



2023 Annual performance activity review of Environmental Permit
EPR/BB3790FX v1

January 2024

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1. Terms of reference

Condition 4.2.2 of Environmental Permit EPR/BB3790FX requires AluK (GB) Ltd to provide a report on the performance of the activities over the previous year. This report shall include a review of the results of the monitoring and assessment carried out in accordance with the permit including an interpretive review of that data.

The reporting periods for the annual parameters set out in Tables S4.1, S4.2 and S4.3 are from 01/01/2023 to 31/12/2023 and shall use the reporting forms as described in Table S4.4.

The reporting period for the quarterly parameters set out in Table S4.1 will be from 01/10/2023 to 31/12/2023 and shall use the reporting forms as described in Table S4.4.

2. Reporting of emissions to air for the period 01/01/2023 to 31/12/2023

On 2nd October 2023 Environmental Compliance Ltd (ECL) attended site to undertake an emission monitoring survey of Emission point A2 at our Chepstow Plant. With regards to the emission monitoring survey of Emission point A1, AluK confirm that the A1 Flash Anodising Process has not been in operation throughout 2023.

The graphs below represent the Emission point A2 emissions to air parameters monitored during the period between 2020 and 2023. It is noted that the values of the parameters monitored continue to remain within the set Emission Limit Values.

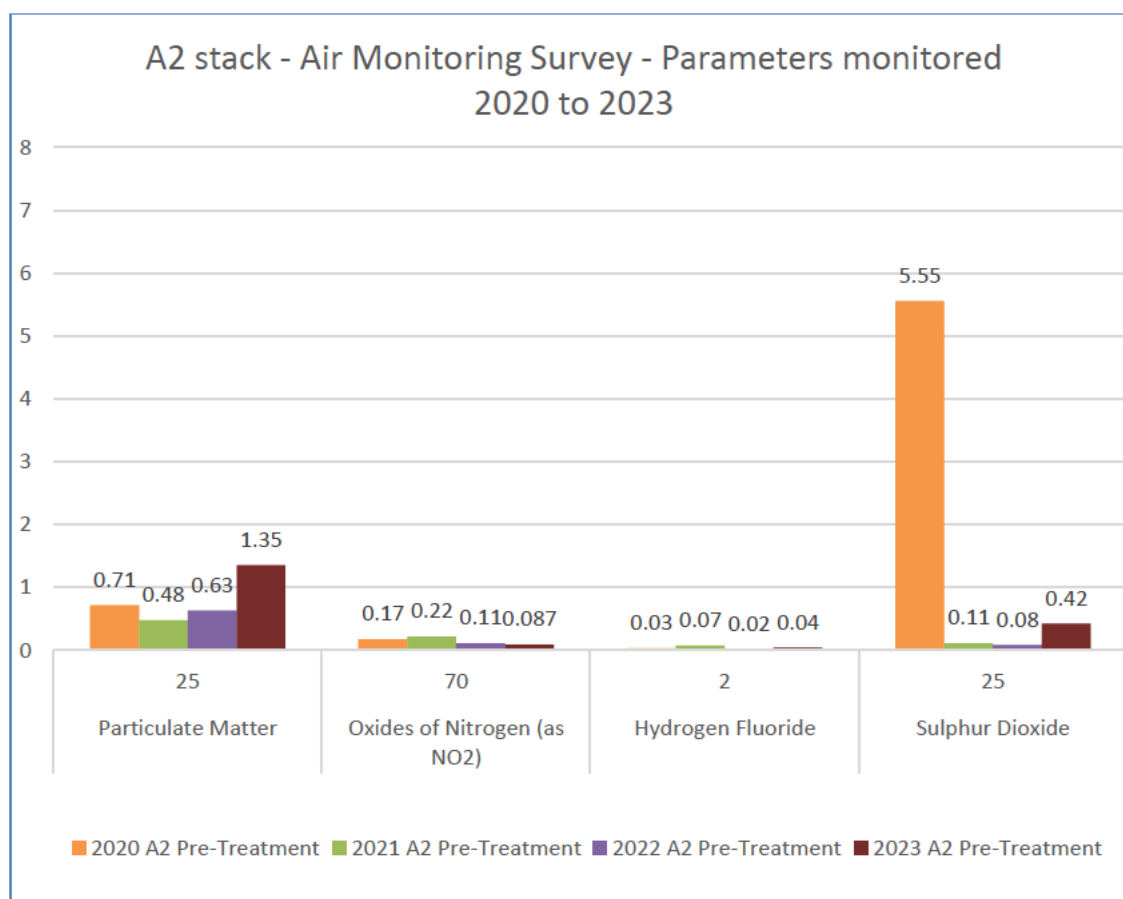


Figure 1 Graph representing the parameters monitored for stack A2

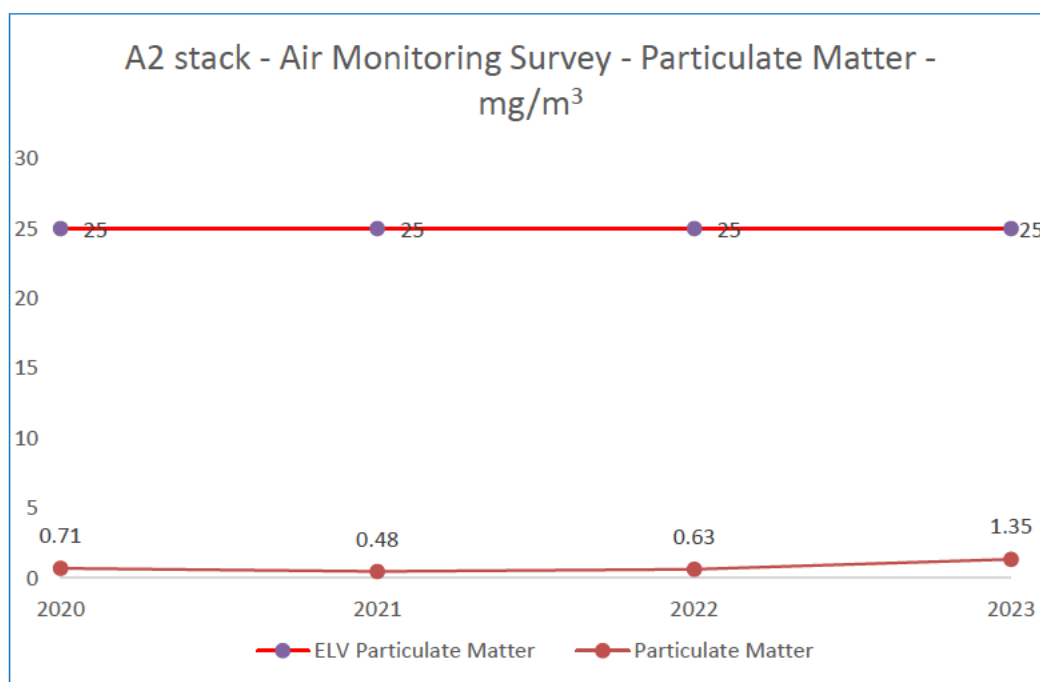


Figure 2 Graph representing Particulate Matter monitored for stack A2

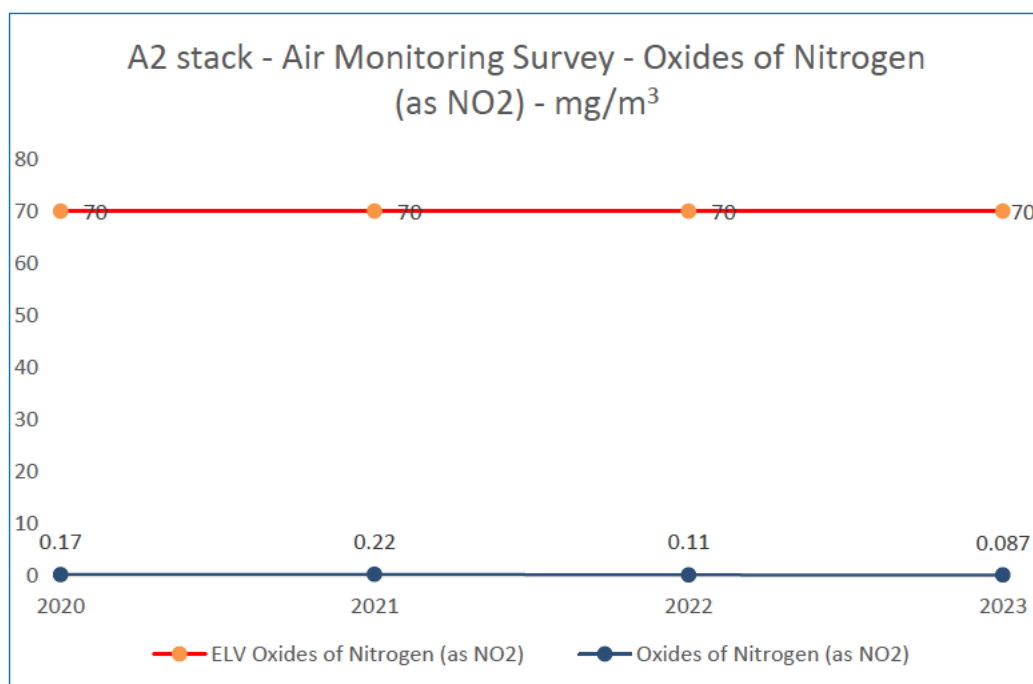


Figure 3 Graph representing Oxides of Nitrogen (as NO_2) monitored for stack A2

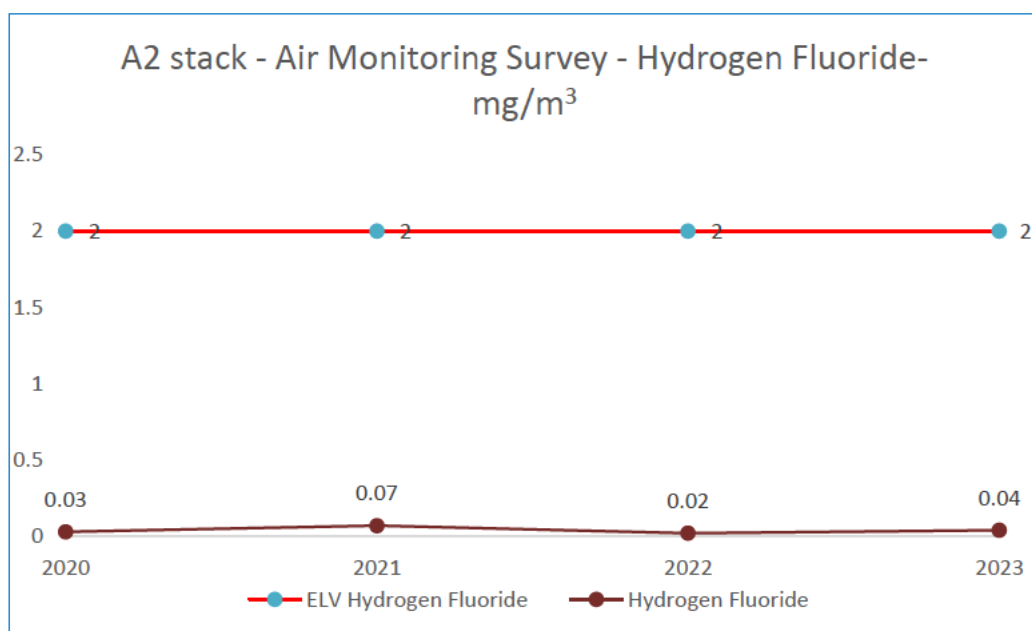


Figure 4 Graph representing Hydrogen Fluoride monitored for stack A2

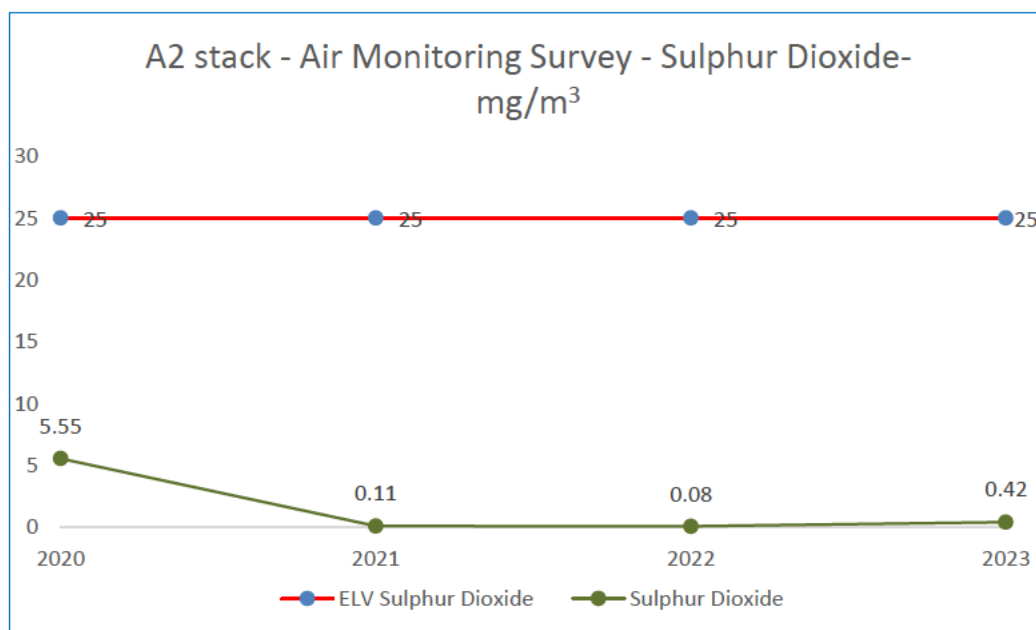


Figure 5 Graph representing Sulphur Dioxide monitored for stack A2

Table 1 below presents the findings of the 2023 survey and indicates Emission Point – A2 as being compliant to the Emission Limit Values as described in Schedule 3 – Emissions and monitoring of Environmental Permit EPR/BB3790FX. A full copy of ECL Emissions Monitoring Survey P5545 is available upon request.

Note – AluK confirm that the Al Flash Anodising Process not been in operation during 2023

Table 1 Emissions to air – Emission Points – A2

Emission Point	Substance / Parameter	Emission Limit Value	Reference Period	Result	Test Method	Sample Date and Times	Uncertainty
A2	Oxides of nitrogen (NO and NO ₂ expressed as NO ₂)	70 mg/m ³	Periodic (average over hour)	0.087mg/m ³	BS EN 14792: 2017	02/10/2023 13:45 – 14:45	3%
A2	Sulphur dioxide	25 mg/m ³	Periodic (average over hour)	0.42mg/m ³	BS EN 14791:2017	02/10/2023 11:30 – 12:33	13%
A2	Particulate matter	25 mg/m ³	Periodic (average over hour)	1.35mg/m ³	BS EN 13284-1:2017 & MID	02/10/2023 11:30 – 12:33	36%
A2	Hydrogen fluoride	2.0 mg/m ³	Periodic (average over hour)	0.04mg/m ³	BS ISO 15713:2006 & MID / PD C EN/TS 17340:2020	02/10/2023 14:45 – 15:45	13%

3. Reporting of emissions to sewer for the period 01/01/2023 to 31/12/2023

3.1 Emission Points W1 & W2

Emission points W1 & W2 relate to the source emissions to water of uncontaminated surface water drainage via interceptors into two unlined balancing lagoons.

Weekly spot monitoring of emission points W1 & W2 continued during 2023. The Emission Limit Value parameters of both oil and grease (none visible) have continued to remain compliant throughout the reporting periods for 2023.

The spot sampling of the pH (min 6 max 9) parameters for W1 and W2 emission points were within their respective Emission Limit Values throughout the reporting periods for 2023.

To provide a better representation of Aluk's emissions to water and sewer the graphs below now represent the annual NRW W1 and W2 Emission point pH reporting of emissions to sewer for the period from 01/01/2023 to 31/12/2023.

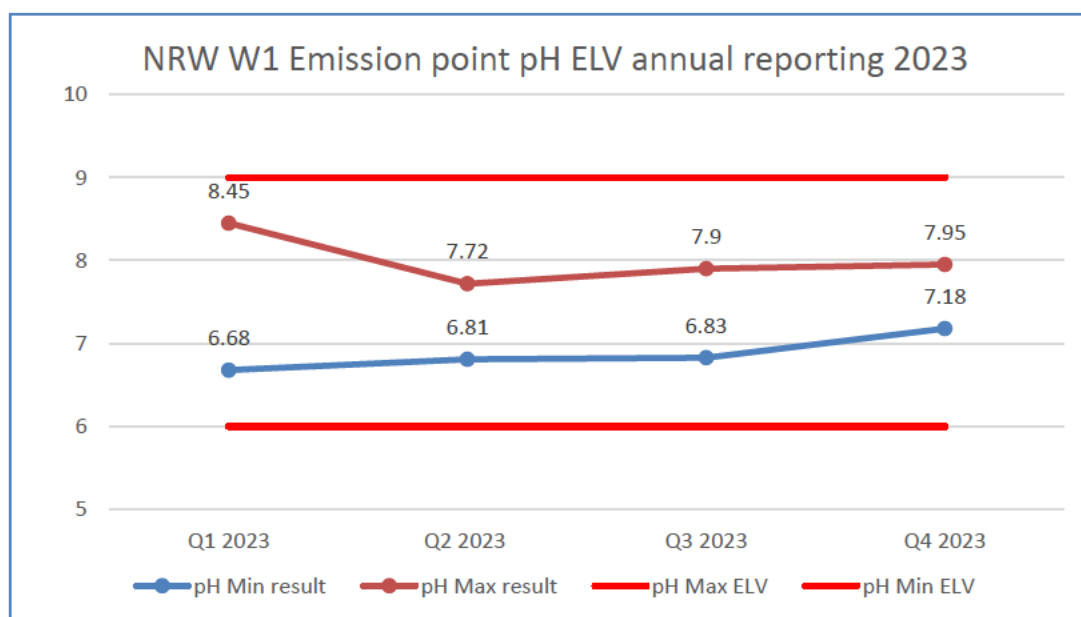


Figure 6 NRW W1 Emission point pH ELV reporting of emissions to sewer for the period from 01/01/2023 to 31/12/2023

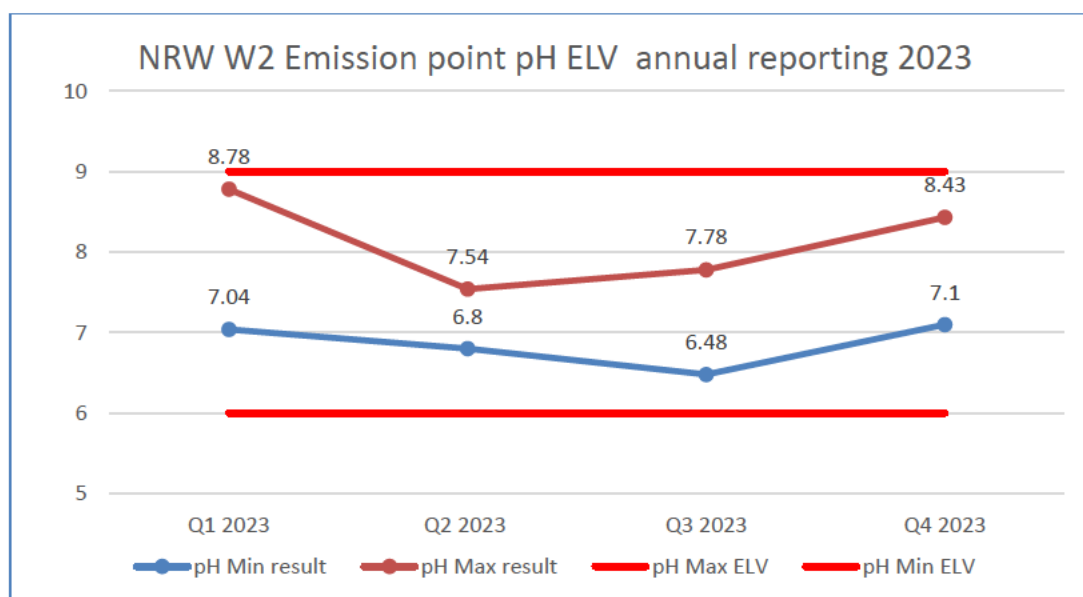


Figure 7 NRW W2 Emission point pH ELV reporting of emissions to sewer for the period from 01/01/2023 to 31/12/2023

3.2 Emission Point S1

Emission point S1 relates to the source emission from the Effluent Treatment Plant.

The Emission Limit Value parameters of pH (min 6 max 9) have not been exceeded during this reporting period of 01/01/2023 to 31/12/2023.

The daily flow limit of 144m³/day (emission point S1) continues to be within the respective Emission Limit Values during the reporting period of 01/01/2023 to 31/12/2023. The MCERTS flow meter continues to remain operational.

Exceedances of the Emission Limit Value for the Total Aluminium (ELV 2.0mg/L) NRW parameter that occurred during 2023 have been communicated to Natural Resources Wales (NRW).

Actions relating to these Emission Limit Value exceedances were as follows:

1. Flocculation non-return valve removed, cleaned and refitted.
2. Original flocculation agent replaced with new batch of GARDOFLOC Q 5960.
3. The Partech Aluminium Analyser has been decommissioned and removed from service.
4. AluK have developed an in house Total Aluminium testing regime.
5. Installation and commissioning of a composite sampler.

3.2.1 NRW S1 Emission monitoring for period 01/01/2023 to 31/12/2023

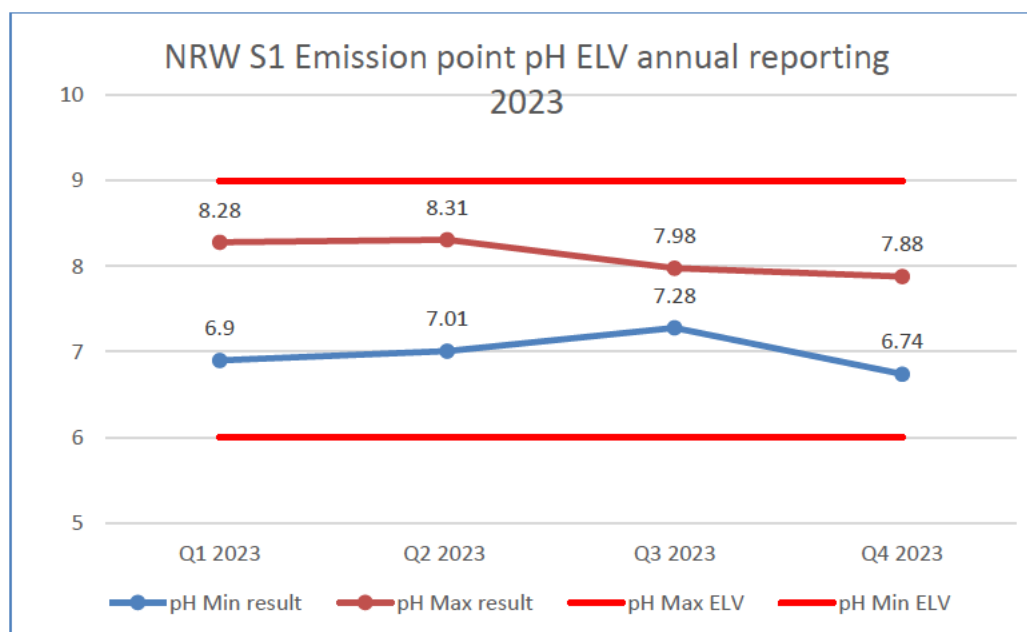


Figure 8 NRW S1 Emission point pH ELV reporting of emissions to sewer for the period from 01/01/2023 to 31/12/2023

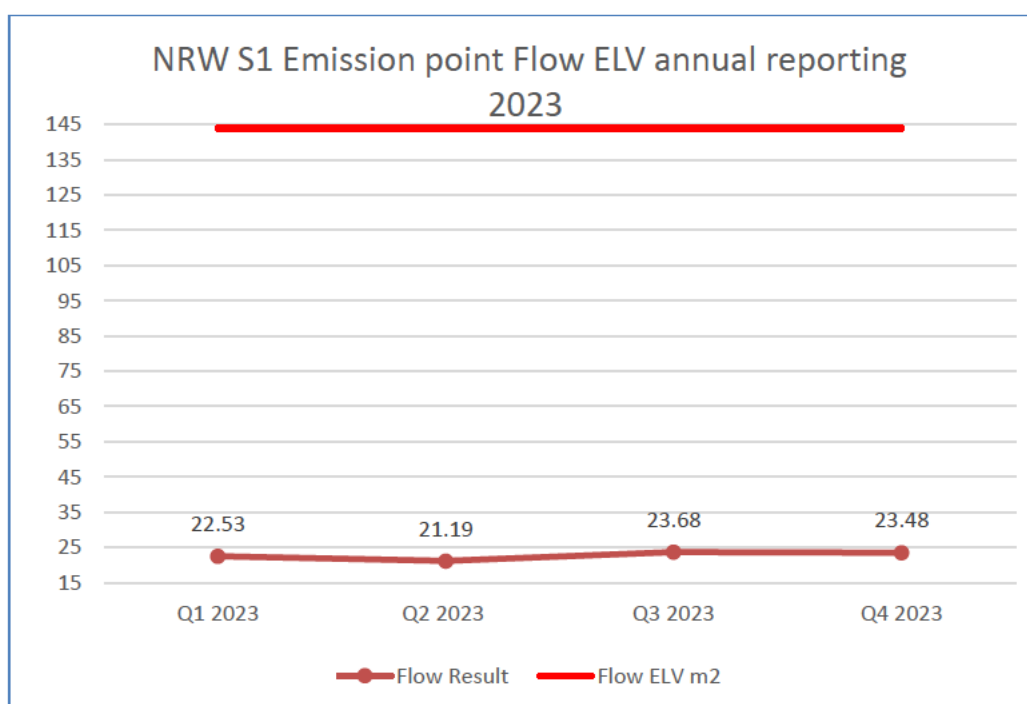


Figure 9 NRW S1 Emission point Flow ELV reporting of emissions to sewer for the period from 01/01/2023 to 31/12/2023

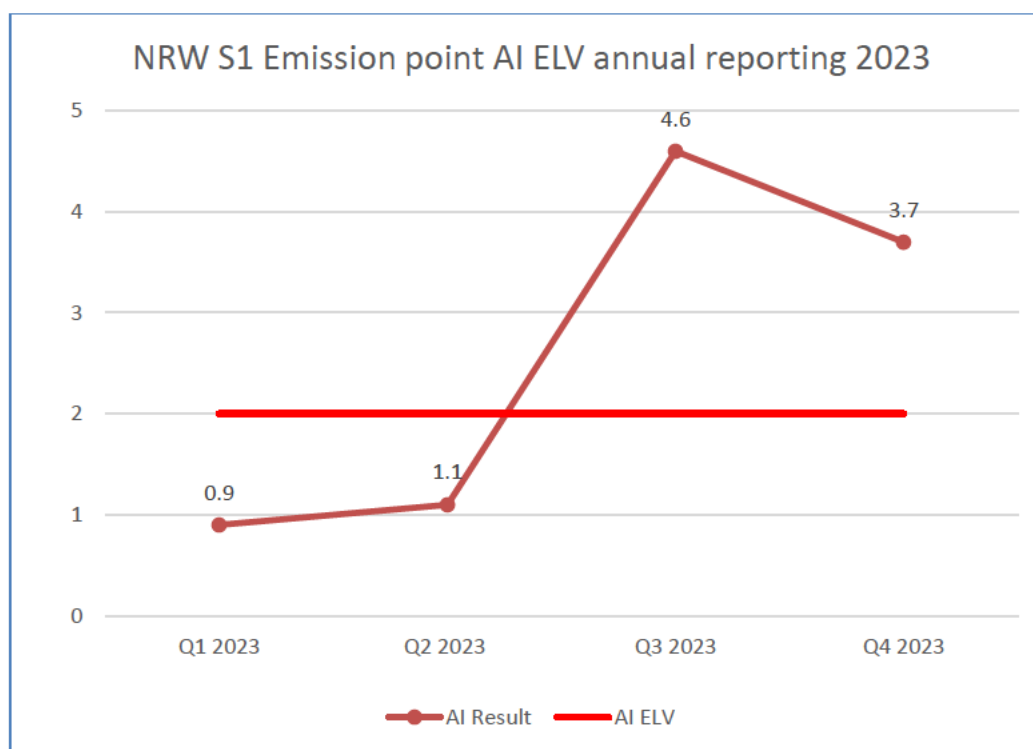


Figure 10 NRW S1 Emission point AI ELV reporting of emissions to sewer for the period from 01/01/2023 to 31/12/2023

4. Reporting of Water Usage for the period 01/01/2023 to 31/12/2023

4.1 Water consumption

Water consumption recorded during 2023 was 10,112m³. This was 2,120m³ or 17.33% less than 2022. The decrease in water consumption is reflective of lower production volumes experienced during 2023.

Water consumption

	2023 m ³	2022 m ³	Variance m ³	Variance %
Total	10,112	12,232	-2120	-17.33

Carbon footprint

	2023 Tonnes/CO2	2022 Tonnes/CO2	Variance Tonnes/CO2	Variance %
Total	4.04	4.89	-0.85	-17.3

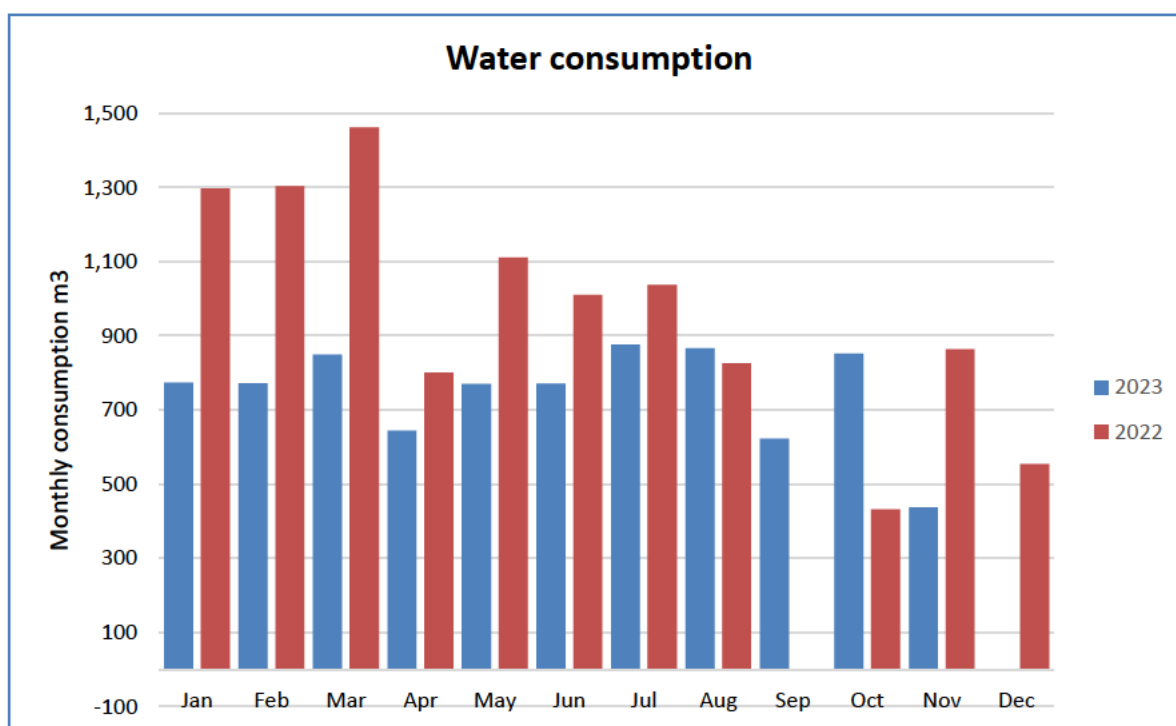


Figure 11 Water consumption 2023

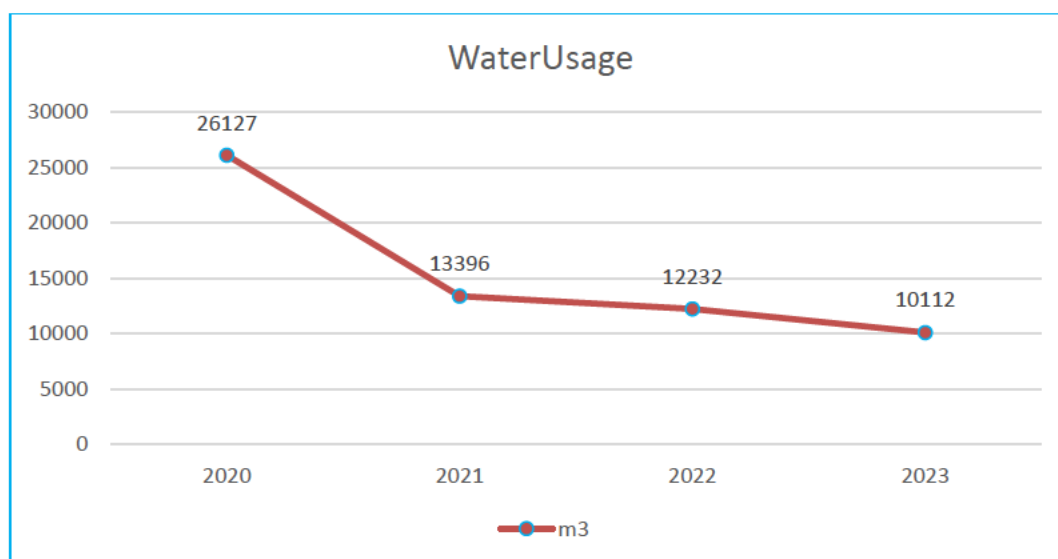


Figure 12 Graph showing Water usage 2020 to 2023

5. Reporting of Energy Usage for the period 01/01/2023 to 31/12/2023

5.1 Electricity

Electricity consumption during 2023 was 1,724,357 kWh. This was 396,374 kWh or 18.7 % less than 2022. The turning off of unused and unnecessary lights continued during 2023 and coupled with lower production volumes for the same period contributed to the variance.

Carbon emissions fell by a smaller 12.9% due to the emissions factors for grid electricity rising slightly as more fossil fuel generation was used on the grid following the invasion of Ukraine.

Electricity consumption

	2023 kWh	2022 kWh	Variance kWh	Variance %
Total	1,724,357	2,120,731	-396,374	-18.7

Carbon footprint

	2023 Tonnes/CO2	2022 Tonnes/CO2	Variance Tonnes/CO2	Variance %
Total	357	410	-53	-12.9

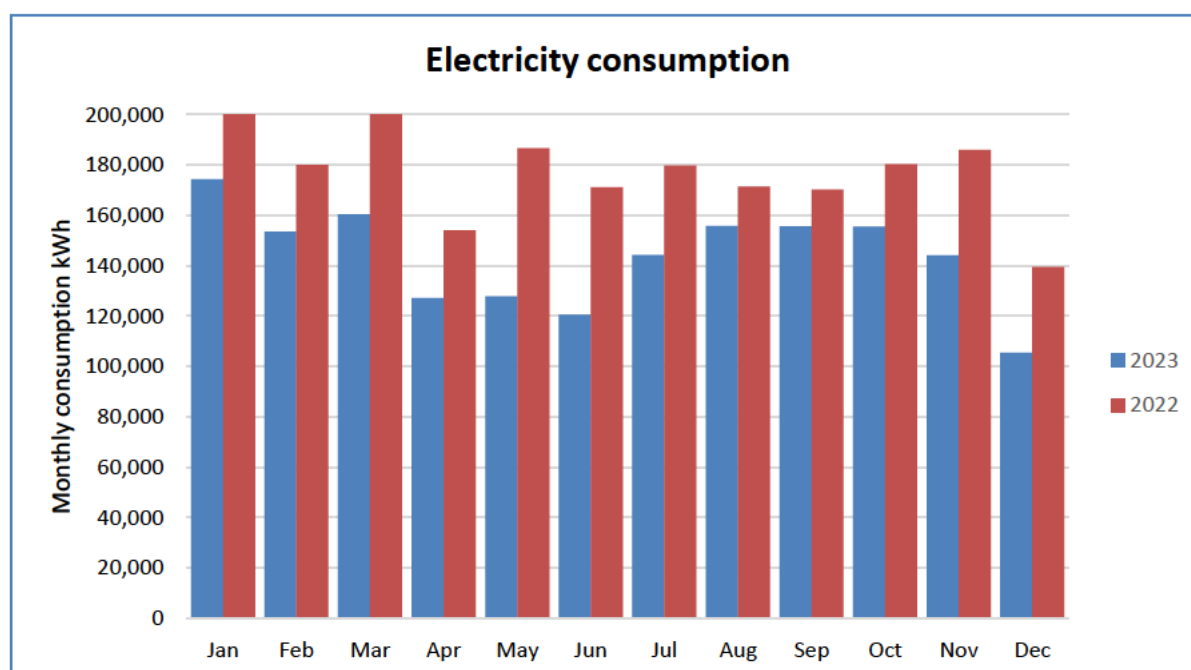


Figure 13 Electricity consumption 2023

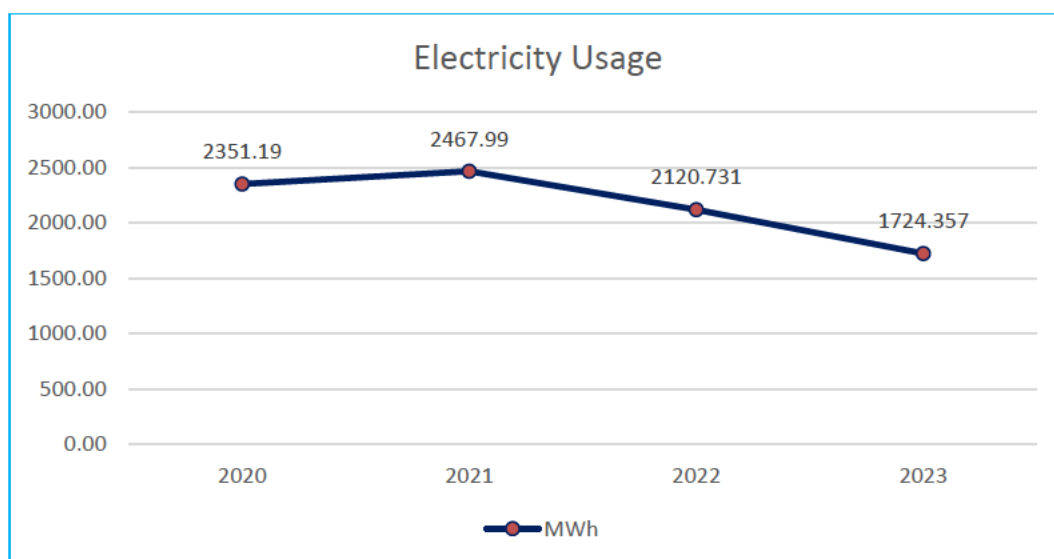


Figure 14 Graph showing Electricity usage 2020 to 2023

5.2 Gas

Gas consumption during 2023 was 2,567,727 kWh. This was 46,223 kWh or 1.8 % less than 2022. The main difference in gas consumption reflects lower production volumes particularly during calendar Q4 of 2023.

Carbon emissions also fell by 1.9% as there was no change in the emissions factor for natural gas.

Gas consumption

	2023 kWh	2022 kWh	Variance kWh	Variance %
Total	2,567,727	2,613,950	-46,223	-1.8

Carbon footprint

	2023 Tonnes/CO2	2022 Tonnes/CO2	Variance Tonnes/CO2	Variance %
Total	462	471	-9	-1.9

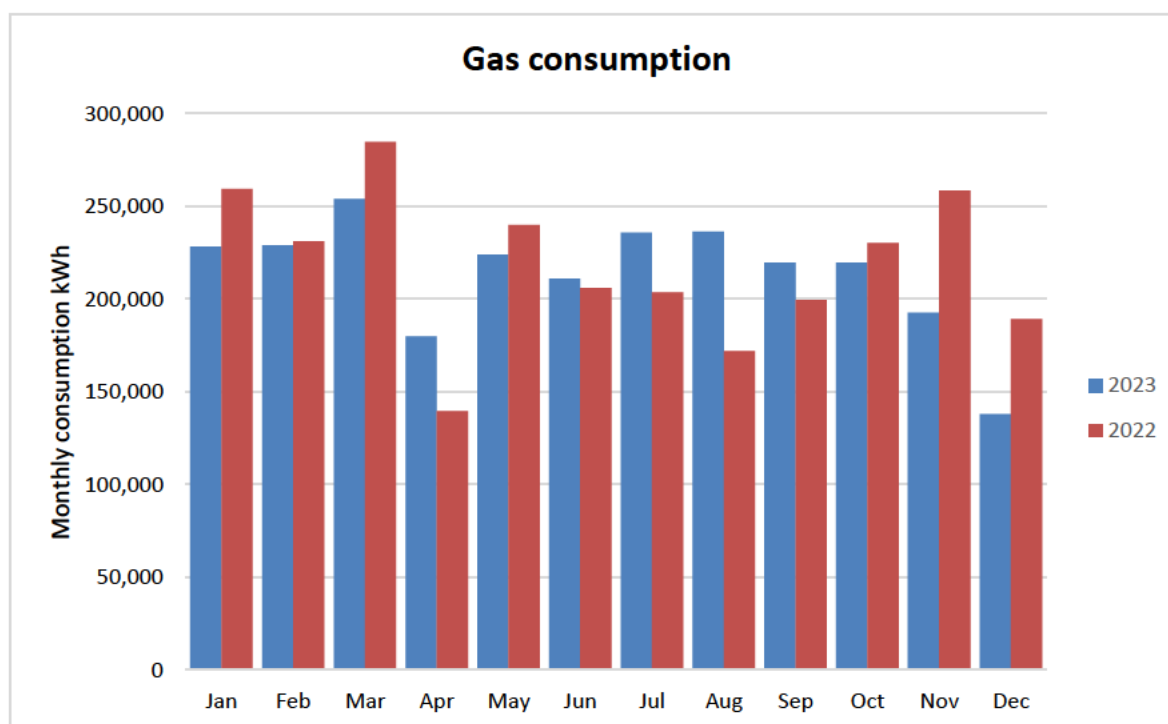


Figure 15 Gas consumption 2023

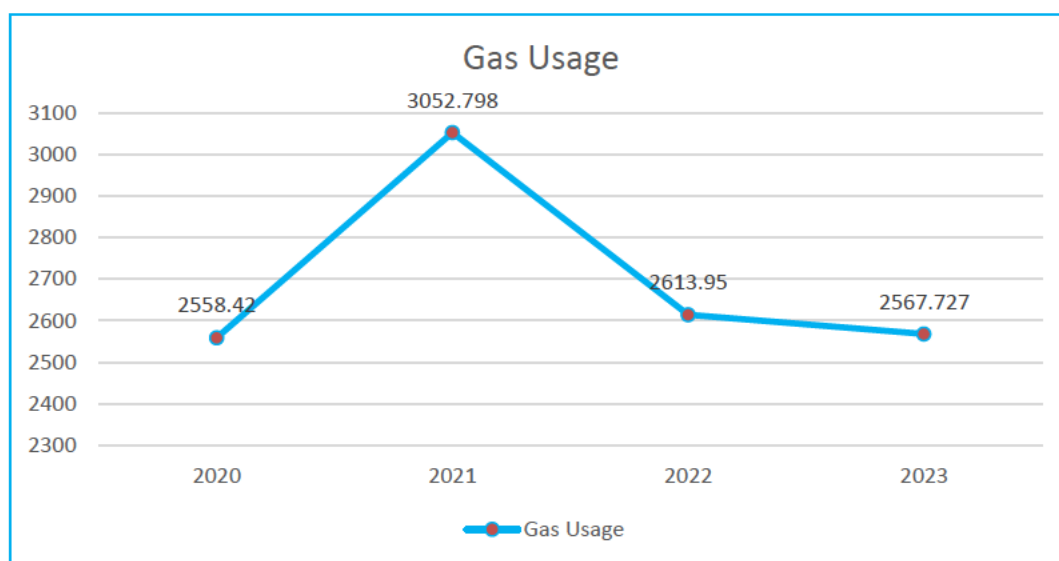


Figure 16 Graph showing Gas usage 2020 to 2023

6. Reporting of other performance indicators for the period 01/01/2023 to 31/12/2023

6.1 Finished Product

The finished product tonnage and unit data for the period 01/01/2023 to 31/12/2023 continues to reflect current market conditions. The unforeseen market downturn, ongoing Ukrainian situation, high inflation and cost of living crisis continue to impact our market and business with orders and sales affecting our budget. Sales growth continues to be the main focus and priority.

The two graphs (Figures 17 & 18) overleaf reflect the Finished Product in Tonnes and Units for the periods 2019 to 2023.

Finished Product					
Year	2019	2020	2021	2022	2023
Finished Product (Tonnes)	3892.046	3755.15	4302.26	3537.81	2859.198
Finished Product (Unit)	962900	939736	1098872	865405	733189

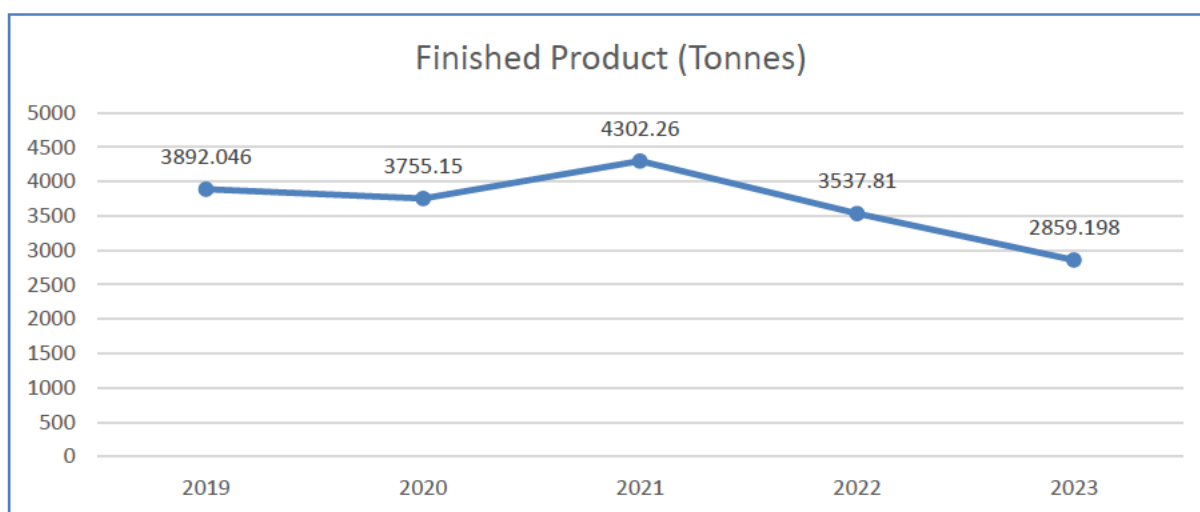


Figure 17 Finished Product (Tonnes) 2019 to 2023

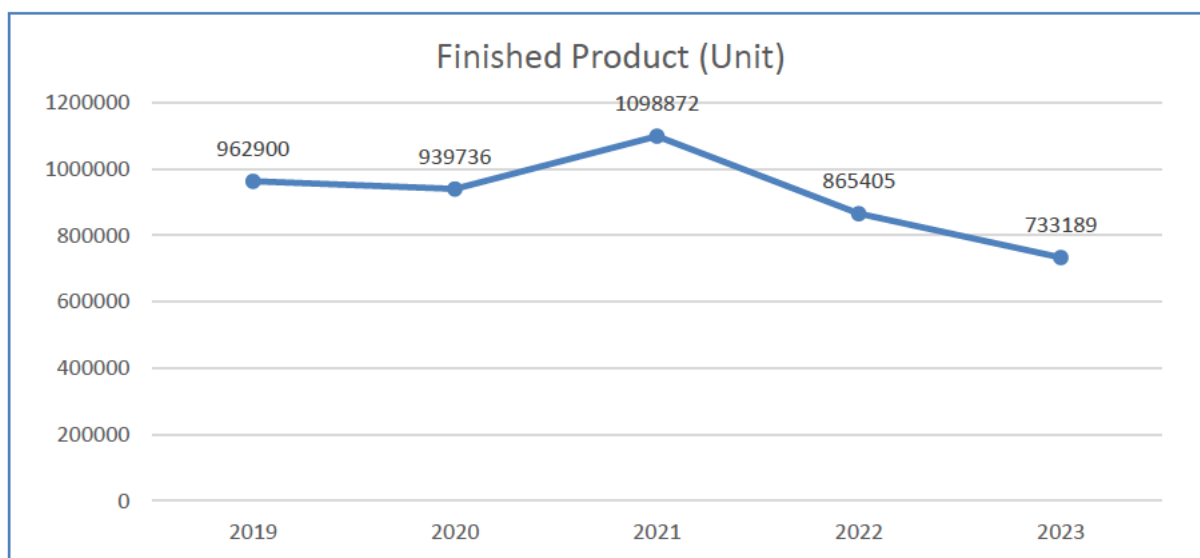


Figure 18 Finished Product (Units) 2019 to 2023

6.2 Waste Product

Total waste produced for the reporting period 1st January 2023 to 31st December 2023 was 343.71t This was 119t or 25.7% % less than 2022.

Of this waste 94.22t went to landfill, 64.75t was diverted and 184.73t was recycled.

AluK generated 63.32t of cardboard, 77.08t of filters, 13.5t of powder paint, 2.491t of food waste, 56.125t of Non-Hazardous Industrial (NHI), .904t of recyclate and 19.58t of wood.

In addition AluK generated 17.36t of Hazardous waste and 93.34t of metal waste.

Year	2019	2020	2021	2022	2023
Waste Produced (Tonnes)	494.49	428.4	488.66	462.72	343.71

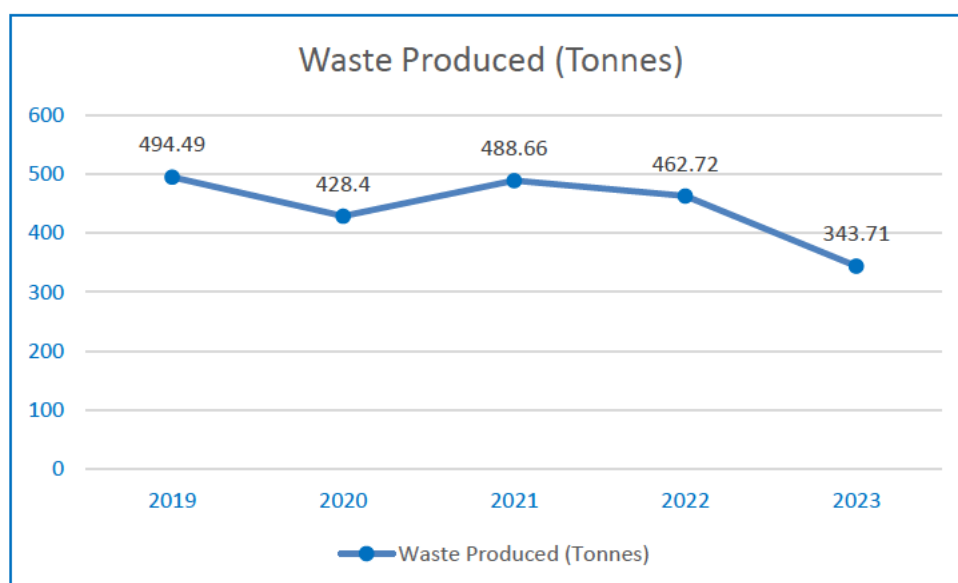


Figure 19 Waste Produced 2019 to 2023 (Tonnes)

7. Environmental Initiatives

7.1 Environmental objectives

7.1.1 To reduce Landfill tonnage to under 100t

The objective of reducing Landfill tonnage to under 100t has been achieved. The tonnage sent to landfill during 2023 was 94.22t.

Whilst the reduction in landfill tonnage to 94.22t in 2023 was achieved, it is important to consider the context. The decrease in production volume played a role in this reduction. AluK will continue to implement and improve waste management strategies such as the forthcoming Welsh Government Non-Domestic Premises Recycling Regulations to ensure that the landfill tonnage remains low, even when production volumes increase. This will help AluK to achieve a sustainable reduction in landfill waste, independent of production fluctuations.

7.1.2 To reduce energy consumption by 10%

The objective of reducing electricity consumption by 10% during 2023 was successfully achieved. The recorded electricity consumption for 2023 was 1,724,357 kWh, which is a reduction of 396,374 kWh or 18.7% compared to 2022. The continuation of the initiative of turning off unused and unnecessary lights continued during 2023, coupled with lower production volumes during the same period, significantly contributed to this reduction.

However, the goal of reducing gas consumption by 10% during 2023 was not met. The recorded gas consumption for 2023 was 2,567,727 kWh, which is only 46,223 kWh or 1.8% less than the consumption in 2022. The primary factor influencing gas consumption appears to be lower production volumes, particularly during the fourth quarter of 2023. Further strategies will need to be explored to achieve the desired reduction in gas consumption.

7.1.3 50% reduction in annual mileage of Field Support operatives

The objective of achieving a 50% reduction in the annual mileage of Field Support operatives was not met. The recorded mileage for 2022 stood at 70,538 miles, whereas the figure for 2023 was 46,557 miles. This represents a difference of 23,981 miles, equating to a reduction of 34%. Although the target was not reached, it is noteworthy to mention that future car leases for Field Support operatives will feature reduced engine sizes. Specifically, AluK will transition from 2.5l vehicles to the 1.0l Focus ST Line.

7.2 MCERTS

On 26th September 2023, an MCERTS surveillance audit was conducted by Ruth Morrison of CSA. The audit concluded that AluK's management system satisfies the scheme requirements.

AluK was issued the MCERTS Inspection Certificate (no. Sira ME2022 639 rev) on 21st October 2022, with a renewal date set for 8th December 2026. This certificate verifies that the effluent flow monitoring arrangements at AluK's Chepstow site comply with the Environment Agency's MCERTS standard. Specifically, it adheres to the "Guidance - Minimum requirements for self-monitoring of flow: MCERTS performance standard" published on 3rd February 2022, clause 3.1, which outlines the performance requirements for effluent flow monitoring (volume).

The flow measurement, located at the S1 effluent discharge to the sewer, utilizes a Siemens Mag 5000 magnetic flow meter. This system is maintained through regular activities to ensure its optimal performance. AluK continues to collect and retain evidence of continuous flow monitoring, demonstrating their commitment to environmental responsibility.



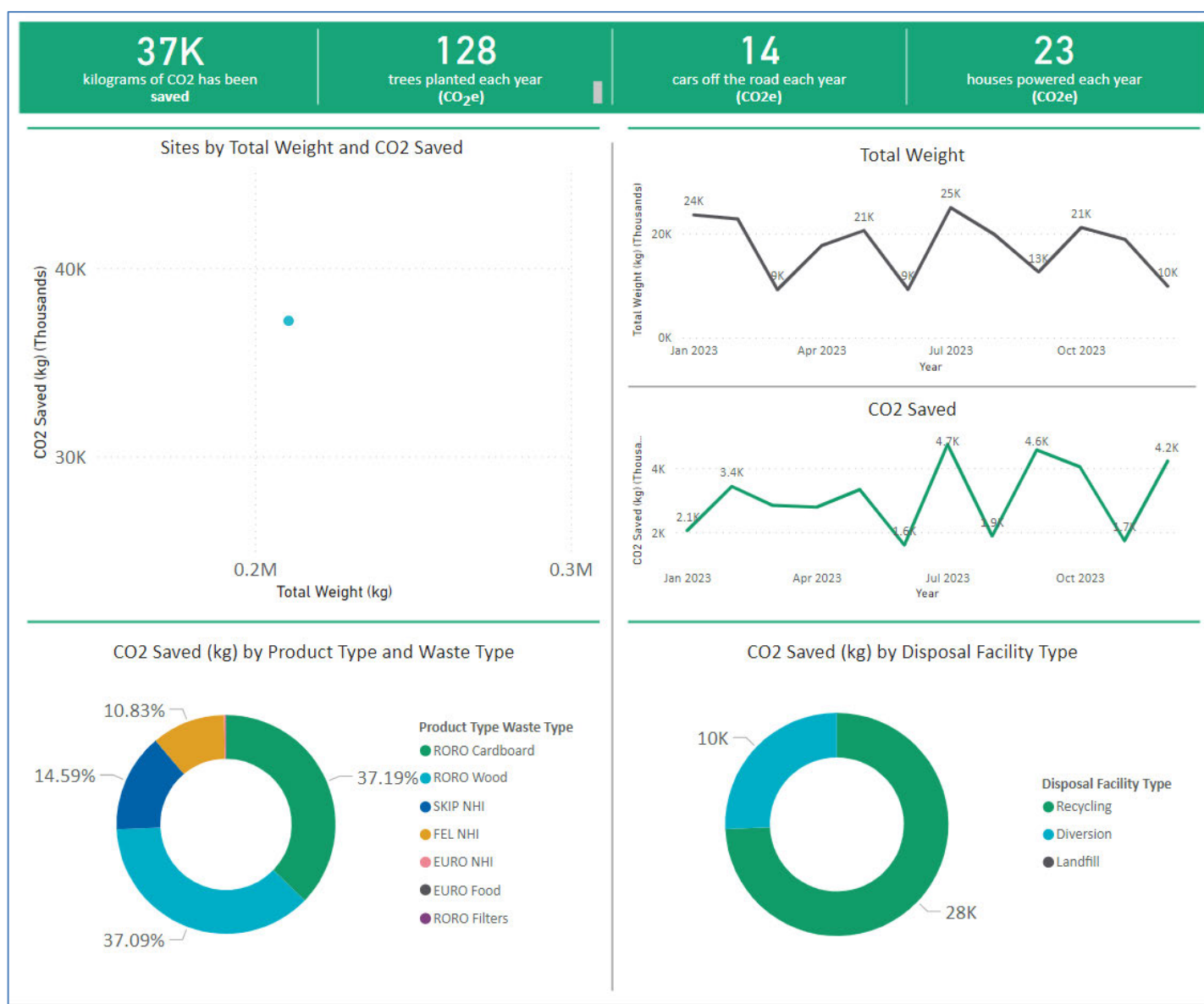
7.3 Environment Permit Review meeting

Monthly Environmental Permit Review meetings continued throughout 2023. The agenda covers Emissions to air, Discharges to Water, Operator Monitoring Assessment (OMA), Monitoring Certificate Scheme (MCERTS), NRW compliance project, Compliance Assessment Report (CAR), Permit Review, Process changes, Staffing changes, Equipment changes, Material changes and AOB. In addition a review of our EPR/BB3790FX Parameter Emission Limit Values (ELV) and data is also undertaken.

Minutes to this meeting are communicated to the attendees and Top Management. Minutes to these meeting are available upon request.

7.4 Carbon Footprint

37,210kgs of CO₂ emissions were saved during 2023. This reduction is equivalent to planting 128 trees, taking 14 cars off the road, and powering 23 houses. Currently, AluK is preparing for the implementation of the Non-Domestic Premises Recycling Regulations, which are set to come into effect on 6th April 2024.





7.5 Monthly EHS meetings

Monthly and fortnightly top management meetings continue and now include an environmental update and review of our EPR/BB3790FX Parameter Emission Limit Values. These inclusions underscore our commitment to environmental responsibility and continuous improvement.

7.6 In house testing

AluK have developed an in-house analysis method for Total Aluminium in the discharge to sewer. Results from the in-house method have been compared with those from an ISO17025 accredited laboratory and a good correlation factor of 0.69 was obtained. Volumetric glassware is used in all steps of the analysis.

This method is employed to measure the effluent treatment plant's performance by taking daily spot samples and has replaced the in-line Aluminium monitor as a process control measure. The in-line Aluminium monitor has been decommissioned and removed from service.

Unfortunately this in-house analysis method cannot be used for the quarterly monitoring results reported to NRW as AluK's inhouse laboratory is not ISO17025 accredited.

AluK have installed a composite sampler, with chiller, which now collects samples over a week. A sample is taken weekly and either analysed by ALUK's contracted and accredited laboratory or by Dwr Cymru Welsh Water (DCWW).

This new regime came into effect from 1st January 2024 and aligns with the monitoring requirements outlined in permit EPR-BB3790FX-A001.

DCWW will continue to take spot samples from SI for analysis.



7.7 14001:2015

Successful recertification of the 14001:2015 certification took place during May 2023. It is encouraging to see the effective utilisation of resources made available to sustain this certification. AluK look forward to maintaining their high standards in the upcoming surveillance audit, scheduled for 31st July and 1st August 2024.

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