

Date: 28th January 2021

Mr Richard Taylor
Industry and Waste Regulation
South Central Team
Natural Resources Wales
Rivers House, St Mellons Business Park
Fortran Road
Cardiff
CF3 0EY

Dear Mr. Taylor,

Re: Permit Number EPR/BS6149IQ Monitoring Returns

Please find enclosed a performance report for 2020 in accordance with Condition 4.2.2 of the Permit.

Should you have any queries please do not hesitate to contact us.

Yours sincerely,

Nicola Parnell

Environmental Manager
nicola.parnell@rockwool.com

- 4.2.2 A report or reports on the performance of the activities over the previous year shall be submitted to Natural Resources Wales by 31 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
 - (b) the annual production/treatment data set out in Schedule 4 Table S4.2
 - (c) the performance parameters set out in Schedule 4 Table S4.3 using the forms specified in table S4.4 of that Schedule

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- (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

Emissions to Air

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(i) Continuous Measurements (A1, A2, A19)

Line 1 Cupola (A1)

Line 1 cupola (emission point A1) was operational on 97 days in 2020. The cupola stopped running in September 2020. Three of the four continuously measured parameters were within limits throughout this time. There was one particulate exceedance following a start up after a shutdown period of 79 days.

Parameter	Line 1 Operational Days	No. of exceedances	% in Compliance
Particulate Matter	97	1	99
Nitrogen Oxides	97	0	100
Sulphur Dioxide	97	0	100
Carbon Monoxide	97	0	100

As agreed with Natural Resources Wales, no external biannual 2 or annual emissions testing was undertaken for Line 1 cupola as the furnace was not running due to a lower demand/impact of COVID.

Line 2 Cupola (A2)

Line 2 cupola (emission point A2) was operational on 300 days in 2020. Emissions of nitrogen oxides, sulphur dioxide and carbon monoxide were within limits throughout this time, with one exception.

There was one day when SO₂ was recorded as being above the 24 hour average limit. On this occasion Cupola 2 was only in operation for one hour. A Schedule 5 was submitted but Rockwool's NRW Officer, Richard Taylor, informed us in writing that this was not considered an exceedance as there were less than five valid half hourly average values for this day.

Parameter	Line 2 Operational Days	No. of exceedances	% in Compliance
Particulate Matter	300	0	100
Nitrogen Oxides	300	0	100
Sulphur Dioxide	300	0	100
Carbon Monoxide	300	0	100

Line 3 Cupola (A19)

Line 3 cupola (emission point A19) was operational on 309 days in 2020.

There were three days in February 2020 when the limit for particulate matter emissions was exceeded. These breaches were on consecutive operational days, due to the failure of filter bags within the filter house. This was resolved by replacing all the filter bags over a period of two days.

Following a manufacturer onsite maintenance visit in October 2020, Line 3 CEMS unit recording nitrogen oxides, sulphur dioxide and carbon monoxide was not receiving a signal from the analyser head. It was found the external engineers had not reconnected a plug. No exceedances were recorded but a Schedule 5 was submitted due to the loss of data.

In November 2020, there was an SO₂ exceedance on Line 3. The investigation/analysis of sulphur dioxide levels is continuing but this exceedance is thought to be due to a charge change that contained a higher sulphur level.

As mentioned above, SO₂ levels are being investigated internally and by NRW. This is following the identification of data discrepancies dating back to 2018. As a result, air emissions were recalculated and between January 2020 - September 2020 it was found the SO₂ limit on Line 3 was exceeded fourteen times.

Parameter	Line 3 Operational Days	No. of exceedances	% in Compliance
Particulate Matter	309	3	99
Nitrogen Oxides	309	1	99
Sulphur Dioxide	309	16	95
Carbon Monoxide	309	1	99

(ii) Periodic Measurements

A total of 202 triplicate tests (606 individual tests) must be carried out in a year. A summary of 2020's performance is shown below:

Source (Emission Point)	No. Triplicate Tests	No. Exceedances	Details of Exceedances
Cupolas (A1, A2, A19)	18	0	
Spinning Chambers (A3, A4, A21)	30	0	
Curing Ovens (A5, A6, A22)	42	0	
Cooling Zones (A7, A8, A23)	36	0	
Pipe Section Machines (A12, A13a, A13b, A13c, A14)	40	1	RSM1 Ammonia – Biannual 1. See details on the next page.
Dust Filters (A9, A10, A11, A18, A24)	8	0	
Cement Briquette Plant (A25)	6	0	

NB – 180 triplicate tests were undertaken. As stated previously, Line 1 cupola was operational from January-April 2020 meaning Biannual 1 emissions testing could take place. However, there was sporadic operation between June-September 2020. It was therefore agreed with NRW that no external emission testing was required for Annual or Biannual 2, so emission points A1 (Line 1 Cupola) and A3 (L1 Spinning Chamber) were

not tested for these periods. RSM3 (emission point A13c) was not used in 2020, so was not tested during this period. All other emission points were tested as per the requirements of the Permit.

Biannual 1 air emissions testing showed that RSM1 (A13a) exceeded the Ammonia limit. This prompted an internal investigation which consisted of external trial tests and data analysis. The findings resulted in planned production time changes with speed limits and the creation of new guidelines for producing pipes. Essentially, slowing production to stay within the Ammonia limit.

Following these changes, RSM1 (A13a) passed the Biannual 2 emissions ammonia tests.

(iii) Impact Monitoring

Rockwool continues to monitor the ambient sulphur dioxide values in the local area by 2 different means; diffusion tubes and a continuous monitor. The continuous monitor is located in Soar Chapel, downwind of the prevailing westerly wind. The diffusion tubes are located within a 2km radius in all directions from the factory. Both methods typically show values of less than 10ppb, which is comfortably below the daily limit of 47ppb set by Defra and the Air Quality Strategy for the UK. Data is usually presented to residents at regular meetings. However, we have been unable to hold these in 2020 due to COVID. The data is also sent to Bridgend County Borough Council.

Emissions to Surface Water

(i) Daily Measurements

The Permit requires daily tests to be carried out on water leaving site to stream. There were only two occasions during 2020 where surface water was discharged to stream via the overflow and these were due to extremely heavy rainfall. The composite sample was tested on these days and no exceedances were recorded. See a summary for 2020 below:

Parameter	No. Samples	No. Exceedances	% in Compliance
pH	365	0	100
Ammoniacal Nitrogen	365	0	100
Phenol	365	0	100
Suspended Solids	52	0	100

During 2020, the discharge to sewer and settlement tank extension worked very well and as a result there were no surface water to stream exceedances. This is a huge improvement on previous years.

(ii) Monthly Measurements

In addition to the daily settlement tank samples (water being discharged to sewer) that are analysed in Rockwool's own laboratory, a monthly stream sample is sent to an external laboratory with ISO 17025 accreditation. Results for ammoniacal nitrogen, phenol, suspended solids, COD, formaldehyde and oil/grease are provided. This data is used for internal records only as we have not discharged surface water to stream since February 2020.

(iii) Impact Monitoring

Two surveys measuring the quality of the stream that emission points W1 and W2 discharge into were carried out by a consultant in July and October 2020. Both surveys were planned for 2020, however, they were undertaken later in the year than usual due to COVID restrictions.

The mean Biological Monitoring Working Party (BMWP) score for 2020 downstream and outflow sites show a more recent upward trend from the clear depression in scores in 2018. Although, a decrease in score was seen in October 2020 compared to July 2020. A change in season could be an explanation for this.

The Average Score Per Taxon (ASPT) downstream has remained stable.

We will arrange two surveys in 2021 as recommended by the consultant.

Figure 1 Comparison of Mean Upstream, Mean Downstream and Outflow BMWP scores May 2010 – October 2020.

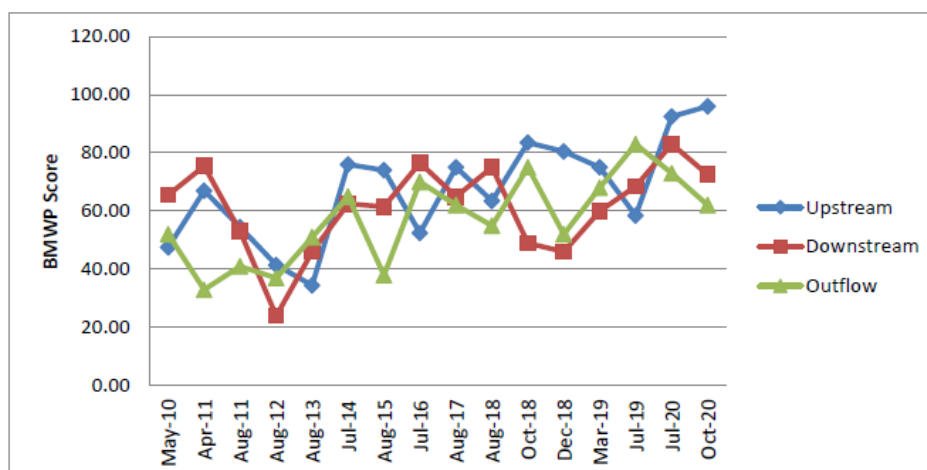
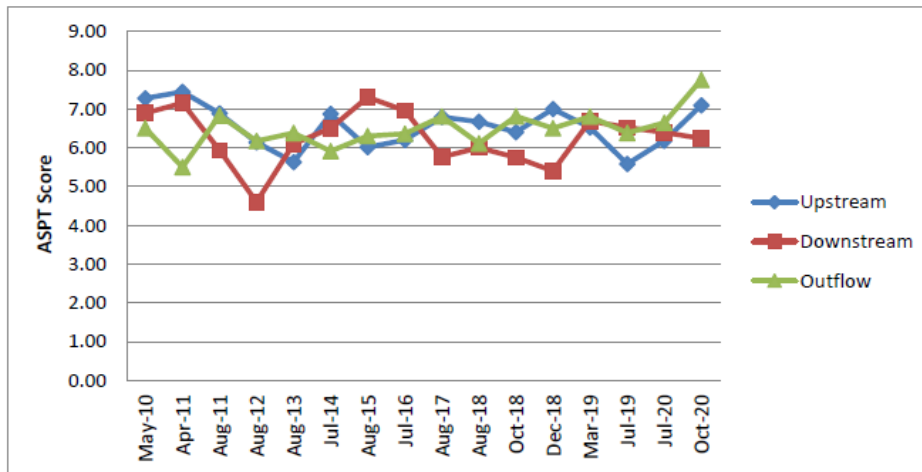


Figure 2 Comparison of Mean Upstream, Mean Downstream and Outflow ASPT scores May 2010 – October 2020.



Groundwater

A full site groundwater survey (12 boreholes) was undertaken in July 2020.

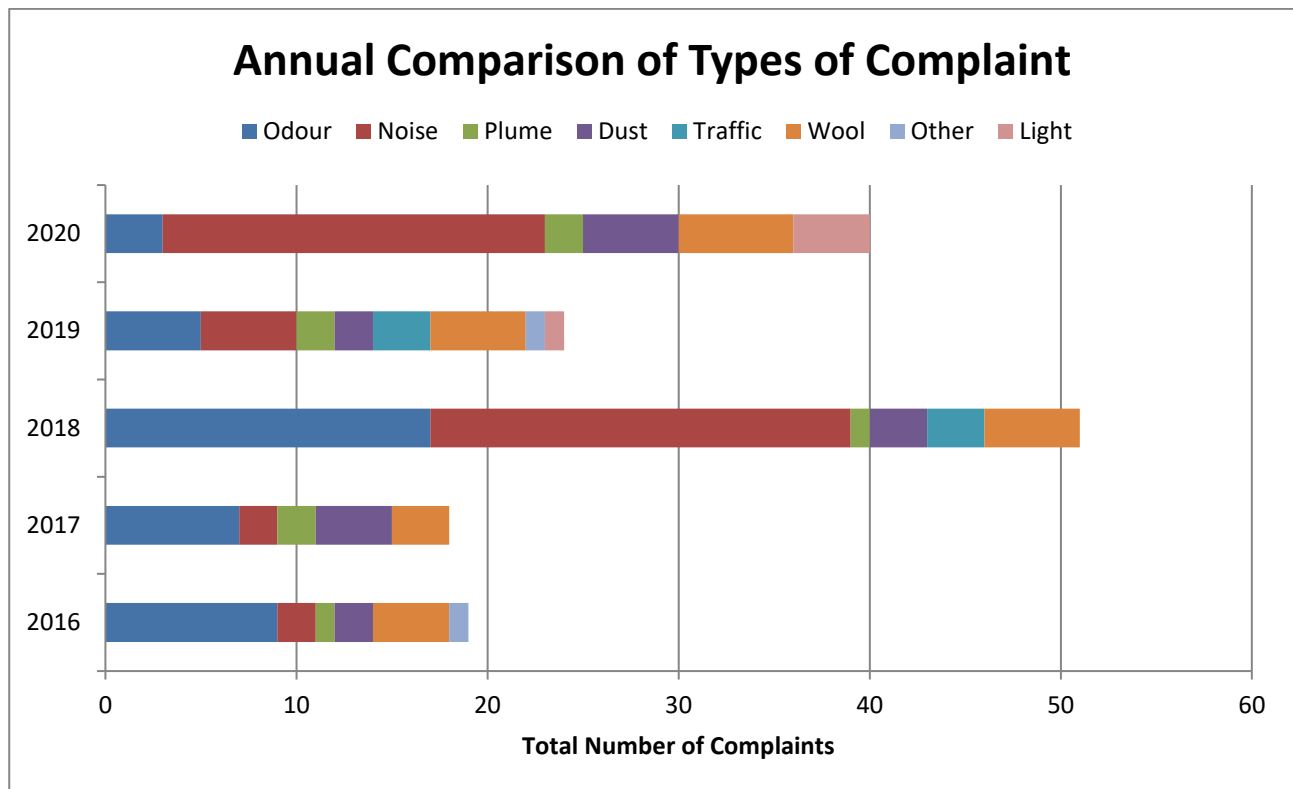
The sampling and testing indicated a general improvement in the groundwater quality since the time of baseline monitoring in 2012. The results are considered commensurate with 2018 and 2019 monitoring and are not considered indicative of significant groundwater contamination.

There was a localised increase in manganese in boreholes NRW101 – NRW105 above published concentrations but they are generally commensurate with the concentrations recorded during the previous 2019 round of testing.

There was also a localised increase in concentrations of petroleum hydrocarbons in BH5, located within the process water tank and sump zone, compared to the baseline and previous monitoring round data.

Environmental Complaints

The total number of complaints received in 2020 increased compared to 2019. See the annual comparison graph for complaints below:



The majority of the complaints received in 2020 referenced noise (20), followed by wool fallout (6), dust (5) and light (4).

All complaints are registered on an internal system which aims to identify the root cause and allows the user to assign corrective actions. This is monitored by both ROCKWOOL Limited and our parent company ROCKWOOL Group.

2020 saw a significant increase in the number of complaints compared to 2019. There have been no major changes in operations which could explain the increase. As a result, noise and dust external surveys were conducted in 2020. The dust survey results are currently being reviewed by NRW. The noise survey results will be sent to NRW in the coming weeks.

Energy, Water & Waste

In 2020, Rockwool WER was recertified for ISO 14001 and maintained ISO 50001.

Sustainability is one of Rockwool's key goals and weekly meter readings and an associated internal report help maintain the focus on this key area.

Electricity and gas consumption decreased in 2020 compared to 2019. This was not the predicted forecast but was a result of reduced operations due to the impact of COVID.

Electricity and gas efficiencies on both lines improved on the previous years, reflecting the reduced consumption. Gas efficiency saw the greatest improvement, which is thought in part to be due to a cupola skirt and new meter being installed on Line 3 start-up burner.

Coke consumption increased which is thought to be due to the reduced coke quality. There is currently an investigation ongoing between Rockwool Group and the coke supplier to verify these claims.

Coke efficiency on both lines decreased, reflecting the increased consumption due to coke quality.

All energy efficiencies will continue to be monitored over the course of 2021.

Water used in the process is supplemented where possible by rainfall, so mains water use remains as low as possible. In 2020, our public water consumption improved significantly on 2019's usage. This is due to a combination of the settlement tank expansion, discharge to sewer and reducing the bunded catchment area, enabling more efficient use of process water.

In 2020, internal investment for installing new water meters was approved and these are due to be installed in 2021. This will help analyse public water supply usage in specific areas of the factory.

The amount of waste sent to landfill in 2020 decreased significantly compared to 2019. This is primarily due to finding an alternative fly ash use/disposal route in Q2 2020. The fly ash is treated and used as a stabilisation aid using a D09 disposal code. Our capacity to recycle fly ash on site has also increased greatly and the majority of fly ash is recycled within our briquette making process.

The "RockCycle" recycling scheme accepted 1,322 tonnes of stone wool from external sources (waste material and off-cuts) for on-site processing and recycling in 2020. This tonnage decreased from the previous year, likely due to COVID restrictions. All wool returned to site is milled and then mixed with other materials to form a cement briquette. Cement briquettes are then melted with basalt and slag in the cupola to form completely new stone wool products. None of the returned wool is landfilled – it is all used to create new products. This is an offering which is highly rated by our customers as it assists them with their waste management plans.

The ROCKWOOL Group has established Sustainability Goals covering energy (CO₂), water and waste that apply to the global company with target dates of 2022 and 2030. ROCKWOOL UK has aligned its targets accordingly.

(b) the annual production/treatment data set out in Schedule 4 Table S4.2

In 2020, ROCKWOOL produced 133,827 tonnes of mineral wool.

(c) the performance parameters set out in Schedule 4 Table S4.3 using the forms specified in table S4.4 of that Schedule

The appropriate annual forms for water usage, energy usage, waste produced and recycled ROCKWOOL were sent to NRW on 28th January 2021.