3km upstream from the primary discharge.
 - Monitoring carried out during the same time period demonstrates that the results for BOD, orthophosphate and ammonia (as N) meet the environmental quality standard in the *Environmental Objectives (Surface Waters) Regulations 2009* on the Annalee River downstream of the confluence with the Cavan River.

As ammonia level exceedances were noted at emission point SW2 the RD has specified in *Schedule B.2 Emissions to Surface Water* an Emission Limit Value of 0.14mg N/l at emission point reference numbers SW2 and SW6 (upstream location prior to SW1 in the W0248-01 licensable area).

Cavan County Council state that the results presented in the 2009 AER for the Lismagratty and Corranure Streams indicate a significant improvement in water quality from the previous year, with improvement evident in BOD, ammonia and suspended solids. The Council also confirmed that annual sampling of a broad range of other parameters, carried out in April

2009, showed no exceeded limits¹ for calcium, cadmium, chromium, copper, lead, manganese, sodium, zinc and mercury.

Both the Annalee and Cavan Rivers are classified at risk of not achieving good status. The overall objective for both rivers is 'restore'. The Annalee River has an overall status of 'poor' and the Cavan River has an overall status of 'moderate'. This must improve to 'good' status by 2015 in order to comply with the Water Framework Directive (WFD). The final draft *North Western River Basin Management Plan* (April 2010) looks to restore water quality in the Cavan River to good status by 2021 on an extended 6 year time scale.

6.3.2. Discharges to surface water

Surface water run-off from the facility will be generated from rainfall running off the side slopes of the landfill and from paved areas. All surface water will be collected by surface water drains connected to the drainage layer within the capping system. Conditions 3.33.3 and 3.33.4 of the RD require where practicable that surface water is collected and stored for reuse. Run-off from hardstanding areas to include the surfaced roads around the site will be passed through an oil/petrol interceptor prior to discharge from the site. Condition 3.24 of the RD requires that surface water run-off from hardstanding areas is diverted to a silt trap and oil interceptor prior to discharge from the facility. Run-off from other areas must pass through a silt trap prior to discharge.

A surface water interceptor drainage ditch has been constructed to the northeast of the site to channel water to the Lismagratty Stream. Further surface water drains in this area have already been constructed which will divert water either directly or by way of settlement areas to minimise contamination. Surface runoff from around Cell 3 and access road will be collected in constructed swales. The swales will consist of stone filled or open trapezoidal channels, which will ultimately discharge to the existing surface control areas. During the construction of Cell 4 more interception drains and temporary settlement ponds will be established if needed to mitigate against discharge of suspended solids to the existing streams.

The two surface water run-off discharge points from the facility (including the closed landfill) are SW1 and SW2:

- SW1 is surface water runoff from hardstanding areas at the landfill and from the capped landfill. SW1 is located at the southwest corner of the landfill site and discharges to the Corranure Stream. Normal discharge volumes are 344m³/day with a maximum rate of 413m³/day. The discharge at SW1 is actually located in the adjacent closed landfill (W0077-04) and also handles runoff from the closed cells 0 and 1 under Cavan County Council's control. Condition 3.25 of the RD requires Oxigen Environmental Ltd to install a discharge and monitoring point (to be known as SW6) within the licensed area for this licence (W0248-01). The reason is to ensure that discharges from the licensed facility can be correctly characterised and attributed,

¹ The EC Quality of Surface Water intended for Abstraction of Drinking Water Regulations, 1989, The EPA's Environmental Quality Objectives and Environmental Quality Standards discussion document (1997), The Fresh Water (FW) Fish Directive 78/659/EEC, European Communities (Drinking Water) (No. 2) Regulations, 2007.

particularly in the event of an exceedence or poor water quality in the Corranure Stream.

- SW2 handles surface water discharges from newer areas of the landfill site including cells 3 and 4 and is located at the north east corner of the facility. SW2 discharges to the Lismagratty Stream. Normal discharge volumes are 352m³/day with a maximum rate of 420m³/day.

Schedule B Emission Limits specifies the emission limit values for surface water discharge points SW1 and SW6.

6.3.3. *Surface water body and sediment monitoring*

Ambient surface water monitoring is proposed in the RD [*Schedule C: Control & Monitoring*] both upstream and downstream of the site. Sediment sampling is also proposed for the Corranure and Lismagratty streams. The proposed monitoring points are the same as in the existing licence.

6.4. Emissions to ground/groundwater

Under the existing licence (W0077-03) there are eight groundwater monitoring locations and nine private well monitoring locations specified. The applicant has stated that all wells within 500m of the boundary of the landfill are monitored.

BHP were contracted by Cavan County Council to carry out environmental monitoring at the Corranure Landfill site. The BHP report *Annual Report covering Groundwater, Surface Water and Private Well Monitoring at Corranure Landfill* covered the monitoring carried out in the second quarter of 2008. The applicant highlighted that this report identified that total coliforms are found at GW01 (located up gradient of the landfill), SA01 (junction of Cell 2 and Cell 3), GW04 and GW05 (both points located north of the site). Faecal coliforms were found at GW04. No elevated levels of List I/II organics were found or any heavy metal concentrations at these locations. PW08, PW09, PW10, PW11, PW13 (located up gradient of the landfill site in a southeast direction) and PW05BT, PW15 (up gradient in a south-western direction of the site or down gradient) All locations were free from microbial contamination except for PW5 BT, PW09 and PW13 which exhibited the presence of low levels of coliform bacteria. All waters were clear and odourless and free from synthetic organic and heavy metal concentrations.

In the AER for 2009, Cavan County Council gave the following summary of the quarterly monitoring reports for 2009:

- Groundwater levels remained fairly constant throughout the year, with depths varying in wells from 2.1m in GW01 to GW05 being recorded as consistently full for the year.
- At the groundwater monitoring points monitored (GW01, GW04, GW05) it was reported that all locations indicated the presence of coliform bacteria and were free from synthetic organic and heavy metal concentrations. Chloride levels were in all locations were found to be typical of natural levels in rivers and other fresh waters.
- During the year all waters were clear and odourless except for well locations PW7 and PW02, which were were turbid in colour in quarter 4. Levels of chloride varied throughout the year with elevated concentrations at PW07 in quarter 1 and 4 (48.2mg/l and 150mg/l), PW10 quarter 1 (66mg/l), PW05BT (64.3mg/l, 45.2mg/l and

47.5mg/l) and at PW11 in quarter 3 (50.2mg/l). All locations were free from microbial contaminations except PW02, PW05BT, PW07, PW09 and PW13, which exhibited low levels of coliform bacteria.

- Overall, with the exception of elevated levels of coliforms at some of the locations and some locally high concentrations in chloride, the quality of the water met the criteria as outlined in the European Communities (Drinking Water) (No. 2) Regulations, 2007.

Condition 6: Control & Monitoring requires trigger levels to be agreed with the Agency. Schedule C outlines the locations and frequency at which groundwater shall be monitored.

6.5. Wastes Generated

The civic amenity site provides for the recovery of a wide range of recyclable materials. Mixed waste for disposal is also accepted. The materials from the civic amenity site are processed, recycled, composted and/or disposed of as necessary.

The main outputs of the proposed materials recovery facility will be paper, metals and plastics which will be sent off-site for recovery or recycling. Residuals will be disposed of in the landfill.

Compost is the output from the proposed biological treatment facility's enclosed composting systems and digestate (slurry) is the main output from the anaerobic digesters.

6.6. Noise

Construction phase noise emissions are associated with the movement of construction traffic and the operation of equipment at the site. Construction activity is restricted in the RD to specific hours. Condition 1 of the RD generally restricts operations to daytime hours (as defined in the RD) with additional obligations proposed for indoor night-time operations.

During the operational phase the main potential for noise impact is traffic, operation of the materials recovery and biological treatment facilities and on-site machinery.

A noise monitoring survey in April 2008 reported noise levels at four noise sensitive locations exceeded licence limits. The exceedances at NSL2 and NSL3 were attributed to traffic on the R188 Cootehill Road. NSL5 is located near the boundary of Cell 2/3 and B2 is located near the weighbridge, therefore exceedances at these locations were due to active internal activity and as such are perhaps not noise sensitive locations. The results are said to be consistent with previous years' monitoring at the facility.

The applicant has proposed mitigation measures to reduce noise levels including operator training, equipment and vehicle maintenance, good management practices, closure of doors on plant buildings and a speed limit of 10km/hour.

6.7. Nuisance

Nuisances at a facility of this nature can include litter, dust, mud, odour, vermin, birds and flies. There have been a large number of submissions by local residents and the Cavan Better Waste Management Group (CBWMG) regarding nuisances. It has been reported that rats are killed on the road near the facility, there is a continuous flock of birds at the landfill and the

surrounding area, litter is blowing over 2km away and a fly nuisance starts to escalate in spring to such a degree that life for local residents is unbearable.

The nuisance controls for the facility are specified in Condition 5.4, 6.19, 6.20, 6.23, 6.29 of the RD. Condition 6.24 dictates controls to be implemented at the working face to avoid odour generation, the attraction of vermin and any other nuisance or objectionable condition.

7. USE OF RESOURCES

The main requirements for fuel at the facility are road diesel, marked gas oils, central heating oil and natural gas. Condition 7 of the RD requires an energy audit to be completed within one year of the date of grant of licence and deals with energy efficiency at the facility.

8. RESTORATION, AFTERCARE AND FINANCIAL PROVISION

Cell 3 was completed in March 2010 and will be capped in accordance with the existing licence or a new licence if granted. Cell 4 has an expected lifespan of approximately 2.5 years depending on waste intake. Finished cells will be capped with a low permeability capping system which will prevent the uncontrolled escape of landfill gas and the infiltration of rainfall into the waste body. On final capping the site will be allowed to become colonised with natural species. The final cap will allow for the collection of clean surface runoff which will be diverted, as described above, via surface water swales and settlement lagoons to discharge to the existing surface water system or be retained for reuse. On completion of landfill operations an aftercare and monitoring programme will be put in place.

Condition 10 of the RD specifies finishing and capping requirements and stipulates measures for closure, restoration and aftercare of the site. In particular, within one month of the date of grant of the licence, the RD proposes that a fully detailed and costed plan for the closure, restoration and long-term aftercare of the site or part thereof is to be submitted for the approval of the Agency. The licensee must also within that time frame demonstrate adequate financial provisions for the proposed restoration and aftercare plans and other future liabilities. This is a short timeframe for the preparation and submission of these documents. However I consider it necessary that the applicant (as licensee) put aside all necessary resources for current and future liabilities at the earliest possible stage.

9. CULTURAL HERITAGE, HABITATS & PROTECTED SPECIES

The closest designated sites to the facility are:

- Drumkeen House Woodland Natural Heritage Area (NHA) (Site Code 000980), located 2.8km to the west of the facility;
- Lough Oughter and Associated Loughs Special Area of Conservation (SAC)/NHA (Site Code 000007), 4km to the west; and
- Lough Oughter Special Protection Area (SPA) (Site Code 004049), also 4km to the west.

All surface water will be collected by surface water drains connected to the drainage layer within the capping system, surface water run-off shall be diverted to a silt trap and an oil interceptor prior to discharge from the facility. The quality of the surface water will be monitored in accordance with the RD and is expected to be uncontaminated and continue to have no impact on surface water quality.

When operated in accordance with the RD, there should be no environmental emissions from the facility that would give rise to adverse effects on these or any other designated sites.

10. WASTE MANAGEMENT PLANS

The *Waste Management Plan for the North East Region 2005-2010* has identified that the North East Region will strive to implement a regional approach to waste management that is sustainable and based on National and EU legislation and policy. The integrated waste management approach based on the EU waste hierarchy will be applied to waste generated, implementing maximum recycling, recovery of energy from residual waste, and minimising landfill disposal. The Region will continue to improve the infrastructure for recycling and recovery of waste and will maximise positive input of the private sector to help meet Plan objectives.

11. COMPLIANCE WITH DIRECTIVES/REGULATIONS

The Recommended Decision takes account of the requirements of the following Directives/Regulations:

Landfill Directive

The RD conditions have been specified in line with the Landfill Directive and with the principles of Best Available Techniques (BAT).

IPPC Directive

This installation falls within the scope of Category 5.4 (*Landfills receiving more than 10 tonnes per day or with a total capacity exceeding 25,000 tonnes, excluding landfills of inert waste*) of Annex I of Council Directive 2008/1/EC concerning integrated pollution prevention and control (codified version). The RD, as drafted, takes account of the requirements of the Directive, which was transposed into Irish law by the Protection of the Environment Act 2003. In particular, Condition 7 provides conditions dealing with water, energy and raw materials use, reduction and efficiency on-site. Condition 9 addresses accident prevention and emergency response, and Condition 10 provides for measures to be taken in the event of definitive cessation of the activity.

Water Framework Directive [2000/60/EC]

The conditions included in the RD have been developed to prevent any significant impact on water quality from the facility, and in particular surface water and groundwater quality. Substantial monitoring of water quality is required to detect any impact and to allow mitigation measures to be put in place as soon as possible.

European Communities Environmental Objectives (Surface Water) Regulations, S.I. No. 272 of 2009

An examination of available water quality data in the Corranure and Lismagratty Streams and the Cavan and Annalee Rivers shows general compliance with the environmental quality standards of the Regulations and no evidence of the landfill having an impact that causes the standards to be breached.

European Communities Environmental Objectives (Ground Water) Regulations, S.I. No. 9 of 2010

There are no emissions to groundwater permitted. Condition 5.8 of the RD requires the agreement of groundwater trigger levels.

EU Animal By-Products Regulation

The RD requires that the licensee demonstrate to the Agency that it has obtained all necessary permits from the Department of Agriculture, Fisheries and Food to operate a facility for the acceptance and treatment of animal by-products.

Environmental Liabilities Directive (2004/35/EC)

The facility is within scope of the Environmental Liability Directive. The existing licence (W0077-03) requires the preparation of an environmental liabilities risk assessment and making of financial provision against potential environmental liabilities. These measures will be carried forward into the new licence if granted (W0248-01). The RD generally imposes a preventive approach to environmental protection and requires that any environmental incidents (as defined in the RD) are reported to the Agency.

Habitats Directive (92/43/EC) & Birds Directive (79/409/EEC)

Several protected areas lie within 5km of Corranure landfill site. Water discharges are ultimately to the Cavan and Annalee Rivers which flow to the Erne River. Air emissions are to be controlled according to emission limit values. There are no permitted discharges to groundwater. The activity and its emissions are not predicted to negatively impact on protected sites.

12. CROSS OFFICE LIAISON

I have discussed the facility, its management and its relationship with neighbours with the OEE inspector for the facility Mr Kealan Reynolds. My colleague Ms Caroline Connell consulted with EPA chemist Ms Regina McGinn and inspector Ms Aoife Loughnane regarding water quality data and with Ms Rebecca Quinn regarding river flows.

13. BEST AVAILABLE TECHNIQUES (BAT)

I have examined and assessed the application documentation and I am satisfied that the site, technologies and techniques specified in the application and as confirmed, modified or specified in the attached Recommended Decision comply with the requirements and principles of BAT. I consider the technologies and techniques as described in the application, in this report, and in the RD, to be the most effective in achieving a high general level of protection of the environment having regard - as may be relevant - to the way the facility is located, designed, built, managed, maintained, operated and decommissioned.

14. ENVIRONMENTAL IMPACT STATEMENT

I have examined and assessed the EIS and having regard to the statutory responsibilities of the EPA, I am satisfied that it complies with Article 94 and Schedule 6 of the Planning and Development Regulations 2001 (SI 600 of 2001) and EPA Licensing Regulations (SI 85 of 1994, as amended).

15. COMPLIANCE RECORD

The Agency has had two successful district court prosecutions, in 2005 and 2007, against Cavan County Council in relation to breaches of the waste licence for Corranure Landfill. These licence breaches of 2005 included failure to install an active landfill gas collection and flaring system, inadequate management of leachate from the landfill and exceedance of allowable leachate levels. The offences pertaining to the 2007 prosecution included causing an odour nuisance in the immediate area of the facility, failing to provide and maintain leachate and surface water management infrastructure and failing to provide and maintain landfill gas infrastructure at the facility.

No prosecutions have been made with relation to Oxigen Environmental Ltd's activities at this facility by the Agency. A file has been submitted to the DPP for its consideration regarding the current operation and management of Corranure landfill.

Odour nuisance is the main issue highlighted by inspections, site visits and complaints received by the OEE. It has been noted that the number of odour complaints has dramatically decreased since the completion of the temporary capping of cell 3.

I have discussed with the OEE inspector for the facility the poor compliance of the facility with the existing licence and the apparent inability of the operators (both Cavan County Council and Oxigen Environmental Ltd) to control odour emissions and the reasonable expectation of neighbours that odours would be managed and eliminated.

16. FIT & PROPER PERSON ASSESSMENT

The legal, technical and financial standing of the applicant qualifies them to be considered fit and proper persons. Having said that, the poor history of compliance at the facility, and in particular the response to repeated odour complaints, has been linked to the failure of the applicant to retain an experienced landfill manager at the facility. The RD proposes that an experienced facility manager be appointed and that that person have a minimum of five years experience in acting as facility manager at a landfill facility of at least equal scale. The RD also proposes that both the landfill deputy manager and the biological treatment facility/materials recovery facility manager must have at least 2 years experience of acting in a similar role. As mentioned above, in correspondence dated 10th February 2009, the applicant stated that an experienced landfill manager and a landfill gas manager had been appointed. There is every reason to believe that competent and professional management will improve the poor history of operational practices at the landfill.

Oxigen Environmental Ltd was successfully prosecuted by the Agency on 9 December 2005 in relation to the dispatch of waste from a licensed facility (licence register number W0152-01) without the Agency's consent and for accepting more waste than the authorised amount. The court imposed fines for each of the offences.

Cavan County Council have an approved financial provision in place for the existing facility. Oxigen Environmental Ltd has stated that it had (as of year-end 31 March 2007) net assets of €40 million and states in the application that an Environmental Liabilities Risk Assessment (ELRA) will be carried out "prior to commencement of operation at the site". This is an unrealistic proposal given that Oxigen already operates the site. As an alternative, condition 12.3 of the RD proposes that an ELRA is prepared and appropriate financial provision made within one month of the date of grant of the licence. As an additional safeguard, my earlier recommendation (stated on page 3) proposes that development of the facility should not commence until such time as the applicant has taken ownership of the facility.

I note that the Oxigen group of companies employs in excess of 300 people¹ and operates 3 facilities licensed by the EPA (other than the facility the subject of this application) as well as a number of facilities authorised by local authorities.

17. COMPLAINTS

34 complaints were submitted to the EPA in 2010 up to and including July 2010. Some 33 of these complaints were in relation to odour. Ten incident notifications were logged in 2010; eight of these were in relation to odour detection.

Seven site visits were carried out in 2010 to date by OEE. Audits were completed in July and November 2009. In the July audit minor non-conformances were found. In the November audit five non-compliances were found in relation to facility management, waste inspections, working face and landfill cover, leachate monitoring and litter netting.

18. PROPOSED DECISION

I am satisfied that subject to compliance with the conditions of the Recommended Decision, the development and operation of the facility as proposed by the applicant will not cause environmental pollution. In saying this, I am conscious of the poor history of compliance of the licensee (Cavan County Council) and Oxigen Environmental Ltd as operator of the facility with respect to excessive and unacceptable odour emissions from the facility. I am satisfied that controls as proposed in the RD are sufficient to control and limit odour emissions. The proposed conditions are neither new (for the most part) nor onerous in the context of landfill licences generally – the one exception being condition 3.4.3 that proposes limiting the depth of waste in cell 4 to 15m. This is half the proposed depth for the cell and is likely to detrimentally affect the economic feasibility of the landfill. However I consider it necessary, in combination with the presence of the experienced management team now in place at the landfill, to provide the necessary assurance that excessive odour nuisance will be a thing of the past.

I recommend granting the licence as proposed.

19. SUBMISSIONS

There were 141 submissions made in relation to this application. An overview of the submissions received is provided below. This includes a summary of issues raised in the submissions and my response to those issues. It is not possible to present a detailed account of each and every submission and texts are selected below to illustrate the level of objection and concern regarding the facility amongst the local community. In some cases, comments are presented as observations, for example, on the quality of the application made. It is not always possible to respond to these observations.

Odour:

- The HSE has expressed concerns that the licence conditions should include robust verification systems to ensure that the gas collection & flaring system functions

¹ Source: www.oxigen.ie.

correctly, is maintained, and is effective in combusting the gases without giving rise to nuisance at dwellings even during undesirable atmospheric conditions.

Response: The operation of the gas flare and utilisation are controlled by licence conditions in the existing licence and the RD. As illustrated by the recent reduction in complaints at the facility, the major odour emission was from the operation of cell 3 and not the gas flare.

- A local resident has confirmed that the systems used for the collection of gases and elimination of nuisance odours have not functioned correctly in the past. They have stated that the conviction of Cavan County Council in the District Court and by many reports undertaken by the EPA that the present facility is not being run properly in the past or at present, and even if it were, it is questionable whether the smell and pollution could be eliminated. This resident feels the expansion of this facility can only lead to further major problems for local residents. It is felt that the smell from the current dump is at times unbearable and will make Cavan Town almost unliveable in if it gets any worse.

Response: It may be that the facility suffered from poor and inconsistent management. It proved difficult for some time for Oxigen to retain a manager at the facility. A new management team is reportedly now in place and the RD prohibits operation of the landfill and the biological treatment facility in the absence of an appropriately experienced manager.

Odour concerns have been extensively addressed in this report and in the RD. With experienced and competent management in place, allied with the licence conditions proposed in the RD, odour emissions should be substantially reduced.

I should clarify that this licence application does not deal with the expansion of the landfill facility itself. The only *new* elements proposed in this application are the biological treatment and materials recovery facilities. The operation of these facilities, and in particular the control of air emissions and odour from them, is addressed in this report and the RD.

The following bullet points illustrate the concerns raised in the submissions on the subject of odour. These examples are typical of the wide range of experiences told in the submissions.

- A resident has reported that there are different types of odours: gas type smell, a waste smell and fresher rotting waste type smell. This resident only discovered odour as an issue when they had moved into their newly built home in 2005 and has stated that hardly a day has gone by in the last three and a half years that they have not been affected by either the smell or the stress of the smell and the landfill. Residents have reported smelling the odour up to six miles away from the facility.
- A mother who lives two miles from the facility stated that she drives the car right up to the front door to ensure her children do not have to inhale the toxic fumes when making their way from the car to the house or *vice versa*.
- One local resident who lives one mile from the facility feels she is plagued with the obnoxious smells from the facility. She gets the smells at home and on her drive to work she has to cover her nose passing the dump, on reaching her office in the Cavan town centre she can also smell the odour from the facility. She feels she will be left with no alternative but to move house but feels she will be unable to sell her home as nobody would want to buy it.

- Other residents (including elderly residents) have described incidences of having to escape the smell by leaving the home as the odour is present both inside and out. One resident detailed how when he first moved to their home he got a plumber in as he had presumed he had a leak due to the rotting smell. He engaged a local plumber and tiles were removed, floorboards taken up, sinks were taken from the walls in the bathroom. But at the end of this process the plumber confirmed that the smell was coming from the landfill and not the house itself.
- One person whom is not a local resident but who travels past the facility daily reported that the smell lingers in the car and on your clothes from just passing the facility.
- A newspaper article titled “*Worst weekend ever*” with smell from Corranure’ featured in The Anglo-Celt on 12th November 2009 was attached as part of one submission in order to highlight the odour issue caused by this facility.
- National school children have sent in submissions with their parents stating that they do not like the smell, the smell outside, the smell on their clothes and have expressed concern regarding the smell they will get at school if the facility goes ahead. Other residents have reported the odour being unbearable in local secondary schools.
- A member of the local football club, which is situated c. 2miles from the facility, stated that the odours are extremely unhealthy, that it hinders his exercise as a result, he feels there is no escape from the odour and it is difficult to run on his local roads due to the unhealthy air that is present.
- Concern has been expressed regarding the additional odour that may arise from the proposed MBT plant.

Response: In relation to this last point, the conditions proposed in the RD will control the potential for odour emissions from the biological treatment and materials recovery facilities.

Management and operation of the facility

- Concern has been raised that Oxigen are not following the guidelines and directions from the EPA in the running of the landfill. Little has been done to solve the issue and as a result noxious, oppressive and repulsive odours have been reported as being an issue for local residents on a regular basis for c. 26 years. One elderly resident stated “...*a breath of fresh air would be wonderful*” and another resident reported that odours have been an issue for many years and that to this day the problem has not been fully resolved. This resident also stated that the Council have claimed that the problem has been resolved but the same smells have materialised in a new landfill cell operated by Oxigen. Oxigen have been reported to have also promised an end to odour issues. It has been noted that noxious odour emanates from this facility and continues despite promises from Oxigen that the problems are being rectified. Residents feel the situation has become progressively worse over the last 10 years and especially bad in the last three years and it is reported that the odours are extremely bad on the bypass when travelling to Butlers Bridge. One resident report the odour around their house, which is less than a mile from the facility, is occasional and is getting more and more frequent in the last 12 months. Residents feel that the situation is demoralising and embarrassing and wonder what will life be like if the additional facility is granted. It has been stressed that people are talking about their homes where

they had hoped to spend the rest of their lives and should not have to put up with this burden and suffering. They feel the only option is to leave the area but feel they should not have to consider moving from the place where they have grown up, spent most of their lives and are raising families.

Response: As stated above, the problem with management at the facility is acknowledged. It is not acceptable that a facility of this nature should be operated without full-time competent management. The RD addresses this issue by setting down criteria on the employment of a facility manager, a deputy manager or managers and managers for the biological treatment and materials recovery facilities.

Regarding the planned operation of cell 4, the applicant's submission to the Office of Environmental Enforcement was considered in preparing this report and the RD. Condition 3.4.3 of the RD recommends a major restriction in the allowable depth of waste in the landfill (to 15m), the purpose of which is to ensure that waste can be capped and sealed earlier than if allowed to fill to a depth of over 30m.

- It has been reported that a few years ago the mound beside the road was stripped and then covered. The rubbish has been reported to not having rotted away and is still smelling years after being dumped there. The question has been raised as to the length of time it will take this rubbish to rot away.

Response: It is a fact that waste will decompose in a landfill over years and decades generating landfill gas and leachate that will require long-term management.

- "Cavan Better Waste Management"¹ are totally opposed to the granting of a licence for the development of these lands as an extension or addition to the landfill facility currently operated on the site and have requested that the Agency refuse a licence for this proposal and put a stop to the further expansion of the existing facility, which is a danger to the health of the community. They have stated that the airborne odour has a constant presence in one form or another in a five km radius and that the odour is particularly bad during cold, clear weather, but can flare up at any time. It has been noted by many residents in the area, as being worse at weekends than during the week which they feel is of particular annoyance as this implies that at times when the staff from the local authority, the operator or the EPA are not available regulation is flouted and the position is worse than at times when inspection officers are not available.

Response: The issue of the landfill being a danger to the health of the community is dealt with further below. Regarding weekend operation of the facility, failures on the gas flare and other key equipment is linked to an alarm that will send a message to the site manager or a nominated person on-call. Any weekend calls to the EPA will be logged and can be actioned as an emergency if necessary.

- Oxigen's licence breaches have been reported to include: sending waste off site to facilities without EPA's consent, accepting more waste than the permitted amount, improper waste management practices and failure to maintain a written record of all waste loads being accepted at the facility. The facility was temporarily closed in

¹ O'Daly Architects made a submission on behalf of "Cavan Better Waste Management" which is an organisation formed by people who live in the vicinity of the Corranure landfill facility. The group includes people from the town of Cavan, the outlying villages of Ballyhaise, Butlersbridge and the surrounding hinterland stretching as far as Crossdoney village on the west side of Cavan town and Stradone village to the east. The group is also supported by a large number of people from County Cavan.

December 2008 due to a number of non-compliances on site inspection reports. It is felt that their repeated breaches of regulations show contempt for the law and gives one an indication of their future behaviour if they are to be granted a licence. It is felt that any promises made by Oxigen will be broken once the spotlight goes off them as in the long run they are in the business of making profit and if they can save money by cutting back on staff they will do to the detriment of the local area.

- Clarification has been requested as to why the Agency would consider an application by Oxigen to vastly expand their operations in spite of continual blatant breaches by Oxigen of its landfill licence e.g. the placement of waste into the “non-operational” cell 3A at the site. It has also been highlighted that prosecutions have also been executed as a result of these licence breaches. The question has also been asked as to what other breaches exist that are not in the public domain?

Response: It is a fact that Oxigen Environmental Ltd has not been prosecuted by the Agency in relation to the operation of the facility. The two prosecutions to date have been successfully taken against the licensee, Cavan County Council. Notwithstanding this fact, Oxigen have demonstrated poor compliance in their ability to manage the facility in accordance with the licence and in the avoidance of odour. This is exemplified by the fact that odour complaints were received up to the point that cell 3 was filled and temporarily capped. The two issues raised herein have been addressed above: namely the appointment of experienced management and the new licence conditions to reduce the potential for odour emissions and complaints with the operation of cell 4.

- One submission stated that there is no check on the lorries waiting for the facility to open in the mornings to check if what they are carrying is unacceptable.

Response: The waste acceptance criteria set out in the RD require the checking of every waste load accepted at the facility to ensure it is compatible with the licence. Any rejected load is to be diverted to the quarantine area for disposal or recovery at an alternative facility and the Agency notified.

- EPA Inspections of the facility:
 - “Cavan Better Waste Management” feel that the follow up actions given by the EPA in recent reports (2008) stating “*the licensee shall take the actions required to close out the non compliances and observations raised in the site inspection report. These actions will be verified during subsequent inspections...*”, were an inadequate response to the difficulties affecting the lives of all families in the local vicinity and indeed the air quality in Cavan town and the surrounding rural areas. They wish to urge the Agency to refuse this licence application and to show increased diligence in their inspections of the present facility, to ensure that it is properly run during its closing phases and during maintenance and aftercare of the facility. They feel this is the only way that the lives of the local residents can be returned to what can be considered as normal living conditions.

Response: While the concerns of the residents are recognised, the Office of Environmental Enforcement (OEE) has invested considerable time and energy in the enforcement of the landfill licence. The facility is a high priority for enforcement and will continue to be so. The new licence provides several new conditions that will strengthen the OEE’s hand in its regulation of the facility.

- “Cavan Better Waste Management” are in support of a licence being granted for the maintenance and aftercare of the closed section of the landfill, which will be the responsibility of Cavan County Council, but would like to emphasise the need for monitoring of this facility over the coming years and that the proper handling of leachate occurs. They would like the Agency to ensure both the active and closed sections of the site are monitoring and that and both Cavan County council and Oxigen Environmental Ltd. can be held separately accountable for any issues that may occur.

Response: The question of mutual and exclusive liability are addressed in the RD and also in the RD proposed for Cavan County Council for the closed landfill (licence register number W0077-04). Monitoring of the closed landfill will continue under that licence. Monitoring at the active facility is extensive and will continue for many years to come.

- An Taisce reported that they had received information from Cavan Better Waste Management Committee (CBWMC). The information furnished to an Taisce stated that the change in ownership did not result in an improvement of the operation of the landfill and the generation of ‘obnoxious odours’. An Taisce wished to advise that they would write separately to the Office of Environmental Enforcement on this matter; however, they felt the compliance history of any applicant needs to be addressed as a preliminary matter when considering a Waste Licence application.

Response: The compliance history of the site operator is recognised. It is proposed in the RD that competent and professional management at facility level, combined with licence conditions controlling activities in cell 4, can address many of the concerns from past operations.

Other submissions have raised similar issues regarding management of the facility and compliance with the licence.

- One resident has stated that he considers the way that this facility has been run and is being run is a crime of a serious nature but that there doesn’t seem to be any answerability in this instance. Another resident feels that Oxigen have shown a complete disregard for people in the area by breaking many rules. It has been said that private citizens might not be offered so many chances to put their house in order, especially where public health is concerned. One submission stated that the EPA should show that it is an independent agency and not a political football in favour of big business and to act for the people it has been set up to protect. The question has been asked; are the EPA and Cavan County Council not supposed to protect residents from these illegal practices? It is felt that things will not improve with the granting of a licence and it has been questioned whether the EPA is a “toothless regulator”. How could the EPA consider *approving/supporting permission for this mess to be expanded, when they have proved to be completely and utterly incompetent on so many levels.*
- One resident reported the following after an odour complaint was made to Oxigen management:

The manager at the landfill told me that I was the only person to complain (at approx 10 am) and actually asked me if I was aware that gases had to be drilled out of landfill and that it would be sorted out in a few days! He stated that he was dealing with the situation by drilling these gases but that they had no idea how much gas there would be or how long it would take them - and he was going home at 1 o'clock. I reminded him that a previous manager had said something similar to me this time

last year, when we actually cancelled a family gathering as we could not invite guests to such a noxious environment.

This resident has questioned, amongst other things:

- What is the EPA's position on the rather unusual arrangements - poacher/gamekeeper between the Council and Oxigen?

Response: In relation to this latter point, the EPA is concerned with ensuring that no environmental pollution is caused by activities at the facility. If the facility is operated as recommended in the RD, there will be no environmental pollution.

Health Impacts

- Odour issues have in turn lead to concern for the health of local residents as it is unknown what serious health risks may be present for this generation or generations to come due to the continuous unbearable exposure and inhalation of gases (including increased levels of methane and odourless gases), chemicals which originate from the landfill and the consequences of failed leachate containment measures (if this situation occurs). The facility has been described as a social hazard. Some local residents have been living on the doorstep of this facility for most of their lives and have always raised the health issues as a point of concern and find the whole situation extremely upsetting. Specifically one local resident queried the possible health risks of inhaling these toxic gases. Residents and families have reported feeling sick, being sick, feeling nauseous, suffered headaches, not being able to sleep, waking up frequently when asleep, irritability, stress, depression and serious throat infections from the odour emanating from the facility. It has been reported that children have had to come inside at school due to feeling sick, the smell is often so severe and offensive. Another resident reported to feel sick while training on the local GAA pitch from the foul smell.
- Asthma has been reported to be greatly aggravated by the gas and one resident reported that when she moves out of the area for the summer months her asthma condition improves 100%. One local resident stated that his 18 month old child who suffers from asthma is subjected to the odours from the landfill and that his asthma is particularly bad at night often when the smell from the landfill is at its worst. Other residents have reported concern for their grandchildren/children due to their allergies and asthma and their close proximity to the landfill.
- One resident has reported a large "pocket" of people getting cancer in Ballyhaise, 5km from the facility, many whom have died. *"I myself was pregnant in 2001 but developed trophoblastics disease and ended up on chemotherapy for four months. The pregnancy was terminated and I was very sick for a year afterwards. Nobody knows why this disease occurs or what causes it, but like many people in this area who have been sick, I wonder about the landfill site..."* Five other residents stated that there are a large number of cancer victims in this area as well as a large number of children suffering from breathing problems. One of these residents has reported that *"in a stretch of 17 houses some 12 residences have cancer, had cancer and survived, and died from cancer"*. Residents feel that there was an increased risk of other diseases also.
- One resident stated numerous studies have been conducted into the effects of people living within close proximity to landfill sites and that these studies show a low birth

weight and small size among children. It is felt that these issues cannot be ignored considered the landfill is a very short distance to Cavan town, a large residential area.

- In its submission, the HSE expresses concern at the lack of specific information on the proposed biological treatment facility and its inability to properly evaluate the proposal or the possible public health hazards associated with it. The HSE goes on to say, in relation to the remaining activities at the facility: “The remaining activities if subject to the existing licence conditions, to best practice, and to the normal environmental controls in relation to the new activities should not present an unacceptable hazard.”

Response: The emission limit values and controls expressed in the RD are set with a view to preventing environmental pollution. Environmental pollution is defined in the Waste Management Acts 1996 to 2010 as, “in relation to waste, the holding, transport, recovery or disposal of waste in a manner which would endanger human health or harm the environment, and in particular –

- (a) create a risk to waters, the atmosphere, land, soil, plants or animals,
- (b) create a nuisance through noise, odours or litter, or
- (c) adversely affect the countryside of places of special interest.”

The Agency cannot licence a facility unless “it is satisfied that the activity concerned, carried on in accordance with such conditions as may be attached to the licence, will not cause environmental pollution.” In recommending the granting of the licence, I am satisfied that environmental pollution will not be caused if the conditions of the licence are complied with. In granting a licence, the Agency will be satisfied that neither environmental pollution nor endangerment of human health will result if the conditions of the licence are complied with.

Regarding the HSE’s concerns, I am satisfied that the proposed activity, which is not dissimilar to any number of other biological treatment facilities, will not cause environmental pollution if the licence conditions are complied with. The applicant has proposed a fully indoor operation with no external waste handling. All air from within the building and the composting and anaerobic digestion vessels will be treated prior to emission. Barring poor management of the facility or breakdown of equipment (and 100% redundancy is to be built into the biofilter system), the risk of odour emissions are low.

Loss of Amenity:

- It has been reported in numerous submissions that the quality of local residents lifestyle has also been affected. Outdoor activities are curtailed. Visitors are put off. Clothes cannot be dried outside. Dogs cannot be walked. Windows have to be closed. Even indoors, the odour gets in and there is no respite. Fruit and vegetables grown in the garden cannot be eaten. Christmas 2007 and 2008 are reported as very bad periods for odour.
- One resident has stated that walks cannot be enjoyed along the main road due to the volume of lorries going to the landfill.

Response: The odour issues are addressed above in this section of the report. Regarding walking on the R188, I recognise that large trucks can be unnerving when passing in close proximity. However the provision of safe walking routes for pedestrians is a matter for the local authority.

Decreased Property value:

- One local resident stated they had spoken to the EPA prior to purchasing their property in May 2004 and the Agency reassured them that Corranure landfill was not a cause for concern. Following purchasing this property they became aware of the odour issues and have concern regarding the value of their home. A couple of local residents have been trying to sell a house one mile from the landfill, one resident had no success over a two year period and the other could not get a reasonable offer. A resident has also expressed concern that Cavan County Council have granted 2,000 planning permissions in a 2km radius of the facility. The submissions tell a number of stories of inability to sell houses in the area.
- Cavan Better Waste Management and other local residents have requested that the Agency refuse a licence for this proposal and put a stop to the further expansion of the existing facility, which is a cause of loss of value to property and land in the area. It is felt by local residents that they should be able to have an expectation of a reasonable open market value. The local residents had understood that the facility would be completely closed by 2016 and they feel that it should be placed in a more remote area where it would not affect an entire town and outlying villages. They feel that if this licence is granted that their homes will be devalued even further. It is felt that there is no other option but to relocate and one resident has stated that this will cause financial hardship and as such may have to take legal action to be compensated for the devaluation of their home plus the cost of relocation. Many families have left the area already as a result of the mismanagement of the landfill facility; this is a loss of friends and neighbours of those families who remain in the area.

Response: While the matter of house prices is not a matter for the EPA to comment on, the expectation for a clean environment and the ability to buy and sell property without fear of disamenity or decreasing value is reasonable. As stated above, the conditions in the RD, if complied with, will ensure that no environmental pollution will be caused and the risk of further odour emissions low.

Groundwater:

- In their submission, the HSE requested:
 - Early notification of exceedences in the results of monitoring of ground water at wells in use by dwellings which have been included in the licence sampling schedule.
 - If scheduled sampling of groundwater from a well servicing an existing dwelling has been found to have exceeded key parameters, this location should be tested for a full range of chemical parameters.
 - The identification of ‘zone of contamination’ if groundwater contamination has occurred in the wider area surrounding the landfill site, and the notification of any residents using this groundwater as a supply source.
- “Cavan Better Waste Management” have stated that it is evident that there has been escape of leachate in the past and tests on the present facility show moderate to severe contamination downstream of the facility and question whether this is to get worse if the facility is to be expanded.

Response: The first two bullet points for the HSE are addressed in *Schedule C.7 Groundwater Monitoring* of the licence. Regarding the third point, notification of residents of contamination incidents where there is a risk to public health should be handled and led by the HSE. It may be that the landfill and associated activities are not the cause of contamination of private wells. *Schedule C.7* provides for assistance and information to be provided to the HSE in its follow up of any detected contamination.

Other submissions mention pollution and concerns with wells used for domestic purposes and drinking water. In one instance a well became polluted and dried up. There is an unlined landfill at the facility and this could well have been the source of historic contamination. However remedial works have been carried out at that landfill to minimise leachate escape. In any event, the management of the ongoing pollution risk from that site is not within the scope of this licence. Other reports and data provided in the application show the site to be underlain with deep layers of low permeability soil. The vulnerability of groundwater in the area is stated to be low.

Surface Water:

Residents feel that all watercourses and drains from this facility are polluted and are concerned on the further possible effects on local surface waters. One resident has reported that the local watercourses have not sustained aquatic life since the facility opened. It is felt that Oxigen have been in breach of their licence conditions on many occasions because of discharges from the landfill to surface water.

One resident stated that Councillors were terribly embarrassed by causing a fish kill in 2008 but show no signs of embarrassment concerning the residents who have no option but to suffer the consequences of bad management and wrong decisions.

Response: Data examined for this report shows that water quality in the vicinity of the landfill and in the rivers in whose catchment the landfill lies is moderate to poor. The data does not conclusively point to the landfill as the source of pollution in surface waters. In the local Corranure and Lismagratty streams, poor water quality is evident upstream and downstream of the landfill. There are instances of water quality disimproving further downstream from the landfill than closer to the landfill. In the main rivers fed by these streams, Cavan River and Annalee River, the water quality is not impacted by the confluence of these streams but by other activities such as the discharge of treated sewage and other upstream influences.

The sole discharge to the local streams is surface run-off. The run-off of entrained contaminants is currently controlled and will continue to be controlled by silt traps and oil/water separators. Emission limit values of 35mg/l for suspended solids and 0.14mg/l for ammonia are proposed for surface water run-off from the facility.

Biological and Mechanical Treatment Facilities

- Residents have expressed concern of the competence of Oxigen to run and manage the new technology MBT when they are unable to run a landfill site effectively and the possible gas outputs and subsequent health risks associated with this technology. Residents feel that the proposed facility is the first of its kind in the Republic of Ireland and questions why a licence would be given to a company with no experience in this area and when they cannot operate the existing landfill facility.

Response: The conditions of the licence require competent and experienced management to be in place if the biological treatment facility is to operate. It is not correct to state that the proposed facility is the first of its kind. There are a number of composting facilities in operation and authorised by the Agency and local authorities. There are also a number of anaerobic digesters operating and authorised. To my knowledge this is the first anaerobic digester for solid municipal waste to be authorised by the Agency. However, if competently run, an anaerobic digester will not cause odour emissions. In any event, the activity will be contained and any biogas recovered from the process will be burned as a fuel or flared off to avoid odour and greenhouse gas emissions. The operation of mechanical treatment technologies is well established with several operators, including local authorities, in the market.

- The need for brown bin waste collection has been questioned as this resident has been successful in dealing with home organic waste in a waste disposal unit for the last three years significantly reducing the amount of waste being sent for landfill from the home. This resident feels it would be much more effective to deal with waste at its source.

Response: Government and EPA policy is to promote home composting where possible. However not all householders have the inclination or space to compost. Mass roll-out of a brown bin service is the best option for ensuring the greatest amount of organic waste diversion from landfill with consequent reductions in landfill gas and greenhouse gas generation.

- It has been noted that the licence application details the acceptance of 5,000 tonnes of sewage sludge per annum and sufficient information has not been given on how this is to be dealt with in the application.

Response: The RD proposes allowing the acceptance of treated sewage sludge to the biological treatment process. No sludge will be landfilled and no raw sewage sludge will be accepted at the facility.

- It is felt that this facility is an unsuitable site for landfill and a MBT plant.

Response: The existing landfill and civic amenity site has planning permission. An Bord Pleanála will decide in due course, if and when requested by Oxigen Environmental Ltd, whether the site is suitable for an MBT plant.

- It has been reported that MBT in itself does not result in the final treatment of waste. It is still unproven how to deal with the residue produced. The compost residue from MBT may still contain harmful chemicals. The recent pork dioxin scare has highlighted this issue even further. MBT cannot get rid of PCB's. The EU has already warned that the use of the compost residue from MBT could lead to an accumulation of hazardous substances in soil.
- MBT also gives rise to issues about control of air emissions and leachate. To establish-MBT in an Irish context should involve developing guidance for the management of outputs, developing a standard to measure how biodegradable different types of waste are and developing mechanisms to assess the performance of MBT.
- It has been noted that the MBT plant will require expert management by qualified people and Oxigen have not demonstrated that they have identified whether these resources will be available or can be attracted to the area.

Response: MBT is an interim treatment solution that typically delivers recyclable materials (paper, metal etc.) and residues. The proportion of residues leftover is a factor of the level of sophistication of the treatment process and on the availability of outlets for the outputs. The outputs from MBT will contain no more contaminants than was contained in the feedstock and this depends on what householders and commercial operators put into their bins. As a non-hazardous waste facility, there should be no chemical contamination (such as PCBs) of concern in the waste. Residues from MBT would not typically be landspread as there remains a risk of inorganic material in the stabilised biowaste. The spreading of good quality compost (as defined in the RD) on the other hand is an accepted process and is controlled. Regarding biological controls, the Department of Agriculture, Fisheries and Food will dictate the operating controls necessary to contain the risk of animal disease from animal by-products.

The risk of air emissions and leachate from the proposed facility is low due to the level of containment proposed by the applicant and the RD. Air emissions control by biofilters (with 100% standby capacity) will ensure no air pollution will occur. Any leachate generated within the process or from delivered waste will be collected for treatment.

Regarding management of outputs, there is an active market in recycled and recyclable materials that the licensee will tap into. Without this market, the facility will not be viable and will not operate commercially.

The RD proposes controls on the level of experience necessary in the manager(s) of the biological and mechanical treatment facilities.

Proximity to a Designated Site

- The DoEHLG noted that the proposed development is situated in the catchment of Lough Oughter and Associated Loughs SAC (Site Code: 000007). It has been recommended that EPA guidelines and standards should apply.

Response: As stated in this report, it is not expected that the activity will have a negative impact on the SAC in question.

Ecological Impact

“Cavan Better Waste Management” have stated that in the opinion of the local community the impacts on flora and fauna in the immediate vicinity of the facility have not been properly assessed and they call on the EPA to conduct a proper assessment before valuable flora and fauna are lost.

Response: The EIS concludes that:

- None of the habitats recorded are of high conservation value.
- The site is not included in any designated area does not contain habitats or species listed as of special interest by the EU Habitats Directive (92/43/EEC) or by the Birds Directive (79/409/EEC).
- There are no plants included in the Flora Protection Order 1999 though most of the bird species have general protection under the Wildlife Act 1976.
- The proposed development will not have any significant impact on the existing fauna.

Scale of Operations

- Local residents feel that the facility has already expanded at an alarming rate and have expressed concern that Oxigen are seeking to transform and vastly expand the site into one of if not the largest facilities for disposal of landfill and treatment of biological waste in Ireland. They feel that the expansion of the facility can only lead to a worsening of the situation and increased unbearable suffering for local people. One resident stated that the thoughts of the facility expanding are nothing less than terrifying to many residents in the area. The facility has been described as a *monstrosity, super dump, pit hole* and a *monster*. One resident has suggested that the people of Cavan would rather pay towards moving the site to a more suitable location than pay for its expansion in terms of health difficulties in the future.

Response: The landfill at Corranure, in terms of annual intake, is large but not the largest in the State. Cell 4 is modest in size and will fill quickly at the maximum licensed intake. The total tonnage of waste proposed for the facility (landfill plus biological and mechanical treatment facilities) is certainly large. However the controls proposed in the RD are adequate for the protection of the local environment.

- Residents question why this area should be a dumping ground for half the country, why waste from other counties cannot be landfilled in these counties and why there is not any Health and Safety Laws to protect the people in the surrounding areas from this enforced situation. It has been questioned that if large areas of Dublin city can dump their rubbish on a place like Cavan how will those people ever learn the benefits of recycling and being environmentally aware. Another resident feels there is not enough of a demand in the area to dispose of the large amount of organic waste that is needed for the scale of the plant that they propose to build which indicates that they will be transporting waste material from the Dublin area and it therefore seems that the only thought Oxigen has put into this site location is from a business point of view as it's cheaper to purchase a site in the Cavan area than it is in the Dublin area where the facility needs to be built.
- It has been stated that large scale plants such as the one proposed draw in waste from a wide area, contradicting the proximity principle that waste management sites should be located so as to reduce the distance the waste is transported.

Response: County Cavan is in the North East Region in terms of waste management. The facility at Corranure is part of the greater infrastructure proposed for the region by the participating local authorities. Oxigen Environmental Ltd operate waste collection services throughout the north-east and in Dublin. The movement of waste in Ireland, sometimes over long distances, is now predominantly a commercial matter. Private operators and local authorities alike compete for business in filling their landfills and feeding treatment facilities. National policy has been to create the regional waste management planning structure but also to ensure that inter-regional boundaries do not become a barrier to best practice in waste management. It is indeed a good question as to whether it's better to handle waste locally or to transport it some distance (and the influence this has on the householder who sees their waste 'disappear' from the doorstep), however it is a question beyond the scope of this licence application to consider. The Minister for the Environment, Heritage and Local Government recently issued a draft new policy on waste management that looks forward to the future of waste management in Ireland and the respective role of the State and private enterprise therein.

- Residents have stated that *the design of the proposed recycling sheds are of an extremely large scale and given the proposed height for these structures 18m (c. 59feet), they will be out of character with their surroundings and will be visually obtrusive from the public road and surroundings.*

Response: This is a matter for the planning authority.

Proximity to Cavan town & Rezoning of Land:

- Local residents have questioned why a local authority would allow waste to be continued to be disposed of by landfill on the doorstep of the principal town of the county. It has been stated that the facility has a huge adverse effect on the whole area and is inappropriately positioned as it is in close proximity to the County town, two villages, housing estates, many rural houses (a number of family homes are located within 500m of the facility), agricultural farms, hospitals, nursing homes, crèches, businesses, three secondary schools, Cavan College of Further Studies and five national schools. It has been highlighted that the facility is on a major approach road to the county town in a prime location. It has been stated that the land should be rezoned as agricultural and the facility placed in a remote area where it will not impact on a local population.
- “Cavan Better Waste Management” and other local residents feel that the facility is incorrectly positioned and should not be expanded at this location.

Response: These are not matters to be addressed by the Agency in this licence application. They are matters for the local and planning authorities.

Leachate

- “Cavan Better Waste Management” and other local residents do not feel that the practice of piping leachate from the facility to a gathering tank nearer the town and then conveying it by tanker (one resident reported these tankers to be normal slurry tankers) to the public sewer is an appropriate measure for a facility of this nature and it is contended that this type of operation is contrary to good health practice and is a disaster waiting to happen. Residents have raised concern regarding possible leaks during transit and the possible serious health risks to local residents if this should occur. They also query the nature of the leachate and whether it is appropriate that it should be processed at a town sewerage treatment plant which is most likely only designed to treat normal sewerage and not concentrate leachate. Fears on the risk of pollution of local watercourses have been expressed as both the Corranure and Lismagratty streams which flow from the area of the landfill have been shown to be severely and moderately polluted at various locations in repeated testing.

Response: Cavan County Council has consented in accordance with section 52 of the Waste Management Acts 1996 to 2010 to accept leachate at the treatment plant, subject to conditions. Leachate is transferred by rising main to the sewer. The applicant stated that an odour suppressant is dosed into the leachate upon entry to the sewer. Tankering of leachate will only be carried out in the event of the sewer outlet not being available.

- In one submission it was stated that *the area adjacent to my land is causing storm water to join with leachate and flood onto my land due to the drains being closed and inadequate pipes replacing them.* A map was submitted in this instance detailing

where the leachate is building up and it has been reported that this leachate is permeating the water table. Another submission reported that the raising of the level of the landfill over this residents holding blocked the drain due to the subsidence with the weight of product, creating a sump on these lands which frequently fill with leachate poisonous to animals on this resident's farm and has turned a portion of this property into a wasteland. A map was submitted intending to highlight the resident's property which may be adversely affected by the extension.

Response: This is a matter for investigation by the Office of Environmental Enforcement. Any leakage of leachate of this nature should not be permitted to happen. The RD recommends 100% duty standby of leachate pumps in the cells to ensure that leachate does not build up in the event of a pump failure.

Residents' Communication with the local authority and EPA:

- A local resident feels that not one of the local resident's wishes or anxieties were addressed by Cavan County Council prior to their decision to hand over operations to Oxigen and that the local authority is effectively "steam-rolling" over local alarm about Oxigen's plans and their unwavering support from the Council in their plans. Residents feel that the County Council seem willing to overlook the frequent licence breaches taking place. This resident also feels that the local government is out of touch and does not represent the will of the townsfolk and that a growing and increasingly frustrated view held by local residents who are left without any recourse by some key public representatives to prevent the expansion by Oxigen, notwithstanding that the site at Corranure should have been decommissioned many years ago in the interest of public health for the residents of Cavan town. Residents feel that by expanding the zoned area around the facility that the County Council have contravened the very principles on which their own development plan is based.
- One local resident stated that the facility took a dramatic turn for the worse approximately 10 years ago when the then Cavan County Manager informed the local media that the area was getting a "*a windfall for Cavan*" with rubbish coming to the facility from Fingal Council and that the revenue would be of great benefit to the area. He stated that he had complained about the stench to Cavan County Council and was made numerous promises that the problem would be resolved in weeks/months; however, all promises proved to be false.
- Local residents stated that prior to their knowledge of Oxigen applying for a waste licence that the County Council had given them assurance that the facility would be closed by 2016. They feel that with the facility in private ownership what chance have they got, that they are a small voice against the system and that a line needs to be drawn in the sand.

Response: Decisions and consultations (or lack thereof) made by Cavan County Council are beyond the scope of this report. Regarding closure of the facility by 2016, it would appear unlikely that cell 4 will operate for more than 2.5 to 3 years. There is no further landfilling authorised at the facility and no application before the Agency for such authorisation. The biological treatment and materials recovery facilities will be longer term investments that have the potential to improve recycling rates in the north-east (and beyond) for many years. However, as stated above, it is not expected that the operation of the facilities will cause environmental pollution or local nuisance such as dust and odour.

Local Petition

“Cavan Better Waste Management” has submitted a petition which has been signed by 2090 people calling for the closure of the current landfill facility at Corranure. The petition includes the following:

- current experience has shown that the operation and expansion of landfill facilities is not sustainable and leads to the pollution of ground water, production of noxious gas and poses a significant threat both to human health and eco-systems;
- the proposed expansion of the Corranure Landfill facilities is contrary to the principles set down by the EU in that it provides for expansion of landfill at a time when the European Community are endeavouring to eliminate such facilities and cease land filling of waste by 2016
- the present landfill facility is badly managed and badly run as demonstrated by Court Convictions and more recently by the EPA reports showing that the facility in question is a public nuisance and a danger to the population surrounding the facility
- data on the existing levels of pollution of the streams in the immediate vicinity of the facility and odours experienced in surveys of the surrounding areas are beyond that which can be tolerated.

It has been requested that the Agency should move to ensure the orderly closure of the present facility and the proper aftercare and maintenance of the closed facility so that it no longer adversely impacts on the local community. In the event that the decision of the Agency does not accord with the interests of the community, “Cavan Better Waste Management” reserves the right to object to the decision and call for an **oral hearing** on the matter.

Response: On the four bullet points: (1) landfill is indeed the least favourable method of managing waste. This is why it is important to develop large scale recycling facilities that will divert more waste away from landfill. It is particularly important to divert biodegradable waste from landfill to avoid emission of landfill gas and the potential for odour nuisance. By 2016, Irish landfills will be accepting no more than 15% of their intake as biodegradable waste. This is considerable progress compared to the approximately 65% currently accepted.

(2) There is no application before the Agency for the expansion of the landfill. The only new element in the current application is for the biological and mechanical treatment facilities.

(3) This point has been addressed earlier in this report. It is proposed in the RD that operation of the facility without experienced management in place will be prohibited.

(4) As addressed above in this report, water quality is poor in water courses in the vicinity of the facility. However it is not conclusive that all (or how much) of the contamination is caused by the landfill. It has been concluded that other sources are also influencing water quality.

Infrastructure/Traffic

Cavan Better Waste Management and other local residents feel the road serving the facility was not designed to accommodate present-day large refuse trucks and would question the number of trucks which would be necessary to bring the large tonnage proposed to the new facility and whether the road is suitable and safe for such use. It has been reported that from

6:00am in the morning lorries are queuing up (sometimes ten lorries in a line) on a dangerous corner of a busy road. It is reported that the existing Cootehill road leading to the landfill is presented in poor condition and barely able to cope with existing traffic. Sections of the road are subsiding and there is an increased level of dirt, rubbish and grease evident on the road surface and verges. It is felt that this is directly related to the heavy volumes of landfill trucks using the road. This road also gets flooded and gets constantly covered in mud making it very dangerous.

Response: The question of traffic impact and road capacity/quality will be addressed in due course by the planning authority. Condition 1.9 of the RD proposes the prohibition on the queuing of trucks outside the facility on the public road. All trucks leaving the site are required to use the wheelwash to ensure no mud or dirt is taken from the site onto the public road.

Proximity to a Site of Historical Significance

Residents have reported that the proposed facility is located in close proximity to a number of historical forts. It has been reported that previous excavations (to facilitate the landfill) have been carried out in close proximity to one of these historical forts (located some 60m north east of the proposed development) and that this structure, Lismagratty ring fort, has been reported to be in serious danger, given that previous damage has occurred to the grounds surrounding it as it is in such close proximity to the facility. It was also reported that this fort dates back to c.500 – 1000AD and it is vital that this fort and its surroundings be protected for future generations. It has been reported to have been noted in the Ellen O'Carroll Archaeological Report that the excavated area associated with the extraction of cover material for the landfill site is currently right up to the corner of the south western edge of the ring fort.

Shantemon Mountain is situated close to the facility and historical monuments are located on top of the mountain called the Shantemon Stone Row also known as Finn MacCool's Fingers which is thought to be one of the oldest megalithic monuments in the country. This is a scenic area and a path has been made up the mountain to the monument. One resident reported that she brought her children up to these monuments in the summer of 2008 and that the outing was ruined by the stench from the landfill. Another resident felt that this monument could be developed as a tourist attraction for the town were it not for the close proximity of the facility.

Response: Condition 6.28 proposes that archaeological monitoring be carried out on any undisturbed area prior to development and that a buffer zone is maintained from the Lismagratty ringfort to ensure its preservation and conservation.

Pests and litter

Local residents have highlighted that rats are an issue and a local resident has reported dozens of rats being killed on the road and infestations of gulls and crows. It has also been reported that residents have to have their homes sprayed against the infestations of flies, blue bottles; however, this measure can only be used indoors.

Rubbish is reported to have been littered on the road, in the hedges and on lands around the landfill. One submission also detailed that pieces of rubbish are falling off the vehicles carrying rubbish to the facility and scattering over the road.

Response: Condition 6.29 requires daily monitoring for nuisances caused by vermin, flies and birds (as well as litter, mud, dust and odour). Condition 5.4 generally required the licensee to take a preventive approach in the management of nuisances caused by pests. Regarding litter, condition 6.19 sets out the preventive approach to be adopted regarding litter. All trucks delivering waste are to be covered.

Landscape

Residents have posed the question as to why the landfill was allowed rise so high into the skyline and visually ruin the natural landscape. It is felt that the height of the facility is unacceptable. Residents feel the facility can only be described as an eye-sore to passersby. Another resident feels the facility is spoiling our scenic area and natural resources.

A resident has reported feeling visually assaulted by the facilities appearance and stated that nowhere else in Ireland is a public dump sited along a national road. This resident also stated the facility looks desolate and appears run down/poorly preserved and maintained by its operators.

Response: This is a matter for the planning authority. I would note however the recommendation in condition 3.4.3 that the depth of waste in cell 4 is limited to 15 metres, thereby reducing the total height of that cell.

Local Community

It is felt that the facility is having a negative impact on the local community. Continuation of the facility will undoubtedly mean future generations will not make a home in the local area and indeed anyone who does not own a house or manages to sell their house will be forced to leave the area. People feel that they have put up with the landfill for over 20 years and they now want it closed permanently.

In some instances residents have stated that the unbearable situation is making their life a misery, devaluing their life and the disruption to their quality of life will probably lead them to trying to sell their house and in some instances farms also in order to allow them to move out of the area. It is felt that the dumping site is a massive worry to the local people, an on-going problem, without resolution and that something needs to be done about it.

One resident stated *to give the people of this area a break and take it elsewhere* and another felt that on humanitarian grounds alone that the Agency should refuse the application.

Another resident stated that *I have a great fear that if this super dump goes ahead it will mar not only the lives of my generation, but that of my children and my grand children for years to come...The environment of Cavan Town deserves to be protected by your organization as much as the environment of Dublin, Meath, Louth etc.*

Cavan Better Waste Management Group

Cavan Better Waste Management Group (CBWMG) made a submission on the content of the waste licence application. Some points have been addressed in the report above. Any points not previously addressed, where a response is warranted or possible, will be addressed in this section of the report. CBWMG have submitted in several instances that reports provided with the application are outdated, vague or misleading or do not provide the level of detail required to assess the issue in question.

Response: In response to this general concern, I am satisfied that I have adequate information to recommend the granting of the RD. It would appear that a number of documents forming part of the EIS date from an earlier EIS prepared in relation to the facility. The earlier waste licence review application (W0077-02) was for the development of further landfilling in cells 3 and 4. There is no new landfilling proposed in this application. Hence circumstances in that regard would be unchanged.

- CBWMG reported that it is evident that the Corranure stream was contaminated from the existing unlined landfill and that the surface water quality does not allow the direct use of the water as drinking water. From the report it was identified that some private wells have had contamination and an alternative source of water had to be installed.
 - CBWMG feel there should be constant monitoring of both surface and groundwater in the areas surrounding the facility.

Response: The RD recommends a large amount of monitoring of discharges to surface waters and of the surface waters (Corranure and Lismagratty streams) themselves. Monitoring of groundwater and private wells is also a requirement of the RD.

- The applicant claims that “...all leachate will be pumped to the rising main and transferred to the wastewater treatment plant at Cavan. This will have no impact on health quality of the population living in the vicinity of the landfill or on the environment”. CBWMG have questioned whether all the leachate is being collected from the landfill and how is this being monitored.

Response: This licence is for the operation and aftercare of cells 3 and 4. These are fully lined cells and it is to be expected that all leachate is collected. The EIS demonstrates that the low permeability clay layers beneath the landfill reduce the vulnerability of local groundwater to contamination. The RD proposes a suite of conditions on the management, monitoring and analysis of leachate while within and upon extraction from the landfill cells.

- It is also felt that all information in relation to the above should be independent, consistent and readily available to the public.

Response: All correspondence between the applicant and the Agency is available on public file. All correspondence between licensees and the Agency is also so available.

- The Leachate Management Plan outlines the objectives of the *leachate control system* which are to reduce the potential for seepage out of the landfill through the sides or the base by exploiting weaknesses in the liner or by flow through its matrix, to maintain low leachate head to prevent leachate rising to such an extent that it can spill over and cause uncontrolled pollution to surface water, and to minimise the interaction between the leachate and the liner to prevent groundwater contamination.

CBWMG have questioned:

- How these objectives are being carried out?

Response: The RD sets out the conditions to be met in lining the landfill and managing leachate. The operation of the landfill is described in the application documentation.

- Is there a system in place that can accurately assess if there is seepage out of the landfill through the side or by the base?

Response: There is considerable monitoring of groundwater proposed in the RD, continuing the suite of monitoring carried out under the existing licence. Contamination of the groundwater will signal the need for further investigation to identify whether leachate is the cause and its source.

- CBWMG feel that these are standard objectives that a leachate management plan should have but there is no reassuring control system in place to see if the management plan is carried out effectively.
 - What happens if problems arise at the waste disposal facility where the leachate is being pumped?
 - Is there an alternative outlet for this leachate if the facility incurs any problems?

Response: If Cavan Town waste water treatment plant is unavailable, the licensee will tanker the leachate to an alternative treatment plant with the agreement of the Agency.

- The *Leachate Monitoring Programme* shows the monitoring frequency including 13 parameters being checked annually, one parameter once off, one parameter quarterly and one parameter continuously monitored.
 - CBWMG feel that this monitoring programme is unacceptable.

Response: Extensive monitoring is proposed in the RD and this is typical of monitoring required at Irish landfills. Monthly monitoring is required for such parameters as ammonia, chloride, sulphate, TOC and pH. With slow moving groundwater, this will be adequate to indicate contamination and signal the need for further investigation.

- CBWMG have highlighted an instance that notes that land filling will cease at Corranure in 2013. CBWMG find this statement confusing and would like further clarification on the proposed closure of the landfill.

Response: The RD proposes granting authorisation for the operation of cell 4. Depending on the capacity and waste intake, the applicant estimates the cell will be full in 2.5 years. The RD recommends halving the depth of waste allowed in the cell and this would shorten its life. Condition 3.4.2 requires the permanent capping (final capping system) of cells or sub-cells within 48 months of the commencement of waste disposal in that cell/sub-cell.

- CBWMG feel a more detailed landfill gas utilisation feasibility study is required in order to allow them to accurately assess the proposal.

Response: The applicant has stated that preliminary reports have concluded that it may be feasible to utilise landfill gas. Condition 3.16.8 requires within six months of grant of licence a report on the feasibility of the utilisation of landfill gas at the facility.

- Appendix 7 "*Site Environmental management System - Operations Plan- Corranure Landfill*" (2007)
 - Objective 2: Landfill Gas Emissions - to reduce landfill gas emissions on site by May 2006.
 - CBWMG have pointed out that landfill gas emissions have greatly increased over the last 3 years and strong landfill gas odours have been observed during numerous EPA Site Inspection Reports the most recent of which is dated 27th May 2009. Taking this into consideration

CBWMG feel the information contained in this section of the application is misleading.

Response: The RD proposes more frequent installation of horizontal gas wells in cell 4 and intermediate capping to be installed within 10 months of commencement of a cell or sub-cell.

- Objective 4: Provision of Training – provide appropriate training to all staff on any matters arising out of work on the site – target date 2006.
 - CBWMG highlighted that the report notes that no suitable training was identified and that staff on site are unqualified and incapable of managing the facility.
 - CBWMG have referred to EPA Site Inspection reports where it states that the management at the facility are not suitably qualified. As such CBWMG feel the information provided in the report is misleading and incorrect.

Response: As noted above, the RD proposes new conditions dictating the level of experience and professional qualification of the site manager and deputy manager(s).

- Objective 5: Increase Capacity of Landfill – complete the construction of cell no. 3 by September 2006.
 - CBWMG have identified that cell no. 3 is still active and being filled by Oxigen.

Response: Cell 3 is full.

- Section 1.3.7.4 – Security Gates and Fencing.
 - CBWMG have advised that the site to the rear and part boundaries is not fully fenced. The site is open to the rear and part side boundaries except for part hedge rows which are in extremely poor condition.

Response: Condition 3.9.1 of the RD requires security and stockproof fencing to be installed.

- CBWMG advise that there are no surface water monitoring points on the Lismagratty and Corranure Streams.

Response: This does not accord with the information provided in the application. In any event, the RD requires ambient monitoring at a number of points in both of these streams.

- Section 1.3.8.6 – Equipment to be utilised.
 - CBWMG feel that the list of equipment operational on the site is incorrect to that noted in this section of the application. There are a number of track machines, dump trucks etc which generate excess noise levels.

Response: The RD addresses noise emissions and sets limit values for measurement at noise sensitive locations.

- Management Structure at Corranure Landfill.
 - CBWMG feel that the information presented in the application is out dated and needs to be updated.

Response: The management structure at the facility will be kept up to date as part of the Environmental Management System required under condition 2.2 of the RD.

- CBWMG feel that the waste acceptance procedure is not being adhered to at the facility. They make reference to EPA Site Inspection report No. 77-0209S147KR of the 27th May 2009 which identified that the waste acceptance procedure was not being adhered to on the date of inspection.

Response: This is a matter for the OEE. Condition 8.2.2 requires the drawing up of new waste acceptance procedures to reflect the RD.

- CBWMG feel the public road structure to the facility is of poor quality and has allowed previous flooding to occur. The increased volume of landfill trucks to the site over the last year has contributed to the deterioration of the public road. They have reported that at present there are delays experienced on the public road either side of the facility due to increased traffic due to the facility.
 - CBWMG feel this is of serious concern and in the interests of health and safety the proposal should be refused.

Response: Road infrastructure is a matter for the local authority and the planning authority (in the context of planning permission for the facility). Condition 1.9 proposes the prohibition of queuing trucks outside the facility.

1. Oxigen and Cavan County Council cannot be trusted to self regulate, regarding polluting of rivers, ground water, running the landfill site to an acceptable standard, the amount of waste being dumped and the type of waste being dumped. This has been demonstrated in the EPA Site Inspection Report dated 25th May 2009. There needs to be an outside body monitoring the site on a daily basis.

Response: The EPA will undertake independent environmental monitoring at the facility. Monitoring of surface waters across the State is carried out by the EPA and local authorities.

2. Oxigen is constantly breaking EPA rules. How do we know that toxic/hazardous waste is not entering the site?

Response: Any such incident or breach of licence would be treated with the utmost seriousness.

3. What checks are there to ensure that recycled material is not being sent to land fill considering how the price for metal etc has fallen?

Response: During price crashes, as occurred in 2008, it may become necessary to dispose of waste that another day might have been recycled. However condition 8.3.3 prohibits the landfilling of biodegradable recyclable waste at Corranure landfill under any circumstances.

4. What daily checks are there on the amount of waste entering the landfill? It cannot be left to Cavan county council or Oxigen.

Response: All waste is weighed into the landfill. This data is audited by the EPA.

5. The tipping area should be covered every night, but is not.

Response: The RD and the existing licence require the use of daily cover.

6. The wheel wash should be used every time a lorry leaves the site, but is not.

Response: The RD (condition 6.22) requires all waste vehicles to use the wheelwash.

7. Flora and Fauna:

- a. The environment needs to be strictly monitored during construction to prevent contamination of streams, ground water and flora and fauna from fuel, oil and concrete etc.
- b. Once each cell is completed a comprehensive landscaping programme of planting native species of trees etc needs to be implemented. But the company who undertakes this operation needs to know which species will not damage the final membrane.
- c. The habitat restoration should mimic nature.

8. Water:

- a. There needs to be a weekly, not twice or three times a year, monitoring of all ground water, streams and silt for chemicals and heavy metals etc.

Response: The RD recommends monthly monitoring of certain parameters. This will adequately signal any contamination and the need for further investigation.

The course of the rivers flowing through Corrunure landfill are as follows: Corranure River and Cavan River run in to CoalPit and Derrygid Lake, then on to the Annalee River from there into the Erne River and finally into the Upper and Lower Erne.

There is a high possibility that a major spill/leakage from the land fill if it got into the streams could eventually pollute the Upper and Lower Erne Lakes. As stated in the recent report, Oxigen are not even capable of dealing with ground water flooding.

What are Oxigen's plans for containing a major leak of leachate, etc into waterways, so there is not a major environmental disaster?

Response: The RD sets out the controls to be implemented regarding leachate management.

9. There needs to be monitoring on the height restriction of each cell.

Response: The RD establishes the maximum height of the landfill (condition 10.3.4).

10. The ring fort is an important heritage site and is only 60m from the proposed Biological Waste Treatment Plant. This needs further investigation.

Response: Condition 6.28 of the RD requires a buffer to be maintained around the ringfort and an action plan put in place for its preservation and conservation.

- Fissure flow through bedrock which is the most dominant type of ground water flow. How far can liquids from the landfill travel along these fissures? Can it pollute drinking wells?
- *"Potential detrimental influence of the landfill on the quality of the surface water cannot be excluded"*. Samples only taken quarterly from 2002 to March 2003. Surface water needs to be monitored on a daily basis.
- Sampling from ground water from January 2002 to March 2003 indicated the presents of Phenols, total faecal coliforms and metals. What metals and chemicals are being detected and what quantities are the above appearing.

Response: The EIS establishes that the vulnerability of groundwater beneath the landfill is low due to the presence of deep layers of low permeability soil. Ongoing monitoring of groundwater at a large number of boreholes and private wells will highlight any ongoing contamination issues. Where it is established that the cause of contamination is the landfill, remedial action will be required. The RD requires daily inspection of the surface water discharges and the surface waters by visual inspection, odour, dissolved oxygen and conductivity testing.

- Section 1 – Introduction:
 - Section 1.3.3.1 – The main aims of the Cavan Development Plan 2003-2009 is to facilitate the economic and social development of Cavan town.
 - CBWMG have questioned how an application for a “*super dump*” within 2 miles from the town fits into this plan.

Response: This is a matter for the Cavan County Council.

- Section 1.3.4.3 – It is stated for the Biological Treatment of Biowaste – Annex V, a number of criteria should be considered including; (i). Distance of residential and recreational areas, and (ii). Proximity of waterways and water bodies.
 - *Distance of residential and recreational areas:* Oxigen claim that there are 12 houses within 500m from the landfill boundary. CBWMG have questioned how up-to-date this information is, if it refers to the present landfill site and should it not refer to the boundary of the proposed site. CBWMG have also highlighted that Castletara NS, Breifne College, St. patrick’s College, Loreto College, Drumcrave NS and Cavan College of Further Studies are all within a 1 - 2mile radius of the Corranure site. This implies that there are thousands of children affected by the smells emitted from this site.
 - *Proximity of waterways and water bodies:* The original site was adjacent to a small lake which has now been filled in. Both Lismagratty Stream and Corranure Stream run close to the site.

Response: If the proposed biological treatment facility is operated in compliance with the licence as may be granted, it will not cause environmental pollution.

- Section 1.4.3 – Oxigen intends to take a third collection of biodegradable waste from Cavan, Longford, Monaghan, Leitrim and Westmeath.
 - CBWMG have questioned whether this is part of the Waste Management Plan for the north east and is the plan not to reduce landfill and as such why not reduce the landfill tonnage at the Corranure site?

Response: The plan to establish large scale biological and mechanical treatment facilities will serve to reduce the overall amount of municipal waste that is sent to landfill.

- It is stated that some planning permissions restrict facilities to handling only waste that arises in the geographic area covered by the Waste Management Plan. The policy (“*Taking stock and Moving Forward*”) states that each region has to take responsibility for its own waste. Oxigen intend sourcing significant quantities within the north east region and waste from other contractors outside the region.

- CBWMG have questioned how does waste coming from outside the region tie in with the *proximity principle*.
- Oxigen proposes to bring separated organic waste from other facilities in Drogheda, Dundalk and sub-urban areas surrounding these towns (Laytown, Bettystown, etc).
 - CBWMG have questioned whether there is a limit to the quantity of separated organic waste from other facilities that can be received and if Oxigen are restricted to these areas.

Response: It is not proposed in the RD to restrict the geographical source of waste acceptable at the facility.

- Section 1.5 – Oxigen have stated that studies have shown the proposed facility will have minimal impact on the local environment and community.
 - CBWMG have stated due to the fact that the volume of traffic to the site will increase considerably if the application is successful, the roads and entrance to the site will result in considerable traffic chaos.

Response: The capacity of local roads is a matter for the local authority generally and the planning authority in the context of planning permission for the facility.

- Section 2 – Project description:

- Section 2.5.4 Table 2.8 details the opening hours to handle the projected 335,000 tonnes of waste. Waste is proposed to be accepted 6 days a week from 7:00am to 7:00pm at the landfill and from 6:30am – 10:00pm at the MRF and BTF.
 - CBWMG feel these increased operational opening hours are completely unacceptable to the residents in the area.

Response: The RD proposes alternative hours to those applied for. However there will still be an element of evening operation at the facility. Night-time operations (after 10pm and before 8am) are to be restricted to indoor operations only.

- Section 2.5.7 – (i). CBWMG feel that the pictures in the application show what Oxigen consider to be a typical facility and (ii). The application states that 97% of green bins and 80% of skips will be recovered or recycled.
 - CBWMG feel this is unacceptable and that an artist's impression and drawings of the proposed buildings should be included.
 - CBWMG have questioned why Oxigen want to landfill 90,000 tonnes of waste as they thought the objective was to reduce the amount of waste to landfill.

Response: The scale and appearance of the buildings is a matter for the planning authority. The plan to establish large scale biological and mechanical treatment facilities will serve to reduce the overall amount of municipal waste that is sent to landfill and over time reduce the need for new landfill capacity in the State.

- Section 2.5.8.8 – Oxigen proposes to bring separated organic waste from other facilities in Drogheda, Dundalk and sub-urban areas surrounding these towns (Laytown, Bettystown, etc).

- CBWMG have questioned whether there is a limit to the quantity of separated organic waste from other facilities that can be received and if Oxigen are restricted to these areas.

Response: It is not proposed in the RD to restrict the geographical source of waste acceptable at the facility. The RD proposes restricting intake of 90% of the waste at the landfill to waste under Oxigen's control.

- Section 2.6.5.4 – Oxigen have stated that excavation work can cause influx of vermin to the site and to the surrounding areas.
 - CBWMG have stated that with Oxigen's track record to date there is no doubt that this will be a major problem.

Response: The RD proposes conditions for the control of vermin.

- Section 2.6.6.10 – It has been stated that leachate will be, as needed, removed off-site by sewer connection to the local waste water treatment facility or in emergency (reference page 96 section 2.8.10) be tankered to the plant. As leachate is 60-80% rainfall (page 84 Section 2.7.4) the present procedures will not be able to cater for the increased leachate output. The application states (page 84 Section 2.7.4) that rainfall in Cavan is 800 – 1000mm a year. The last samples from the leachate tank were taken in July 2007.
 - CBWMG have questioned how often the leachate tanks are tested and whether a report nearly two years old is an adequate assessment of the present situation. They also state the volume of waste to the site has increased dramatically since Oxigen took over.

Response: Leachate is to be managed and monitored in accordance with the conditions of the RD. Daily, quarterly and annual testing is prescribed. The anticipated volumes of leachate have been calculated and the size of leachate storage tanks at the facility taken into account. Cavan County Council have consented to the transfer of leachate by sewer to the waste water treatment plant.

- In a report entitled "*The Risk Potential of Landfill in Terms of Gas and Leachate Emissions Report*", by WMT Consultants
 - CBWMG highlighted that WMT appear to be satisfied with the geology/hydrology of the current landfill but at no stage in the report is it mentioned that the original landfill i.e. Cell 0 was originally Lismagratty Lough. CBWMG have questioned whether Oxigen are aware of this and if so would this have an impact on their findings.

Response: The management of Cell 0 does not form part of this application. Cell 0 is a closed landfill cell that will be managed into the future by Cavan County Council under a separate waste licence.

- Section 2 Location Description: CBWMG have highlighted that the one point noted, with respect to the current site, is that in terms of the permeability of the top strata, the permeability of the 1×10^{-9} m/s at a thickness of ≥ 1 m is not met by the Council Directive 1999/31/EC but the fact that the thickness of the boulder clay exceeds the requirements by a factor of 10 to 15 compensates to meet this requirement.
- Section 2 CBWMG have stated that WMT conclude that the main possible route of contamination by landfill gases/leachate is due to improper

management of the site and that there is “...*little or no risk to the environment when using a properly functioning and well maintained system. Operating personnel training is paramount*”

- CBWMG have highlighted that in the EPA Site Inspection Report dated 25th May 2009 breaches with regard to personnel and system were noted.

Response: The design and suitability of the site for cells 3 and 4 has been previously assessed by the Agency and approved in waste licence register number W0077-02. The RD requires the employment of experienced management at the facility and the training of all staff.

- Section 3.2 Reducing the Potential Risk:
 - CBWMG have highlighted recommendations made by WMT under the following headings: power supply, leachate pumps, fill level monitoring and additional safeguards.

Response: The RD recommends considerable controls on the management of leachate including permissible depth in cells and standby capacity in pumping equipment.

- Section 3.3 Monitoring System:
 - CBWMG have highlighted that WMT stated that if the groundwater monitoring wells are carefully and strategically positioned in and around the landfill site it will ensure that any possible contamination of the groundwater can be caught by analysis of these waters. However it appears from looking at the report as a whole that there is insufficient sampling and testing of these waters currently being carried out on site by Oxygen.

Response: The RD recommends testing of groundwater at a number of boreholes and private wells. The programme will allow for the detection of contamination and its tracing to the landfill (if that is the source).

- Appendix 19 (Section 6) Conclusions “*Results of chemical analysis on water indicates the presence of pollution of the groundwater and of surface water in the stream flowing into Cavan river...at this stage the possibility that groundwater pollution could originate from a source other than the waste body cannot be excluded*”
 - CBWMG feel that it is not good enough to say that the pollution may or may not be due to operations at the landfill site. They propose that by carefully implementing a scientifically sound approach to the positioning of water monitoring wells and a proper sampling and testing system it should be possible to assess the quality of the groundwater at the landfill before it enters the landfill and as this groundwater leaves the landfill towards the streams.
 - CBWMG feel that perhaps Oxygen prefers not to know for definite if their operation is causing groundwater pollution.
 - They also feel that it is also not good enough that the BMA Report (Appendix 19) relies on outdated data: With reference to the Cavan and Annalee Rivers “*classified as unpolluted (Class 4)*” by the EPA in the survey on water quality in Ireland 1998-2000.

Response: Monitoring of groundwater, as presented in this report, shows instances of contamination with chloride and coliforms. Cavan County Council concluded in 2009 that overall, with the exception of elevated levels of coliforms at some of the locations and some locally high concentrations in chloride, the quality of the water met the criteria as outlined in the European Communities (Drinking Water) (No. 2) Regulations, 2007. Ongoing monitoring of groundwater will detect any further contamination. Data considered for this report shows the Annalee River, 700m downstream of its confluence with the Cavan River, has a biological quality rating of Q3-4 since 1997 (although it increased to Q3 in 2001 only). The Annalee River has maintained a moderate biological status both upstream and downstream of its confluence with the Cavan River which has maintained a poor biological rating since 1997.

o Appendix 20 Section 4 – Landfill Gas:

- CBWMG have highlighted that WMT state that the potential risk is “...dependant on the quality of the service at the landfill...” They feel well trained personnel with the appropriate experience can operate the gas extraction system in such a way that emissions are reduced to a minimum.
- CBWMG have also highlighted that WMT state “...during daily inspection of the landfill particular attention must be paid to the odour emissions and damage to the planting/vegetation which provides evidence of possible leakages and weaknesses...” Open landfills are the greatest source of emissions and “...well planned refuse disposal (small disposal areas, rapidly covered on a daily basis) in combination with the installed horizontal gas drainage pipes results in a minimal level of odour emissions. Responsibly operating the open landfill reduces all of the emissions to a minimum”. CBWMG have noted that on the EPA Site Inspection of the 25th May 2009 that an open landfill not covered over the weekend was reported.
- CBWMG have noted that WMT state well placed gas monitoring systems must be established and in addition to current daily inspections, regular inspections with a Flame Ionization Detector are proposed. CBWMG feel that all monitoring systems should be alarmed and they question what preventative maintenance or calibration of all vital measuring/monitoring equipment is planned.

Response: The RD provides for considerable control of landfill gas including infrastructure monitoring and checking for gas leakage and odour.

CBWMG conclude their submission by urging the Agency to bear in mind:

- Previous breaches noted in EPA Site Inspections, including the most recent inspection carried out on the 25th May 2009.
- They feel it is apparent that Oxigen are unable or possibly unwilling to operate the landfill in accordance with the current licence.
- They are not assured that Oxigen are suitable candidates to run a new MBT plant.
- They feel that in the interests of health and safety that the licence should be refused.

Submissions made on waste licence application reg. no. W0077-04 were also reviewed in order to ensure any issues raised were considered as part of this licence application. The

issues raised were similar to those highlighted with regard to waste licence application reg. no. W0248-01 outlined above. Mary White T.D. highlighted the following issues that have been expressed by local residents:

1. The immense negative impact of the existing facility on family life.
2. Unsuitability of the site for landfill and a biological waste treatment facility.
3. The effects of noxious odours and gases on the health of residents which has been constant and on-going.
4. Clusters of cancers in Ballyhaise downwind from the landfill.
5. Alleged mismanagement of the existing landfill facility.
6. Devaluation of property in the area.
7. Lack of qualified personnel to operate existing landfill and proposed MBT plant.
8. Negative effect on the archaeological and cultural heritage environment of the local area.
9. Negative effect on the local community.
10. Pollution of local streams, water courses and fields.
11. Road usage and traffic: trucks arriving from all over Ireland.
12. Treatment of leachate from plant.
13. Issues of accountability for businesses and to take appropriate action to make them abide.

Response: Each of the issues raised in Deputy White's submission are dealt with in this report.

CBWMG made an objection to the proposed decision for waste licence reg. no. W0077-03. The Technical Committee Report considering that objection recommended that some aspects of the objection should be considered under the concurrent review of W0077-04 and W0248-01. The aspects of the objection that the Technical Committee asked to be considered as part of this licence application are as follows:

1. Waste tonnage limit
 - a. *The 90,000 tonnage limit is excessive given the site specific conditions and the competence of the licensee; and*
 - b. *the Agency's own concerns were reported in site inspection reports that the tonnage limit would be exceeded.*

Response: The 90,000 tonne limit is already provided for in the existing licence for the landfill. The licensee will be expected to respect the limit and not exceed the allowable tonnage.

2. Licence violations
 - a. *numerous violations and public complaints have been recorded,*

Response: Non-compliances with the licence and a large number of complaints have been noted. This issue of competent management at the facility has been dealt with above.

3. Delegation of responsibilities

- a. *The CBWMG demand that either the licensee or operator take full ownership and responsibility for the facility.*

Response: As described above, there is a contract for sale on the facility. If granted a licence Oxigen Environmetnal Ltd will be taking full control and responsibility for cells 3 and 4 of the landfill, the civic amenity site and the proposed recycling facilities.

4. Waste activities

- a. *The CBWMG objects to waste disposal classes 7 and 11 and waste recovery classes 2, 3, 4, 9, 11, 12 & 13 as the operators are inexperienced and the facility is unsuitable for accepting this type of waste given the possibility of further ground and water contamination. The CBWMG questions whether waste disposal class 1 is a new class compared with old licence.*

Response: Classes 1 and 7 of the Third Schedule were not applied for in this licence. The Fourth Schedule (recovery) classes will ensure the recycling of waste at the facility. The RD recommends conditions that will minimise any risk of contamination from the recycling facilities as may be built at the facility.

5. The competence of the Facility Managers, Deputies and Supervisors

- a. *The CBWMG objects to Condition 2.1 (facility management) as the operator has not complied with the requirements of the condition. They contend that the current facility manager is inexperienced and unqualified and incapable of managing the facility. Further, the staff turnover rates are high due to lack of experience. This is a concern for local residents. The CBWMG contends that the civic waste facility is not properly managed or operated as waste is not adequately segregated and is passed off as recycling while it is more suitable for landfill. The CBWMG objects to Condition 2.1.3 as they view the FÁS course as totally inadequate and asks the Agency to review this procedure.*
- b. *The CBWMG wishes to view the qualification and experience record for the civic waste facility supervisor and the records for waste received and forwarded at the civic facility. The CBWMG wishes to view all correspondence with the Agency regarding the management structure (Condition 2.2).*

Response: The RD recommends new conditions controlling the necessary qualifications and experience of the facility manager and his/her deputies. Documentation in relation to employed persons at the facility will be available on public file.

6. The adequacy of the leachate and landfill gas management infrastructure, the telemetry system and the monitoring requirements

- a. *The CBWMG objects to Condition 3.13 (leachate management infrastructure) as the requirements are insufficient and need to be updated to reflect new technologies such as high speed enzymes. The CBWMG query why these technologies have not been included in Agency guidelines which would benefit residents.*

Response: The current proposal is for the discharge of leachate to sewer for treatment in the Cavan waste water treatment plant. Condition 6.17.8 requires the licensee to investigate the feasibility of treating leachate at the facility. At that point, it would be appropriate for various treatment systems to be examined.

- b. *The CBWVG objects to Condition 3.14 (landfill gas management) as the gas flare is faulty due to flaws in construction and/or inexperienced personnel and has resulted in leakages of highly dangerous gases. The CBWVG would like to examine the construction drawings for the gas flare and query whether a gas pumping trial was undertaken/ sealing plug used and inspected, records of the collection system installation and whether the publication 'Protection of New Buildings and Occupants from Landfill Gas' is sufficiently up to date.*

Response: The RD recommends standard conditions for the management of landfill gas, including collection, flare operation and gas detection in buildings. Any correspondence with the Agency on the matter is available on public file.

- c. *The CBWVG objects to the grant of this licence in the context of Condition 3.15 (surface water management plan) as they would like to review the plan to ensure best practice is being followed.*

Response: The RD recommends conditions for the management of surface water at the facility and the control of its discharge to surface water.

- d. *The CBWVG objects to Condition 3.16 (ground water management) as more stringent testing guidelines are required given the huge facility area and pollution of groundwater would be catastrophic.*

Response: The RD sets out a schedule for the monitoring of groundwater in boreholes and private wells.

- e. *The CBWVG objects to Condition 3.18 (telemetry) and requires that the equipment must be checked to ensure it's the best available and properly operated. The CBWVG query whether the equipment is computerised has been inspected by the Agency and approved and whether personnel are properly trained.*

Response: The RD contains conditions on telemetry. The RD also requires the maintenance of all equipment.

- f. *The CB WVG objects to Condition 3.19.1 (landfill gas monitoring infrastructure) as the escape of landfill gases over a long period of time has caused damage to the community and atmosphere and endangered health as a result of its proximity to a large number of homes and toxic landfill gases have reached as far as Ballyhaise and Cavan town. The CBWVG are seeking Agency assurance on landfill gas management and are concerned that the Agency manual is not stringent enough for this operator. The CBWVG contend that the huge increase to 90,000 tonnes per annum capacity has been a major contributory factor in the problem of landfill gases.*

Response: The RD recommends conditions for the management of landfill gas, as stated above, but also on the control of the landfilling operation that is expected to reduce the risk of odour emissions from the operation.

7. The final height of the facility and timescales for final capping works

- a. *The CBWVG objects to condition 4.2 as the final height of the facility will create an eyesore at more than 13 storeys and is surely dangerous and unnecessary given the huge area of land under the control of the licensee.*
- b. *The CBWVG objects to condition 4.3.1 as the time line of two years for permanent capping for a cell is too generous and the associated danger*

should demand that this be reduced. The CB WMG queries the time spent by the Agency at the facility during the important process to ensure proper procedures are being followed. The CBWMG contend that the inspector would need to stay for the duration of the exercise.

Response: The RD recommends limiting the landfill depth in cell 4 and this would have an impact on the final height of that cell. A certain amount of time has to be allowed prior to final capping to allow for settlement in the deposited waste. If the waste is not allowed to settle adequately, the final cap can become damaged and remedial work might be required if further settlement takes place post-capping.

8. Landscaping

- a. *The CBWMG objects to condition 5.6 as landscaping efforts to date are non-existent and the facility is disgusting when viewed from the R188. The CBWMG believe that the visual impact of the facility not to mention odours has damaged tourism. The CBWMG contends that the Agency is not enforcing its own standards and that a separate plan is necessary prior to any decision.*

Response: The applicant proposes to allow the capped to vegetate and become colonised by local species. The visual impact of the facility is a matter for the planning authority.

9. Adequacy of ground water monitoring requirements and surface water management

- a. *The CB WMG objects to condition 6.4 (groundwater) as three monitoring boreholes are insufficient. The CBWMG wish to see wider water monitoring and testing system, more locations and an increase in frequency.*
- b. *The CBWMG objects to condition 6.5 as it needs to be more stringent to ensure surface water run-off is properly managed.*

Response: There are more than three groundwater monitoring boreholes specified in the RD, plus a number of private wells. The RD proposes conditions for the management and monitoring of surface run-off and its discharge to surface waters.

10. The need for a full time Inspector on-site

- a. *The CBWMG objects to condition 12.2 (incident reporting) as the Agency is not being notified promptly of incidents at the facility and a full time inspector on-site is needed. The CBWMG refers to the Agency inspection report of 2/12/08 whereby a broken drilling auger had been left in a well and odours were allowed to vent overnight. This should have been treated as an incident. It is the public that keep the Agency up to date regarding problems at the facility. The CBWMG suggest funds for a full time inspector be obtained through petitioning the courts or under Condition 13.*

Response: I have not proposed the placing of an agent of the Agency on a full-time basis at the facility. I consider that improved management at the facility, reduced landfill depth and operation of recycling facilities will minimise the risk of ongoing odour complaints at the facility.

11. Landfill location, violations, competence and operational requirements as required in the existing licence.

- a. *the facility is located too close to urban population,*
- b. *the licensee has treated the Agency with contempt,*
- c. *the operator cannot run the facility safely, nor has adequate personnel,*

- d. *the increase in waste acceptance over the past 5 years has lead to significant operational problems; and*
- e. *too many times have local people to clean up vomit from sick children because of dreadful gas emissions.*

Response: Each of these issues is addressed in this report.

Charges

The RD recommends an annual charge of €30,872, which takes account of the inspection, audit, report evaluation, sampling and analytical costs associated with enforcement of the recommended decision. The annual financial charge in the existing licence is €29,442 (W0077-03).

Recommendation

In preparing this report and the Recommended Determination I have consulted with Agency technical and sectoral advisors Ms Cara O'Loughlin, Ms Rebecca Quinn, Ms Aoife Loughnane and Mr Kealon Reynolds.

I have considered all the documentation submitted in relation to this application and recommend that the Agency grant a licence subject to the conditions set out in the attached PD and for the reasons as drafted.

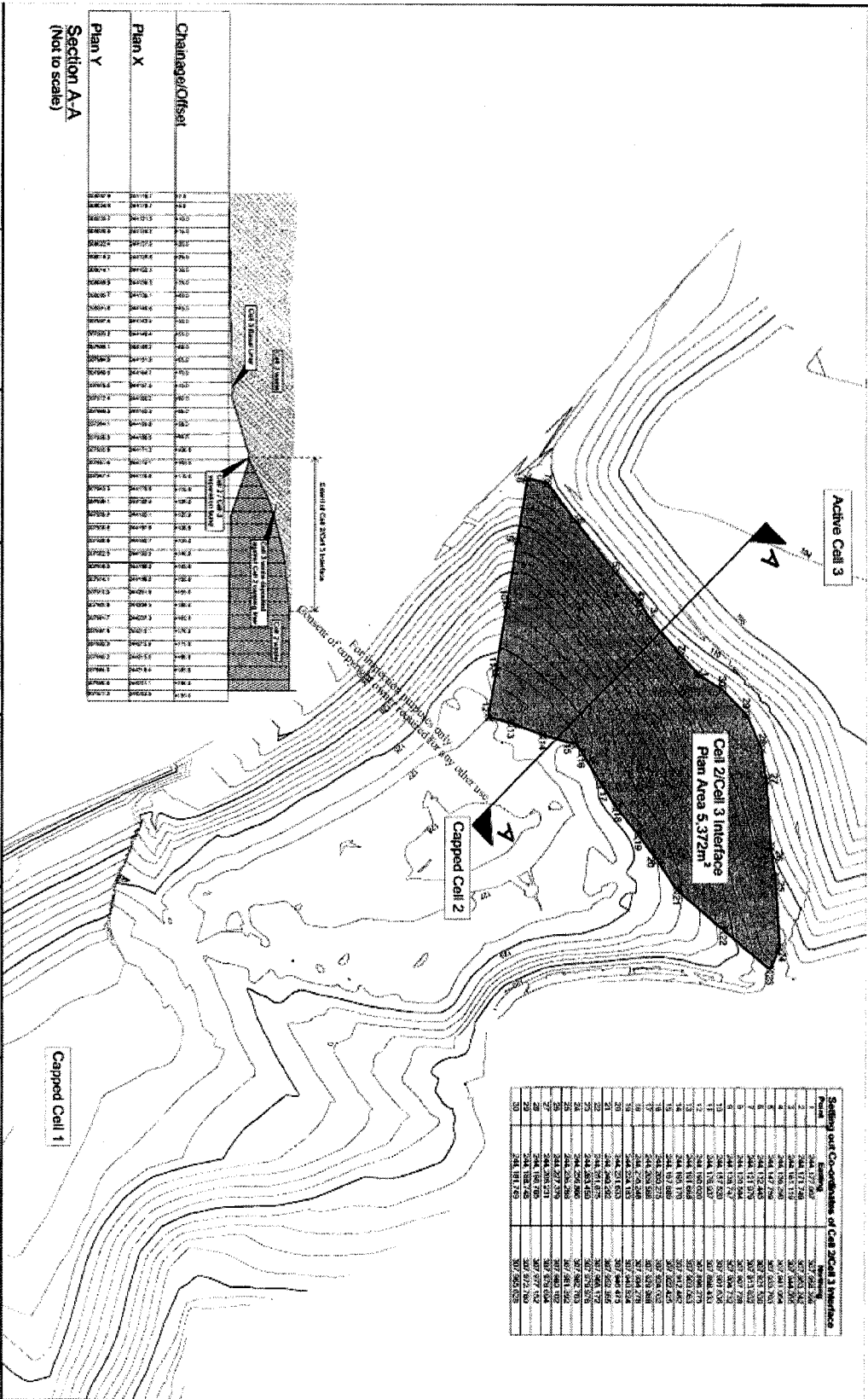
Signed



Brian Meaney

Procedural Note

In the event that no objections are received to the Proposed Decision on the application, a licence will be granted in accordance with Section 43(1) of the Waste Management Acts 1996-2010.



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 Planning & Development
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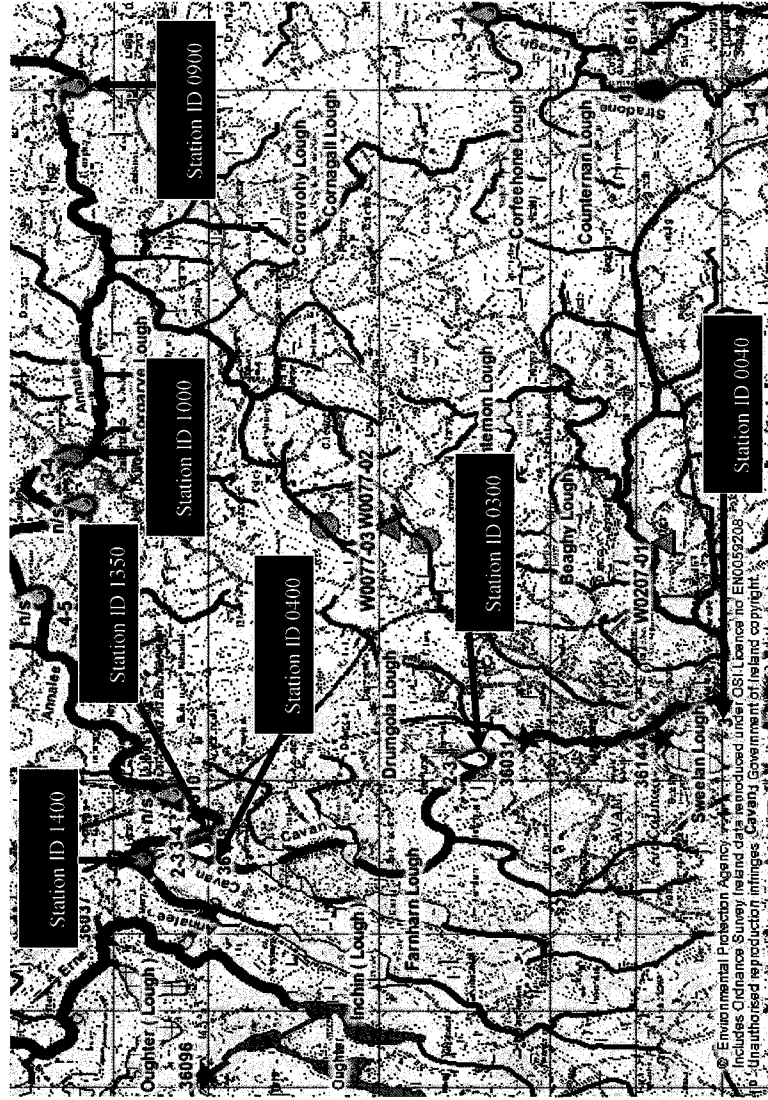
RPS Consulting Engineers
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 Fax: 044 91 22222

Cavan Integrated Waste Management Services
 100, The Mall, Cavan, Co. Monaghan
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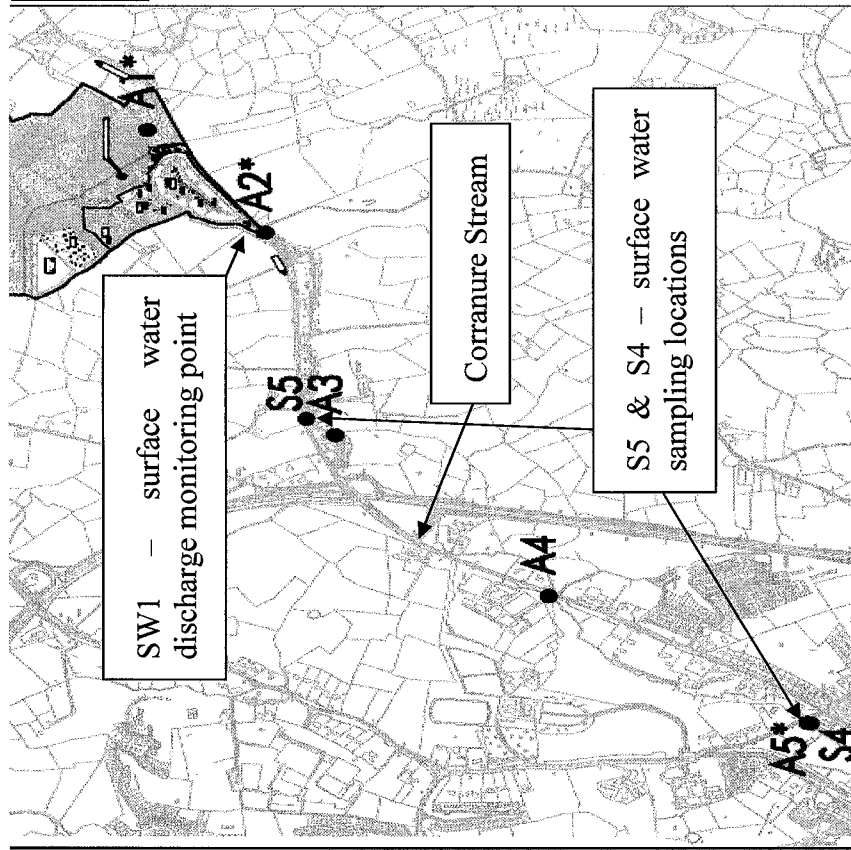
CELL 2/CELL 3 INTERFERENCE AREA
 DRAWN BY: [Name]
 DATE: [Date]
 PROJECT: [Project Name]

APPENDIX 2

Map 1: Surface water monitoring locations

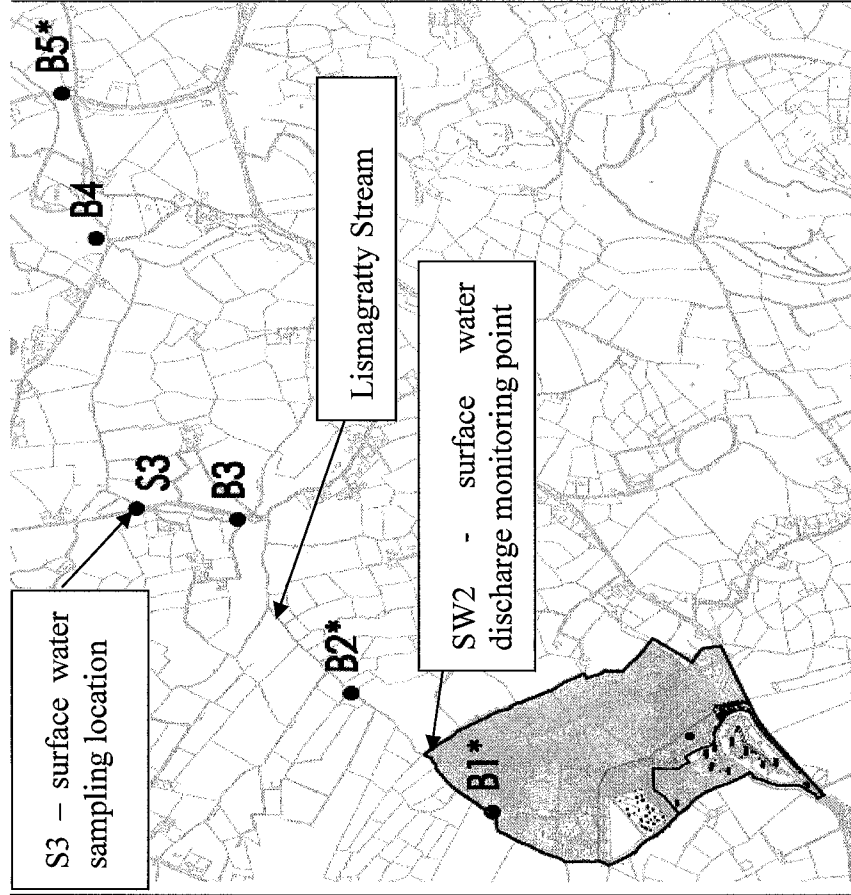


Map 2: Licence Reg. No. W0077-03 monitoring locations proposed to be carried forward to W0248-01.



Surface Water Monitoring Points (Corranure Stream)

Not to Scale



Surface Water Monitoring Points (Lismagraty Stream)

Not to Scale