

UPM Shotton

ENVIRONMENTAL AND SOCIETAL RESPONSIBILITY 2018



UPM Shotton

The mill is situated on the Dee estuary in Flintshire, North Wales. The Dee Estuary is a designated Special Protection Area, one of the 112 listed Natura 2000 sites in Wales. The mill site is about 10 miles from Chester and 25 miles from Liverpool. The mill began production with one newsprint line in 1985. The fibre was supplied by an energy intensive thermo-mechanical pulp mill which used pulpwood, straight from the forest, as its principal raw material.

A second newsprint line was added in 1989 together with the first of three recycled fibre production plants.

Today only one paper machine operates and uses 100% recycled fibre. The principal raw material is now sorted, recovered graphic papers, mainly from domestic waste collections.

There have been several other large environmental investments over the last 33 years and the operations on site continue to develop.

The effluent treatment plant was rebuilt with activated sludge technology to deliver dramatic improvements in waste water quality despite increases in production.

Waste sludge from the recycled fibre production plants is burnt in a combined heat and power (CHP) plant on site along with other renewable fuels to provide most of the site's thermal energy and approximately two thirds of its electricity demand.

On the mill site, there's also a Material Recovery and Recycling Facility (MRRF) which was constructed and started operation on the site in April 2011. This plant sorts the recyclable material from co-mingled domestic waste collections and delivers high quality recovered paper raw materials to the recycled fibre production plant. The MRRF is not in the EMAS scope.



Production capacity	255,000 tonnes per annum
Personnel	206
Products	Standard Newsprint
Certificates	EMAS – EU Eco-Management and Audit Scheme ISO 14001 – Environmental Management System ISO 9001 – Quality Management System PEFC™ Chain of Custody – Programme for the Endorsement of Forest Certification FSC® Chain of Custody – Forest Stewardship Council All certificates can be found from UPM's Certificate Finder (available at www.upm.com/responsibility).
Environmental labels	EU Ecolabel license for newsprint papers Registration No. FI/37/001 valid until 31/12/2019
Awards	Investors in People Standard



UPM Shotton Environmental and Societal Responsibility 2018 is a supplement to the Corporate Environmental and Societal Responsibility Statement of UPM's pulp and paper mills (available at www.upm.com) and provides mill-specific environmental and societal performance data and trends for the year 2018. The annually updated mill supplements and the UPM Corporate Environmental and Societal Responsibility Statement together form the joint EMAS Statement of UPM Corporation. The next UPM Corporate Environmental and Societal Responsibility Statement and also this supplement will be published in 2020.

We deliver renewable and responsible solutions and innovate for a future beyond fossils across six business areas: UPM Biorefining, UPM Energy, UPM Raflatac, UPM Specialty Papers, UPM Communication Papers and UPM Plywood. We employ around 19,000 people worldwide and our annual sales are approximately EUR 10.5 billion. Our shares are listed on Nasdaq Helsinki Ltd. UPM Biofore – Beyond fossils. www.upm.com



For more information about FSC certification visit www.fsc.org



For more information about PEFC certification visit www.pefc.org



EU Ecolabel : FI/037/001

Review of year 2018

At UPM Shotton our commitment to sustainable development is reflected in our Mill Vision 'to be the front runner in creating value from renewable and recyclable materials'. We are also aware of our responsibility to society and the community in which we operate.

We operate within the boundaries of an Integrated Pollution, Prevention and Control permit. The conditions within this permit are transposed from the European Industrial Emissions Directive with reference to the current paper and pulp BREF document. This permit is regulated by Natural Resources Wales.

The mill continued to use waste paper for all of its fibrous raw material feedstock. Much of this was produced through its own materials recovery facility on site – in which mixed recyclable materials are processed to separate into individual products for recycling.

During the year a high proportion of mill's energy needs were met from its own biomass boiler and two turbines. Further power from its neighbouring partner solar park was used to add to this renewable mix.

Overall environmental performance against its stated targets was disappointing. There was a minor breach of a permit condition although no pollution resulted from it. In addition, necessary technical changes prevented the mill reaching its water usage reduction target, and higher raw material filler content resulted in greater ash disposal to landfill than in 2017.



Andrew Bronnert
Head of Energy & Operational Support



Tomi Hytonen
General Manager

Responsibility figures 2018

Safety



Our people were responsible for

1729

safety walks

2772

observations

Health



1.58%

absence due to illness or injury Class leading performance

Attendance awards

16 people	5 years no absence
6 people	10 years no absence
2 people	15 years no absence
2 people	20 years no absence

Community



34

family visits to Llandegla sauna and log cabin

Certified Fibre



100%

of fibre used in paper production was FSC and/or PEFC certified. UPM's target is to use only certified fibre by 2030.

Energy



75MW

green energy generating capacity

Apprentices

3

graduated and joined the mill

Air



The CHP plant has the largest impact on the air emissions. Smaller back-up boilers on site only run during the winter months or during unplanned CHP plant shuts.

The 2018 fossil CO₂ emissions were lower than 2017.

The emissions were well within permit limits as indicated in the tables below.

EMISSIONS FROM THE COMBINED HEAT AND POWER PLANT IN 2018

Continuous Measurements	Limit mg/m ³	Mean mg/m ³
Carbon Monoxide (CO)	50	27.58
Nitrous Oxide (NO _x)	200	176.58
Sulphur Dioxide (SO ₂)	50	5.69
Particulates	10	0.16
Total Organic Carbon (TOC)	10	0.83
Hydrogen Chloride (HCL)	10	2.38

Periodic Measurements (twice per annum)	Limit mg/m ³	Mean mg/m ³
Mercury	0.05	0.00200
Cadmium and Thallium	0.05	0.0020
Tin, Arsenic, lead, Chromium, Cobalt, Copper, Manganese, Nickel, Vanadium	0.5	0.064
HF	2	0.05
Dioxins / Furans (ITEQ) x 10 ⁻⁶	0.1	0.00100

Waste



The paper mill reprocesses waste paper and waste wood. From these materials various residues are produced. Pulper rejects from the waste paper are land-filled. This material is wet and cannot be further reprocessed. Residues from the reprocessing of comingled waste via the MRRF are further reprocessed to make boiler fuel. Ash from the boiler is reprocessed into cement, building blocks and some goes to land. The mill is striving to reprocess more and landfill less but there are practical and financial limits to this.

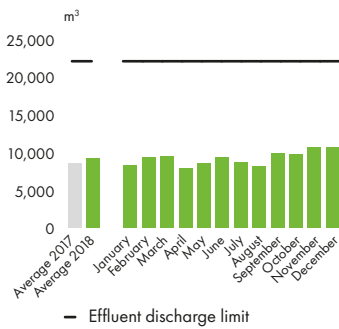
Water



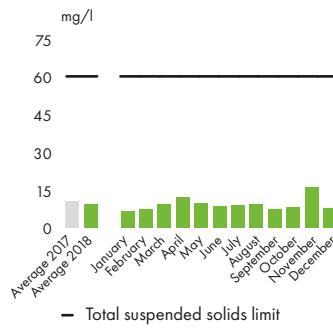
Fresh water consumption is constantly monitored and measured in all parts of the site. Process water is often re-used several times before being discharged to the effluent treatment plant. The target in 2018 was to further reduce the water consumption; this was not achieved due to lower newsprint production basis weight and a worsening of waste paper quality.

The final effluent discharge remained well within consent limits throughout the year, as shown in the trends below.

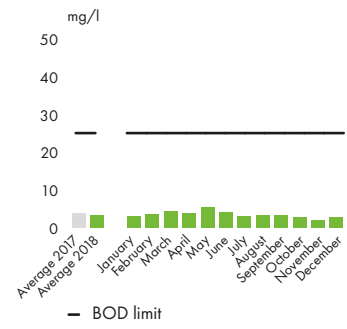
Average daily final effluent discharge volume



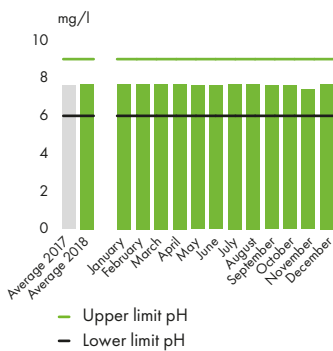
Average daily Total Suspended Solids concentration in final effluent



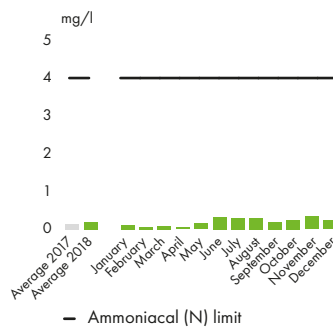
Average weekly Biochemical Oxygen Demand (BOD) in final effluent



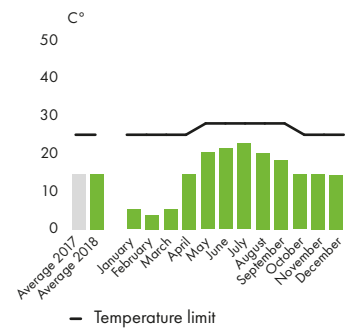
Average daily pH value of final effluent



Daily Average Ammoniacal Nitrogen (N) concentration in final effluent



Average daily temperature of final effluent



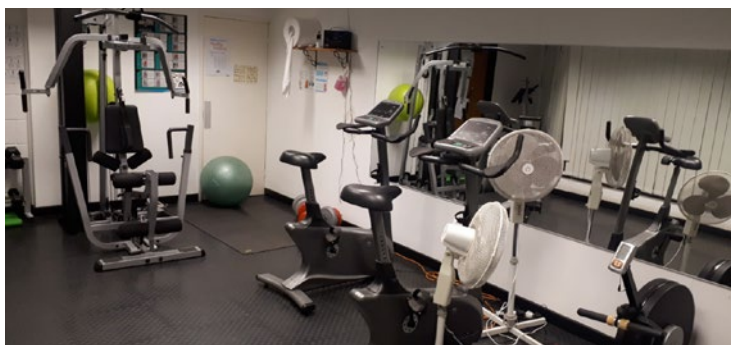


Societal responsibility

The mill acts as a Welsh Anchor Company within the local economy – a designation of its importance to the local society in Wales. First and foremost it provides high quality jobs for local people who generally live in Flintshire or Cheshire. In addition to direct UPM employees the mill also provides jobs for local people through many contracting companies who provide vital services to the mill either remotely or, as in many cases, directly and permanently on site.

The company works closely with local schools and colleges and operates an apprenticeship scheme.

Safety and health of both employees and other local people are assured by professional processes, consultation and involvement, health screening, an on-site gym, yoga, a healthy eating restaurant and a sauna, BBQ and log cabin for all to use in a nearby forest. The results of this can be seen in the low absence rate, attendance awards, low turnover of people and long service.



Environmental parameters 2018

The figures related to production as well as raw material and energy consumption are published as aggregated figures on group level in the UPM Corporate Environmental and Societal Responsibility Statement.

Production capacity	Paper	255,000
Raw materials	Recycled fibre pulp, minerals	See UPM Corporate Environmental and Societal Responsibility Statement for more information
Energy	Electricity consumption	See UPM Corporate Environmental and Societal Responsibility Statement for more information
	Renewable share (own fuels)	94%
Emission to air	Carbon dioxide, CO ₂ (fossil)	13,148 t
	Nitrogen oxides, NO _x (reported as NO ₂)	372 t
	Sulphur dioxide, SO ₂	12 t
	Particles (= dust, TSP)	0.3 t
Water intake	Surface water, municipal water and groundwater*	4,467,824 m ³
Discharges to water	Process wastewater	3,355,927 m ³
	Chemical oxygen demand, COD	259 t
	Total Solids Suspended, TSS	29 t
Waste and side-products	Side-products**	
	– Ash	24,298 t
	Waste to recycling**	
	– Sludges	13,226 t
	– Metals	2,142 t
	Waste to landfill**	
	– Ash***	16,353 t
	– Pulper rejects	8,762 t
– Other	2,013 t	
	Hazardous waste	37 t
Size of mill area		61 ha

* Including Potable water used on site

** All waste tonnages are stated as dry weight and exclude wastes generated from the MRRF plant.

*** these ashes are considered hazardous in the UK



Performance against targets in 2018

TARGET	ACHIEVEMENT	COMMENTS
1 Clean Run Targets		
– Cat 5, 4, 3 deviations (environmental incidents REPORTABLE to NRW) = 0	Not achieved	1 Cat 3 deviation
– Cat 1 & 2 reports (environmental observations and near-misses NOT REPORTABLE to NRW) >400	Not achieved	263
2 Water Conservation		
Reduce specific water consumption to less than 2017 level	Not achieved	17.96 m ³ /t (16.46m ³ /t 2017)
3 Use of Resources		
Reduce waste to landfill to less than 2017 level	Not achieved	27kt (23kt 2017)

Targets for 2019

TARGETS AND MEASURES	TARGET	DEADLINE
1 Deviations from Permit conditions		
Cat 3–5 deviations	0	12/2019
2 2030 Targets		
Effluent Volume	< 13m ³ /t	12/2019
COD to water	< 1 kg/t	
SO ₂ +NO _x to air	< 1.1 kg/t	
Fossil CO ₂ to air	< 340 kg/t	
Waste to landfill	< 20k	
3 Societal Targets		
– Volunteer session (Care and Share Programme)	1	12/2019
– Lost time accidents	0	



Verifier's declaration on verification and validation activities

BSI, with EMAS verifier registration number UK-V-0002 accredited or licensed for the scope NACE 17 declares to have verified whether the site as indicated in the environmental statement of the organisation UPM Shotton with registration number FI-000058 meet all requirements of Regulation (EC) No 1221/2009 of the European Parliament and of the Council of 25 November 2009 on the voluntary participation by organisations in a Community eco-management and audit scheme (EMAS).

By signing this declaration, I declare that:

- the verification and validation has been carried out in full compliance with the requirements of this Regulation (EC) No 1221/2009,
- the outcome of the verification and validation confirms that there is no evidence of non-compliance with applicable legal requirements relating to the environment (it is confirmed that the breach of permit conditions mentioned in this Supplement was reported to NRW, the environmental regulator, in full accordance with the requirements in the permit),
- the data and information of the environmental statement of the site reflect a reliable, credible and correct image of all the sites activities, within the scope mentioned in the environmental statement.

This document is not equivalent to EMAS registration. EMAS registration can only be granted by a Competent Body under Regulation (EC) No 1221/2009. This document shall not be used as a stand-alone piece of public communication.

Done at UPM Shotton on 27th March 2019

Thomas W. Moss

T. Moss
Environmental Specialist and EMAS verifier
BSI Assurance UK Limited
EMAS Verifier Registration No. UK-V-0002.

We reduce the world's reliance on fossil-based materials by developing renewable and responsible products and solutions in all our businesses. **UPM Biofore – Beyond fossils.**



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