

24 January 2017

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\2016\TP3639BH 4.2.2. Annual Returns 2016.doc

Dear Mrs Parr,

RE: Melt Shop EPR Permit TP3639BH 4.2.2. Annual Returns 2016

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 a 'recycling, environmentally focused steelmaking company'. Despite an exceptionally difficult market, CELSA are committed to achieving continual improvement of our environmental performance.

The Melt Shop's environmental performance in 2016 will be reviewed, including the environmental Objectives and Targets which are set by senior management. CELSA received only two justifiable complaints in 2016, with both being for issues relating to dust. CELSA has continued to engage with local residents in Tremorfa to understand pertinent issues in the local area.

Significant investment in engineering control measures were completed during the annual shut down in August, which included replacing the T1 and T2 ducting in the EAF furnace extraction system to prevent water leaks and allow complete combustion of the off gases from the 4th hole extraction.

1.2 Environmental Performance Review

1.2.1 Production and Energy Consumption

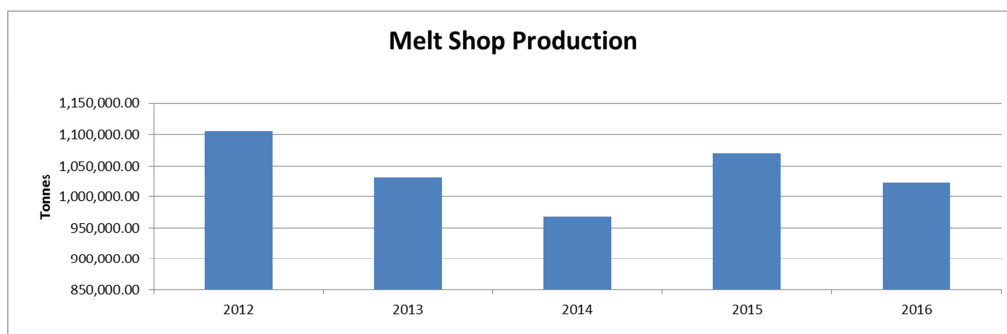


Figure 1: Melt Shop production (tonnes)

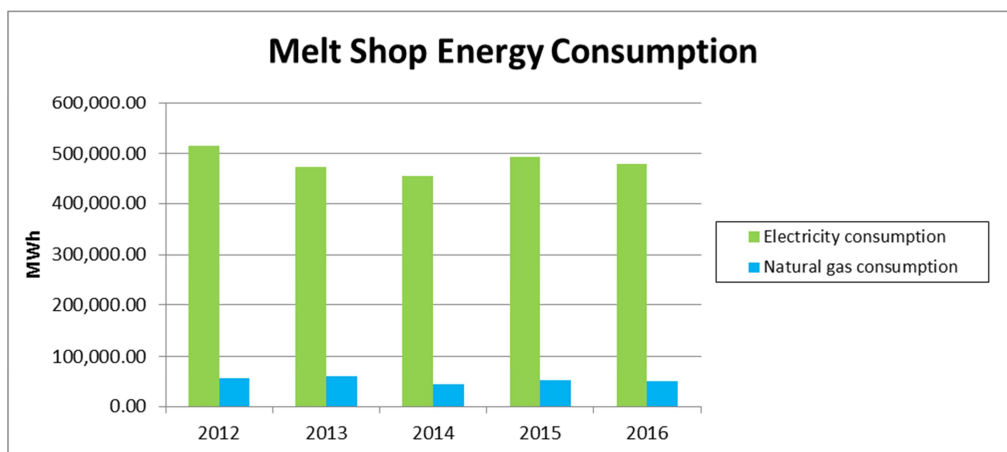


Figure 2: Melt Shop energy consumption (MWh)

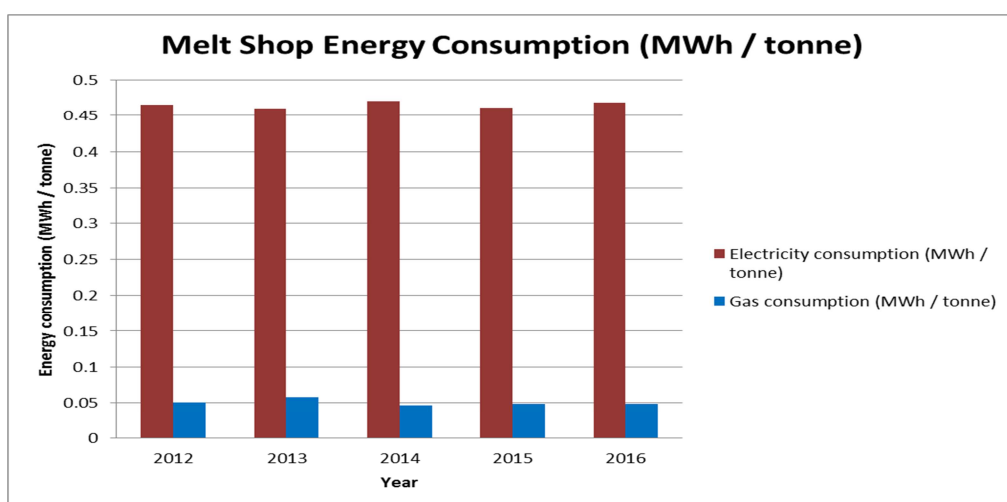


Figure 3: Melt Shop Energy Consumption per tonne (MWh/tonne)

Total production of liquid steel at the Melt Shop decreased slightly from 1,070,729 tonnes in 2015 to 1,022,489 tonnes in 2016. This subsequently resulted in the electricity and gas consumption reducing as expected. However, it can be observed in Figure 3, the Melt Shop has maintained electricity and gas consumption (MWh/tonne) at a stable level in 2016. The Melt Shop is continuing to target energy reduction in 2017, investigating potential energy saving projects that were identified during the ESOS audit with a view to implementing these throughout 2017.

1.2.2 Air emissions – A1 & A2

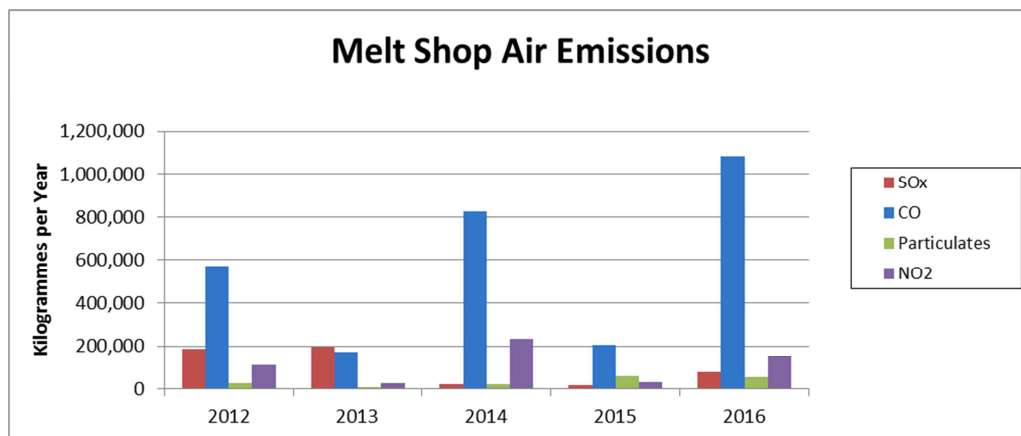


Figure 4: Melt Shop Air Emissions (kg/yr)

The air emission parameters for A1 and A2 were all below the set limits. A significant increase in CO in 2016 can be observed, which were later confirmed that water leaks in the T1 and T2 ducting within the EAF extraction system were preventing complete combustion, resulting in higher than normal off gas emissions. This increased the daily background CO levels which meant when a process spike arose (e.g. trim delay, carbon/phosphate refinement and roof locking delays), a breach occurred more frequently. Under normal operation, this background level is much lower and any process spike does not exceed the limit.

1.2.3 Waste Water Quality – S1 & S2

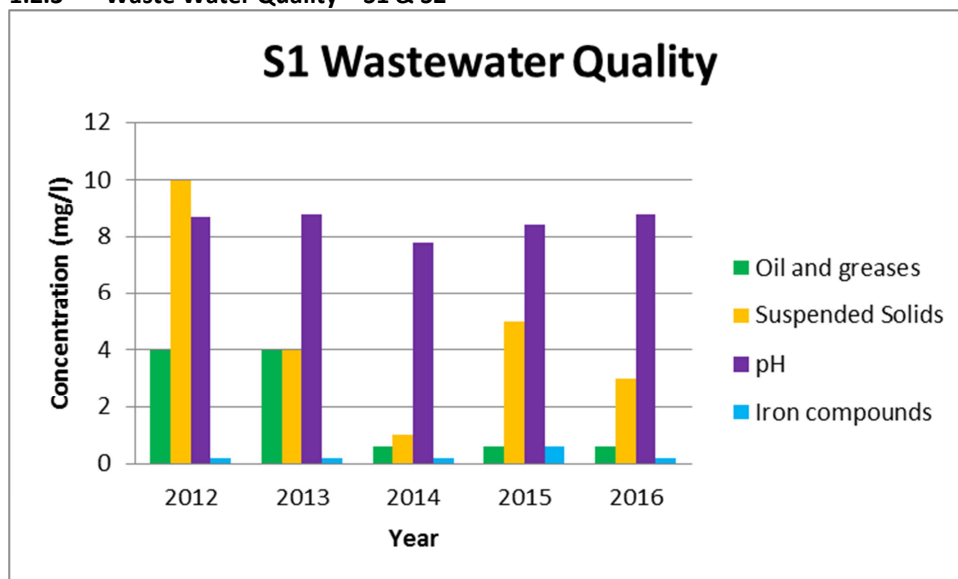


Figure 5: Melt Shop Waste Water Quality (mg/l)

It is difficult to make a true comparison as the results are based on spot samples. However, the waste water quality parameters for S1 and S2 were all below the set limits.

1.2.4 Water Consumption

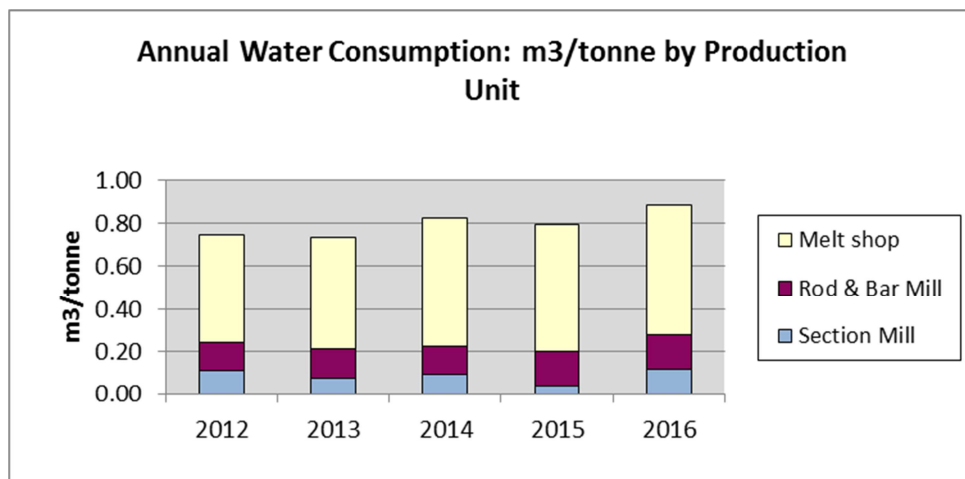


Figure 6: Melt Shop water consumption (m³/tonne)

The Melt Shop water consumption remained at 0.59 m³/tonne in 2016 compared with 2015. Therefore, the Melt Shop did not meet their water reduction target of 3% and so this target will remain in place for 2017. There are plans to engage further with CELSA water management contractor (Suez) and supplier (DCWW Welsh Water) to further understand potential water saving measures that can be implemented throughout 2017.

1.2.5 Waste Production

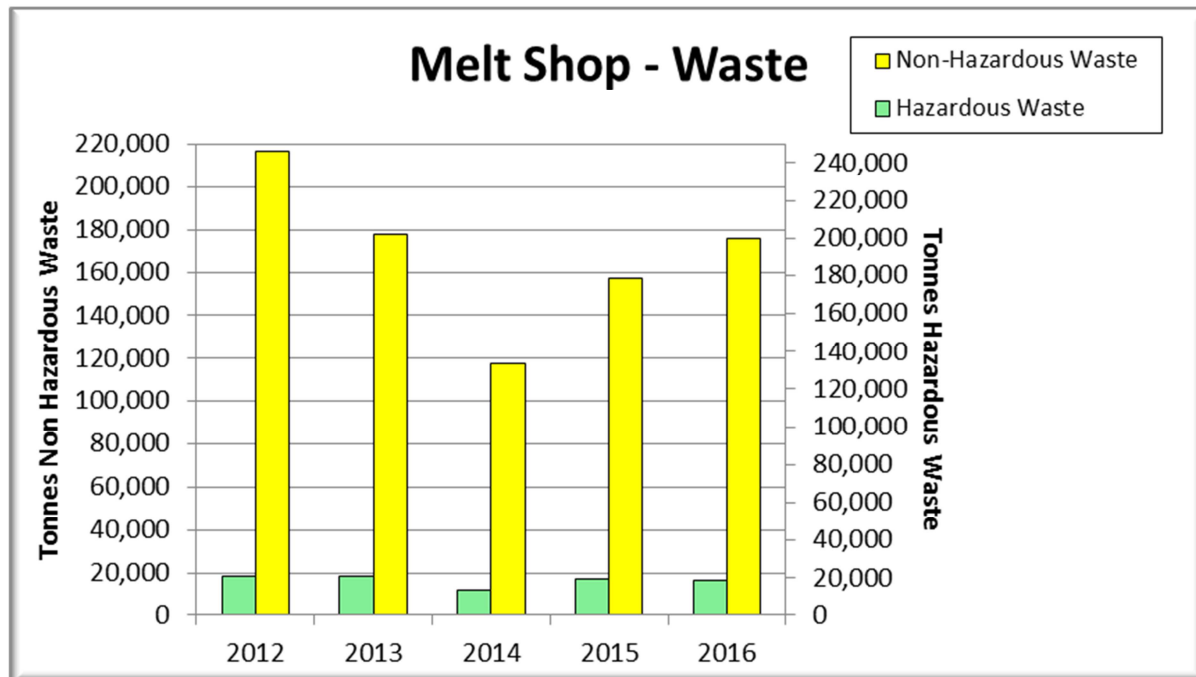


Figure 7: Melt Shop waste production (tonnes)

General waste production decreased in 2016 compared to 2015 and therefore, the Melt Shop met their 3% reduction target. Significant improvements have been made in communication both through improved signage and in the monthly EMS meetings. Monthly walkabout actions are now recorded on Prosafety which includes any actions related to waste segregation. This has most notably increased the level of wood and mixed recycling which have been removed from the general waste stream. Similarly pre-shutdown discussions have ensured any other waste streams are segregated appropriately and are not sent offsite as general waste. A better relationship, commitment and pro-active approach from the external waste management provider (Siteserv) also greatly improved the situation. A further 5% reduction target has been set for 2017 vs 2016 result.

The increase in non-hazardous waste is largely due to the impact of scrap screening discard material which had been stockpiled throughout 2016 and only began to be removed in December 2016.

1.2.6 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).

CELSA received two dust complaints in November 2016 following issues with dust suppression at the mineral site. Items for improvement were identified in Compliance Assessment Report CAR_NRW0026740 following a site permit inspection on 7th December 2016. Follow up responses and actions were identified by Celsa and ongoing correspondence between Celsa, NRW and the complainants will continue during 2017 to ensure any such issues are addressed at the earliest opportunity.

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.

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.

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

A1 Monthly Average Concentrations

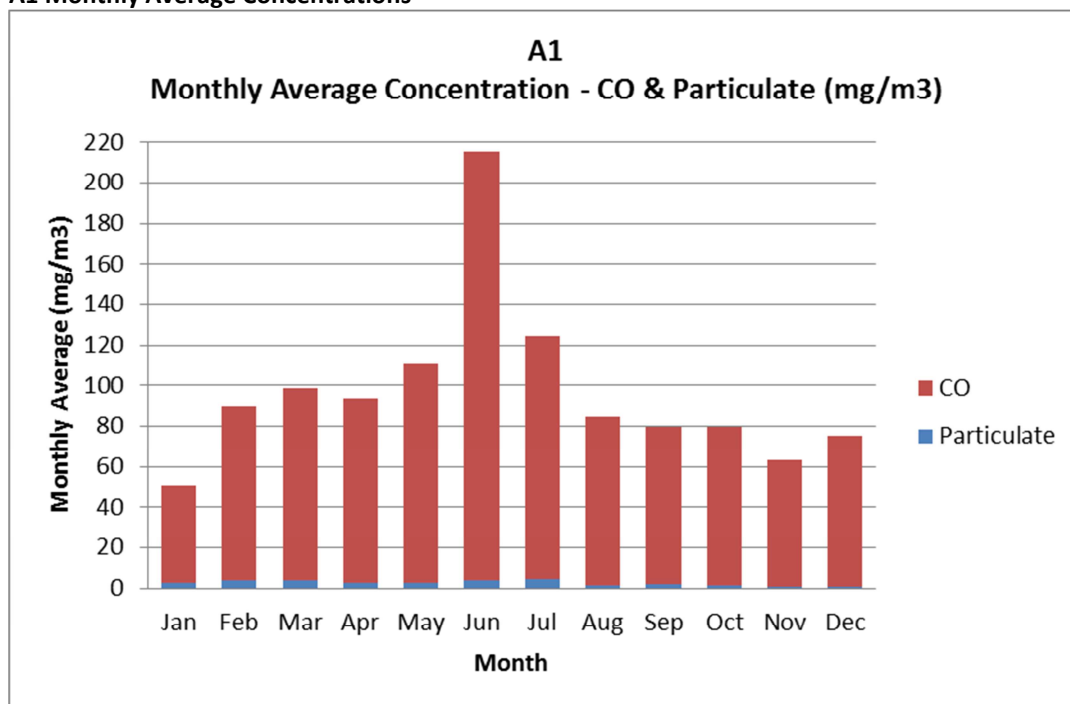


Figure 8: Melt Shop Monthly Average Concentration of continuous monitoring (mg/m³) – A1

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. A higher CO monthly average concentration can be observed from March until August. This was due to the reasons aforementioned regarding water leaks in the T1 and T2 ducting. Following significant investment and replacement of this ducting during the August annual shutdown meant CO concentrations returned back to normal.

Ambient Air

The trends and analysis of the 2016 TOPAS monitor results have been submitted separately on a quarterly basis. Unfortunately, the monitor had an airflow error in August which required a site visit by a Turnkey engineer for installation of replacement parts. The instrument was also calibrated at this time and is back in full operation. As a result of the issue we upgraded the contract to include site visits in case of any part failure or reading error in the future. More information was provided at the time in a Schedule 5 Notification.

Dust concentrations analysed from the Frisbee Dust Monitor in Willows Avenue have varied slightly throughout the first five months of 2016, as observed in Figure 9, achieving an average of 32 mg/m²/day each month. All concentrations for January to May were below 50 mg/m²/day. In June, at the request of local resident Mrs Doody, the Frisbee monitor was removed from her property and so there are no further results beyond May.

From previous correspondence with the Environment Agency Wales, it was stated that:

"The Environment Agency have advised that there are no UK or European Standards for dust deposition, however, typical background values for open country, town centres and industrial areas are considered to be 50, 100 and 150mg/m²/day, as annual averages. Levels in excess of 200mg/m²/day are likely to lead to complaints. The data reported from the Willows Road monitor appear to be typical for the type of area, however, 12 months of data needs to be available before any specific comment on the annual average and monthly variations can be made."

The 2016 annual average recorded from the Frisbee Monitor at Willows Avenue was 32 mg/m²/day. This is well below the typical background levels for open country, town centres and industrial areas as indicated in the above quote.

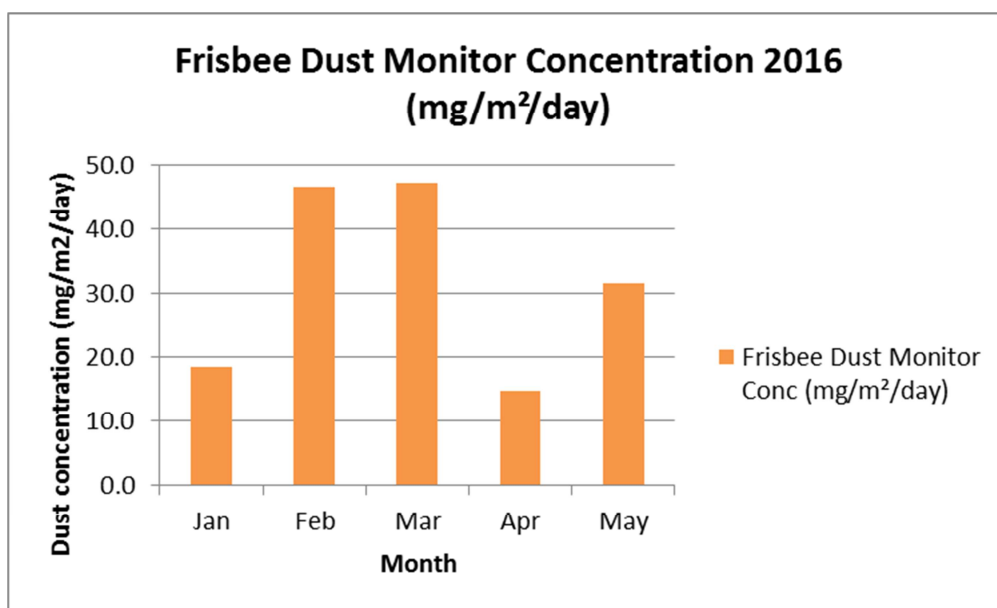


Figure 9: Melt Shop monthly dust concentrations recorded through Frisbee monitor analysis (mg/m²/day)

In summary, improvements have been made in a number of areas, whilst steel production reduced slightly the relative gas consumption (mWh/tonne) also reduced by 0.3kWh/tonne vs 2015 figures. Additionally, all waste water discharges were within permit limits. Regarding waste management, the melt shop reduced the quantity of general waste being sent off site mainly by improving engagement and communication with both the workforce and the external waste management provider.

In 2017, CELSA will continue to manage and improve environmental impacts through the Environment Management System. A new EHS training booklet was rolled out to all employees in 2016 which should improve the knowledge base of the workforce and allow individuals to make informed decisions in respect of environmental matters.

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

Yours sincerely,



Richard Lewis
Environmental Manager