Environmental Performance Report
Bridgend Paper Mill
2023

Reporting Condition 4.2.2

Name: [redacted]

Position: Energy & Environment Manager

Date: 31st Jan 2024

Wepa UK Ltd
Bridgend Paper Mill
Llangynwyd
Bridgend
CF34 9RS

Permit Number: EP3738NG

Contents

1.0 Introduction

The production of this report is a requirement of the Mill's EPR Permit section 4.2.2.

The aim of this document is to provide a summary report of Bridgend Paper Mill's performance for the calendar year 2023.

The report identifies performance parameters, emissions to air and water, waste disposal, water consumption and energy use information.

2.0 Summary

In 2023 there has been the continuation of commissioning the new paper machine (namely Neptune) to achieve in excess of 2,000m/min speed, which in turn will produce approx. 75,000 tonnes (gross) output.

Converting outputs have been consistent all year and with the Neptune machine being fully integrated has resulted in the site being self-sufficient with little to no reliance on outside sources of parent reels.

Converting output was approx. 85,000 tonnes (gross) across seven converting lines and papermaking approx. 97,000 tonnes (gross) across two paper machines.

General environmental performance from the site has been maintained throughout 2023 with no breaches of consent limits with data showing a performance well below those limits.

The site was audited against its ISO 14001 environmental management system during the year and received an external verification audit for the Greenhouse Gas (GHG) permit. No significant non-conformances were raised against these requirements.

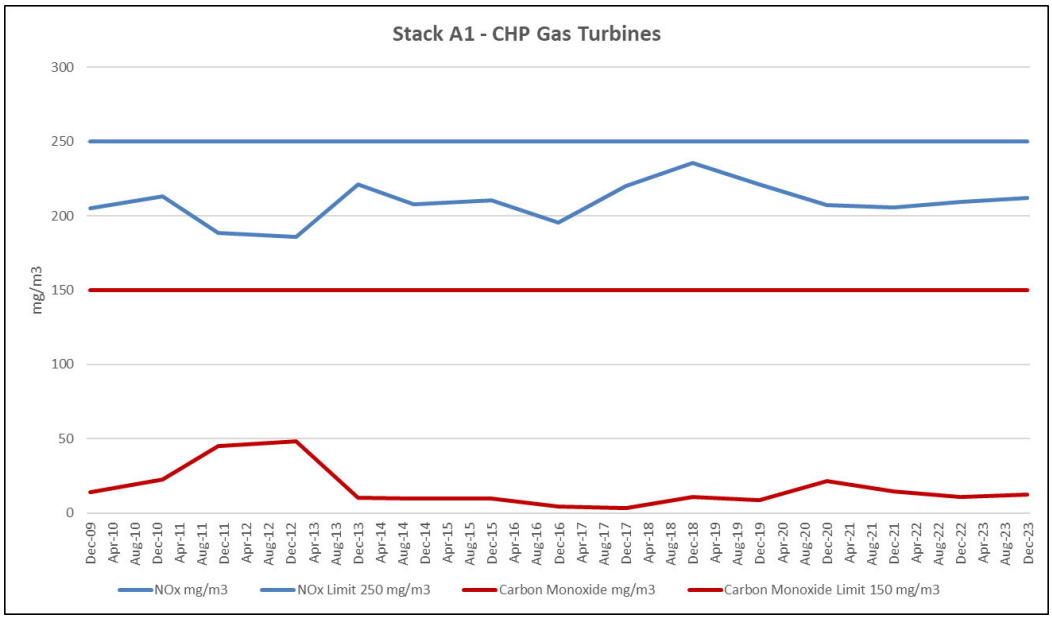
3.0 Performance Parameters

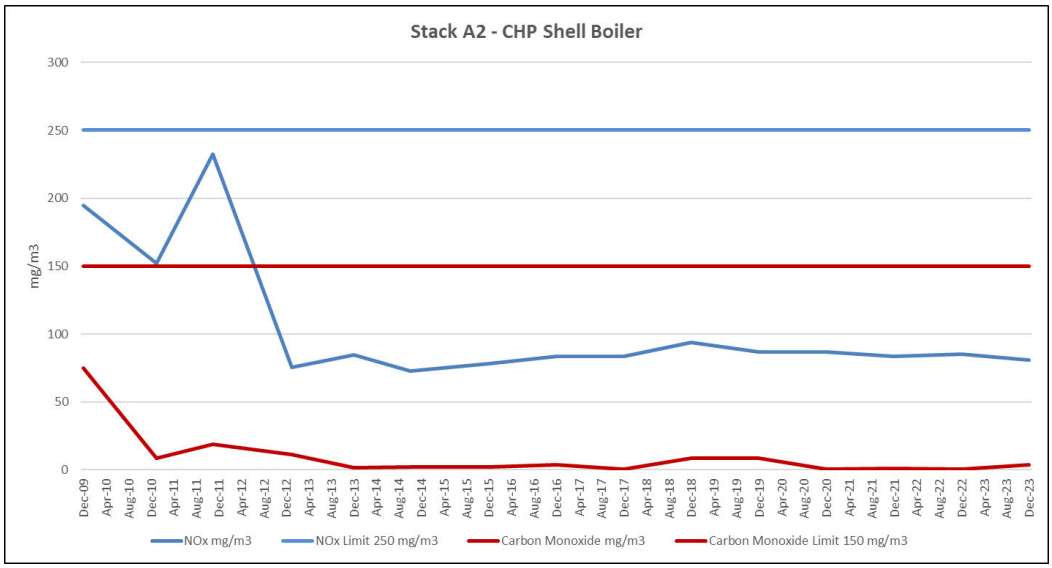
The quarterly returns for the performance parameters remained stable for all parameters throughout 2023.

Parameter	Unit	Q1 2023	Q2 2023	Q3 2023	Q4 2023
NOx/ADT	Tonnes/ADT	0.001	0.001	0.001	0.001
CO_2/ADT	Tonnes/ADT	0.630	0.500	0.584	0.599
BOD/ADT	kg/ADT	0.011	0.008	0.010	0.008
Suspended Solids/ADT	kg/ADT	0.150	0.071	0.073	0.116
Nitrogen nutrient (N) / ADT	kg/ADT	0.060	0.047	0.050	0.037
Phosphorus nutrient (P) / ADT	kg/ADT	0.003	0.001	0.002	0.001
COD / ADT	kg/ADT	0.324	0.232	0.272	0.358
AOX / ADT	kg/ADT	0.003	0.004	0.002	0.003

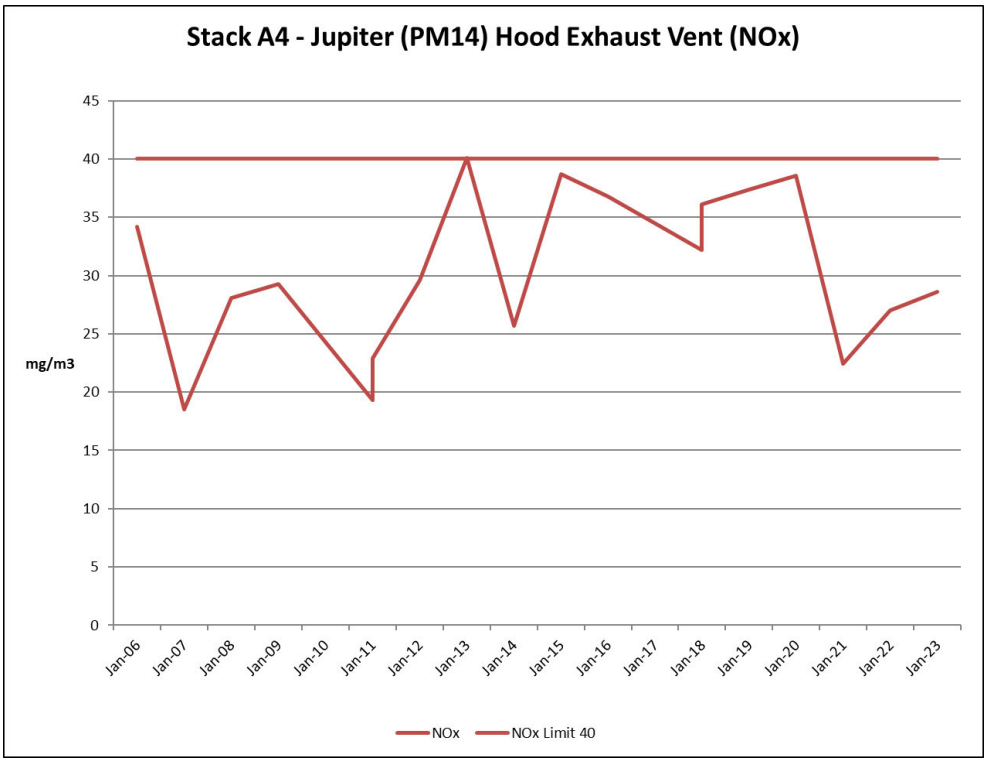
4.0 Emissions to Air

Annual emissions test results for Stack A1 (HRSG 1 & HRSG 2), which is contained within the CHP plant on site, were below permit limits as per previous years testing. All parameters for the CHP shell boiler (Stack A2) remain stable.

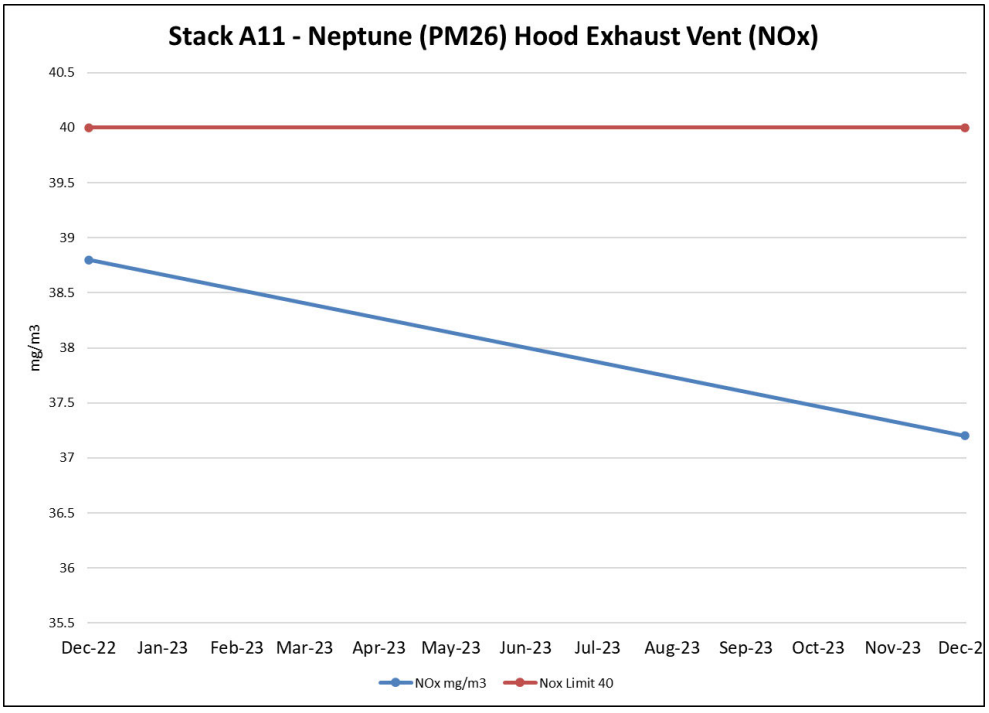




The NO_x emissions test result for Stack A4 (Jupiter Hood Exhaust Vent) was below the consent limit at 28.6mg/m3.

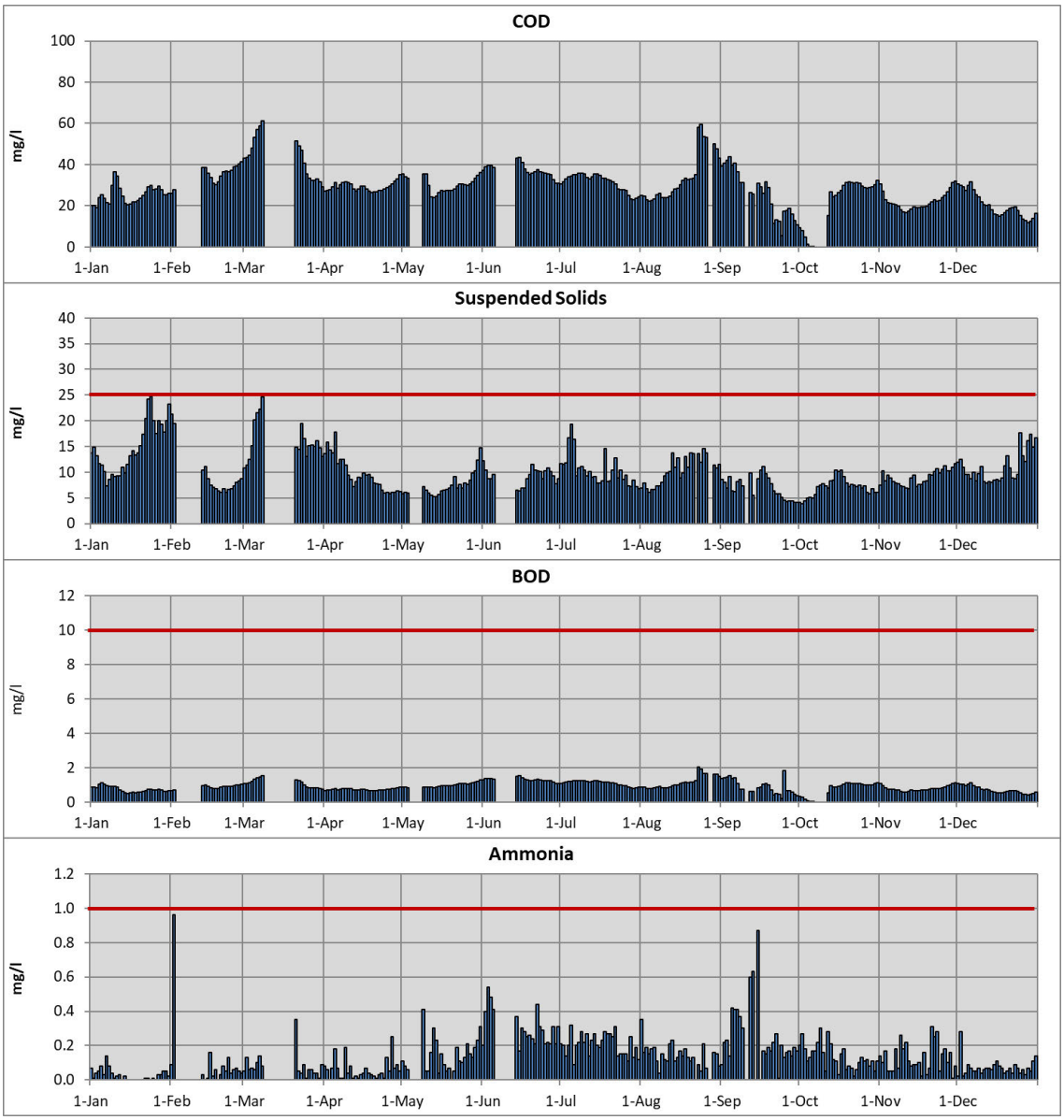


The NO_x emissions test result for Stack A11 (Neptune Hood Exhaust Vent) was below the consent limit at 37.2 mg/m3.

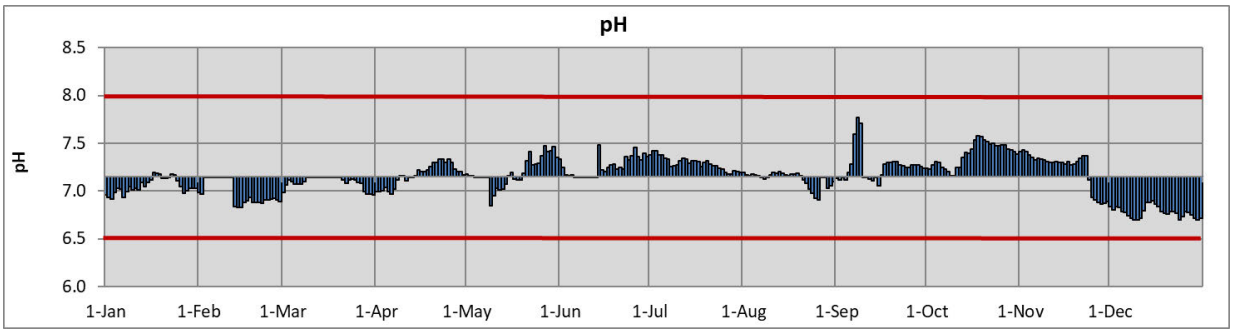


5.0 Emissions to Water

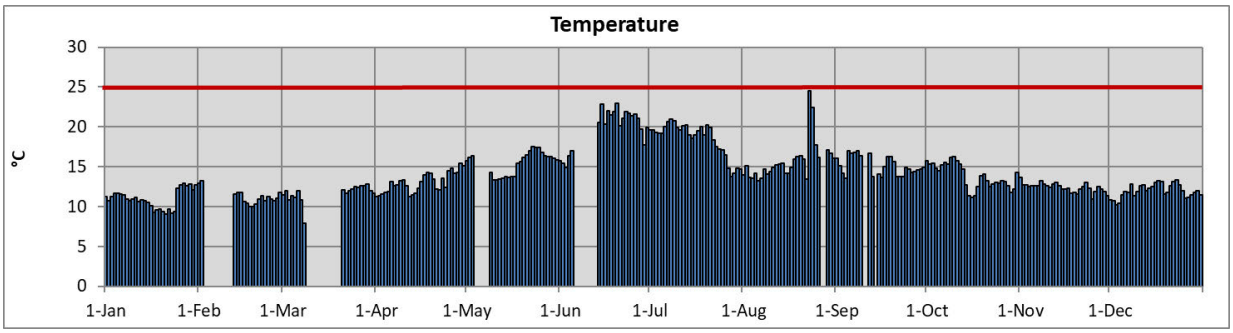
Emissions to water results for 2023 were all compliant with parameters being well below permit limits. This is evident in the graphs below:



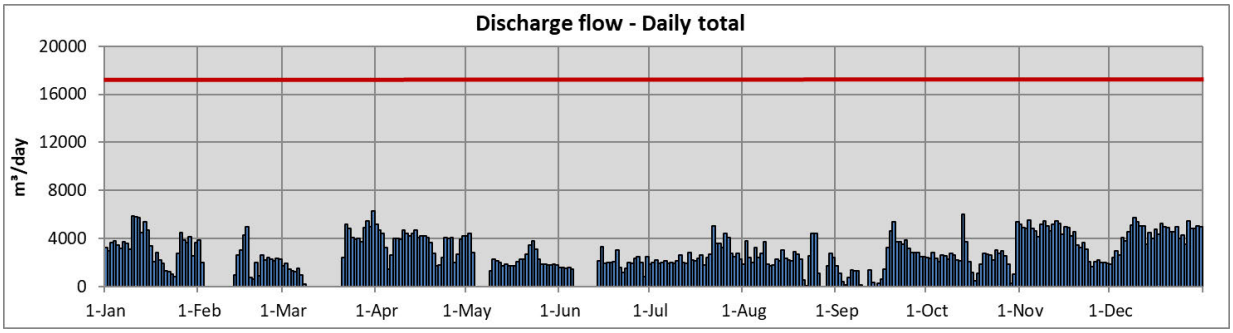
The pH of the effluent discharge to the River Llynfi was within the permit limits for 2023, as is shown in the graph below:



The discharge temperature has consistently been below the permit limit of 25°C.

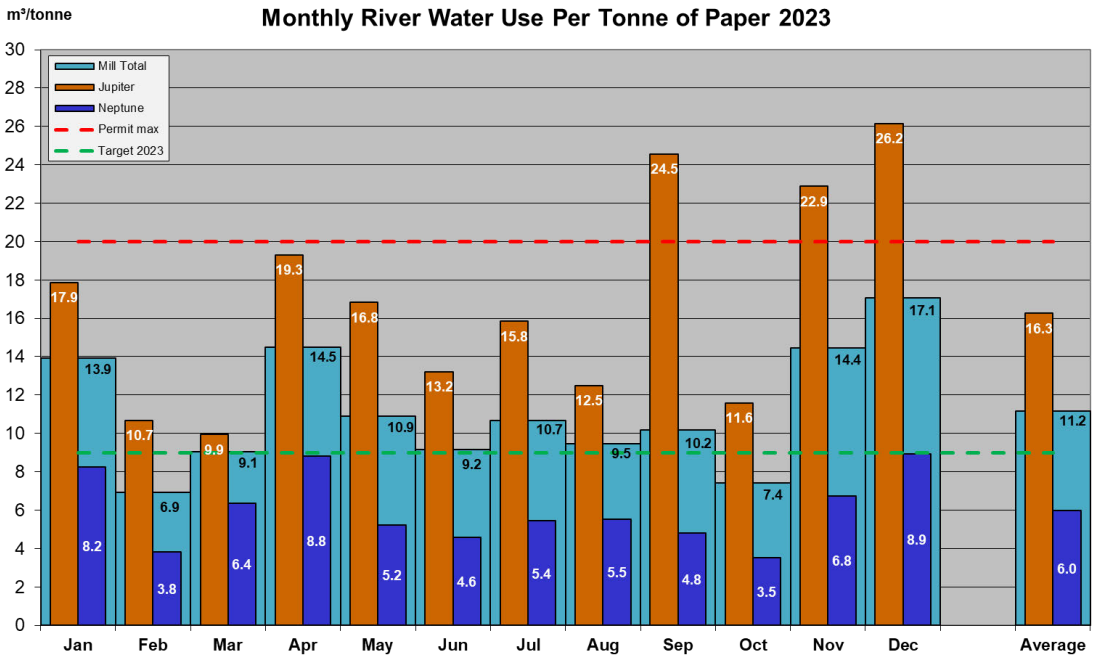


The daily effluent volumes discharged in 2023 were significantly below the permit limit of 17,500m^3 per day and apart from the odd spike, typically less than 4,000m^3 per day.

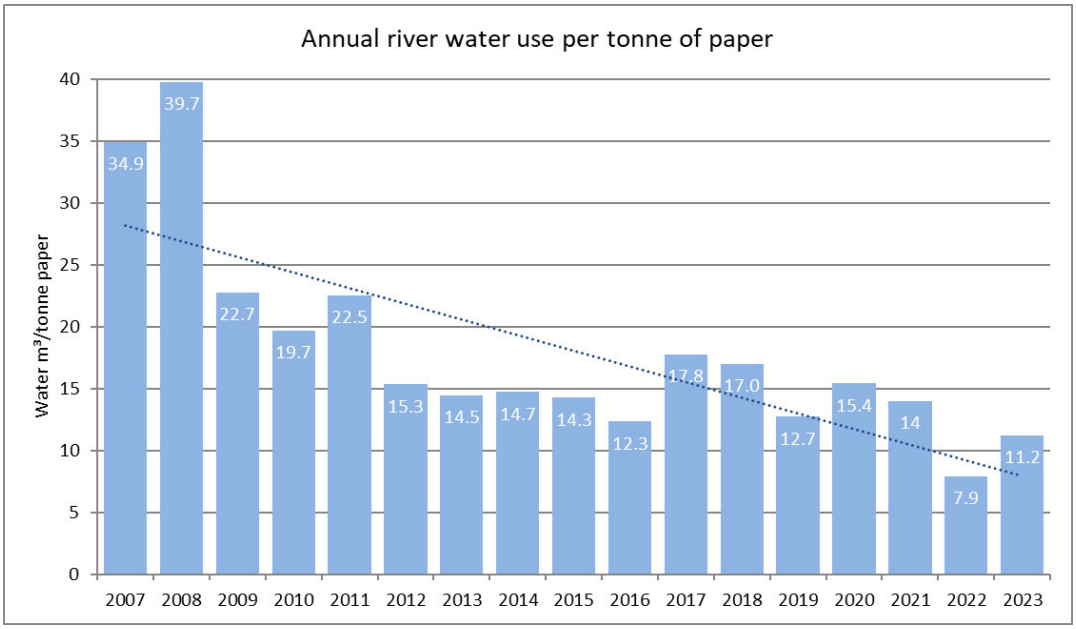


WATER USE CHARTS

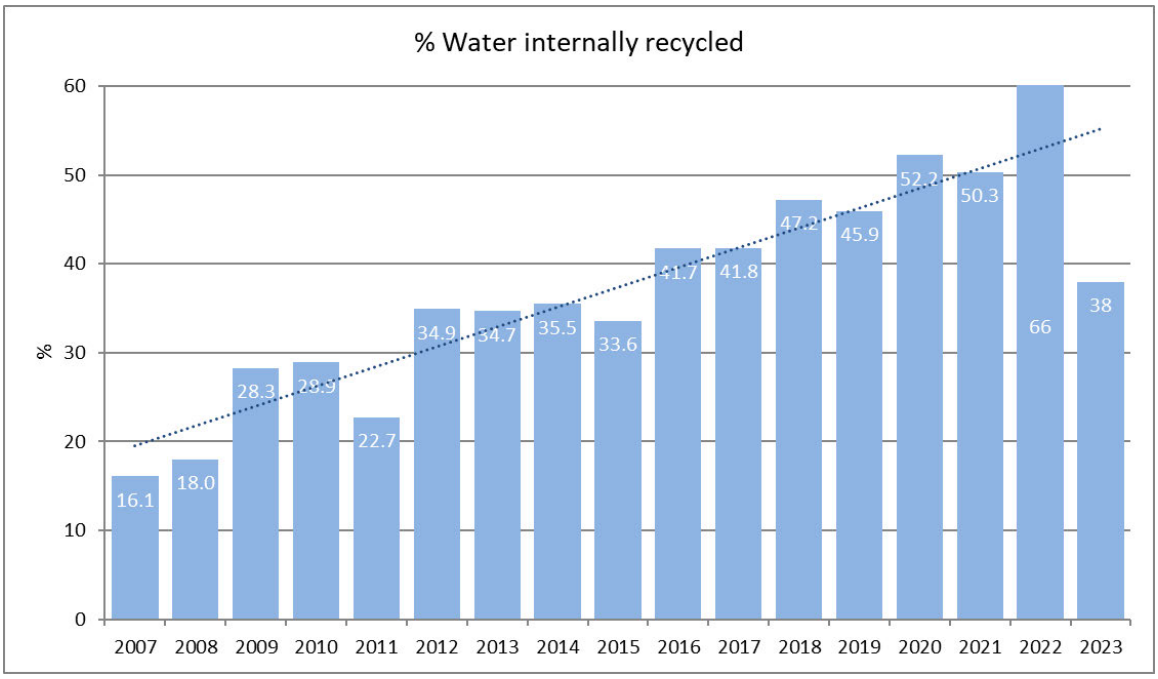
The trend in river water use per air-dried tonne of paper (ADT) was consistently below the revised 2014 BREF target of 20m³/ADT. Some elevated water usage seen in Q4 2023 on Jupiter paper machine are being targeted with improvement projects scheduled to be delivered in 2024.



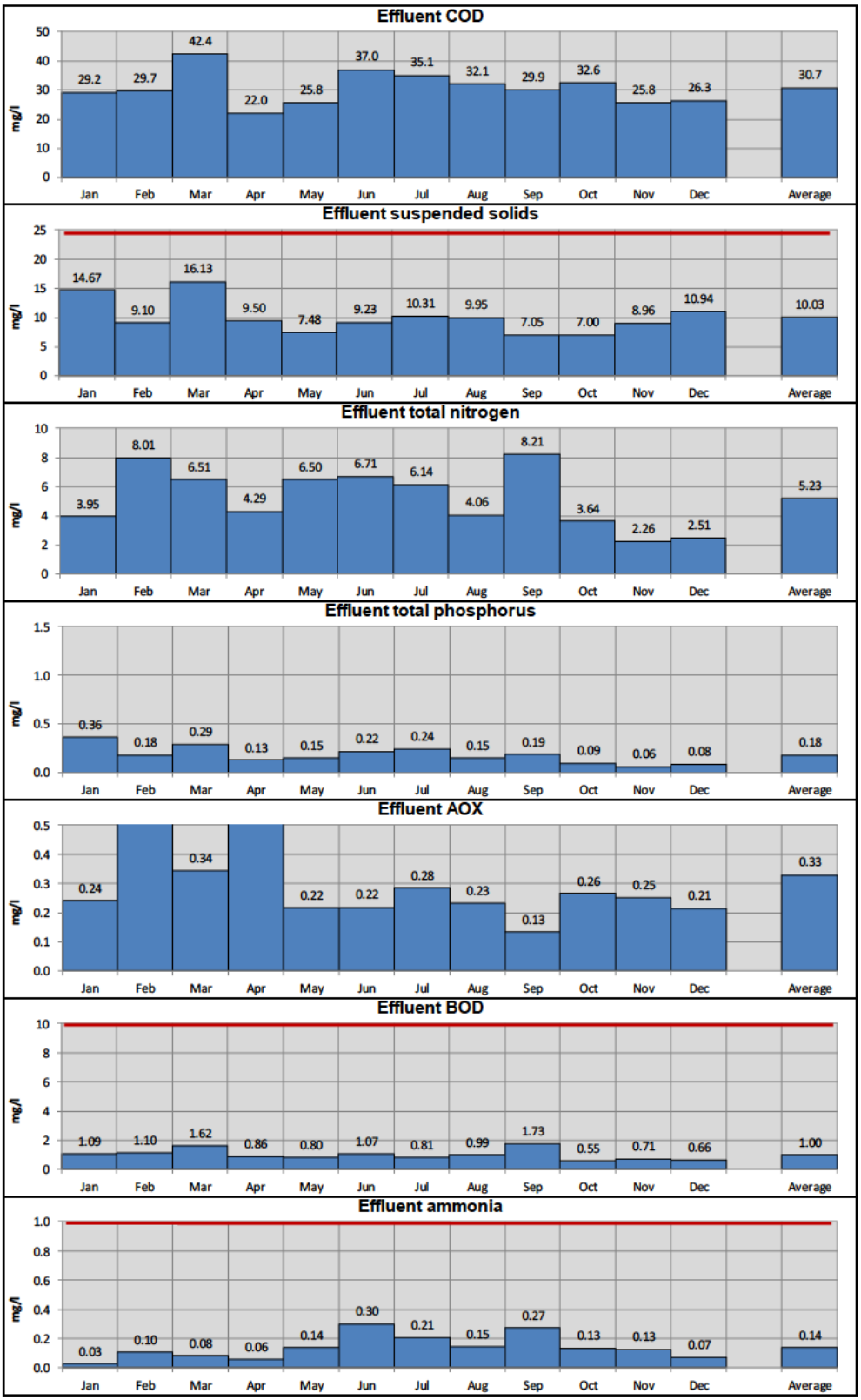
Historic trend demonstrates a downward curve, as can be seen from the graph below despite a slight upward movement in 2017 during commissioning on the new water plant. This downward trend is expected to continue with the commissioning and optimisation of the newest Neptune paper machine.



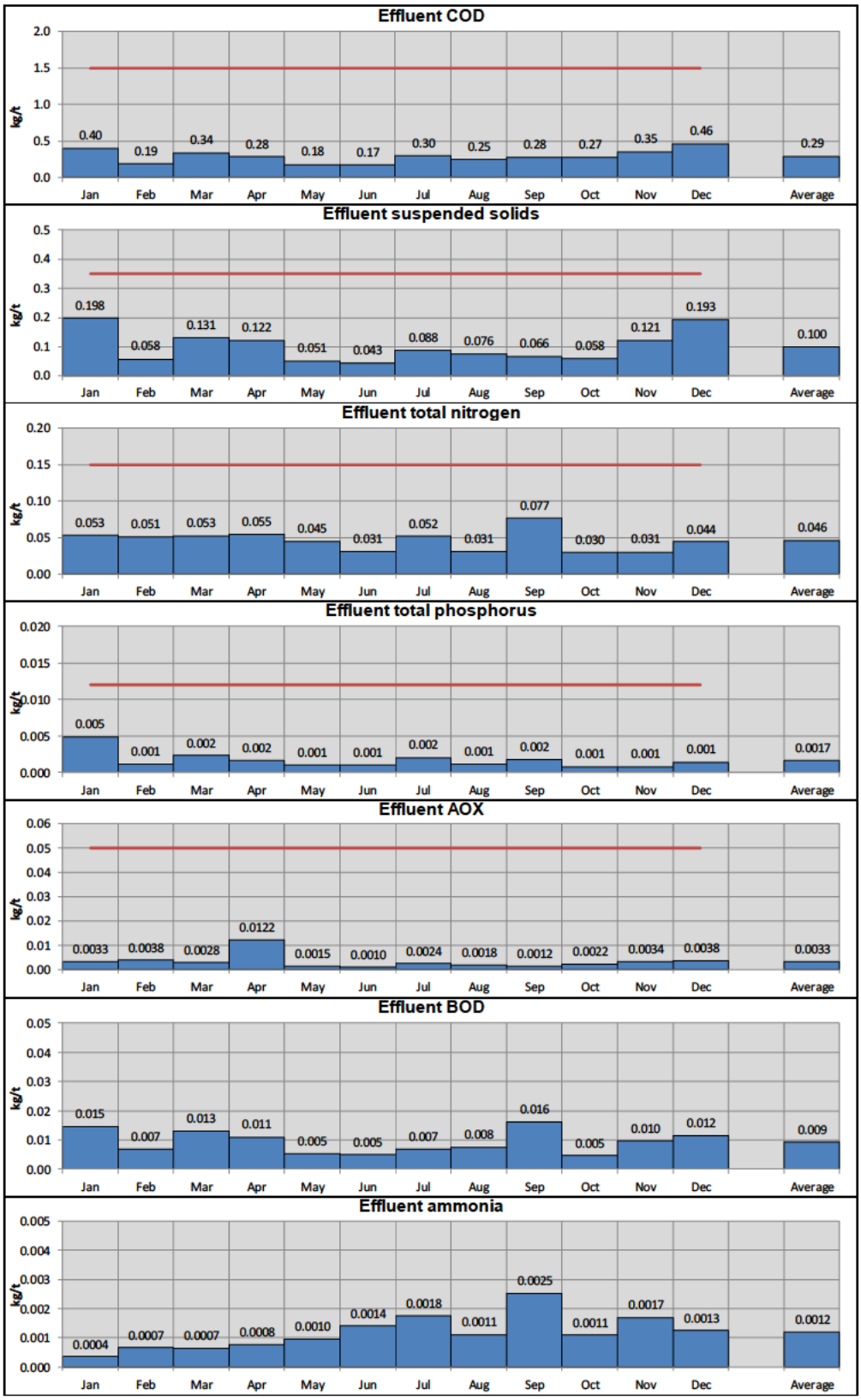
The declining trend in water usage is typically reflected in the quantity of water that is recycled as shown in the graph below. However in 2023 there was a limit to the amount of water that can be recycled versus protecting some of the water circuits and pipework on the Neptune machine. This is being actioned in 2024 with a view to returning the recycle rates >60% by year end.



EMISSIONS TO WATER (mg/l)



EMISSIONS TO WATER (monthly kg/tonne)



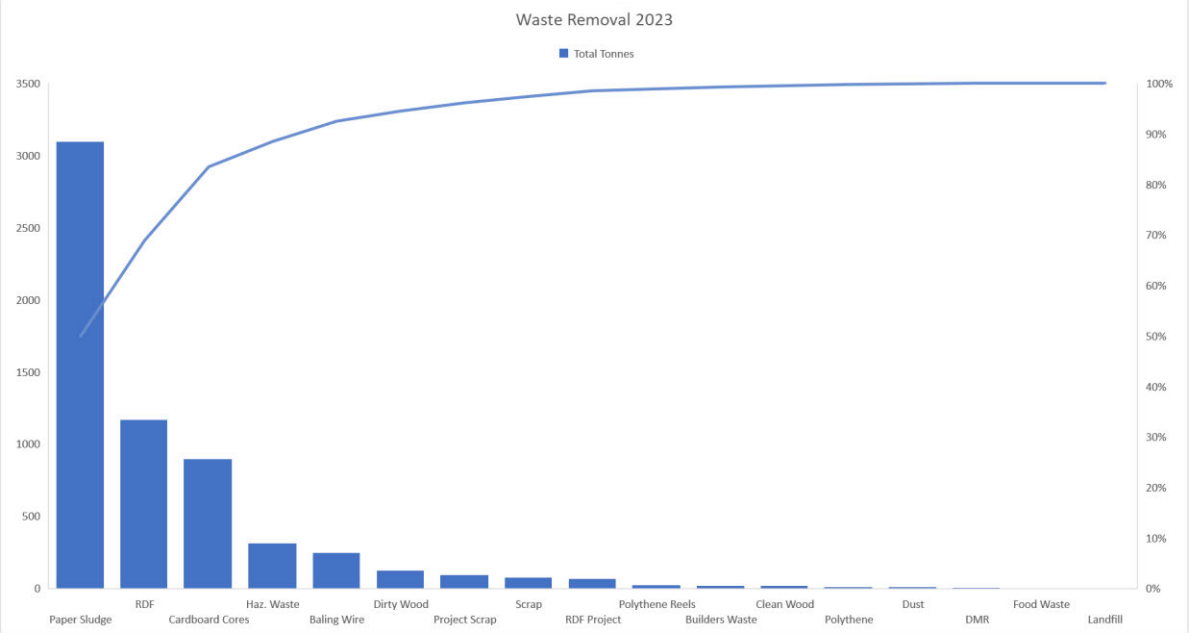
6.0 Waste

The following list is typical of waste streams emanating at Bridgend mill and their respective disposal routes:

1. Paper sludge – primarily cattle bedding
2. General Waste – Treated (Recyclables segregated from general waste) or Recovered (Refuse Derived Fuel Plant)
3. Metals – Recycled
4. Oils – Recovered
5. Cardboard and Polythene – Recycled following separation.
6. Building rubble – Recycled
7. Polythene – Recycled
8. Wood –Recycled
9. Non-standard waste, which includes both hazardous and non-hazardous and have varying disposal routes. These wastes typically include:

   Batteries
   Hazardous wastes
   Paints and solvents
   Process and other chemicals
   PC monitors (W.E.E.E Waste)
   Fluorescent tubes etc.

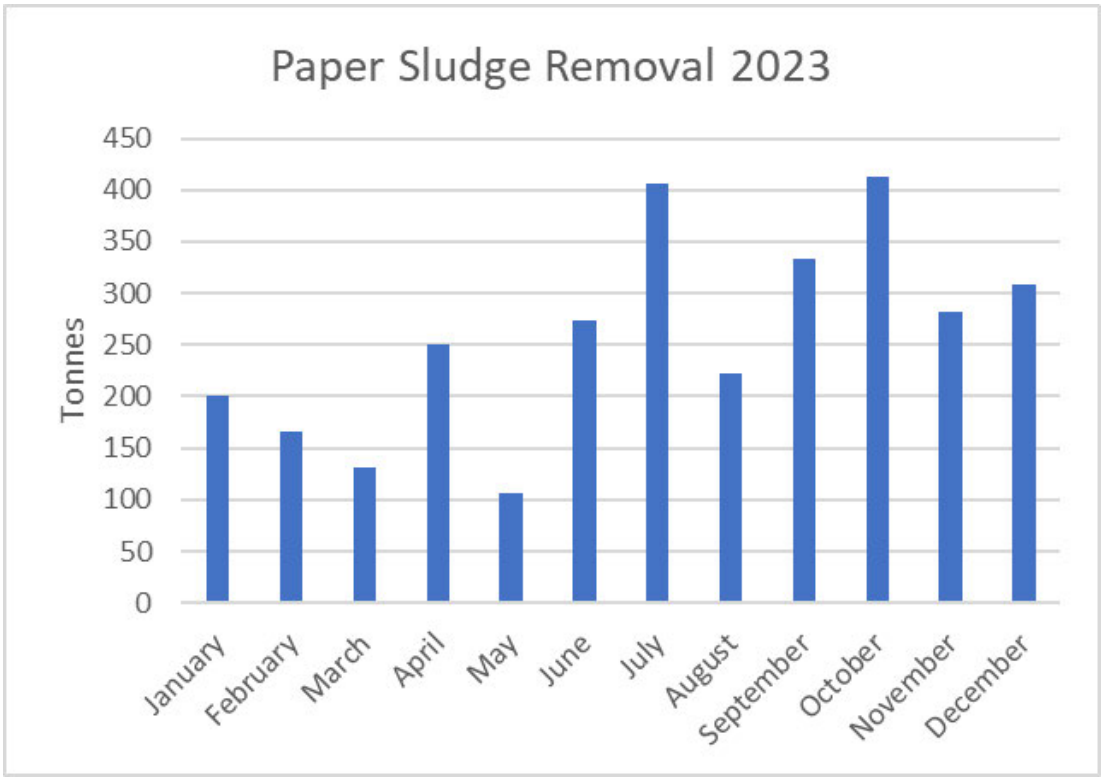
The below graph depicts the annual trend of wastes generated at the Bridgend site during 2023.

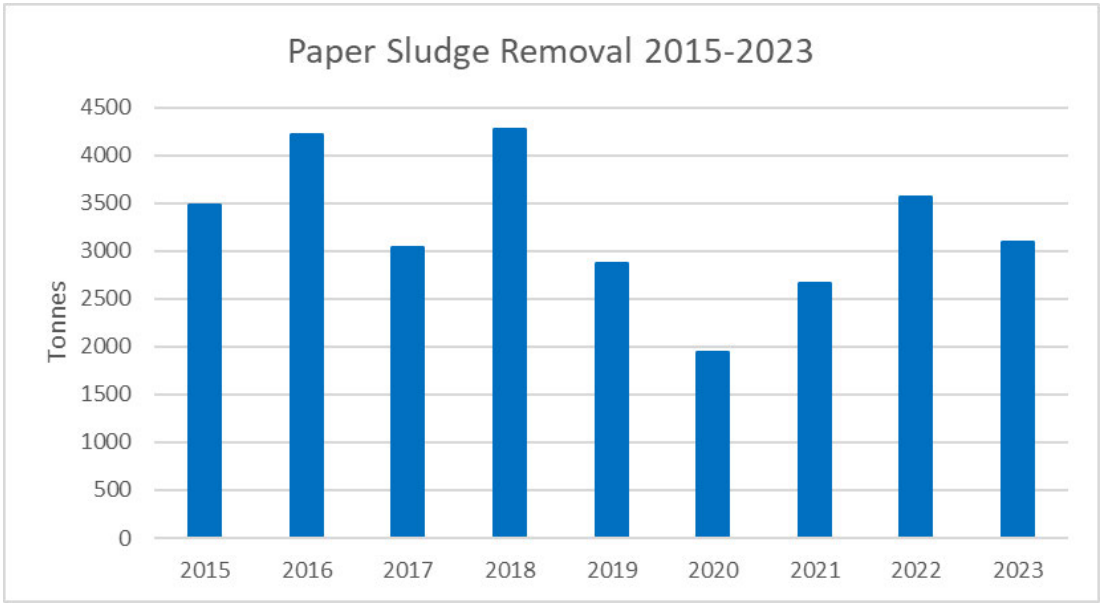


In 2024 the mill is targeting to increase the recycle rates of general waste together with the implementation and roll out of the new Welsh Government workplace recycling legislation.

7.0 Sludge removal

The graph below shows the amount of sludge removed from site in 2023 per month and the graph below that shows sludge removal over the last 8 years.

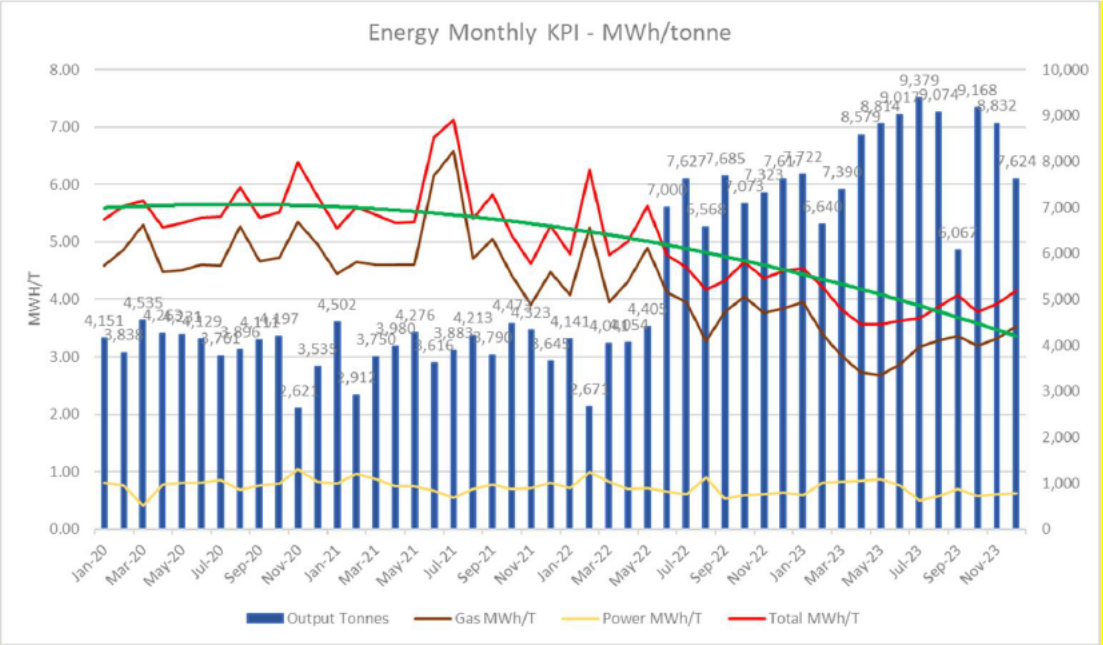




8.0 Energy

Bridgend Paper Mill is a member of a Climate Change Levy Agreement negotiated scheme (Confederation of Paper Industries).

The mill is also registered with the UK Emissions Trading Scheme. This is verified by the Natural Resources Wales through the Mill's Greenhouse Gas (GHG) Emissions Permit as well as the online ETSWAP reporting system. No major non-conformances have been reported in this calendar year.



Energy consumption per tonne of paper improved month on month in 2023 as the output from the new Neptune machine increased with the commissioning learning curve. The only outlier being September where a two week shutdown was completed on Jupiter.

In 2023 the main energy efficiency improvement project was the installation of a new hood blowbox on the Jupiter paper machine, which was completed in the September two-week shutdown. This was part of the successful IETF application project bid to improve Jupiter's energy efficiency and in 2024 includes further initiatives, such as swapping vacuum pumps for a turboblower and replacing a number of motors/drives for higher rated efficiency.

Other energy and carbon related projects in 2024 include the installation of EV charging points on site, exploring a solar PV private wire supply, replacing the site's CHP steam generation and trialling electric HGV movements for finished goods distribution.