

### **Schedule 5 Request for Further Information**

**Q2** *Provide further supporting information relating to the proposed thermal oxidation plant (such as operating techniques, management plans, mass balance/energy balance calculations) which demonstrates the following:*

*a) That the heat generated is recovered as far as practicable through the generation of heat, steam or power, as required by Article 44 of IED, including 'waste heat at a useful temperature' as required by Article 14 of the Energy Efficiency Directive.*

*b) Your steam production and steam usage metering/ monitoring proposals, to ensure that you demonstrate the steam produced matches the demand of the installation; and any measures in place to minimise steam losses.*

#### **Background**

The proposed plant (Multifuel Oxidiser – MFO) has been designed to abate odours and provide energy to the factory in the form of steam. It operates in conjunction with the production operations and is controlled from a SCADA system.

The requirements of the Industrial Emissions Directive (IED) and the Energy Efficiency Directive (EED) are set out below:

*Article 44 IED : (b) the heat generated during the incineration and co-incineration process is recovered as far as practicable through the generation of heat, steam or power;*

*Article 14 EED: An industrial installation with a total thermal input exceeding 20 MW generating waste heat at a useful temperature level is planned or substantially refurbished, in order to assess the cost and benefits of utilising the waste heat to satisfy economically justified demand, including through cogeneration, and of the connection of that installation to a district heating and cooling network.*

The design of the plant has taken these requirements into account – as demonstrated by approval under the Renewable Heat Incentive (RHI) scheme and as described in the flow diagram.

#### **Approval under the RHI Scheme:**

The Biomass Oxidiser (MFO) has been given a Tariff Guarantee under the Renewable Heat Incentive scheme following submission of documents on eligible uses and monitoring of fuel and heat.

Tariff Guarantee for an application to the Non-domestic Renewable Heat Incentive, reference RHI0000026049.

#### **Energy balance calculation**

This has been calculated by the manufacturer and approved through the RHI submission process. It can be seen that the inputs are translated into energy output (steam and heat) with minimal losses.

<b>Inlets</b>		<b>Outlets</b>	
MBM	25.776,6 kW	Useful power - saturated steam	<b>19.840,4 kW</b>
Natural gas	0,0 kW	Useful power - preheated atmospheric air	<b>563,1 kW</b>
Vapour process fumes	865,2 kW	No burned	257,8 kW
Atmospheric air	42,8 kW	Thermal losses	1.912,8 kW
Room air + Faul air	180,3 kW	Stack	7.281,8 kW
Dilution air	66,1 kW	<b>Total</b>	<b>29.855,9 kW</b>
Feeding water	2.924,8 kW		
<b>Total</b>	<b>29.855,8 kW</b>		
		<b>Global efficiency</b>	<b>79,2%</b>

These figures are based on calculations only and as the plant goes through the stages of commissioning these will be updated as necessary.





### Plan of steam meters

The proposal for metering is set out in the diagram below. This shows all future changes to the processing lines in addition to those that are the subject of this variation.

This plan was submitted as part of the RHI application and approved as being able to demonstrate the efficient management of steam demand and control of heat losses.

Meters will be linked to the SCADA system and energy use monitored under the accredited energy management system.

### **KEY**

-  Orange Box = Mass flow heat meter
-  Blue BOX with orange = condensate meter
-  Green Box = indicates the mains gas supply
-  Purple = Biofuel Meter (tallow)

