1. Attachment 4.3.4 Recovery and Disposal Activity Capacity Calculations

1.1 Site Capacity

The current Industrial Emissions Licence for DWtE states that the maximum tonnage to be accepted on-site shall not exceed 600,000 tpa. The purpose of this IE Licence review is to seek approval from the EPA to increase this maximum tonnage limit to 690,000 tpa (a 15% increase).

The key system in determining the throughput capacity at the DWtE facility is the boiler train, consisting of stoker, boiler and air pollution control (APC) equipment. The boiler train is designed to allow a certain range of waste throughput processing and heat release capabilities. The stoker is designed to combust the quantities of waste within certain waste calorific value and stoker heat release ranges. The boiler is designed to absorb the heat and create steam for heating or electricity generation purposes. The APC equipment is designed to remove pollutants from the volume of combustion gasses produced in the boiler/stoker in order to meet the emissions limits required by the IE Licence.

The original design basis was a capacity of 35 tonnes per hour (tph) per line at an average waste calorific value of 10,540 kJ/kg. Over the course of approximately one year of operations it has been observed that the average heating value of the waste is approximately 9,600 kJ/kg. At this figure the increased heat release can extend the capacity to approximately 41.0 tph which will facilitate the increase in the maximum annual capacity of 90,000 tonnes in annual throughout.

Regardless of a stated annual capacity and whether increased from 600,000 tpa to 690,000 tpa, the actual day to day and month to month capacity of the DWtE facility will be determined by:

- The calorific value of the waste which is variable on a day to day and month to month basis;
- The availability of each of the DWtE incineration lines as a result of planned and unplanned outages over any given time period;
- The physical limitation of the plant (maximum heat release rate) as well as strictly operating well within the environmental performance envelope defined by the facility's IE licence, i.e. compliance with all operating conditions and ELVs.

With respect to the final bullet point above, it is noted that DWtE will not be seeking any change or variation to the operating conditions or emission limit value (ELV) in the current IE licence to accommodate the proposed increase in annual capacity.

In summary, as a result of the increase in heat release capability of the boilers, and taking into account the variable nature of the calorific value of the waste, the increase in nominal annual throughput can be achieved without the addition or modification of any plant at the DWtE facility nor any requirement to change any operational limit value or ELV. It is also noted that this increase in throughput is needed in order to achieve the original electricity production figures anticipated for the facility due to the fact that the actual heating value is below the original design.

1.2 Specific Recovery & Disposal Capacity Calculations

With respect to the specific recovery and disposal capacity calculations outlined in Table 1 below these have been calculated based on a number of parameters including:

1. The boiler train as discussed in section 1.1 (D10, D13, D14 and R01);
2. The daily delivery capacity/physical dimensions of the waste reception area of 3,600 tonnes/day (D13 and D14);
3. The physical capacity of the waste bunker area of 9,500 tonnes (D15);
4. Potential future site operations (R04 and R05) and

5. Residue storage capacity of 10,000 tonnes for the bottom ash bunker plus 200 tonnes for the boiler ash hopper plus 350 tonnes for Air Pollution Control Residues silos (R13) i.e. 10.550 tonnes.

Table 1. Recovery & Disposal Capacities

Recovery and Disposal Activity and Description	Treatment Type	Capacity	Capacity Units	Maximum Quantity	Principal Activity
D10 Incineration on land	Incineration plant (disposal) - non-hazardous waste	83	Tonnes/hr	690,000 tpa	No
D13 Blending or mixing prior to submission to any of the operations numbered D 1 to D 12	Blending or mixing prior to submission to any of the operations numbered D 1 to D 12	3,600	Tonnes/day	690,000 tpa	No
D14 Repackaging prior to submission to any of the operations numbered D 1 to D 13	Repackaging prior to submission to any of the operations numbered D 1 to D 13	3,600	Tonnes/day	690,000 tpa	No
D15 Storage pending any of the operations numbered D 1 to D 14 (excluding temporary storage, pending collection, on the site where the waste is produced)	Storage pending disposal of waste	9,500	Tonnes/day	690,000 tpa	No
R01 Use principally as a fuel or other means to generate energy	Waste to Energy Plant - non hazardous waste. Conversion to electrical and heat energy	83	Tonnes/hr	690,000 tpa	Yes
R04 - Recycling/reclamation of metals and metal compounds	Metal recycling or reclamation (to end-of-waste)	50	Tonnes/day	1,000 tpa	No
R05 - Recycling/reclamation of other inorganic materials	Inorganic materials recycling or reclamation (to end-of-waste)	50	Tonnes/day	1,000 tpa	No
R13 - Storage of waste pending any of the operations numbered R 1 to R 12 (excluding temporary storage, pending collection, on the site where the waste is produced)	Storage pending recovery or recycling of waste	10,550	Tonnes/day	690,000 tpa	No

1.3 Maximum Accepted Totals

Table 2 highlights the maximum accepted totals that DWtE are applying to the EPA for:

Table 2. Maximum Accepted Waste Totals

Waste Source	Maximum to be accepted (tonnes/annum)	Waste Type	Maximum to be accepted (tonnes/annum)
Municipal	690,000 Note 1	Hazardous	0
Commercial & Industrial Waste	150,000 Note 1	Non –Hazardous	690,000 Note 1
Other	0		
Total	690,000 Note 1		

Note 1 – The total tonnage applied for is 690,000 tonnes per annum. DWtE propose that the individual maximums (i.e. for Municipal waste and Commercial and Industrial waste) cannot be exceeded and combined they cannot exceed 690,000 tonnes per annum.

1.4 Waste Management in Ireland

Attachment 4.3.9 of this IE Licence application discusses how the DWtE facility contributes to waste management in Ireland.