

UPM Caledonian

ENVIRONMENTAL AND SOCIETAL RESPONSIBILITY 2019



UPM Caledonian

UPM's Caledonian mill is situated in Irvine on the West Coast of Scotland approx. 50 kilometres southwest of Glasgow. In production since April 1989 the Caledonian mill is capable of producing 250,000 tonnes of lightweight coated paper (LWC) for printing magazines, catalogues, brochures. The mill has a Biomass Combined Heat and Power (CHP) plant, a single paper machine line, a debarking plant, a pressurised groundwood (PGW) mechanical pulp mill and a primary effluent treatment plant. Effluent is then treated further in the neighbouring Municipal Waste Water Treatment Plant operated by a third party.

Environmental issues are an integral part of everyday operations. Targets are set as part of our annual business planning process with our key environmental aspects and impacts identified through our regulatory and business requirements to demonstrate continuous improvement. These are followed closely throughout the year. Our objective is to produce attractive and competitive paper with the lowest possible overall environmental impact. Through open communication we actively provide our customers, employees, environmental authorities, as well as our local community with information on environmental issues and knowledge of the mills operations.



UPM Caledonian Environmental and Societal Responsibility 2019 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 2019. 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 Updated UPM Corporate Environmental Statement and also this supplement will be published in 2021.

UPM offers 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. As the industry leader in responsibility we are committed to the UN Business Ambition for 1.5°C and the science-based targets to mitigate climate change. We employ 18,700 people worldwide and our annual sales are approximately EUR 10.2 billion. Our shares are listed on Nasdaq Helsinki Ltd. UPM Biofore – Beyond fossils. www.upm.com

Production capacity	250,000 tonnes of paper
Personnel	284
Products	Coated Magazine Papers: UPM Cote H UPM Cote SB (Customer Specific) H UPM Ultra H UPM Ultra Silk H UPM Ultra Silk Plus H UPM Cote Blueshade H
Certificates	EMAS – EU Eco-Management and Audit Scheme ISO 9001 – Quality Management System ISO 14001 – Environmental Management System ISO 45001 – Occupational Health and Safety 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



For more information about FSC certification visit fsc.org



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



EU Ecolabel : FI/011/001

Review of year 2019

In accordance with Pollution Prevention and Control (Scotland) regulations 2012 Caledonian Paper has an integrated management system in effect covering environment, quality and occupational health and safety to ensure compliance with all permit conditions and applicable legislation.

This Report gives information on the Mill's performance and covers the most significant environmental impacts – emissions to air, water, waste and material consumption.

Environmental Performance

UPM Caledonian operates within the boundaries of an Integrated Pollution Prevention and Control (PPC) Permit. The conditions of this permit are transposed from the European Industrial Emissions Directive with reference to the current Pulp and Paper BREF document. In 2019 the site had four instances of non-compliance against the PPC permit to report to SEPA primarily as a result of fuel feed disturbances within the CHP boiler. Each instance has been investigated with remedial action taken where required. SEPA attended the site twice in 2019 and fully investigated one of the incidents where the carbon monoxide emission to air exceeded the permit emissions limit value. As part of the investigation Caledonian carried out refresher training for key personnel on the requirements of PPC reporting.

Reporting to SEPA is required on a quarterly basis for a variety of parameters including emissions to air, effluent and waste.

There were improvements seen in water/effluent use and fossil carbon dioxide air emissions, however there were a few air emission parameters where there were increases; details of these are documented on page 6.

The performance of the CHP plant improved in comparison to 2018 where there were no significant periods of downtime after the annual maintenance shut in May and the plant had 92% availability. During the maintenance shutdown there was an upgrade to the economizer section which has resulted in no further instances of tube leaks within

the boiler. Consequently, the auxiliary boiler which operates on natural gas was in operation for significantly less hours than 2018 which had a positive impact on the carbon dioxide emissions. The fuel streams utilised in the CHP plant continued to be optimized to ensure stable combustion, minimise any fluctuations in the overall boiler performance and maximise the electricity generation of the turbine. The annual shutdown in March 2020 will focus primarily on replacement of furnace wall tubes which will include a coated material on the steel to improve further the longevity of the tubes.

Integrated Management Systems

Caledonian has an integrated management system within the Quality First platform where all employees have access to procedures covering quality, environment and occupational health and safety. The site was successful in achieving ISO 45001 (2018) for Occupational Health and Safety early in

2019 which replaced the management standard OHSAS18001. A significant change with this standard requires companies to ensure participation of workers and interested parties which we have managed through the One Safety system whereby anyone can detail both safety and environmental observations. Also included in the system are the risk assessments for the operation, area inspections and details of area meetings.

The three management systems for ISO 9001 (Quality), ISO 14001 (Environment) and ISO 45001 undergo external verification by certified assessors who will attend site twice per year for a total of 9 days to ensure compliance and advise of any areas where improvement is required. In addition to the external verification Caledonian has a team of internal auditors who carried out a total of 15 assessments in 2019.

Occupational Health and Safety

A key focus for 2019 was to prevent ▶



Gordon Mitchell
General Manager



Sharon Gallagher
Environment & Compliance Manager

- ▶ accidents and increase employee's awareness of risks before carrying out tasks by requesting that all employees carry out a minimum of 3 STAT cards throughout the year. STAT cards (Stop, Take 5 and Think) provide employees with a tool to carry out a simple risk assessment where hazards and risks are identified, controlled and minimised. In total 730 STAT cards were created by shopfloor employees.

As part of the UPM safety standards staff employees at Caledonian are required to carry out 10 safety walks throughout the year, in 2019 392 safety walks were completed. The purpose of safety walks is to have a systematic process in place to follow the implementation of safety rules and guidelines, ensuring their compliance and to find and share good practices.

Absence performance for 2019 was at 3.6% which has increased over the last few years primarily due to an ageing workforce. Health and well being facilities exist at the site including a gym, annual medicals with health advice and access to various health professionals. Caledonian employs the services of a health professional to manage the range of health services provided to all employees. Also introduced in 2019 was an employee assistance programme available to all employees and their families which provides practical information and advice covering a range of topics affecting health, family, money matters and work.

UPM Caledonian

Responsibility figures 2019

Water



Reductions achieved in 2019 versus 2018

126,130m³

27% reduction in effluent solids tons

7.5% reduction in effluent COD tons

Energy



61%

of all required electricity is generated onsite using renewable sources via the CHP biomass fueled boiler.

Air



26%

reduction in Fossil Carbon Dioxide emissions to air (2019 vs 2018)

Certified fibre



94%

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

98,740 tons of LWC sold under PEFC or FSC certification schemes.

Safety



1,271

safety observations reported by employees, visitors and contractors of which

89 included an environmental element

97%

KPI for all safety incidents being handled within 6 weeks from initial reporting

92%

Actions closed. Where action was required as a result of all incidents, walks etc carried out in 2019.

Health



240

occupational health surveillance assessments (which includes: vision, hearing, lung function, HAVs, blood pressure, BMI, urinalysis, skin inspection)

Qualified spend



97%

of raw materials spend excluding wood qualified against UPM Supplier and Third Party Code. Target is 100% by 2030



Employment

Caledonian Employed

284 People

Total persons at Caledonian Paper

Annual Shut 2019

239 number of external employees involved in the annual shutdown in May 2019.

30,847 hours worked by contractors during annual shutdown.

Air

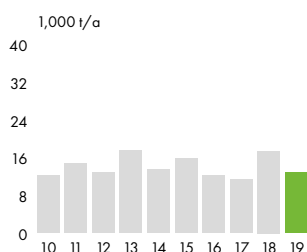


The performance of the CHP plant was good on 2019 with fewer periods for the requirement of the auxiliary boiler (fuelled by natural gas) to be in operation which contributed to a fall in carbon dioxide emissions from 17,367tn in 2018 to 12,790tn.

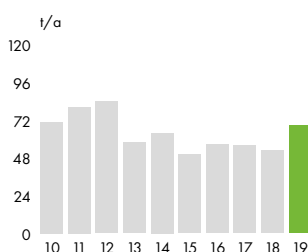
Emissions to air for Nitrous Oxides and particulate matter increased slightly in comparison to 2018 primarily as a result of an increase in operating hours. The increase in sulphur dioxide emissions (52tn in 2018 vs 68tn in 2019) was to be expected as the plant ran with a higher dosing rate of a sulphur containing chemical used to minimise corrosion in the boiler which has proved to be effective. Optimisation of this chemical dosing will be progressed in 2020.

There has been continued work with the fuel suppliers to maintain a consistent quality of fuels to obtain a stable moisture profile and maximise the energy of the fuels. Fluctuations in fuel quality has an impact on the operation of the boiler which can lead to fuel blockages and temperature drops within the furnace. There were several instances of this in 2019 which led to two periods where the carbon monoxide exceeded the permit limit level of 150mg/Nm³. These instances were reportable to SEPA (Scottish Environmental Protection Agency) and required full investigations.

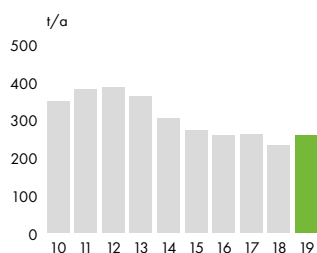
Fossil carbon dioxide, CO₂



Sulphur dioxide, SO₂

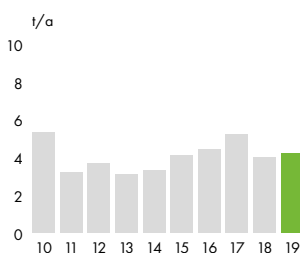


Nitrogen oxides, NO_x



t/a refers to tonnes per annum

Particulates



Waste

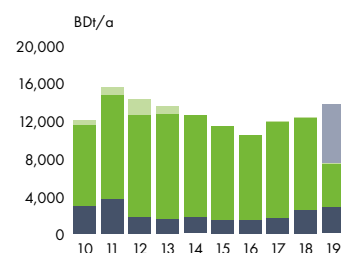


Unfortunately, Caledonian is reporting 6,307tn to landfill in 2019 which is the first in the last ten years. The material that went to landfill was flyash from the CHP plant which is used for the processing of hazardous waste chemicals, leachates and soils at the designated waste depot before being deposited to landfill. Caledonian is actively seeking alternative solutions to landfill for the flyash waste stream and commenced trials late in 2019 where the ash is recovered and converted to a non-hazardous product for the remediation of open quarries. Further recovery options will be investigated for viability in 2020.

During 2019 the weighbridge system was upgraded which included the recording of all waste leaving the site. Transfer of data from the weighbridge to the reporting system is automated for all waste streams which has eliminated the possibility of incorrect data entries. Details of all certified waste contractors and hauliers are contained in the database which ensures that Caledonian is fully compliant with the waste legislation. External audits of all waste contractors were carried out in 2019 to follow the final route for all wastes leaving site which was compliant with all necessary requirements.

A review of all onsite waste containers was carried out in 2019 to ensure the signage and locations are clear and easy to access for all personnel with the aim of preventing cross contamination of waste streams.

Solid waste



- Ash (Landfill)
- Hazardous
- Ash (Recycled)
- Recycled/Recovered

All waste volumes based on dry tonnes

Water

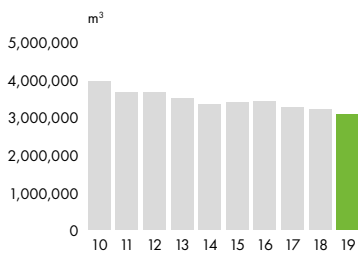


All water used onsite is municipal mains potable water. The water used in the papermaking process undergoes several recycling routes before being discharged to the effluent system. Caledonian has a primary effluent treatment plant for solids removal which is then combusted in the CHP boiler with the excess water effluent being discharged

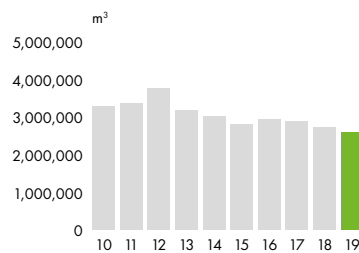
to the municipal secondary effluent treatment plant for further processing. In 2019 Caledonian commenced a new effluent treatment agreement with a third party for the processing of all effluent which involved the installation of new screening equipment. Routine testing for all effluent parameters is now carried out by the effluent service provider.

Caledonian continues to focus on water consumption and effluent discharge with a positive reduction in all effluent parameters (volume, solids, COD and BOD). This is an excellent achievement and will continue to be an area of focus for 2020 and beyond towards UPM's 2030 environmental targets.

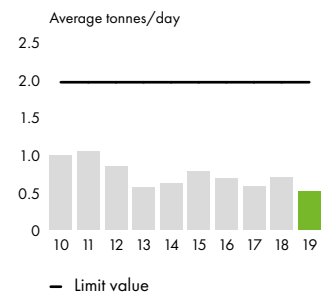
Freshwater Consumption



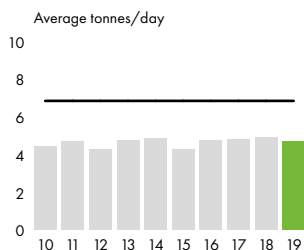
Effluent Volume



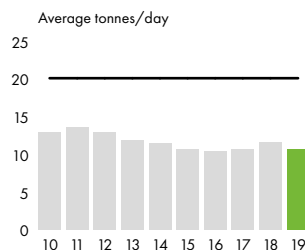
Total suspended solids, TSS



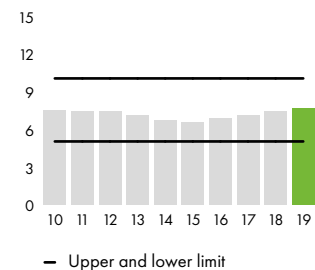
Biological oxygen demand, BOD₅



Chemical oxygen demand, COD



Effluent PH



Organisational Structure and Emergency Organisation

Caledonian has systems in place for emergency preparedness and response which includes both environmental and OHS incidents. Operational procedures have been established which take into account both normal and abnormal situations which may arise throughout the organisation and addresses the requirements to control, minimise and prevent any negative impacts. These procedures are available to all personnel within the Quality First database.

We have an established emergency response team (ERT) on each shift who are multi skilled and trained to assess and contain a variety of incidents. If the situation or incident can be managed by the team itself then they shall do so with retrospective contact being made with the relevant authorities and agencies.

The main concern of the ERT team is to ensure all personnel are under no threat from the situation or incident and if there

are any casualties to carry out initial first aid. The next step for the teams is to protect the surrounding areas from any possible contamination or damage from the incident, ie storm drain system in the event of a chemical or oil spillage.

All incidents are recorded on the global One Safety system and are investigated to prevent recurrence.

Societal responsibility

UPM Graduate Training Programme

Through the UPM graduate programme new graduates are offered the opportunity for an exciting start to their career with a 12 month traineeship which will involve international work experience. Andrew McPhillimy joined Caledonian in September 2019 via this programme – here is a snapshot of his experience so far:

It has been 6 months since I started as a Graduate engineer at Caledonian Paper. Here is a little bit about me.

After growing up in Troon and attending Marr College, I went to study Chemical Engineering at the University of Strathclyde. During five years of intense learning, I met and worked with people from all over the world. Thanks to links between Strathclyde and other institutions across Europe, I had the opportunity to spend 6 months on exchange in Spain through the Erasmus programme. In Spain, I worked on plastic recycling while attending free, Erasmus funded Spanish lessons.

I applied to the UPM graduate programme as it felt like a great next step after University. Like plastic recycling, paper production is environmentally focussed and involves a many different Chemical Engineering concepts. The scheme is a 12-month programme with 3-month spell abroad.

Despite being the sole UK based graduate, UPM has employed a total of 28 trainees this year across Europe, Asia and the US. I have already met the other trainees twice, with the first of three meetings being in Helsinki in September last year. I have since been to the paper headquarters in Augsburg, Germany and will return to Helsinki in June 2020 to bring the programme to an end. I had the opportunity to meet and talk with the senior management team while I was in Helsinki, and their messages of support matched up with the positive and determined attitudes of the people I have been lucky enough to work alongside so far.

Before the final trainee meeting in June, I will spend the spring and early summer in Lappeenranta, Eastern Finland. Lappeenranta is home to an international University, a paper mill, a pulp mill, the

UPM Research Centre and a biorefinery, which uses a side product from the paper process to produce Biodiesel. Since I started in September, UPM have released plans to build another biorefinery in Germany that will produce a range of bio-based materials. 21st century ideas for a 21st century country.

Other than the chance to work abroad, there were other reasons I decided to apply to UPM. The programme promised responsibility from the beginning. During my first 6 months, I have worked on the on-site power plant, which uses Biomass as a renewable fuel source, I have helped produce testing methods in the Laboratory which are vital to the daily operation of the Paper mill, and I have worked with some of the raw materials. But perhaps the biggest thing that attracted me to UPM was the focus on self-development. While some graduate schemes targeted the “perfect” applicant, UPM instead wanted someone who was prepared to grow in the role. Seeing yourself improve every day, while knowing that there is a support network there to help you when you need, it is fantastic.

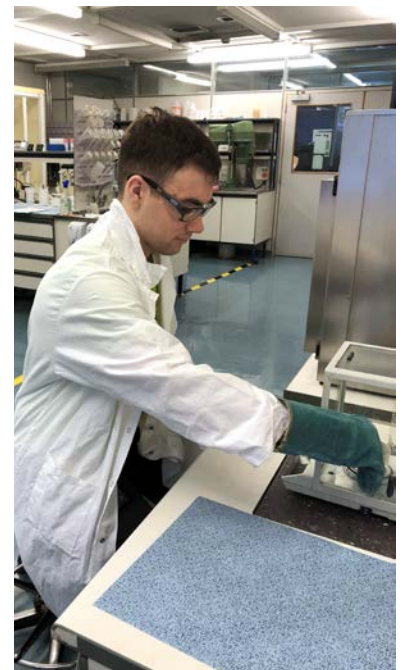
Despite my time in Spain being incredible, I have learned even more during my first 6 months with UPM. If you like the idea of contributing to something bigger than yourself, meeting people from all over the world, doing your bit for the environment and seeing the world while you do it, there are worse ways to do it.

Involvement in Local Schools

To ensure that Scotland has a prosperous and innovative future the Scottish Government is committed to ensuring that STEM (science, technology, engineering and mathematics) skills are developed through education and training. One of their aims is to enhance and develop the collaboration between education and industry.

The papermaking industry requires these STEM skills within their operations, and it is in their interest to work with local schools and communities to show what our industry has to offer. Over the last year Caledonian has been involved in various opportunities to emphasise the importance of STEM within papermaking.

– One of our local schools participated in a STEM fortnight where several



Graduate trainee – Andrew McPhillimy

companies talked about what their organisations do. This included UPM, Chemists, architects, engineers. The sessions that UPM participated in involved 4 classes of Primary 3, approx 120 age 7 children. The sessions discussed the forestry cycle, making pulp, making paper, coating and finishing paper. The discussions were highly interactive with plenty of audience participation and lots of samples of pulp, clay and paper to touch. The children asked a wide range of ques-



tions about recycling, different jobs in the mill and clearly demonstrated that they had been listening!

- Caledonian hosted a visit from a secondary school where approximately 15 young adults learned about the various skills required in the paper-making process and the environmental life cycle of paper. It is important to educate young people on the sustainable solutions that paper can offer by using natural resources as efficiently as possible whilst minimising the losses to air, water and land and the transitioning from non-renewable to renewable resources. We also discussed the business process from marketing, order receiving, scheduling, production, deliveries and the supporting services. This was very well received by the young people who were keen to know how a business works.
- We regularly have work experience students (typically aged 16) who will spend a week at the mill in a chosen department to co-incide with their envisaged career path. The student will be fully supervised as they work alongside UPM staff carrying out various tasks and contributing to the process. This is an excellent opportunity for young people to gain what is usually their first experience in the workplace and get the opportunity to develop their independence and communication skills. The feedback from the students and the local schools has always been very positive that this type of developing education can be supported with local companies.
- In addition to the above our HR Manager attended a careers and

options evening at a local secondary school accompanied by two of our current apprentices. The purpose of the evening was to raise awareness of the range of careers and options available to pupils, with a particular focus on the breadth of pathways available. Pupils, parents and carers had the opportunity to discuss the options available in the various school subject pathways, as well as being able to seek advice from local businesses, apprenticeship/recruitment consultants, and college or university partners on careers and pathways beyond school.

Our Apprentices were able to share their experiences of gaining qualifications whilst working.

- Caledonian currently has 10 apprentices within the disciplines of mechanical, electrical and instrumentation who are at varying stages of their training. Each apprentice is assigned a mentor who will monitor their progress over a 4 year period. This is an excellent opportunity for young people starting out on their careers by receiving 'on the job' training and developing their skills in the papermaking process with the possibility of a fulltime job at the end of their training period.

The Social Mobility Pledge

As part of our ongoing commitment to be a responsible employer, we have aligned ourselves to the Social Mobility Pledge to open up career opportunities to young people who might not otherwise be exposed to certain industries. Over 500 organisations have signed up to the pledge to commit to accessing and progressing talent from all backgrounds by:

- partnering with schools and colleges to provide coaching through quality careers advice, enrichment experience and mentoring to people from disadvantaged backgrounds or circumstances;
- providing structured work experience and apprenticeship opportunities to people from disadvantaged backgrounds or circumstances; and
- adopting open employee recruitment practices which promote a level playing field for people from disadvantaged backgrounds or circumstances.

It is great knowing that we are doing our part by helping make society a fairer place for people from all backgrounds and circumstances.

Safety

Our goal in UPM is to be the industry leader in health and safety. Our clear objective is zero fatal and serious accidents. Safety is fully embedded in our daily activities and is not considered less or secondary than any other interest. We strive to reduce and eliminate accidents under our control through continuous improvement and effective risk management.

Our employees, as well as business partners and their employees, are required to adopt safe work practices and to comply with the rules and standards we have established.

Before accessing UPM production site, contractors get UPM safety training, which presents and demonstrates the basic safety requirements. This is complemented with a job specific safety induction and a permit to work.

Environmental parametres

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.

		2017	2018	2019
Production capacity	Paper LWC	260,000t	245,000t	250,000t
Raw materials (BDT)	Pulp Pigments Process Chemicals	See UPM Corporate Environmental and Societal Responsibility Statement for more information		
Energy	Biogenic Fuels Fossil Fuels Electricity	See UPM Corporate Environmental and Societal Responsibility Statement for more information		
Emission to air	Sulphur Dioxide, SO _x	55t	52t	68t
	Nitrous Oxides, NO _x	260t	232t	257t
	Carbon Dioxide, CO ₂ (fossil)	11,309t	17,367t	12,790t
	Particulates	5t	4t	4t
Water intake	Fresh Water	3,232,142m ³	3,187,311m ³	3,061,181m ³
Discharges to water	Chemical Oxygen Demand (COD)	3,889t	4,222t	3,903t
	Total Suspended Solids	208t	254t	186t
	Biological Oxygen Demand (BOD ₅)	1,740t	1,789t	1,714t
	Effluent Volume	2,700,880m ³	2,735,476m ³	2,581,041m ³
Non-hazardous waste¹⁾	Waste to recycling, energy recovery and or composting (See below for breakdown)	2)	12,219t	6,167t
	– Boiler Ash		9,718t	4,461t
	– Bark & Other Wood Residues		773t	1,025t
	– Domestic			294t
	– Sanitary Waste		1,079t	
	– Other		649t	387t
	– Metals			
	Waste to Landfill		0t	6,118t
Hazardous Waste	Hazardous Waste	22t	31t	48t
	Recovery Rate	100%	100%	50%
Size of mill area	Total Area	33ha	33ha	33ha
	Sealed area of Site			10ha

¹⁾ All waste are dry weight.

²⁾ Reporting of waste data was changed in 2018.



Performance against targets in 2019

TARGET	ACHIEVEMENT	COMMENTS
1 Clean Run Deviations Zero category 3, 4 or 5 deviations	No	2 category 3 deviations were reported in 2019 – 2 instances of carbon monoxide emission limit value exceeded within the CHP boiler in December. The first as a result of a fuel feed blockage, the second as a consequence of poor combustion in the furnace bed.
2 Create a roadmap to reach 2030 sustainability targets	Partial	– Water and effluent targets still require some improvements to achieve the 2030 targets however small incremental improvements have been seen over the last few years. – Zero waste to landfill will require further steps from Caledonian by investigating alternative disposal routes for flyash
3 Seamless implementation of new effluent handling arrangements	Yes	New Effluent agreement now in place – New screening facility installed – PPC Permit varied to accommodate new discharge point – All compliance testing completed by service provider
4 Mill wide cost savings with focus on energy efficiency	Partial	Some steps made on energy efficiency within areas of mill. Further work will be progressed in 2020

Targets for 2020

TARGET
1 Zero deviations against existing legislative requirements, including PPC permit and Water consent levels
2 Update roadmap to reach 2030 sustainability targets. Look at short and long term proposals to achieve 2030 targets
3 Mill wide cost savings with focus on energy efficiency including MWh/t, m ³ /t, compressed air and heat recovery.
4 Update business continuity plan



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 & NACE 16 declares to have verified whether the site(s) or the whole organisation as indicated in the Updated UPM Corporate Environmental and Societal Responsibility Statement 2019 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,
- the data and information of the updated 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 Caledonian on 18/03/20

Richard Edmond
 BSI Environmental Specialist Client Manager
 Strategic Delivery UK
 EMAS Verifier Registration No. UK-V-002.

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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