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31st January 2020

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Our Ref: W:\Environmental\IPPC\Environment Agency Reporting\Permit Reporting\Section Mill\Section 2.7 Energy Management\EPRBV0767IT _section 2 7_energy efficiency 2020.doc

Dear Dr Richards,

RE: Environmental Permitting Regulation (EPR) BV0767IT Sections Mill Permit Condition 2.7 – Energy Management

1.0 Introduction

CELSA Manufacturing UK Ltd is regulated under Environmental Permitting Regulations (EPR), formerly the Pollution Prevention and Control (England and Wales) Regulations 2000 to operate an installation which carries out activities as defined within schedule 1, part 2, chapter 2, section 2.1 A(1)(c). As such the company is permitted in accordance to the terms and conditions of EPR permit BV0767IT.

Section 2.7.2 of this permit states that:

'The Operator shall maintain and update annually an energy management system which shall include, in particular, the monitoring of energy flows and targeting of areas for improving energy efficiency.'

2.0 Current Energy Management System

CELSA's manage energy use through their ISO 14001:2015 Environmental Management System and Greenhouse Gas Emissions Permit (ref. UK-W-IN-12612).

2.1 Energy Usage

Prime energy at the Sections Mill (SM) is obtained from the following sources;

- Electricity; and
- Natural gas.

Electricity is supplied from the National Grid. Electricity usage is measured on a daily basis and any anomalies are investigated. The main uses of electricity at the SM are the rolling mill drive motors and billet warehouse, where associated process plant equipment and building services are utilised. These comprise of fans, pumps, compressors, lighting and recirculation pumps used to transfer cooling water around the water systems. Energy efficient motors are purchased as standard and control of most motors is automatic. Most lighting is sodium. Energy efficient LED lighting has been installed in some parts of the Sections Mill warehouses to reduce consumption.

The main use of natural gas is the re-heat furnace which has been operational at the site since 1963. The re-heat furnace has been retrofitted to operate reasonably efficiently.

The SM energy consumption is detailed in table 1 below.

Energy Source	Delivered (MWh)	Primary (MWh)	% of Total
Electricity	25,227	60,545	21
Gas (Natural)	117,591		79

Table 1: Energy Consumption 2019

No changes have been made to the site since the original application.

2.2 Energy Efficiency Plan

The SM energy objective is to minimise the use of energy by using energy efficient products, reviewing energy usage regularly and identifying areas or practices that would result in energy efficiency. In addition, operating and maintenance procedures are designed to ensure efficient operation of motor, fans and heat exchangers. The following measures undertaken are representative of BAT requirements:

- Optimisation of hot charging, ensuring alignment with rolling programme
- Maintenance of high temperatures in the re-heat furnace during short-term periods of no operation;
- On-line CO monitor to optimisation of furnace chemistry stoichiometry;
- Use of high efficiency motors;
- Hydraulic pumps have accumulator unloading in that the pumps are only loaded when flow is demanded;
- Water pumps are primarily under float control in that they only run to meet the demands of the process;
- Use of variable speed drives;
- The SM requirements for compressed air, consists of four rotary screw compressors supplying the process demands through a ring main distribution system. Compressor usage is optimised to deliver on demand. The use of compressed air is monitored

and any anomalies investigated. Optimal efficiency is achieved through contract maintenance;

- Lubrication of the rolling stands to minimise energy losses through friction; and maintenance of refractories to minimise insulation loss;
- Installation of SQL monitoring and measurement system to track electricity and gas consumption.
- High emissivity coating of the refractory lining of the furnace reflects heat back into the furnace and thus reduces heat loss.

3.0 Energy Management System Review

Environmental Management System Procedure ECP31 Management of Energy Use detail the data collection, collation and review activities required to manage CELSA's significant energy use. This enables CELSA Manufacturing (UK) Ltd to meet their Greenhouse Gas Emissions Trading Permit and ISO 14001 system.

3.1 Energy Efficiency Objectives and Targets

Energy efficiency plans have been in place for a number of years, as part of the CELSA's main business strategy and current Environmental Management System (EMS) Objectives & Targets (O&T). These O&T's have associated action plans for energy reductions. These action plans are dynamic documents which are updated with new actions when areas for energy efficiency are identified.

The following O&T's were set for 2019:

1.0 Reduce gas consumption by 2% based on 2018 (KPI = KWh/tonne)

The objective was to reduce gas consumption to 420.9 kWh/tonne at the Sections Mill.

Unfortunately, the Sections Mill could only achieve a consumption of 444 kWh/tonne.

A gas consumption target of 420.9 kWh/tonne has been set for 2020.

2.0 Consume no greater than 87 kWh/tonne of electricity in 2019 (KPI = KWh/tonne)

The objective was to keep consumption at 87 kWh/tonne; unfortunately, the Sections Mill just missed their target and consumed an average 88 kWh/tonne of electricity in 2019.

A target to consume no greater than 86.8 kWh/tonne of electricity has been set for 2020.

3.2 Electricity & Gas Action Plan 2020

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The electricity & gas reduction action plans to date for 2020 include the following:

- Maximisation of hot charging where practicable;
- Review improvement opportunities identified in Energy Saving Opportunities Scheme with a view to assessing feasibility of implementation;
- Ongoing monitoring and targeting of energy using the SQL data;
- Focus of continuity of process efficiencies across all shifts;
- Improving and updating reporting outputs using the SQL data;
- Continuation of refining process recipes and strategies;
- Redraft the mill to enable lower rolling temperatures with optimised pressure loading;
- Continuing liaison with furnace specialists Stordy;
- Identifying areas for installation of variable speed drives (VSD) and energy efficiency motors;
- Continuation of the replacement of lighting with new energy efficient lighting;
- Re-routing of lighting circuits to reduce control points to improve control;

CELSA have reviewed the existing Energy Management System as stated in Section 2.0 above and the current actions in section 3.0 reflect current energy management system. There have been no changes to the installation as to those proposed during the permit application stage. Therefore CELSA deem that this energy management system review is up to date with current procedures and practices at the Sections Mill.

Should you require any further information or should have any further questions arising from the above, please do not hesitate to contact me.

Yours sincerely

Gabriella Nizam
Environmental Advisor