

## Environmental work at Hallsta Paper Mill

Hallsta Paper Mill manufactures MF Magazine and book paper from thermo-mechanical pulp (TMP). The mill is located in northern Roslagen on Edeboviken, an inlet of around 10 km long that opens out into the Baltic Sea.

### Innehåll

Environmental activities in 2018.....	1
<b>Permits for operation</b> .....	2
<b>Environmental certifications</b> .....	2
<b>Investments/environmental measures</b> .....	2
<b>Disruptions to production and complaints</b> .....	3
<b>Follow-up of environmental and energy targets in 2018</b> .....	3
<b>Planned and completed environmental and energy measures in 2018</b> .....	3
<b>Environmental and energy targets 2019</b> .....	3
KPIs production and environment .....	4

## Environmental activities in 2018

During the year the Swedish Environmental Protection Agency published the Swedish guidance for the BAT (Best Available Techniques) conditions. However, there is still uncertainty regarding the interpretation of some points.

The fibre sludge and biosludge extracted at the mill's wastewater treatment plant is composted north of the mill (Norra plan). The composting process has been improved over the year and sales of the composted product, fibre soil reinforcement, have risen.

Work on capping the Rya landfill site continued during the year, and around 90 per cent of the total surface has now been covered. A new road up to the site was built in 2018. Final capping is planned to finish in 2019, after which only some final adjustments to the slopes and ditches will remain to be completed.

The closure plan for Ehnsjö 3, the mill's landfill site for dredging material, submitted in 2011, was rejected by the County Administrative Board. Holmen appealed against the decision at the Land and Environment Court, and the case was then referred back to the County Administrative Board. A new dialogue on the issue has now begun. The dialogue focuses on planning for and completing expanded sampling and analysis.

Major problems arose in the wastewater treatment plant at the mill in late summer, resulting in very poor emission values. The problems were caused by a combination of many production disruptions caused by storms and additional bleaching being required due to the low brightness of the unbleached pulp. Following extensive work to rectify the problems, normal function was resumed at the plant in the autumn and in the fourth quarter of

the year emission outcomes returned to satisfactory levels in relation to the conditions set and the BAT requirements.

Optimisation work to reduce the use of the complexing agent EDTA in the bleaching process produced excellent outcomes during the year and met the consumption condition by a good margin.

Access to water in the lake system that supplies the factory with process water was unusually poor after the summer. A dry summer was also followed by a relatively rain-free autumn. Preparations were made for extraordinary measures but these did not need to be taken.

Over the year, work has continued on implementing new environmental and quality standards and on rolling out changes effectively across the business. A key area where the mill is constantly working on improvements is a continued focus on targets, including drawing up critical success factors and action plans, plus active follow-up of targets. One important area with room for improvement is the need to get more people involved and establish even broader commitment to the work on targets.

### **Permits for operation**

Hallsta Paper Mill holds a permit for its operations granted under the Environmental Code in 2000. There has been a separate permit for the composting of sludge for fibre soil reinforcement and storage of bark at Norra plan since 2015.

Hallsta Paper Mill also has three water judgments from 1930, 1955 and 1979 governing the permit to source process water from the nearby lake system.

Hallsta Paper Mill has been covered by the rules on fossil carbon dioxide emissions trading since 1 January 2005. The mill holds a permit for emissions of greenhouse gases for the current trading period 2013–2020. Preparations have begun for the next trading period (2021–2030).

Since the 2015 Environmental Report, the mill's outcomes and status have been reported in relation to current BAT conditions. These conditions became more stringent from 1 October 2018 onwards.

### **Environmental certifications**

The environmental management system has been certified to ISO 14001 since 2001.

The energy management system was certified to SS 62 77 50 in 2005 and to the international standard ISO 50001 in 2011.

The health and safety management system has been certified to OHSAS 18001 since 2012.

Holmen Paper Hallsta has held certification for the traceability of wood raw material since 2007 and for biofuel since 2016 (chain of custody).

All products from Hallsta are approved to carry the EU Ecolabel.

### **Investments/environmental measures**

A preliminary project to draw up a proposal for a more cost-effective and better process solution for wastewater treatment was completed during the year.

Work on facilitating optimised energy consumption within the process continued, leading to new main motors being installed in key locations in the TMP factory.

Equipment to control the debarking process in the wood line was installed during the autumn. The results have proved to be excellent, with a reduction in wood losses.

A number of chemical trials aimed at reducing energy consumption and environmental impact were also carried out. One such trial involved the dosing of sulphite to facilitate the refining process and so reduce energy consumption and the need for bleaching.

### **Disruptions to production and complaints**

There were major disruptions to wastewater treatment in late summer and an ongoing dialogue on the causes and improvement measures has been conducted with the County Administrative Board. As described above, the disruptions were caused by storms, high bleaching levels due to low incoming pulp brightness and a high water temperature. Instability and disruptions make it more difficult to add the optimum amounts of nitrogen and phosphorus.

An order was imposed by the County Administrative Board following complaints of unpleasant odours from neighbours north of the factory. The County Administrative Board wants improvement measures to be drawn up.

Water levels were very low due to an extremely dry summer and a number of comments were received from local residents. However, the mill has not had any problem complying with current water judgments while at the same time ensuring a stable water supply.

### **Follow-up of environmental and energy targets in 2018**

The aim for 2018 was to rationalise energy use. The target was 1 per cent lower specific energy consumption. A change to running methods in the refining process to improve pulp quality meant that the energy target could not be attained.

### **Planned and completed environmental and energy measures in 2018**

Work continued on replacing the main motors of some refiners in the TMP factory in 2018. The purpose of the motor replacements carried out in recent years has been to increase production on selected lines and so reduce specific electricity consumption. It is estimated that replacing a total of five motors in TMP 3 will cut electricity use by 40–50 GWh per year.

An investment was made in the wood line to better control debarking. The outcome was excellent, and will mean a better use of resources through higher wood yield.

An improved dewatering stage between the TMP factory and paper machine PM 12 was commissioned in the autumn. The change means more efficient use of chemicals thanks to a cleaner system at the paper machine.

Planning for a redesigned process in the treatment plant was carried out during the year.

### **Environmental and energy targets 2019**

In 2019 work will continue on making more efficient use of resources, with a focus on increasing utilisation of capacity in the pulp mills and on the paper machines.

The mill's total specific energy consumption will also continue to be monitored as an overarching target.

Due to challenges in wastewater treatment and poorer access to water for the factory, water consumption will be monitored as an overarching target

## KPIs production and environment

Production and environment	2018	2017	2016	2015	2014
<i>Hallsta Paper Mill, Production, '000 tonnes</i>					
Paper	548	566	506	498	499
<i>Raw materials, '000 tonnes</i>					
Wood, million m <sup>3</sup> solid volume under bark	1,29	1.29	1.13	1.10	1.13
Purchased pulp	4.4	6.5	3.0	5.8	2.9
Water consumption, million m <sup>3</sup>	12.9	11.8	11.2	10.7	10.9
Chemicals <sup>1)</sup>	31.5	24.9	22.5	21.8	24.6
Filler, pigment <sup>1)</sup>	42.7	32.7	30.5	37.5	41.8
<i>Thermal energy, GWh</i>					
Production at mills from recovered liquors, bark and wood residues	-	-	-	-	111
Recovered in the TMP process <sup>2)</sup>	705	664	620	599	553
Fossil fuels	4	4	4	-	8
<i>Electrical energy, GWh</i>					
Production at mills	-	-	-	-	1.1
<i>Emissions to air, tonnes</i>					
Sulphur dioxide (counted as sulphur, S)	-	-	-	-	4.4
Nitrogen oxides	-	-	-	-	29
Particulates	-	-	-	-	1
<i>Carbon dioxide, '000 tonnes</i>					
Fossil	0.01	0.01	0.01	0.01	1.1
Biogenic	-	-	-	-	53
<i>Emissions to water, tonnes</i>					
COD (organic matter), '000 tonnes	4.3	3.3	3.8	3.2	3.8
Suspended solids	676	214	416	141	226
Nitrogen	65	50	47	37	25
Phosphorus	3.1	2.5	2.5	2.0	1.9
<i>By-products, '000 tonnes</i>					
To energy production, internally/externally	139	170	117	144	133
Utilised or for recovering <sup>3)</sup>	51	53	46	44	11
<i>Waste, '000 tonnes</i>					
Hazardous <sup>4)</sup>	0.01	0.17	0.20	0.04	0.02
Sent to landfill (wet)	0.07	0.07	0.06	0.1	0.1
<i>Energy deliveries</i>					
Thermal energy, GWh <sup>5)</sup>	4,8	11.6	4.2	13	16

1. 100 per cent active substance. The quantity of commodities was 56 300 tonnes for chemicals and 59 790 tonnes for filler and pigment.
2. Thermal energy is produced from the electricity used in the production of thermo-mechanical pulp at Hallsta Paper Mill; this is recovered and used in production.

3. By-products used, for example, as filling material, construction material or for the production of soil products.
4. Hazardous waste is dealt with by an authorised collection and recovery contractor. Oil-containing waste from docking ships is dealt with at port facilities at three Holmen mills. For Hallsta Paper Mill the volume of this waste in 2018 totalled 352 tonnes (not included in the figure).
5. Thermal energy from the mill to the district heating network of the local community.