



**OFFICE OF CLIMATE
CHANGE, LICENSING
& RESOURCE USE**

INSPECTORS REPORT ON A LICENCE APPLICATION

To:	Directors	
From:	Dr Jonathan Derham	- LICENSING UNIT
Date:	21 JUNE 2007	
RE:	APPLICATION FOR A WASTE LICENCE FROM DUBLIN CITY COUNCIL, CIVIC OFFICES, WOOD QUAY, DUBLIN - LICENCE REGISTER W0232-01	

Application Details

Type of facility:	Non-Hazardous Waste Incinerator/Waste to Energy Facility
Class(es) of Activity applied for (P = principal activity):	3 rd Schedule: 8(P), 6, 7, 10, 11, 12, 13 4 th Schedule: 3, 4, 6, 8, 9, 13
Quantity of waste managed per annum:	600,000 t
Classes of Waste:	Non-hazardous household, commercial & industrial wastes (including sewage sludges and non-hazardous industrial sludges).
Location of facility:	Pigeon House Road, Poolbeg, Dublin 4
Licence application received:	10-7-2006
Third Party submissions:	13
EIS Required:	Yes
Article 12 & 13(1) Compliance	23 April 2007
Article 16(1) request	11 June 2007
Article 16(1) reply	12 June 2007
EPA Site Inspections:	31-8-2006

1. Facility

Dublin City Council (DCC) acting on behalf of the four Dublin Region local authorities have applied for a licence to operate a non-hazardous waste to energy plant (incinerator) at Poolbeg in Dublin City. The applicants propose a design-built-operate (DBO) contract employing an international experienced

waste-to-energy (WtE) operator to undertake the detailed design, construction and operation of the facility under contract to DCC. The nominated DBO contractor at this time is Elsam, a Danish waste management company.



Figure 1: Location of Facility

The location of the proposed facility is shown in Figure 1 and comprises an area of 5.5ha. The main part of the site lies to the south of Pigeon Road with a small segment to the north which accommodates the surface water discharge to the River Liffey. The surrounding land-use is industrial with amenity to the south (Figure 2).



Figure 2: Aerial photograph showing land use

The outline design of the facility is for a twin burner and boiler configuration, each catering for up to 300,000tpa non-hazardous commercial, household and industrial wastes. The facility has also applied to take sewage sludge from the adjacent municipal WWTP as well as non-hazardous industrial sludges. The combined tonnage associated with all of these streams is a total of 600,000tpa. The proposed site of the facility is currently part occupied by a small scrap metal operation and molasses storage tanks (Figure 2). As is the case with much of the developed land at Poolbeg, the site of the facility has been historically reclaimed from the sea.

Figure 3 presents a schematic of the proposed facility.



Figure 3: Physical layout of facility relative to site

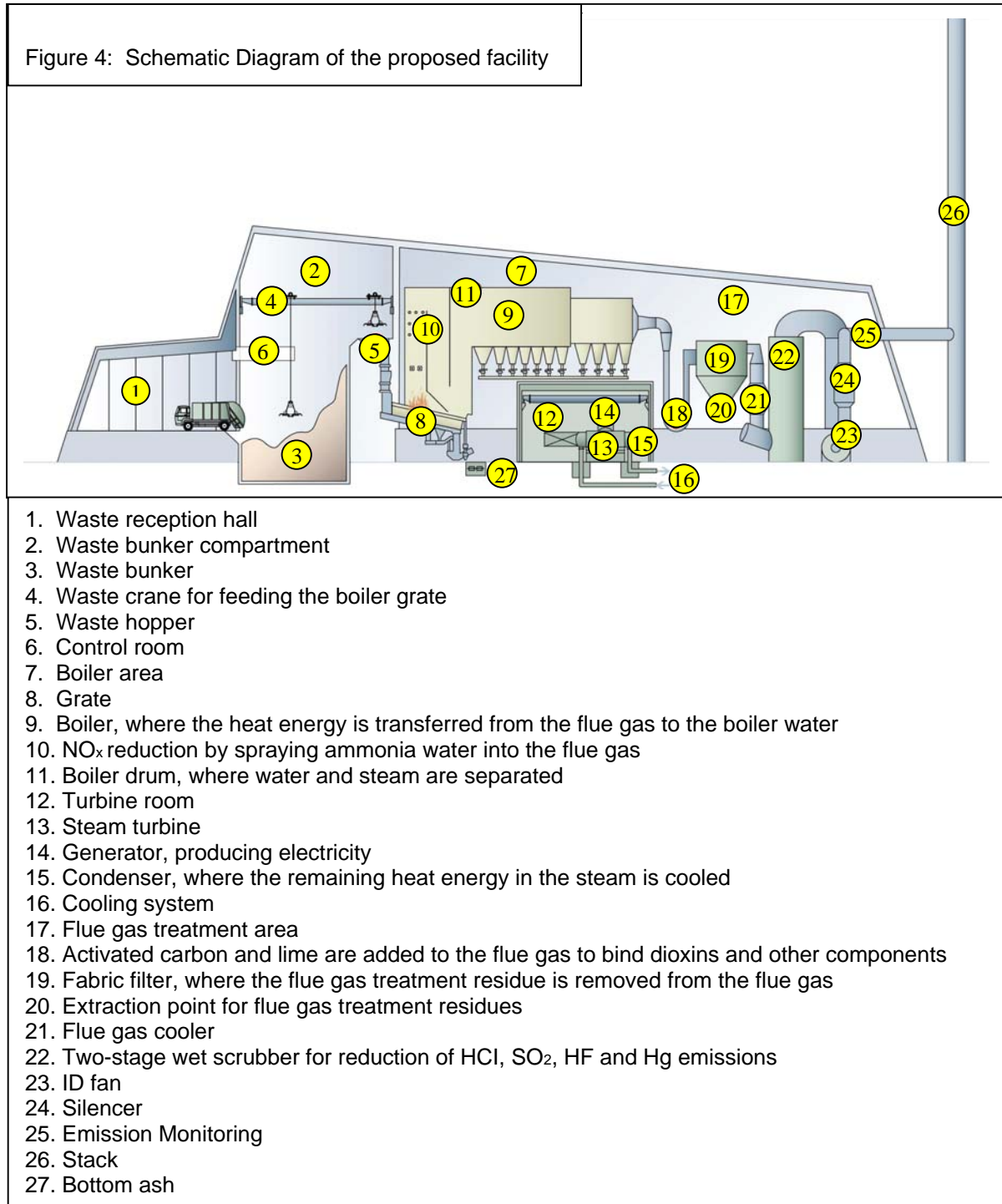
The selection of the site followed a detailed site selection process commenced in 1999 and had regard to international best practice. The report on this site selection process was presented in late 1999, and reviewed again in 2006 against up-to-date guidelines and as part of the EIS for the current application. The selection of the Poolbeg site was confirmed by the review process. The closest existing major residential areas are all located greater than 1km from the site. Planning permission has been granted for additional residential development in the former Irish Glass Bottle site (c.900m west of proposed incinerator site).

2. Operational Description

At its simplest, waste will be received, placed in a bunker, loaded to a furnace, combusted, heat is recovered to make energy, gas emissions are cleaned and discharged, solid emissions are collected for disposal, and cooling water is discharged to the river. All waste handling processes are carried out within the facility building. The principal emissions are: to air (via stacks); to water (cooling water); and solid waste (ash). At full operation the facility is expected

to operate 24 hours as day, 365 days a year: waste will be accepted between 8am and 10pm.

A schematic for the facility layout is presented in Figure 4.



The main burner technology proposed is moving grate (35t waste processing capacity per hour for each line), being considered the most appropriate for the waste streams proposed to be accepted. There is a twin stack configuration

(one serving each burner): these stacks are 100m high (approximately half the height of the adjacent ESB Poolbeg power station stacks).

The burners are designed to ensure combustion temperatures of 850°C for 2 seconds to ensure compliance with the principal operational standard of the EU Waste Incineration Directive. Auxiliary fuel (diesel) will be used during start-up, shut-down, and calorific troughs or other difficulties in waste feed to ensure compliance with this standard.

The building including the internal waste reception bunker area will be maintained under negative pressure with the same air being used for draft in the burners.

Electricity generation is via steam turbines. When the power demands of the site are satisfied there will be a Nett export of c.60MW electricity (approximately equal to the demand from 50,000 homes) to the grid. The proposed plant has the ability to provide district heating should the need arise.

The application includes provision for the acceptance of sewage sludge from the adjacent municipal WWTP for incineration.

A detailed description of the individual stages of the process is to be found in Section D of the Waste Licence Application Documentation.

Only pre-approved types of waste, from pre-approved sources, transported by appropriately permitted contractors (piped sewage sludge excepted) is to be accepted at the facility. Random sampling of pre-approved sources will also be undertaken as a form of verification.

The floor of the facility is set at +5m OD which is intended to offset flood and sea-level rise risks.

3. Use of Resources

3.1 Energy

The facility is a nett exporter of energy and the waste to be combusted is its primary fuel. Approximately 1200t of diesel is provided for in annual usage for emergency boiler firing and site vehicles.

The facility will export c. 60MW to the grid at an efficiency of c. 29%. Energy conservation has been incorporated in the plant design (including abatement equipment). Plume suppression (by reheating the air emission) (for mitigation of visual impact) is not proposed due to energy usage. The use of water cooling instead of air cooling is also more energy efficient. The on-site boilers are designed to have a thermal conversion efficiency of c.90%.

The facility is also designed to provide for the export of heat (e.g. district heating) should this be infrastructurally enabled.

3.2 Water

The operation is expected to consume 400,000t of water per year in the process. The main process uses for the water is in flue gas treatment, bottom ash humidification and boiler make-up. Potable water use is conserved via two principal measures. Firstly, rain water falling on the site is to be collected and stored for use in the process – saving an estimated 22,000t per year of potable water. And Secondly, the operators propose a 'grey' water system

which can take final effluent from the adjacent Ringsend WWTP (which would have been discharged to the estuary) for use in the WtE plant instead, as process water.

In addition to water consumed in the process, the facility will also take in approximately 3.9m³ (also reported in the application as 3.5m³) of water per second from the estuary for use in the cooling system. This water is discharged back into the estuary again. This discharge has an elevated temperature and contains anti-fouling agents. Further discussion on this water use/effluent is presented in Section 4.3 below.

3.3 Other Materials

Other significant resource uses include:

Ammonia water (2500tpa) - flue gas treatment (FGT)

Urea (2100tpa) - possible use in FGT

Lime (5000tpa) - FGT

Activated Carbon (500tpa) - FGT

NaOH (Sodium Hydroxide / caustic soda) (200tpa) – FGT & anti corrosion in boiler

Chlorine (100tpa) - use in cooling water

4. Emissions

4.1 Air

The applicants propose two stack emissions (each 100m high) with an exit diameter of 3.4m and a volume flow (each) of between 238,905 and 275,000Nm³/hr depending on waste throughput.

The combustion of waste produces, or has the potential to produce, a number of emissions; the principal of which are:

- Dioxins & Furans
- Hydrogen Fluoride (HF)
- Hydrogen Chloride (HCl)
- Nitrogen Oxides (NO_x)
- Carbon Monoxide (CO)
- Total Dust, PM₁₀ & PM_{2.5}
- Sulphur Dioxide (SO_x)
- Metals (Cd, Ti, Hg, Sb, As, Pb, Cr, Co, Cu, Mn, Ni, V)
- Total Organic Carbon
- Polycyclic Aromatic Hydrocarbons (PAHs)

The proposed emission concentrations are well within National and EU BAT guidance standards with no consequential impact on human health or the environment predicted.

As part of the application and the EIS studies the applicant undertook and presented, *inter alia*, detailed information on existing air quality in the area, predictive loadings, cumulative loadings, dispersion modelling, ground-level concentration assessments, and a Green-house Gas (GHG) assessment. The assessments had regard for national and international standards and protocols, guidance and practices for air quality assessment including air dispersion human health risk assessment. A conservative approach was adopted in relation to the modelling (e.g. all existing (background) emission points assumed to be operating at maximum emissions level for 24 hours per day and all year, use of maximum ambient concentrations which were from locations that were not near residential receptors). A three year baseline assessment was undertaken as part of the application which included two years of background meteorological data from the proposed site of the facility.

Background air quality measurement indicated that air quality was within specified national standards for metals, acids, and SO₂. The NO₂ levels were elevated, but still within standards. The main source is considered to be traffic. Monitoring of PM₁₀ indicated that average levels were within standards, however there were some exceedances of the 24-hour EU limit value (of 50µg/m³). The applicant comments that these levels will reduce significantly by 2012 due in principal to improvements in vehicular engine technology. The predicted ambient ground level concentrations for PM₁₀ emissions from the WtE facility are estimated to comprise approximately only 0.6% of the annual average limit value. Which is an insignificant contribution. Predicted PM_{2.5} levels were also well within air quality standards (even when it was assumed that the total dust emission comprised PM_{2.5}). In the case of Dioxins-Furans (PCDD/F), monitoring shows that the background levels in the city are slightly higher (at 56.2fg/m³) than the general range found elsewhere in Ireland (2.8 – 46fg/m³). On-site background measurements for PCDD/F are in the range 42 - 44fg/m³ which is lower than EU urban norms.

Dispersion modelling has confirmed the proposed stack height as appropriate to ensure safeguarding of ambient air quality standards, and this modelling also accounted for shoreline fumigation and temperature inversion scenarios.

Modelling results for stack emissions demonstrates that predicted ground level concentrations are below the relevant air quality standards for the protection of human health for all compounds under typical, maximum and abnormal operation of the facility (refer Figures 5 & 6), and that maximum ground level concentrations all occur within 1km of the site. Modelling of PCDD/F emissions for the Maximum At Risk Individual (MARI) and Typical At Risk Individual (TARI) (being a typical urban dweller) demonstrates that for normal operation and accident scenarios the PCDD/F uptake is insignificant when compared to EU guideline values for PCDD/F Tolerable Weekly Intake. The modelling also predicts that under typical conditions ambient levels of PCDD/F will increase by just 2% (above existing background) at the nearest sensitive receptor (PCDD/F emissions under maximum operations at the nearest receptor predicted to be 0.7fg/m³ relative to an existing background of 42 - 44fg/m³).

The facility application indicates that the impact of the WtE plant will under the National Emission Ceiling Directive increase SO₂ levels by 0.57% (of the 2010

ceiling), NO_x levels by 1.5% of the ceiling, and VOC levels by 0.09% of the ceiling. The contribution of the proposed WtE facility to total greenhouse gas

Figure 5: Comparison of predicted ground level concentrations from **Maximum** process emissions and background levels, relative to ambient standards

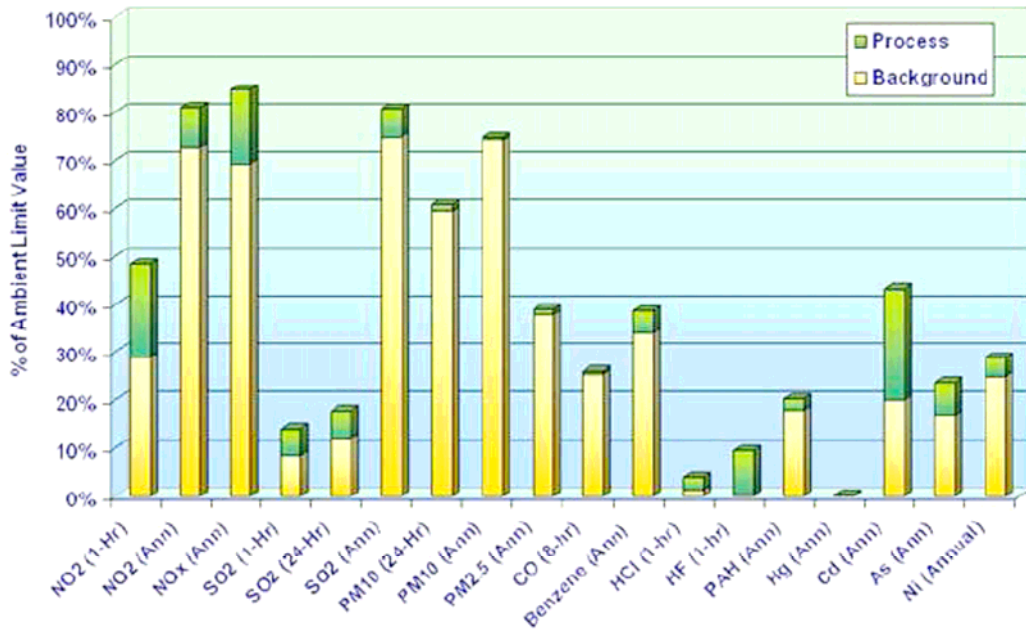
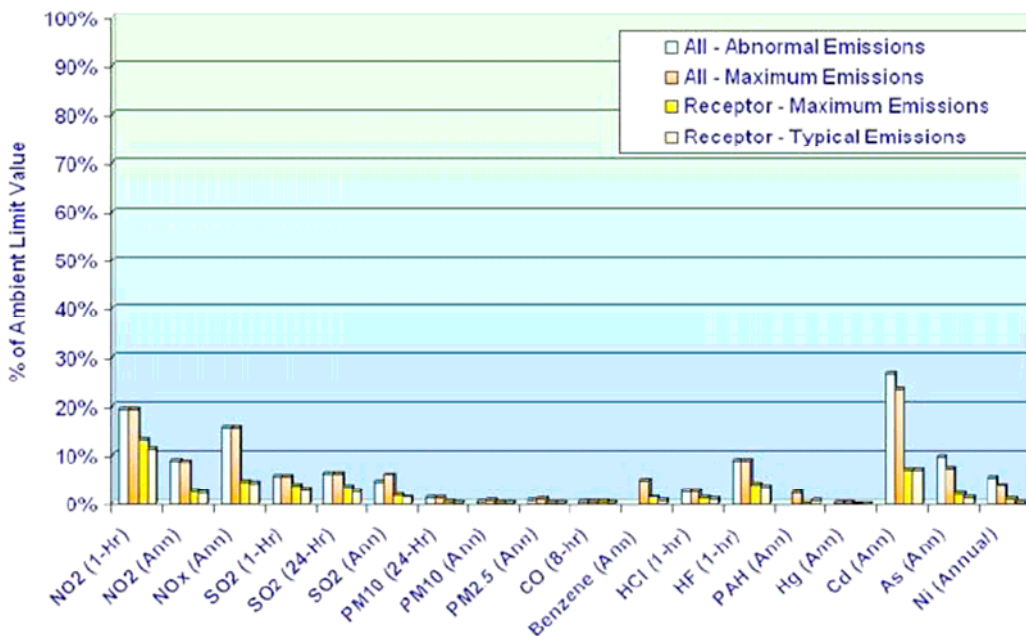


Figure 6: Comparison of process emissions under various scenarios relative to ambient standards



emissions in Ireland is stated as equivalent to a net positive impact of 0.11% of total emissions in 2012 (as compared to a landfill scenario).

The facility is totally enclosed with air from the waste reception hall and waste bunkers being used as draft air for the burners. Accordingly, odour is not predicted to be a significant issue. Similarly, fugitive emissions are not predicted to be a significant issue.

The application includes provision for three emergency diesel generators (to, *inter alia*, maintain functioning of pollution abatement train in the event of power failure).

4.2 Emissions to Sewer

The only routine emissions to sewer from the facility are sanitary effluents. In the event of exceptional storm conditions excess storm water will also be discharged to sewer (otherwise storm water is reused in process).

4.3 Emissions to Surface Waters

There is only one surface water emission from this activity and that is cooling water. Approximately 3.9m³ of water per second is expected to be drawn in from the River Liffey to cool the steam after the turbine. The discharge temperature is expected to be 9°C warmer than the intake temperature. In addition the discharge will contain residues of anti-fouling agents added to the intake water. The River Liffey is not a designated salmonid river, however the standards in the 1998 Salmonid Regulations have been used in the assessment of the impact of the thermal discharge.

A comprehensive impact assessment of the thermal discharge was provided with the application (including the combined effect with the nearby *Synergen* and *ESB Poolbeg* power plant thermal discharges of 7.6m³/s and 18.7m³/s, respectively, as well as the discharge from the municipal WWTP). The assessment included detailed 3D modelling of the thermal plume using internationally accepted modelling packages. The modelling catered for seasonal and tidal variations. The modelling predicts that the increase in temperature will mainly develop in the top surface; the maximum temperature excess (above ambient) of 5°C is predicted to occur in a 200m by 100m area; and, for normal operating conditions there will always be a subsurface corridor of water in the cross-section of the estuary. The Poolbeg WtE plant thermal discharge will expand the *Synergen* discharge by 50% (the *ESB* discharge is further downstream). The assessment observes that the existing invertebrate and flora species diversity in the area of the discharge is already low, and the effects of the proposed facility discharge is limited to the immediate area of the discharge.

In relation to thermal discharges the Salmonid Regulations (SI 293 of 1998) state:

That temperature measured downstream of a point of thermal discharge (at the edge of the mixing zone) must not:

a) exceed the unaffected temperature by more than 1.5 °C

b) or exceed:

(i) 21.5 °C, or

*(ii) 10 °C during the period from 1st November to 30th April.
A thermal discharge must not cause sudden variations in
temperature and temperature limits need to be conformed for
98% of the time.*

The modelling assessment concluded that the temperature exceedance limitations specified in a) & b) above were only experienced very close to the outfall in short periods each tide. A permanent unaffected water corridor is always present. Condition 5.8 of the recommended decision provides for the control of sudden thermal shocks.

The application and EIS included a detailed assessment of different biocide options for the cooling water system. The assessment included environmental fate and transport modelling. This assessment concluded that hypochlorite – which breaks down rapidly - is environmentally and technically the best option, and that any toxic effect would only occur at the immediate point of outfall, accordingly the environmental impact on the receiving water is not considered to be significant.

4.4 Storm Water Runoff

Storm water falling on the site is collected into a 750m³ storage tank for use as process water. The tank has been sized based on storm event predictions, with an emergency overflow to foul sewer.

4.5 Emissions to ground/groundwater:

There are no emissions to ground from this facility. All raw material and waste storage and chemical tank bunding will be to BAT standards. Historical uses, and the made-ground element, of the site mean that during development any contaminated soils not deemed suitable and safe to use in construction will be removed off-site for disposal/treatment.

4.6 Wastes Generated:

The principal wastes generated on site are the ashes from the grate furnaces and residues from the flue gas treatment systems.

Ashes:- There are two types of ash produced, Bottom Ash – which is the residue remaining at the end of the grate (including grate siftings). The Bottom Ash represents approximately 20% by mass of the waste inputted and is expected to amount to c.120,000tpa. This waste stream is expected to be non-hazardous (based on international experience). The bottom ash will be exported from the site for treatment (e.g. metal recovery, crushing, grading, etc.,) at an approved facility, and the residual following recovery may be suitable for construction uses in accordance with best practices and subject to approval of the competent authority. Landfill is also a possibility.

The second ash is boiler ash. This finer grained ash is carried in the combustion gasses into the boiler. The ash is collected from the three passes of the boiler. Approximately 3,000tpa are predicted. The material is characterised by containing heavy metals. The material is expected to be non-hazardous and subject to test confirmation will be merged with the bottom ash for export from the site. In the event that it is classed as hazardous it will be dispatched to an approved hazardous waste disposal facility.

Flue Gas treatment Residues:- These wastes comprise fly ash from the fourth pass of the boiler and a mix of reaction products, excess lime, and spent activated carbon which is collected in the fabric filters. Approximately 24,000tpa of this waste stream is expected to be produced per annum. These wastes are discharged automatically to special sealed silos which are fitted with HEPA filters. These wastes are expected to be classed as hazardous (depends on test results) and will be sent off site for disposal in an approved hazardous waste facility.

The applicant proposes comprehensive testing and characterisation of all waste streams prior to dispatch in sealed containers to approved waste contractors.

4.7 Noise:

Construction related noise is a matter for planning control. The immediate area around the facility is primarily supporting industrial and port activities with an associated busy road network. In order to prevent further increases in noise the applicants propose operational noise levels of 50dB L_{Aeq} daytime and 40 dB L_{Aeq} during night-time hours with no tonal or impulsive noise audible at noise sensitive locations. These limits are within BAT standards for this sector. The stacks will be fitted with silencers to assist noise suppression.

4.8 Nuisance:

All activities at the site are fully enclosed within the negative air pressure process building. Accordingly nuisance from odours, litter, dust, are not expected to be manifest. Standard BAT measures for vermin control and general nuisance mitigation are proposed.

5. Restoration

The facility has a design life expectancy of 30 years. The applicants have committed to removing all potentially polluting residuals should the operation cease to be carried on at that time, or before.

6. Cultural Heritage, Habitats & Protected Species

The site of the proposed facility is within an industrial zoned and developed land-bank. This land-bank is man made. Irishtown Park which is situated to the southeast of the facility is of local ecological/amenity importance. The main sites of ecological importance in the area are documented as:

- North Dublin Bay cSAC¹ & Bull Island SPA² (protected habitats - plants & invertebrates - and protected bird species). North Bull is a designated SPA (Code 006) under the Wild Birds Directive and is a Ramsar Convention³ site.
- South Dublin Bay cSAC and proposed NHA⁴ (sand and intertidal mudflats)

¹ cSAC – candidate Special Area of Conservation – EU Habitats Directive (92/43/EEC)

² SPA – Special Protection Area – EU Birds Directive (79/409/EEC)

³ Ramsar Convention on Wetlands. Done at Ramsar, Iran, in 1971.

⁴ NHA – National Heritage Area

- Sandymount Strand/Tolka Estuary SPA and Ramsar site (birds and wetlands)
- Booterstown Marsh (proposed NHA Code 01205) (protected grass). 3km from proposed WtE facility.
- Dolphins Dublin Docks (proposed NHA Code 0201) (protected bird – artic and common tern). The site would qualify for SPA status under the EU Wild Birds Directive.
- Grand Canal (proposed NHA 02104) (aquatic habitat). 2km from proposed WtE facility.

The Liffey is not a designated salmonid river, but it does support salmon and sea trout.

No impact on these protected sites and species is predicted in relation to the proposed development. The impact of the thermal discharge is discussed in Section 4.3 of this report.

7. Waste Management, Air Quality, Water Quality, Accident Prevention and Emergency Response Management Plans & National Waste Policy

The proposed facility is in compliance with the technical requirements of the Dublin Region Waste Management Plan (2005-2010), and for the purposes of the Plan is considered BAT. The proposal complies with the objectives of the EU waste hierarchy by recovering energy from waste and reducing the amount of waste sent for final – and the least preferred option - disposal to landfill. The facility may also provide residual waste treatment solutions for waste planning regions adjacent to the Dublin region. The proposal does not conflict with Government policy on waste management. Only waste streams considered appropriate for treatment by non-hazardous waste incineration with energy recovery are included in the approved list of acceptable waste types in the Recommended Decision (Schedule A.1).

The facility will not impact to any significant extent on air or water quality standards for the region.

The applicant proposes comprehensive accident prevention and emergency response plans which are requirements under the EU IPPC Directive. The site is a SEVESO facility (because of ammonia storage) and will be subject to Health & Safety Authority approval and supervision.

8. 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).

9. 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 and in this report, as well as the technological, operational and the performance standards (Emission Limit Values) set in the RD, to be the most effective in achieving a high general level of protection of the environment and human health having regard - as may be relevant - to the way the facility is selected/located, designed, built, managed, maintained, operated and decommissioned.

10. Regulatory Classification

Under national legislation and for the purposes of licensing/regulation, the principal classification for the Poolbeg WtE facility is as a Class 8 activity (*Incineration on land or at sea*) under the Third Schedule to the Waste Management Acts 1996 to 2005. Under the EU IPPC Directive (1996/61/EC) the Poolbeg WtE facility falls into two principal categories: Category 5.2 (Incineration of Municipal Waste), and Category 1.1 (Energy Production >50MW). And under the EU Waste Directive (2006/12/EC) the principal activity is a Category *D10 Incineration on Land* disposal operation as set out in Annex IIA of the directive.

11. Compliance with Directives/Regulations

The application documentation and proposal has been evaluated having regard to the requirements of EU legislation as may be relevant (and within the statutory competency of the EPA): principal amongst would include:- The Integrated Pollution Prevention and Control Directive (1996/61/EC); The Incineration of Waste Directive (2000/76/EC); The Waste Directive (2000/12/EC); The Dangerous Substances Directive (1976/464/EEC); the Water Framework Directive (2000/60/EC); the Habitats and the Wild Birds Directives (1992/43/EEC & 1979/409/EEC); the Environmental Liability Directive (2004/35/CE); and The EIA Directive (1985/337/EEC). The application complies with the requirements of said legislation (this being in addition to EU requirements given effect in national legislation and covered under the scope of the EPA's statutory functions articulated in the Environmental Protection Agency Act 1992 & 2003, and the Waste Management Acts 1996 to 2005).

Annex I of Directive 2003/87/EC on greenhouse gas emissions trading exempts incinerators from the directive requirements. In relation to the general obligations under the Kyoto Protocol the application of BAT, energy recovery, and emissions scrubbing for NO_x at the proposed incinerator site do comply with the general principles of the Protocol.

The facility proposal meets the obligations, and technical requirements, defined under the Stockholm Convention on POPs⁵.

⁵ Stockholm Convention on Persistent Organic Pollutants. Done at Stockholm 22 May 2001

12. Recommended Decision

I am satisfied that the conditions set out in the Recommended Decision will adequately address all emissions from the facility and will ensure that the carrying on of the activities in accordance with the conditions will not cause environmental pollution.

13. Submissions

There were 13 submissions made in relation to this application:

#	From	Received
1	Eastern Regional Fisheries Board (Pat Doherty)	28 Aug '06
2	[REDACTED]	8 Sept '06
3	Mary Bryan, Dublin 4	13 Sept '06
4	Catherine Cavendish, Dublin 4	21 Sept '06
5	Anthony Jordan, Dublin 4	26 Sept '06
6	Sandymount & Merrion Residents Association (Lorna Kelly), Dublin 4	4 Oct '06
7	John Gormley TD, Dublin 2	9 Oct '06
8	Maria Slowey, Dublin 4	19 Oct '06
9	Health Service Executive (Gary Kiernan), Dublin 7	23 Oct '06
10	Synergen (Catriona Kinsman), Dublin 4	25 Oct '06
11	Maurice Bryant, Dublin 14	31 Oct '06
12	Ruairi Quinn TD, Dublin 2	6 Nov '06
13	Combined Residents Against Incineration (Frances Corr), Dublin 4	14 Nov '06

All submissions have been read and considered (where relevant to the EPA statutory functions and the application in question). Issues of concern relating to general facility management that were raised in the submissions were taken into account in the drafting of this report and the accompanying RD (e.g., hours of operation, management of storm water, water use, monitoring, bunding, waste acceptance and dispatch procedures, odour management, process control, training and competency of operators, EIS compliance, Waste Plan compliance, etc.). However, some of the submissions merit specific comment and explanation as to how the concerns have been addressed. These issues are dealt with under a number of broad topic headings.

13.1 Construction Impacts

Concerns are raised regarding the impact of the construction phase of the activity on amenity, human health and local industrial/businesses uses. Such impacts are principally identified as noise, dust and disposal of contaminated material to facilitate development. Synergen (the private power supplier) which is a close neighbour of the proposed WtE facility expressed specific concern regarding the potential for dust to impact (given proximity) on their high efficiency air intake filters.

Comment:- The regulation of construction related traffic impacts off-site are a matter for the planning authorities. Section 41(2)(a)(v)(I) of the Waste Management Acts 1996 to 2005 require the EPA to specify

conditions in waste licences dealing with, *inter alia*, construction related emissions management (principally dust & noise). Accordingly the conditions of the RD as drafted, will act to bind the developer to the specified emission limits and control requirements during the construction phase and subsequently during the operational stage (Condition 3.15.2 and Condition 5). Any contaminated soils or dredgings generated as part of the development phase have to be handled in accordance with the provisions of the Waste Management Acts 1996 – 2005. Therefore, construction related waste cannot be managed by the developer in a way likely to cause pollution, or handed over to anyone not authorised to accept or dispose or recover the waste.

13.2 Marine Discharges during Operation

Many of the submissions raise concerns regarding the use of biocides in the cooling water and the impact of this use on river ecology. In addition concerns were raised regarding the impact of the thermal discharge on migrating fish as well as the potential for ‘compound’ impact due to combined thermal discharges (ESB Poolbeg Power Station, *Synergen* (private power provider in Poolbeg), and the proposed WtE facility). *Synergen* expressed concern in relation to the technical implications for their operation due to the proposed location of the WtE facility water discharge.

Comment:- The use of biocides and their impact was considered in detail in the EIS. Refer also to section 4.3 above. The ELVs established in the RD and the monitoring requirements are designed to be protective of the receiving environment and sensitive receptors (Condition 5 and Condition 6.16).

The impact of the thermal discharge is also discussed in Section 4.3 above, and in some detail in the licence application and EIS. One of the concerns raised by *Synergen* in their submission relates to the impact of the WtE facility thermal discharge on the *Synergen* cooling water intake. Any elevation in intake temperature will create inefficiencies in the cooling system for *Synergen*. The RD requires the WtE facility to locate its cooling water intake and discharge at locations in the channel that do not interfere with the *Synergen* cooling system nor its ability to comply with the ELVs specified in its licence (Condition 6.20). The thermal discharge from the WtE plant will expand the existing *Synergen* thermal plume by 50%. This creates some technical compliance issues for *Synergen* in relation to its licence conditions (IPPC Register P0486-01), e.g., Condition 6.9 ... *The mixing zone shall not exceed 25% of the estuarine cross sectional area at any point.* Consequently any grant of the WtE facility licence in the terms presented in the accompanying RD will require a concomitant technical modification of the *Synergen* licence given that *Synergen* cannot be held liable by a condition in its licence for a thermal discharge involving other installations. The excess temperature emission limit in the *Synergen* licence should continue to provide the necessary protection to the estuary. Given that the two facilities will be discharging a thermal plume with biocides into the same part of the estuary it makes most sense for the two operations to cooperate in relation to their respective requirements for ongoing

ambient biological and plume dispersion monitoring. The RD as drafted takes account of this synergy (Condition 6.19).

13.3 Monitoring

A number of the submissions express concerns regarding the efficacy of monitoring proposed by the applicant in relation to air and water discharges; in particular the impact on the marine/estuarine ecology due to the biocide and temperature impact of the cooling water. Further points were raised in relation to the availability/accessibility of the monitoring data.

Comment:- The RD as drafted provides for comprehensive monitoring of the receiving environment and emissions from the proposed waste facility: this includes for ongoing ecological assessment (Condition 6). The RD also included for reporting of this monitoring at set periods and immediately in the case of any breaches (Condition 11). In addition the RD requires all monitoring to be undertaken by properly trained personnel using correct and calibrated instrumentation. The RD further requires that all analytical obligations are to be undertaken in accordance with the appropriate measurement/testing standards (Condition 6.7). The RD provides for real-time publication of monitoring data and the maintenance of public information systems for communication of facility performance (Condition 2.3.2.8).

13.4 Site Selection

A number of submissions express concern regarding the inappropriateness of the selected site. Flooding risks, emissions impact on protected areas and human populations were cited amongst the concerns raised.

Comment:- The selected site does not indicate any frailties that would be fatal to the application before the EPA for decision. The design of the plant as well as the operational/control provisions are such that emissions from the activity at the site selected will not result in environmental pollution. The WtE facility has been designed to account for flood/sea-level rise risk. From a BAT point of view the site is considered suitable. The rationale for the site selection (including updated review of the selection process) is comprehensively dealt with in the licence application documentation.

13.5 Ash Management

Concerns are expressed regarding the storage, handling and destination of the ash residues from the facility, as well as the future sustainability of the proposals for these residues.

Comment:- Section 4.6 of this report above, details the ash management proposals for the WtE facility. Ash is to be moved off-site in sealed transport units for recovery/disposal as appropriate. If suitable landfill is not available in Ireland for the unrecoverable residues, then export of the residues will be necessary. If no recovery or disposal outlet

for the incinerator residues is located nationally or internationally then the activity cannot commence processing waste: or if such outlets cease to be available then the activity will have to cease processing waste. The RD as drafted stipulates various requirements dealing with ash management (classification, sampling, storage, transfer, disposal/recovery) which address the concerns of the objectors (Condition 3 and Condition 8).

13.6 Health Impact Assessment

A number of the submissions express concern regarding the potential for a detrimental health impact associated with the development, and also concern that a proper assessment was not undertaken. The HSE in their submission acknowledge their role in 'implementing systems and infrastructure which support, protect and empower individuals and communities to achieve their full health potential' and set out a number of concerns regarding the potential on health as a result of the proposed WtE facility. These concerns include:- the need to restrict operational hours to between 0800 to 1800 (M to F) and 0800 to 1300 (S) - and presumably closed on Sunday; odour management; litter management; pest control; public participation in decision making; community consultation & education; and, community gain.

Comment:- The application included assessment of the health impact of the proposal from both the perspective of the technology/process including accidents & emergencies, and the specific emissions from the site. The assessments (including an international review of evidence and experience) concluded that the activity will not result in any significant health impact on the local community. Refer also to Section 4.1 of this report above. The Health Services Executive made a submission on the proposed development and did not raise any fundamental objection to the development from a public health perspective other than recommendation for matters that should be addressed in any consent.

The RD provides for the maintenance of a public/community information facility in relation to the operation of the WtE plant, as well as for the management of environmental nuisance (litter, odour, noise) from the facility (Condition 2.3.2.8, Condition 5 and Condition 8). The operation is a 24hour 365day operation, it is not practical, nor environmentally efficient or effective, to operate such a plant on 10hr day, 5.5 day week. The RD permits 24 hour operation of the facility. In this case limits on times for waste acceptance are a planning matter given that the primary impact will be traffic noise for vehicles accessing and exiting the site.

13.7 Proposal Contrary to EU Principles

Submissions on the application suggest that the proposal is contrary to the EU waste hierarchy, as well as the principle of Precaution & Proximity. Some concerns were expressed regarding the impact of the proposed WtE facility on waste recycling initiatives/measures.

Comment:- The facility is located proximal to a major region of waste generation. Energy recovery from waste is a recognised component of the EU waste hierarchy and is preferred over direct landfill for the treatment of non recyclable residual waste (i.e. the waste residues left after all practical efforts have been made to recover recyclable components). An incinerator/WtE plant is recognised as a valid component of an integrated waste management structure in most modern societies as it helps to reduce the reliance on landfill and provides an efficient means of recovering energy from residual waste. The order of delivering waste infrastructure need not necessarily follow the EU waste hierarchy. The RD has been conditioned to ensure that the waste arriving at the WtE facility has been subject to appropriate pre-treatment (recovery of recyclables) having regard to the principles of BAT (Condition 1 and Condition 8). Accordingly it is not expected that the facility will impact detrimentally on recycling initiatives/obligations. Indeed the WtE facility will assist compliance with the EU Landfill Directive by, *inter alia*, helping to remove residual non-recoverable biodegradables/organics from the waste streams.

It is my view that, in relation to incineration, the precautionary principle has already informed the measures adopted by the EU - and nationally - to date (e.g. Directives, Emission Limits, BAT documents, etc.), and by complying with these measures one can be said to be complying with the principle, and thereby Article 174 of the EU Treaty (from where the *Precautionary Principle* is given effect).

13.8 Sewage Sludge Disposal

A number of submissions expressed concerns regarding the proposal to incinerate sewage sludge from the adjacent municipal WWTP, and the effect this may have on the WtE facility.

Comment:- The RD permits the acceptance of sewage sludge for incineration should this be put into action. There is no guarantee into the future that sewage sludge - following processing and treatment on the WWTP - will be accepted for recovery on land where livestock are kept or crops grow (Condition 1). Accordingly it is prudent to provide for the destruction of these sludges in the application and the RD for the WtE facility in the event that such recovery routes cease to become available.

13.9 Accident/Emergency Risks

A number of submissions expressed concerns regarding the management of accidents and emergencies at the site.

Comment:- The RD provides for the development and maintenance of an accident prevention plan as well as an emergency response plan. Such provisions compliment the SEVESO requirements falling to the site which are regulated by the Health and Safety Authority.

In addition the RD prohibits any by-pass of the abatement train and requires shut-down procedures for the incinerators to be implemented in the event of specified risk scenarios (Condition 3.20).

13.10 Enforcement competency

Some concerns were raised on the competency of the Local Authority and the EPA in relation to enforcement of any authorisation for the facility.

Comment:- The Local Authority is the licensee, and as such will not be responsible for enforcement. As regards the concerns in relation to the EPA's ability to regulate this industry, it is useful to note that the EPA currently regulates industrial sites with incinerators handling solid and liquid hazardous and non-hazardous wastes, as well as other facilities licensed to co-incinerate waste for energy/production needs. EPA officers have also participated in the development of the EU BRef document for waste incineration.

13.11 Selection of BAT & Alternatives

A number of submissions raise concerns that the technology proposed is not BAT or has been reduced in standard because of cost. Other submissions express concerns regarding the lack of final detail in the EIS of the design of the plant. A number of submissions were not convinced that all alternatives to incineration were adequately examined.

Comment: Refer above to section 9 of this report. The technology proposed is BAT. The recommended licence binds the applicant to the provision of international best practice. It is quite reasonable at application stage to deal with design concepts and proposals, with the final detailed design being worked up following any grant of permission to develop/operate – and the final design may have to include aspects imposed in any development consents. The RD provides for the agreement of detail design concepts under the Specified Engineering Works (Condition 3.25). The RD also provides for the way the facility is built, managed, maintained, operated and decommissioned, including the provision of emergency back-up plant and equipment (e.g., Conditions 2, 3, 6 & 10).

The licence application documentation, the EIS and the regional waste plans consider the issues of alternative technologies. In 1999 the EU scientific research bureau (IPTS) produced a document examining the issues around incineration, for the European Parliament.⁶ This report noted that incineration is only one of the options available for the management of waste, and as a consequence its merits must be weighed against those of the other options; the challenge being to find the right mix of options. The IPTS report also notes that incineration

⁶ The Incineration of Waste in Europe: issues & perspectives. Inst. of Prospective Technological Studies (EU Commission), Seville, 1999, EUR18717/EN.

with energy recovery is the only practical option for recovery of certain waste streams (e.g. Residual Wastes). In 2002 the European Environment Agency published the outcome of a topic report on biodegradable municipal waste management in Europe.⁷ On incineration, this report acknowledges its role in municipal waste management, and identifies certain advantages, viz; internationally well-known and stable running technology (grate incinerators); reduction of volume of the waste relative to original volume; energy recovery; clinker/ash residues are sterile; and CO₂ neutral energy production.

13.12 Who is responsible for the licence

A number of submissions raise concerns regarding the responsibility for any licence conditions – will Dublin City Council be responsible or with the contracted operator?

Comment: The responsibility under the waste licence for compliance with conditions rests with the licence applicant; whom, in this case, is Dublin City Council. Under the terms of the RD the WtE facility cannot be operated other than by persons who are proven as technically competent to do so (Condition 2.1.1).

13.13 Adequacy of EIS

Various submissions raise concerns over the adequacy of the EIS.

Comment: Refer above to section 8 of this report.

13.14 Other Issues

Planning related issues such as visual impact, traffic, etc., or matters in relation to odour management at the adjacent Sewage Treatment Plant are not within the competency of the EPA in relation to this application.

14. Charges

An annual charge of €61,295.00 is recommended which takes account of the inspection, audit, report evaluation, sampling and analytical costs associated with enforcement of the recommended licence.

⁷ Biodegradable municipal waste management in Europe: Part 3 Technology & Market Issues. EEA Topic Report 15/2001, Copenhagen.

15. Recommendation

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 RD and for the reasons as drafted.

Signed

Dr Jonathan Derham
Senior Inspector

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 1996-2005.