

Attachment 1.2 Non Technical Summary

IEL Review Application W0232-01

Application ID LA003577

Dublin Waste to Energy Limited


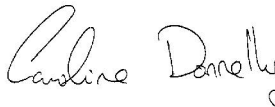
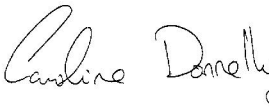
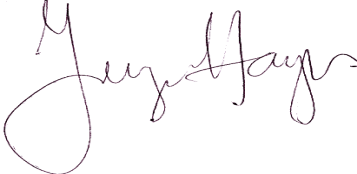
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Quality information

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1. Introduction

AECOM Ireland Limited (AECOM) has been engaged by Dublin Waste to Energy Limited (DWtE) to assist with their application to the Environmental Protection Agency (EPA) for a review of their Industrial Emissions (IE) Licence W0232-01.

This licence review is to accommodate an increase in the amount of residual municipal non-hazardous solid waste DWtE can accept at their site. DWtE are proposing to increase the permitted maximum annual quantity of waste to be accepted at the DWtE facility from 600,000 tonnes per annum to 690,000 tonnes per annum (an increase of 15%).

As the premise for this IE Licence review is associated only with the increase of 90,000 tonnes (15%) in the annual capacity of the DWtE facility (i.e. no physical amendments to the consented operational facility are necessary to facilitate this capacity increase nor are changes to any previously consented emission limit values required) it was agreed between DWtE and the EPA during a pre-consultation meeting that this IE review application could be limited to an update of changes in site conditions since the original licence application. It should be noted that any such changes are limited in number and in fact the original licence application is for the most part representative of current site conditions.

Based on maximum anticipated material inventories, it has been established that the Seveso III Regulations are not applicable to the site under both current and future proposed operating conditions.

This non-technical summary provides, in non-technical language, a summary of the information provided in the IE Licence Review Application. The summary has been provided under the following headings in order to reflect the requirements of the EPA Guidance¹.

- Facility Description
- Materials
- Emission Sources
- Environmental Conditions
- Emissions Control and Abatement
- Waste Management
- Application of Best Available Techniques
- Abnormal Operating Conditions
- Cessation of Activities
- Cross Boundary Impacts
- Assessment of Alternatives

¹ Licence Application Form Guidance Industrial Emissions (IE), Integrated Pollution Control (IPC) and Waste, Version 2 March 2018

2. Facility Description

2.1 Overview

The DWtE site is located on the Poolbeg Peninsula in Dublin Bay on the eastern side of Dublin City. Most of the site is located south of Pigeon House Road with a portion extending north of Pigeon House Road. The overall DWtE site is bounded by Dublin Port to the north, Shellybanks Road to the west and Ringsend Wastewater Treatment Plant (WwTP) to the east. A public footpath, roadway and the shoreline of Dublin Bay lie to the south. The nearest European site to the DWtE site is the South Dublin Bay and River Tolka SPA, part of which adjoins the DWtE facility. This part of the SPA comprises a narrow strip of managed grassland, located between the Ringsend WwTP to the north, and the scrubby hill comprising the Irishtown Nature Park to the south.

The facility operates 24 hours a day, 7 days a week, 365 days a year. However, waste deliveries are only accepted Monday to Saturday, 8.00 a.m. to 10.00 p.m. Incinerator residues destined for ships within the Dublin Port Area can be removed from the facility at any time.

A site location map for the DWtE facility is presented in **Drawing 001** of this IEL Application and an area layout plan of the DWtE site is shown in **Drawing 002**.

2.2 Industrial Emissions Licence History

DWtE is licensed by the EPA for Class 11.1 and 11.3 (a) of listed activities in the First Schedule of the EPA Act 1992 (as amended) defined as requiring an IE Licence:

11.3 (a) Disposal or recovery of waste in waste incineration plants or in waste co-incineration plants for non-hazardous waste with a capacity exceeding 3 tonnes per hour

11.1 The recovery or disposal of waste in a facility, within the meaning of the Waste Management Act, 1996, which facility is connected or associated with another activity specified in this Schedule in respect of which a licence or revised licence under Part IV is in force or in respect of which a licence under the said part is or will be required

The DWtE facility site was granted a Waste Licence Register Number W0232-01 by the Environmental Protection Agency (EPA) on the 1st December 2008.

In January 2014, as required under the provisions of the Environmental Protection Agency Acts 1992 (as amended) and the Waste Management Acts 1996 (as amended), the EPA carried out an examination of all licences to determine if existing licences, in respect of activities listed in the Annex I to the Industrial Emissions Directive, comply with the requirements of that Directive. Having completed its examination, the EPA issued an amendment to Licence No. W0232-01 (now referred to as an Industrial Emissions (IE) Licence) on the 07th January 2014 to achieve the necessary conformity with the Industrial Emissions Directive. Environmental management of the site is regulated by the conditions outlined in its IE Licence Reg. No. W0232-01.

On the 11th April 2017 the EPA granted 'Technical Amendment A' of Licence Reg No. W0232-01 which covered amendments to Schedule B1 Emissions to Air. On the 27th March 2018 the EPA granted 'Technical Amendment B' of Licence Reg No. W0232-01 which covered amendments to licence condition 4.2.1.4.

2.3 Facility Operations

The main process building has two identical waste-to-energy lines, each with separate boilers and flue gas cleaning. The two lines supply steam to one high-voltage turbine/generator that is connected to the electrical grid. Cooling of the exhaust steam from the turbine takes place in a water-cooled condenser. The net (electrical) power output from the DWtE site is approximately 62-63MW although this could increase to 69 MW once the site can accept the 15% increase in waste volumes.

The facility comprises three building as follows:

1. Main process building;
2. Cooling water pump house; and
3. Security building. .

2.4 Environmental Management

DWtE has an Environmental Management System (EMS) in accordance with Condition 2.3 of the site's IE Licence. DWtE has an environmental policy and Environmental Management Programme in place and is committed to adopting the best available technology and processes to attain a high standard of environmental control throughout the site operations.

DWtE has a dedicated EHS team who, on the basis of qualifications and technical ability, have an appropriate level of technical competence to manage environmental issues at the DWtE facility.

Through the DWtE EMS the site has a documented management system in place for the control, monitoring and evaluation of site activities which may have an environmental impact.

3. Materials & Energy Use

3.1 Raw material Use & Storage

Details on raw materials are provided in **Attachment 4-6-2** of this IE Licence review application. DWtE does not, in general, store materials in bulk but rather in smaller quantities as outlined in Attachment 4-6-2.

Raw materials and supplies are delivered to site by contractors/vendors. Storage of raw materials and supplies largely takes place in the main process building in the dedicated materials storage area.

In accordance with conditions 3.12 and 8 of the site's IE Licence, storage of materials only takes place in designated areas. All fixed and mobile storage tanks are surrounded by containment bunds (110% capacity) that are designed to contain material in the event of spill or are double skinned. Loading and unloading of materials takes place only in designated areas which are protected against spills. All bunds are integrity tested every five years in accordance with the requirements of the IE Licence. Details of such testing are reported annually to the EPA and detailed test records are maintained on site.

Storage areas on site are highlighted in **Drawing No.002**.

3.2 Resource Use

The DWtE facility is currently designed to optimise power output.

Steam from the boiler drum is sent to the turbine and as the steam goes through the multiple stages of the turbine it is collected in the low-pressure header. The electricity produced is exported to the grid, minus whatever is used on-site.

In the future, some of this heat will be exported to the Dublin District Heating Scheme, when the external infrastructure is completed. Heat export pipework and shell and tube heat exchangers are installed and ready for connection at the lower level of the facility. The Dublin District Heating system (DDHS) is currently being developed and is expected to be in operation by c.2021. The DWTE facility will provide the baseload heat output for the DDHS which on its own will supply a heat source for over 50,000 homes. Once this is operational the DWtE facility will have net energy efficiency of over 88%.

Water for sanitary and drinking purposes is supplied by mains water. DWtE have an arrangement with Ringsend Municipal Wastewater Treatment Plant (MWWTP) for the supply of “grey” water from the MWWTP. This water is treated by DWtE via double reverse osmosis and ultra-filtration prior to use by DWtE in the process.

Additional site process water is sourced from the storm water attenuation tank and recycled process waste water.

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4. Emission Sources & Environmental Conditions

Emissions from the DWtE site are currently managed as per the site IE Licence. Emission Limit Values (ELVs) in the IE Licence have been determined based on either Irish regulatory requirements or Best Available Techniques (BAT).

4.1 Emissions to atmosphere

A2-1 and A2-2 are the main emission points to air from the DWtE facility. A2-1 and A2-2 correspond to the two stacks associated with each combustion line.

A number of minor emission points are located around the site from small vents and heating, ventilation and air conditioning (HVAC) systems.

Potential emissions include those from various relief vents, use of the emergency generator and firewater pumps.

All processes, cleaning, loading, unloading and consumables storage are internal and as the building is under negative pressure, any fugitive releases will become part of the combustion air. Therefore, the site does not release fugitive emissions.

Updated air dispersion modelling for emission points A2-1 and A2-2 conclude that there is a negligible impact to the surrounding environment associated with these emissions.

4.2 Emissions to Surface Water

There is no direct discharge to surface water of process, sewage or storm water from the DWtE facility.

All process waste waters (e.g. boiler blow down, boiler water treatment reject water, scrubber water) are collected for recycling in the Flue Gas Treatment System or used for humidification/cooling of the bottom ash outlet.

Cooling water from the facility is discharged to the Liffey Estuary via emission point reference number SW-1. ELV's for SW-1 are contained in Schedule B.2 of IE licence W0232-01.

4.3 Noise Emissions

The primary sources of noise emissions are those associated with external operations such as air handling units, chiller units, boiler operation and vehicular movement.

The DWtE facility site consistently complies with the noise limits as set out in Schedule B.4 of the existing site IE Licence.

4.4 Soil & Groundwater

A site Baseline Report is provided in **Attachment 4-8-2** of this IE Licence review application and a Site Condition Report is provided in **Attachment-4-8-3**. These reports provide a detailed description of the site with respect to soil and groundwater.

DWtE have one groundwater monitoring well (GW1) (refer to **Drawing 002**) which is monitored as per schedule C.6.1 of the site IE Licence. Details on groundwater monitoring is reported annually to the EPA.

No emissions to soil or groundwater arise from the site.

5. Emissions Control and Abatement

5.1 Emissions to atmosphere

A2-1 and A2-2 are the main emissions to atmosphere at the DWtE facility. Each combustion line has its own independent train of Air Pollution Control (APC) equipment which is described in detail in **Attachment 4-7-2** of this IE Licence review application. Throughout the air pollution treatment process the emissions are continuously monitored using a real time continuous monitoring system (CEMS). Each stack has its own CEMS and in addition a redundant CEMS is continuously on stand-by in the event of one of the live systems going down. These systems are calibrated weekly and certified on an annual basis to best practice and EPA guidance. Furthermore quarterly independent stack testing is undertaken as per Schedule B.1 of the site IE Licence.

5.2 Water Emissions

There is no direct discharge to surface water of process, sewage or storm water from the DWtE facility. All process waste waters (e.g. boiler blow down, boiler water treatment reject water, scrubber water) are collected for recycling in the Flue Gas Treatment System or used for humidification/cooling of the bottom ash outlet.

Cooling water from the facility is discharged to the Liffey Estuary via emission point reference number SW-1. ELV's for SW-1 are contained in Schedule B.2 of IE licence W0232-01.

Surface water runoff from building roofs, roads, parking areas etc. is stored in an attenuation tank for re-use in the process. DWtE is connected to the neighbouring Ringsend Municipal Wastewater Treatment Plant (MWwTP) for discharge of sanitary effluent. Any overflow from the surface water attenuation tank also discharges to the MWwTP.

With respect to storm water drainage there are two Class I oil/petrol Interceptors on the storm water drainage network up gradient of the site attenuation tank.

The Class I oil Interceptors have high oil level alarm probes which if alarmed will activate in the Control Room.

5.3 Noise Emissions

External equipment is, where possible, located in areas that will minimise noise emissions at noise sensitive receptors. Where possible, equipment is screened using acoustic cladding or barriers and equipment sound power levels are a consideration during design and procurement.

6. Waste Management

Incinerator Bottom ash (IBA), boiler ash and Air Pollution Control Residues (APCR) are generated during the waste to energy process. With respect to IBA, at present the approved recovery facility in the Netherlands recovers the metal (ferrous and non-ferrous) from the IBA. The remaining IBA material is used as aggregate in road building, embankments, road barriers and concrete pads for solar parks. It is intended to carry out this activity, through a 3rd party, in Ireland once the prerequisite licences and approvals are granted. The APCR and boiler ash is transported off site in closed containers for recovery which currently takes place in Norway and in a salt mine in Germany.

Full details on typical waste generated by DWtE are provided in **Attachment 8-1** of this IE Licence review application.

7. Application of Best Available Techniques (BAT)

In section 4 of this IE Licence Review, DWtE reports on their compliance with the following draft BAT Conclusions (BATC), Best Available Techniques (BAT) Guidance Notes and BAT Reference (BREF) documents:

- Draft BAT Conclusions (BATC): Draft Conclusions on BAT from the Waste Incineration BAT Reference Document (December 2018) (Attachment 4.7.2.1);
- BREF Document on Best Available Techniques for Energy Efficiency, February 2009 (Attachment 4.7.2.2); and
- BREF Document on Best Available Techniques on Emissions from Storage, July 2006 (Attachment 4.7.2.3).

8. Abnormal Operating Conditions

DWtE has a documented Environmental Accident Prevention Policy and Emergency Response Plan as per conditions 9.1 and 9.2 of the site IE Licence. These are reviewed at least annually or after a major event. The site is manned by a 24/7 and the operations team consisting of at least one shift supervisor, control room operator and supported by auxiliary operators at all times.

In the event of a loss of power to the site the emergency back-up diesel generator will maintain essential site services. A loss of mains power to the site would result in a closure of the attenuation tank pumping mechanism until the site generator becomes operational.

A preventative maintenance management system is also in place across the site. Furthermore the calibration of key control equipment is managed by a software programme. This programme prompts DWtE personnel of when key equipment requires periodic calibration by specialist third parties.

Environmental, health and safety considerations are incorporated into the design process with the aim of managing abnormal operating conditions through specific EHS design reviews, ATEX reviews, HAZOPS or other Process Hazard Analysis (PHA) tools and Job Safety Analysis (JSAs).

9. Cessation of Activities

In compliance with condition 10 of the site IE Licence DWtE has prepared a fully detailed and costed Decommissioning Management Plan which has been agreed with the EPA.

10. Cross Boundary Impacts

There are no anticipated impacts over long distances or outside the territory of Ireland as a result of the proposed increase in waste to be accepted at the DWtE facility.

All emissions are and will be in the future monitored as per the site IE Licence.

11. Alternatives

Alternatives to the activities undertaken at DWtE are either landfill or export of waste neither of which are in accordance with the Waste Hierarchy principles. Therefore, the consideration of alternatives is not considered relevant for this IE Licence review application.

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