Building 58, Castle Works, East Moors Road
CARDIFF CF24 5NN
Tel: 029 2035 1800
Fax: 029 2035 1801

31st January 2018

Dr Gareth Richards
Natural Resources Wales
Rivers House
St Mellons Business Park
St Mellons
CARDIFF
CF3 0EY

Our Ref: W:\Environmental\IPPC\Environment Agency Reporting\Permit Reporting\Section Mill\Section 2.7 Energy Management\EPRBV0767IT _section 2 7_energy efficiency 2018.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 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.

Building 58, Castle Works, East Moors Road
CARDIFF CF24 5NN
Tel: 029 2035 1800
Fax: 029 2035 1801

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 | 26,309 | 63,140 | 18 |
| Gas (Natural) | 117,363 | | 82 |

*Table 1: Energy Consumption 2017*

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
- Combustion air recuperation using the furnace off-gases, this was installed during the Christmas 2017 shutdown
- 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;

Building 58, Castle Works, East Moors Road
CARDIFF CF24 5NN
Tel: 029 2035 1800
Fax: 029 2035 1801

- 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;
- Use of energy efficient lighting throughout the building;
- 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 2017:

**1.0 Reduce gas consumption by 3% based on 2016 (KPI = KWh/tonne)**

The objective was to reduce gas consumption to 422 kWh/tonne at the Sections Mill.

Unfortunately, the Sections Mill could only achieve a consumption of 437 kWh/tonne.

The gas consumption target of 422 kWh/tonne has been left unchanged for 2018.

**2.0 Reduce electricity consumption by 1% based on the 2016 result (KPI = KWh/tonne)**

The objective was to reduce electricity consumption to 90 kWh/tonne at the Sections Mill, which was a 1% reduction, compared with 2016 consumption.

Building 58, Castle Works, East Moors Road
CARDIFF CF24 5NN
Tel: 029 2035 1800
Fax: 029 2035 1801

The Sections Mill achieved their electricity consumption target with a result of 87.8 kWh/tonne in 2017.

A target to consume no greater than 88 kWh/tonne of electricity has been set for 2018.

***3.2 Electricity & Gas Action Plan 2018***

The electricity & gas reduction action plans to date for 2018 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

**Richard Lewis**
**Environmental Manager**