Building 58, Castle Works, East Moors Road
CARDIFF CF24 5NN
Tel: 029 2035 1800
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31st January 2021

Mrs E A Parr
PPC Compliance Assistant
Natural Resources Wales
Rivers House
St Mellons Business Park
St Mellons
CARDIFF
CF3 0EY

Our Ref: W:\Environmental\IPPC\Environment Agency Reporting\Permit Reporting\New Melt Shop\Annual\2020\TP3639BH 4.2.2. Annual Returns 2020.doc

Dear Mrs Parr,

RE: Melt Shop EPR Permit TP3639BH 4.2.2. Annual Returns 2020

In accordance with CELSA Manufacturing (UK) Ltd Environmental Permitting Regulations (EPR) Melt Shop Permit TP3639BH, permit condition 4.2.2 requires the following:

4.2.2 For the following activities in schedule 1, table S1.1, A1 to A8. A report or reports on the performance of the activities over the previous year shall be submitted to Natural Resources Wales by 31st January (or other date agreed in writing by Natural Resources Wales each year. The report(s) shall include as a minimum:

a) a review of the results of the monitoring and assessment carried out in accordance with the permit including an interpretive review of that data, and
b) the annual production/treatment data set out in Schedule 4 Table S4.2

1.1 Introduction

Within CELSA Manufacturing Mission statement, we are 'the UK's leading environmentally focused integrated steel manufacturer'. Despite an exceptionally difficult market, CELSA are committed to achieving continual improvement of our environmental performance.

The Melt Shop's environmental performance in 2020 has been reviewed, including the environmental Objectives and Targets which have been set for 2021 in conjunction with senior management. CELSA received 3 complaints during 2020, two of which were in reference to fugitive dust from a local resident and a neighbouring business. These complaints were resolved, and new control measures put in place to prevent their reoccurrence. After receiving complaints related to the storage of tin cans on site in 2019, the continued treatment of the storage piles in 2020 has resulted in 0 complaints relating to pests. This proves the measures in place are successful in managing the issue.

1.2 Environmental Performance Review

1.2.1 Production and Energy Consumption

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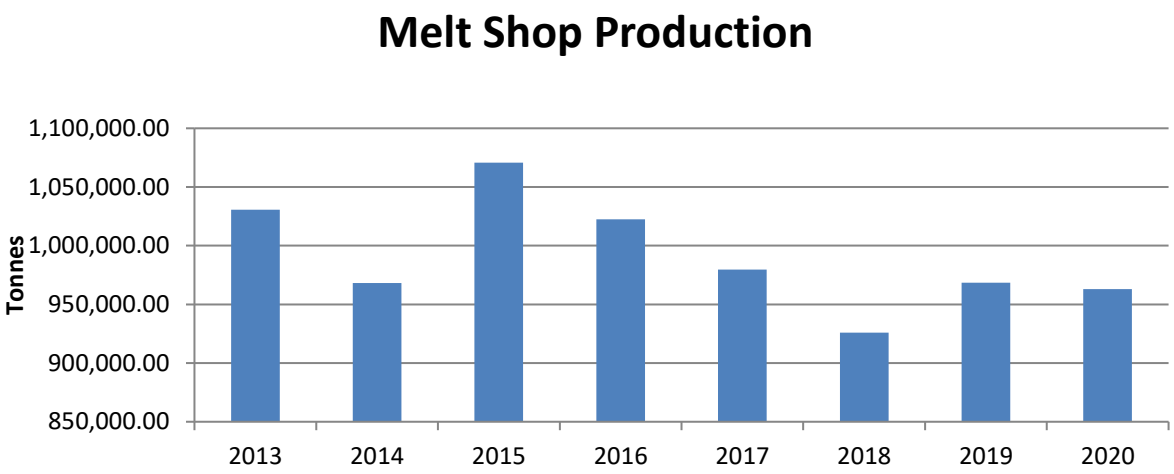

Figure 1: Melt Shop Production (tonnes). There was a decrease in production by 0.005% from 2019 to 2020.

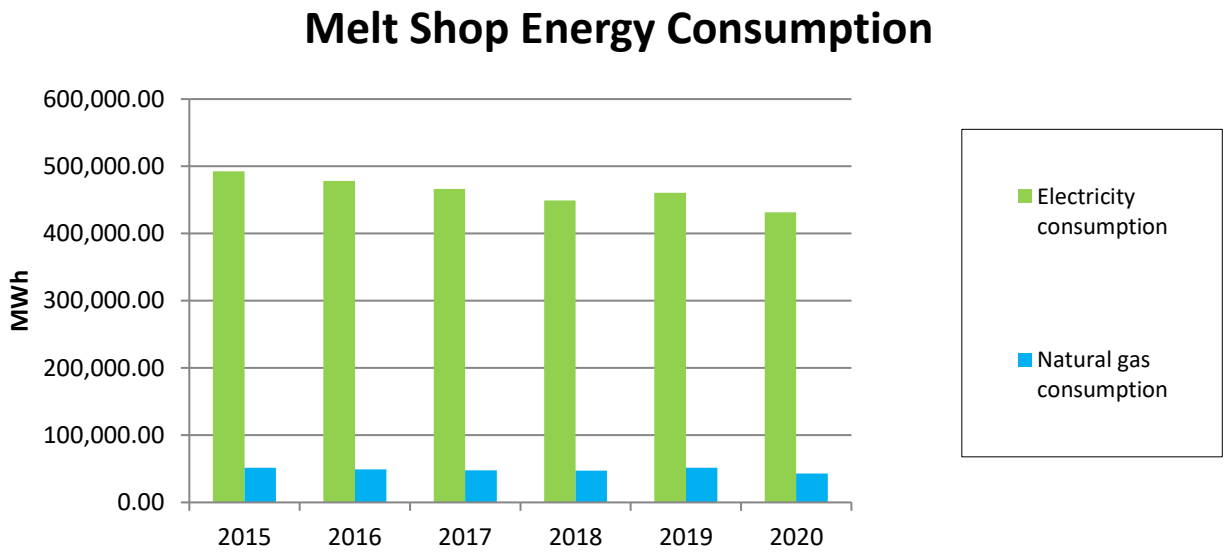

Figure 2: Melt Shop Energy Consumption (MWh)
Electricity consumption at the Melt Shop saw a 0.07% decrease since 2019; gas consumption saw a 0.20% decrease since 2019. However, there have been greater fluctuations in electricity consumption than natural gas, which has remained relatively stable across the years. The Melt Shop will continue to focus on energy as part of their Objectives and Targets for 2021.

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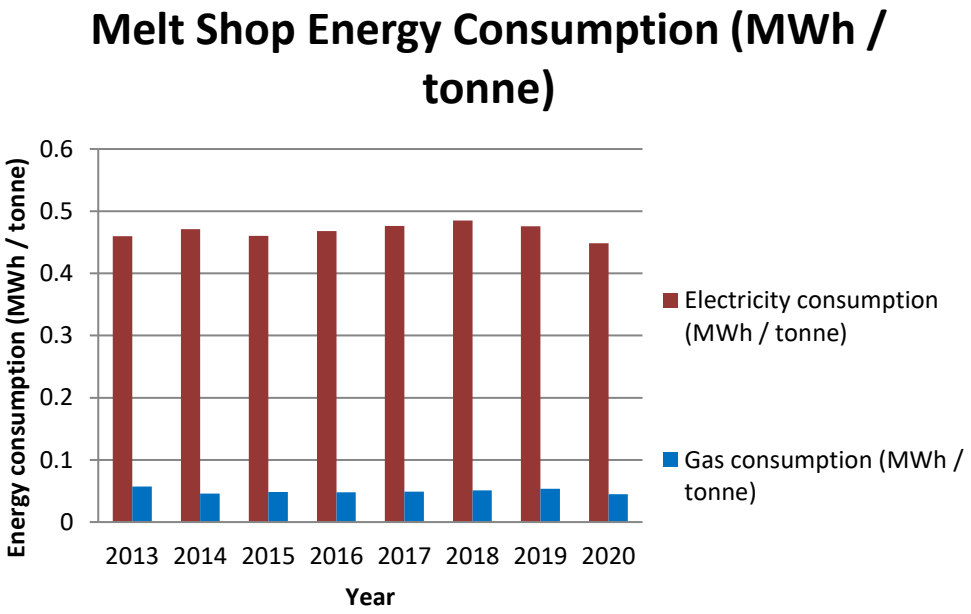

Figure 3: Melt Shop Energy Consumption per tonne (MWh/tonne)
Energy consumption per tonne shows a decrease from 2019 to 2020. Energy consumption per tonne continues to be an environmental factor which is addressed in the melt shop annual targets for 2021.

1.2.2 Air emissions – A1 & A2

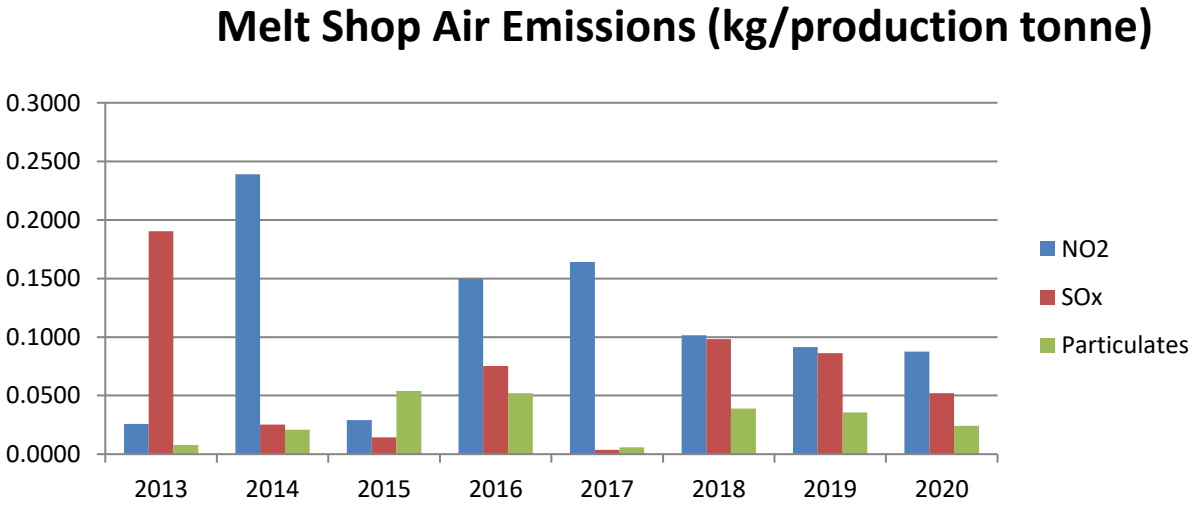

Figure 4: Melt Shop Air Emissions (kg/production tonne)

The air emission parameters for A1 and A2 were all below the set limits.

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Waste Water Quality – S1 & S2

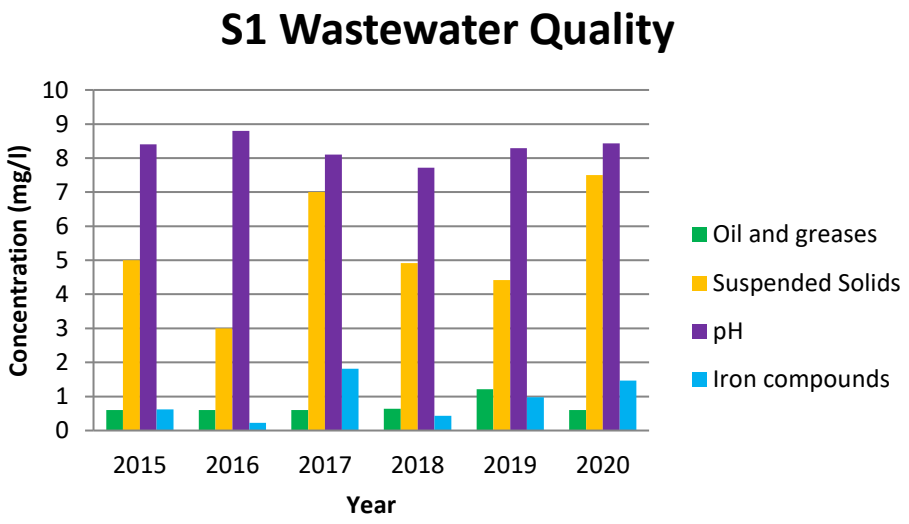

Figure 5: Melt Shop Waste Water Quality (mg/l)
Although there was an increase in pH, suspended solids, and iron compounds, it is difficult to make a true comparison as the results are based on spot samples. The wastewater quality parameters for S1 and S2 were all below the set limits.

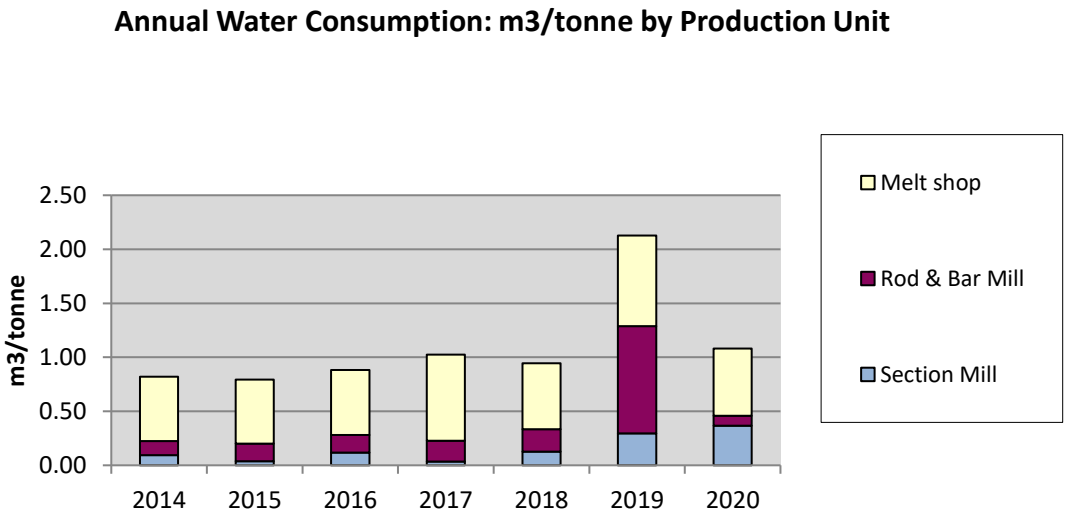

Figure 6: Melt Shop water consumption (m³/tonne)
The Melt Shop water consumption decreased 26% from 0.84 m3/tonne in 2019 to 0.62 m3/tonne in 2020. The Melt Shop did not meet their water reduction target of 0.54 m3/tonne, however, still managed a significant reduction from 2019's consumption. CELSA's will continue to engage with the water management contractor (Kurita) and supplier (DCWW Welsh Water) on the potential water saving measures that can be implemented throughout 2021.

1.2.3 Waste Production

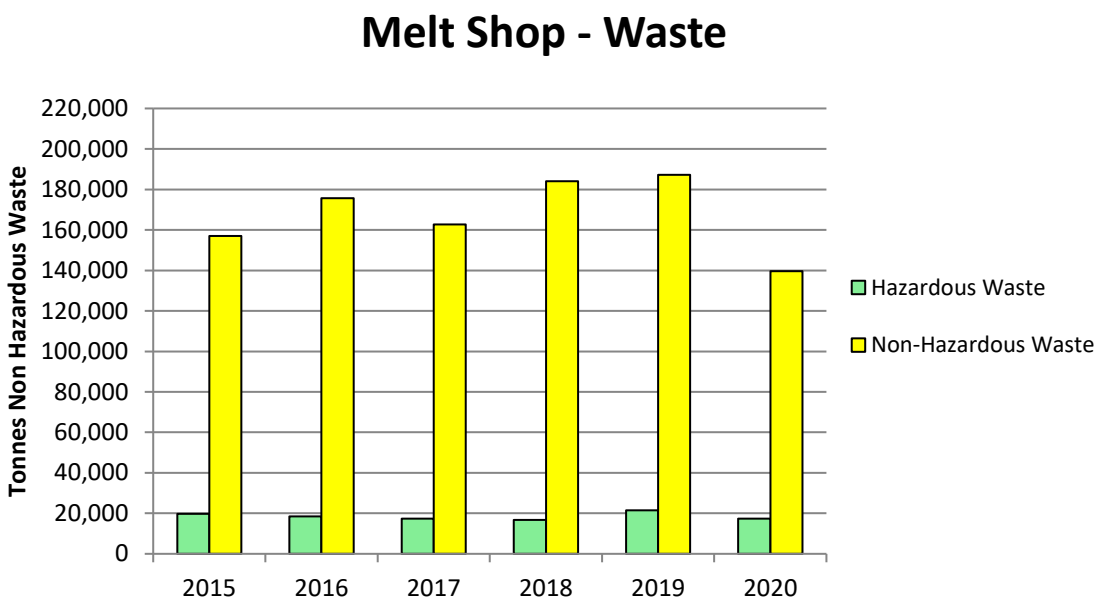

Figure 7: Melt Shop waste production (tonnes)

The general waste target was 17.39 tonnes per month in 2020 however; the Meltshop did not achieve the target, with 19.3 tonnes per month being produced. Although the target was carried over after it was not met in 2019, it is a significant improvement from the 27.56 tonne average of that year Areas have been identified for improvement, such as improved communication to on-site contractors through better waste segregation signage and skip labelling, which is to be carried out in 2021. Additionally, communication was maintained with the operational areas through the monthly EMS meetings, where monthly walkabout actions are recorded on Prosafety which includes any actions related to waste segregation. Pre-shutdown discussions are aimed to ensure that any other waste streams are segregated appropriately and are not sent offsite as general waste. The 2021 target for general waste remains the same as 2020 (17.39t/month), which will require a further 10% reduction waste production to achieve. Overall, there was 19.02% decrease in the amount of non-hazardous waste from 2019 to 2020, whilst hazardous waste decreased by 19.02% from 2019 to 2020. This is attributed to lower activity throughout 2020 due to fluctuations in demand caused by the pandemic.

1.2.4 Fugitive Emissions

Particulates are formed as a consequence of EAF steelmaking and are created from the volatilisation of the steel scrap during the electric arc melting process. Large volumes of fume are generated during the melting process, which are handled up to 2 million cubic metres per hour of extraction. Fume is drawn off both the electric arc and ladle furnace using extraction fans. The main fume discharge and any fugitive releases in these areas are captured by the roof canopy (total capture system) and conveyed by ducting to the abatement plant (bag house).

In December 2020 a carbon injection system was installed in the de-dusting system of the Melt Shop. This was in response to the dioxins breach which occurred in May 2019. This was especially important in 2020 due to the changes in scrap available due to the challenges posed by COVID-19. Consequentially, lower scrap grades were increasingly used in the furnace, as supplies across the country were low. The installation of the carbon injection system helps to mitigate the negative air emissions which are

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associated with using lower scrap grades, and has successfully lowered our dioxin emissions according to our A1 emissions testing and reporting.

Celsa completed a large amount of maintenance work during their two shut downs which has had a beneficial impact at reducing fugitive emissions and oil leaks, some of this work includes:

- Replacement of hydraulic piping in EAF system
- Changing of burner valves
- T4/T5 cable replacement
- Booster fan changes and repairs in dust filter plant
- Primary duct of DED plant replacement
- Renewal of EAF Turret cabling
- Cooling tower cleaning
- Water treatment plant oil and grease tank emptied

Slag is produced during the making of steel and is a normal by-product of the EAF process. Slag from the EAF is tipped to flow beneath the furnace onto the slag bed. As this is conducted within the main Melt Shop, any emissions arising from this are captured by the air collection and abatement system. The slag is then moved by a specially adapted bulldozer to an outside intermediate staging area, to blade the material out and allow cooling water to be sprayed onto the slag. The slag is kept in the staging area until a cooled economic load has been assembled. It is then transported via dedicated wagons to the slag reprocessing plant on the other side of the Rover Way.

As part of the secondary steel process an artificial slag is generated on the steel ladle. Subsequent to casting, this slag will be tipped to the ground. When cooled, it is also transported to the slag handling plant across Rover Way. Once transferred to the Mineral Site, the slag is used in the onsite Asphalt Plant to produce asphalt used in the construction of new roads.

At the mineral site, where slag is cooled and weathered, controls are in place to minimise fugitive dust lift off. This is stated within Environmental Control Procedure 12, titled Fugitive Emissions Management Procedure. This procedure refers to all direct and ancillary activities associated with continuous operation from the CELSA Melt Shop and Mineral Site which may give rise to fugitive emissions. This procedure also refers to the road dampening at the Melt Shop.

The Turnkey Optical Particle Analysis System (TOPAS), located at Willows High School, enables CELSA to gain a greater understanding of dust levels in Tremorfa. The TOPAS particulate results are reported to NRW on a quarterly basis. In 2019, CELSA set up an additional TOPAS monitor on the roof of Baden Powell, the local primary school to enhance CELSA's understanding of dust levels in Tremorfa. This also provides us with supplementary data should the Willows High School monitor fail.

1.2.5 The review of annual production/treatment data set out in Schedule 4 Table S4.2

A1 Monthly Average Concentrations

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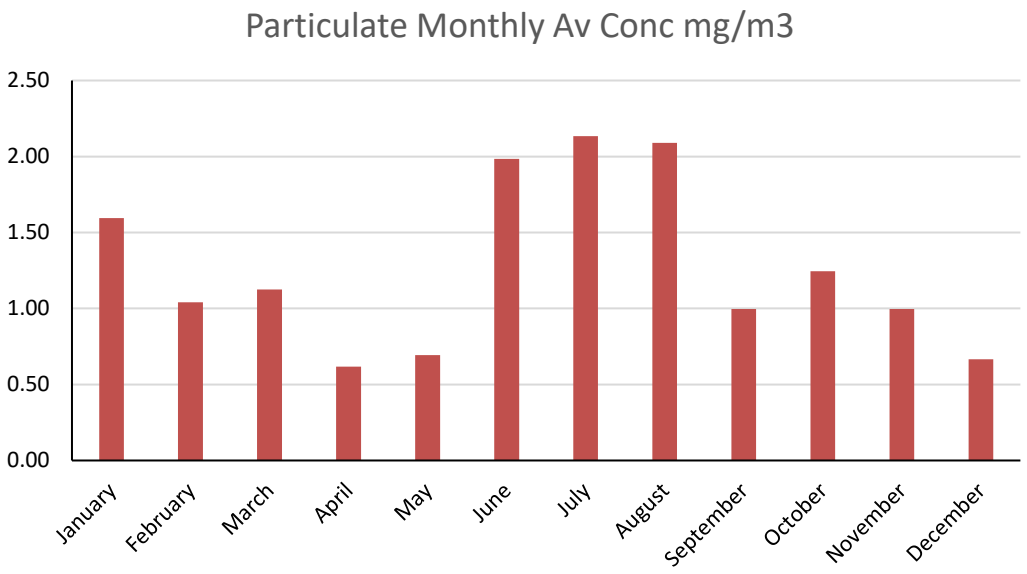

Figure 8: Melt Shop Monthly Average Concentration of continuous monitoring (mg/m³) – A1

CELSA's A1 continuous emissions are monitored and analysed throughout each Shift and discussed in the daily morning meetings with the Melt Shop senior managers, production personnel and engineers. Investigations are conducted in order to identify any issues that could contribute to particulate breaches.

The lower monthly average seen in April and May was attributed to probe failure in the Continuous Emission Monitoring System, (CEMS) which required an external technician to come in to assess the causes of failure. CEMS was down from the 23rd of April to 5th of May. After a particulate breach on 3rd August, an alarm was fitted to the CEMS system to alert engineers of rising levels of particulates, which has likely contributed to consistently lower particulate concentrations towards the end of the year.

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Ambient Air

In 2020, there were two periods in which the TOPAS monitor was not operational, this was during 1st July to 20th October and again from 26th November to 9th December. The first period was due to technical failures and calibration issues. This took a long time to fix, as there were issues with access to the school site where the monitor is located due to COVID restrictions. Throughout this, the secondary TOPAS monitor was used for data reporting purposes. The second period of data loss was due to the TOPAS monitor being switched off by school staff, without our notification, due to malfunction. An engineer was called out and the problem fixed. After the secondary TOPAS monitor located on top of Baden Powell School was agreed to supplement the missing data, the Baden Powell custodian also turned this monitor off without our notification, as the school was shut promptly due to COVID events. This has resulted in a two week data gap for our emissions data. Contact has been made with both schools to ensure that this does not happen again, and we are notified before either monitor is switched off. The TOPAS monitor results for all remaining periods were submitted. The cause of any failures have been noted in all the quarterly reports submitted to the NRW.

In summary, improvements have been made in a number of areas, all wastewater discharges were within permit limits. Regarding waste management, the melt shop continued to improve engagement and communication with both the workforce and the external waste management provider. Further to the Environmental Training package (ISO14001) that was rolled out in 2017, additional training in environmental awareness was rolled out to all employees in 2020. This improved their knowledge base of the workforce and allow individuals to make informed decisions in respect to environmental matters.

In 2021, CELSA will continue to manage and improve environmental impacts through the Environment Management System and strive to achieve the challenging targets set.

If you require any further information, please do not hesitate to contact the Environmental Department.

Yours sincerely,

H. Mayled

Hannah Mayled
Environmental Graduate