



The Mill Director's Statement

The forest industry's operating environment did not become any easier over the past year. The price of wood, our primary raw material, increased strongly, creating new challenges for our ability to make a profit, and the threatening increase of customs fees for imported wood is influencing the decisions of the entire business sector both home and abroad. In general, forest companies' last year's results were not very flattering. The surplus of paper products in Europe prevents any significant transferral of increased production costs to product prices, making companies very cautious with their forecasts.

For the Oulu Mill in Nuottasaari, year 2007 was yet another year full of work. The mill's operating time ratio was high, and production records were broken. No large investments were completed this year, but the extension of our sheeting plant was started. The project will be completed in spring 2008 and increases the mill's sheeting capacity by approximately one third.

Our new environmental permit came into force in 2007, containing new requirements that will cause additional costs. Work towards meeting the requirements has already been started. One of the most important changes was the licensing authority's decision of closing down the mill's landfill site, resulting in new challenges

for the utilising and sorting of waste, as every kilogram leaving the mill costs euros.

Our previous environmental investments have produced the expected results. The most significant improvement has been the reduction of our particulate emissions, achieved with the installation of a third electrostatic precipitator at the soda recovery boiler. The paper mill's water consumption also decreased from last year, as did accident frequency and the number of sick leave days.

We are now working on many fronts to sustain this positive development. This report focuses on the environmental management and performance of our pulp mill, paper mill and power plant. DNV Certification Oy/Ab has verified all information relating to environmental protection in this EMAS report, a concise interim report updating the 2006 data. Another interim report will be published in 2009, and the next full EMAS statement will be published before the end of July in 2010.

Pentti Ilmasti
Mill Director

Environmental survey 2007

The new environmental permit of the Oulu Mill came into effect near the end of year 2007. Work on surveys and analyses required by the permit was started earlier in the autumn. Planning of the closure of the mill's landfill site was started, as was the updating of the mill's environmental risk mapping and a project for improving the chemical treatment of the paper mill's waste water, both as diploma works. The mill monitoring plan was also updated.

Production volumes of both pulp and paper increased from last year, explaining the increased environmental load. Moreover, the quantity of eucalyptus pulp imported from Brazil was higher than ever before. The environmental effects of Veracel's pulp production have now been taken into account when calculating the environmental effects of paper produced in Oulu, and the effects of transportation are now also calculated as a part of the mill's specific emissions, resulting in increased nitrogen oxide and sulphur dioxide emission figures.

The mill received a total of 16 complaints from the inhabitants of Oulu in 2007; one regarding the noise and the remainder about the odour.

Environmental costs

Operative environmental costs were 6.1 million euros. The increased cost of energy used in filtering the emissions was one significant reason for the increase of total costs from the previous year.

The total cost of the mill's environmental investments was approximately two million euros. The largest individual investments were the renovation of the mill's landfill site and the improvements made to the treatment of the pulp mill's flue gas emissions.

Deviations and corrective measures

The licence conditions were exceeded once, in July, when the total phosphorus concentration of our waste water, 55.5 kilograms per day, slightly exceeded the 55 kilogram limit. When the incident occurred, the activated sludge plant of the pulp mill was malfunctioning. The biosludge did not settle in the optimal way, increasing the

environmental load temporarily. Because of unusually heavy rains, the phosphorus concentration of raw water pumped from the Oulu River was also higher than ordinary.

All four incidental discharges that occurred in 2007 took place at the paper mill and consisted of water with a high carbonate concentration. The largest spill was clearly visible in the waters near the mill. Its environmental effect was, fortunately, very small, as the limestone-like carbonate is not hazardous as such and only clouds the water temporarily. All incidents were reported to the authorities in charge.

The current objective of the mill is to improve the management of suspended solids in waste water. A decision to acquire a new system for pigment recovery and utilisation was made toward the end of the year. The project will be one of our most important environmental investments of year 2008.

Key figures

	2007	2006	2005
Production capacity tonnes			
Paper	1 055 000	1 047 000	1 012 000
Pulp	370 000	370 000	370 000
Production tonnes			
Paper	990 128	956 656	769 269
Pulp	343 310	323 455	296 576
Crude tall oil	18 359	16 622	14 408
Crude turpentine	1078	602	530
Economy EUR million			
Sales	722	647	524
Environmental costs	6.1	4.7	3.5
Environmental investments	2.0	5.5	0.6
Employees			
Personnel, average	765	766	780
Proportion of women %	25	25	26
Accident frequency ¹⁾	29	32	26
Staff training days per employee	6	4	5
Average age	43	43	43
ENVIRONMENTAL LOAD			
Emissions into the air tonnes			
Carbon dioxide ²⁾	407 482	399 683	258 505
Nitrogen oxides	1068	1004	819
Sulphur dioxide	506	597	326
Malodorous sulphur compounds ³⁾	10	9	9
Particulates	64	161	248
Discharges into waters tonnes			
Chemical oxygen demand	10 849	8418	7276
Biological oxygen demand	1330	1235	1019
Phosphorus	14	10	9
Nitrogen	76	59	51
Suspended solids	1508	997	801
Organic chlorine	84	71	61
Landfill waste tonnes	19 553	10 117	13 480
Consumption of electricity GWh	924	917	788
Mill water million m³	51.6	52.3	45.0

Environmental effects per paper tonne

	2007	2006	2005
Emissions into the air kg			
Carbon dioxide ¹⁾	389	377	337
Nitrogen oxides	3.54	1.12	1.22
Total sulphur	0.79	0.27	0.23
Particulates	0.18	0.21	0.42
Discharges into waters kg			
Chemical oxygen demand	8.9	9.4	11.1
Phosphorus	0.01	0.01	0.03
Nitrogen	0.08	0.08	0.09
Suspended solids	1.20	1.16	1.19
Energy consumption MWh	3.7	3.9	3.4
Process water consumption m³	21.4	23.7	23.8
Landfill waste kg	15.4	11.4	19.0

Including the environmental effects of locally produced pulp and paper as well as the effects of the production and transportation of purchased pulp.

¹⁾ Of fossil fuels

¹⁾ Accidents per million working hours

²⁾ Of fossil fuels

³⁾ Sulphur

Raw materials and water consumption

Nearly two million solid cubic metres of softwood was consumed by pulp production. Of the total amount of wood consumed, 1.6 million cubic metres was roundwood and the remainder sawmill chips. The use of purchased pulp increased: over 300 000 tonnes of short-fibre eucalyptus pulp was acquired.

The percentage of certified fibre in products originating from Oulu is relatively high. At the end of 2007, the PEFC¹⁾ certificate percentage was 71% for pine pulp and 87% for paper products.

Water consumption

Total water consumption increased slightly as the production volumes grew, but the specific consumption figures decreased. The consumption of process water at the pulp mill was 33.1 cubic metres per pulp tonne, while the BAT (Best Available Technologies) figure is 30–50. The paper mill consumed 7.1 cubic metres of water per each tonne of paper produced, while the BAT figure is 10–15.

¹⁾ PEFC. Programme for the Endorsement of Forest Certification Schemes. Forest certifying system.

Energy

The mill consumed 924 gigawatt-hours of electricity, 61 percent of which was locally produced. The increased production volume resulted in a four percent increase in heat consumption, while the consumption of electricity remained on a level similar to the previous year. The paper machines' specific heat and electricity consumption figures saw a further 4–6 percent decrease from the previous year.

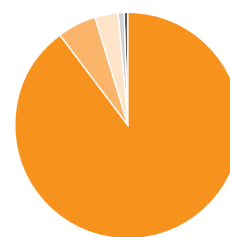
The use of peat kept increasing slightly, resulting from the increased production of market pulp. The drying of market pulp increases the mill's energy consumption.

Carbon dioxide emissions increased slightly, but specific emissions per pulp and paper tonne decreased. Between 2005 and 2007, carbon dioxide emissions were 13 200 tonnes below the emission rights granted to the mill.

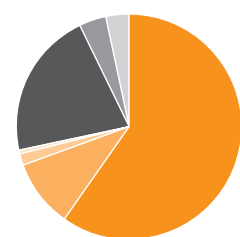
As a part of the company-wide plan for reducing carbon dioxide emissions, the Oulu Mill has a set objective of cutting down 10 percent of its carbon dioxide emissions by year 2012 with a further 10 percent reduction to be achieved by 2020. In order to reach these goals, a plan of action where the proportion of biofuels is increased and combustion efficiency is enhanced by increasing the proportion of solids in the fuel has been drafted.

Chemical and water consumption			
	2007	2006	2005
Use of pulp and paper chemicals tonnes			
Pigment	445 000	370 000	300 000
Binder	50 000	49 000	40 000
Oxygen	5 100	4 300	4 900
Chlorine dioxide	7 500	7 500	6 800
Water consumption 1000 m³			
Cooling water	32 560	33 468	29 544
Process water	19 045	18 804	15 477
Total mill water	51 605	52 272	45 021
Domestic water	56.6	66.3	110.0

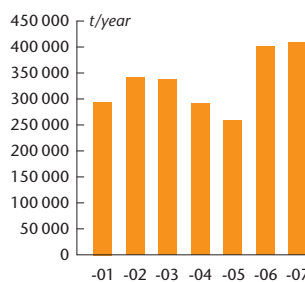
Wood procurement at the Oulu Mill 2007



Fuels 2007



Carbon dioxide from fossil fuels



Calculation factors have changed in the beginning of year 2005 due to emissions trading.

Discharges into waters

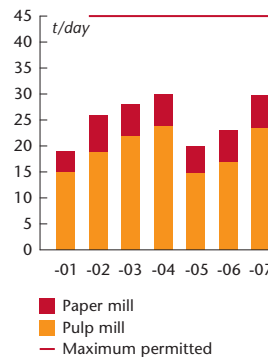
The pulp mill's wastewater treatment did not function ideally in 2007. The discharge figures climbed, and internal objectives could not be reached. The increased environmental load is clearly observable in both total and specific discharges. The treatment capacity of the wastewater treatment plant did not meet the expectations. A project for improving the plant's performance was started, and year 2008 will see its implementation phase. Improving the wastewater treatment plant's operation is one of the mill's environmental objectives of year 2008.

Towards the end of the year 2007 the mill also participated in a project called Bioconcept, a collaborative undertaking between various forest and chemical companies and the University of Oulu aiming to model the operation of the mill's wastewater treatment plant.

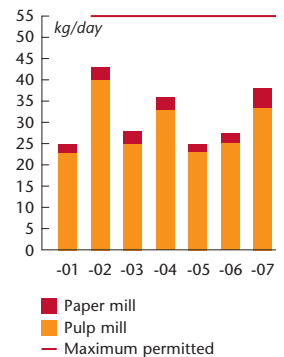
The increased production volume resulted primarily in increased total environmental load at the paper mill. Specific emissions, however, decreased from year 2006. The quantity of suspended solids in the paper mill's waste water was 1.1 tonnes per day in 2007, while the 2006 figure was 1.5. The objective for year 2008 is a further cut of 10 percent.

Improvements for the chemical treatment of waste water were sought in close co-operation with the chemical suppliers. A diploma work focusing on the optimisation of chemical treatment of waste water was also started in autumn 2007.

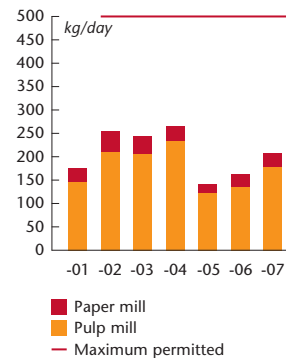
Chemical oxygen demand



Total phosphorus



Total nitrogen



Pulp mill's specific discharges into waters

kilogrammes per pulp tonne	The 2007 internal objectives for specific emissions	2007	2006	2005
Chemical oxygen demand	< 21	25	19	18
Total nitrogen	< 0.22	0.19	0.15	0.15
Total phosphorus	< 0.036	0.035	0.028	0.028

The paper products of the Oulu Mill are intended for demanding print products, such as art and picture books.



Emissions into the air

The reliability rate of the incineration of undiluted malodorous gases decreased slightly from 2006. The internal objectives were not reached. The new incineration boiler solved the problems encountered earlier in the year, but the autumn shutdowns increased the emissions again. The reliability rate of the incineration of undiluted malodorous gases was 99.8 percent of the pulp mill's operating time. The reliability rate of diluted malodorous gases reached a very good level of 96.8 percent – exceeding the internal objective of 92 percent and representing a considerable improvement from the previous year, when the reliability rate was 87.5 percent.

The new particulate filter of the soda recovery boiler proved its efficiency: the mill's particulate emissions decreased considerably. The internal objective was reached, and the total quantity of particulate emissions was reduced from previous year's 161 tonnes to 64 tonnes.

Although both production volume and fuel consumption increased, no significant changes occurred in the levels of nitrogen oxide and sulphur dioxide emissions. No significant increase of nitrogen oxide emissions occurred, and sulphur dioxide emissions even decreased slightly. The mill's internal objectives were reached, and all limits set by the environmental permit were met in 2007.

The quality of air in Oulu is strongly affected by exhaust emissions from traffic and, especially during springtime, road dust. The number of days measured with poor air quality increased from 2006.

Noise

In autumn 2007, a noise barrier five metres high and nearly 200 metres long was erected near the debarking plant on the northern periphery of the mill area, reducing the noise emissions affecting nearby residential areas.

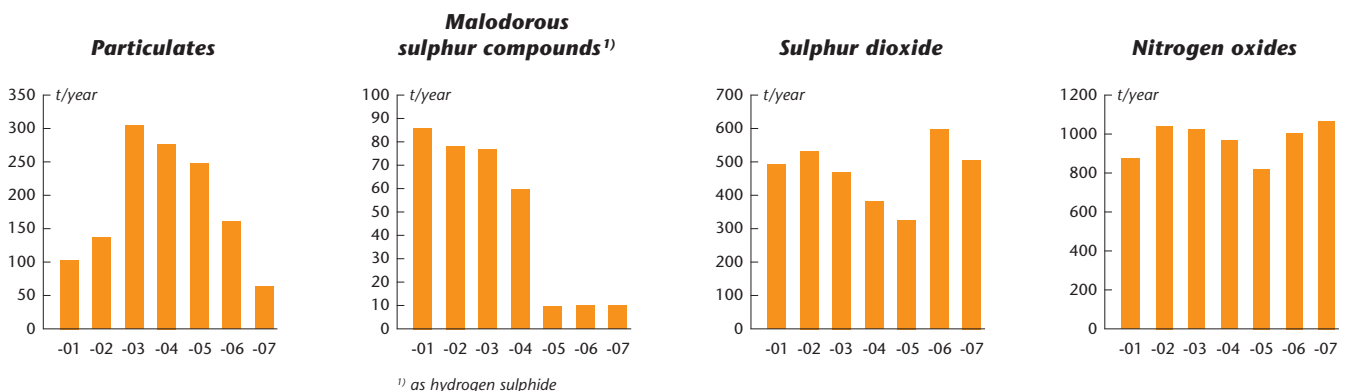
According to measurements carried out by an external consultant, the investment was successful. Noise levels decreased considerably with the average reduction being approximately seven decibels. A noise analysis covering the entire mill area will be completed by autumn 2008.

Pulp mill's specific discharges into the air

kilogrammes per pulp tonne	2007	2006	2005
Total sulphur	0.06	0.05	0.07
Nitrogen oxides	1.12	1.17	1.13

Air quality in Oulu 2007

days	City centre	Outside the city centre
Good	50	185
Satisfactory	188	146
Passable	98	26
Poor	21	7
Very poor	8	1



Waste management

The amount of landfill waste increased from previous years. The increase was caused by the dumping of fly ash in the mill's landfill site as the trial project exploring the possibilities of utilising light ashes in borrow pit landscaping concluded.

After the new environmental permit came into force, collection of municipal waste was initiated. Instead of using the mill's landfill site, the waste is now delivered to the municipal waste disposal site. Separate collection of waste usable for energy production was also started. In the future, the power plant will incinerate only locally produced waste containing fibre. Other combustible waste is delivered to an external waste management company for energy production purposes.

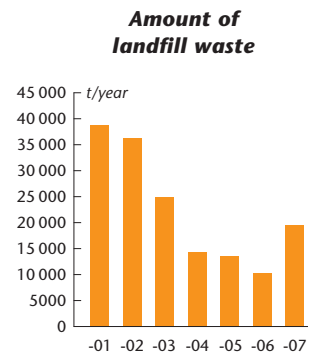
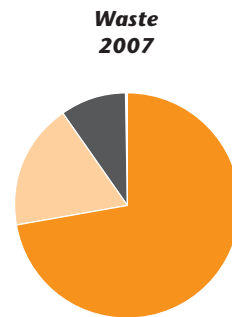
Effective utilisation of the paper mill's wastewater sludge was one of the mill's internal objectives for year 2007. The objective was reached: utilisation percentage reached 68%.

16 100 tonnes of recycled pigment was utilised in paper production. The amount consisted of 7900 tonnes of pigment separated from wastewater sludge and 8200 tonnes of ultrafiltration concentrate separated from the flushing waters of the paper coating machine. The quantity of recycled pigment is equivalent to one shipload of pigment.

The mill's landfill site

As stipulated by the new environmental permit, the mill's landfill site closed down at the end of October 2007. The final filling and landscaping are to be completed by the end of year 2014. A quantity of process waste produced at the mill can be utilised in the landscaping.

A total of 0.7 million euros was invested into the renovation of the mill's landfill site in 2007. Subsurface drains and a pumping station were constructed in order to pump the landfill site's seepage water for processing at the pulp mill's wastewater treatment plant. The renovation continues in 2008 with projects such as the construction of a gas collection system.



The continuing success of the Oulu Mill is based on its competent personnel. The employees' well-being is addressed in many ways – by promoting leisure activities, for example.



Social responsibility

The social responsibility targets of the Oulu Mill are based on company-wide objectives. The local efforts focus on establishing and maintaining a spirit of open discussion with the surrounding society, ensuring the safety and well-being of the mill's employees and promoting an awareness of the significance and the objectives of the mill's social responsibility programme among its personnel.

The mill's corporate image

The corporate image and the reputation of the Oulu Mill and other companies in the region are assessed annually with a survey conducted by Taloustutkimus Oy. In 2007, the Oulu Mill held the 26th position with its total score. 96 companies participated in the study. The score of the Oulu Mill is above the average of all companies, but below the average for industrial companies. In terms of regional prominence, the Oulu Mill also held the 26th position, above the average for industrial companies. Its prominence had, however, decreased slightly.

The most important factor in terms of corporate image is the mill's significant role in the development of the Oulu region. The quality of its products also received positive evaluations, as did the media coverage it has received, its economical status, modernity and reputation as an employer. Compared with results from previous years, the evaluations of the mill's media coverage and its modernity have improved. Stora Enso's financial status, its reputation as an employer and its future outlooks were, however, viewed more critically than before.

The study also focused on the environmental image of the company, which had remained essentially unchanged.

Environment award

The second environment award was given to the personnel of the debarking plant. The environmental management team wanted to commend them for keeping their working areas clean and setting a good example in waste sorting.

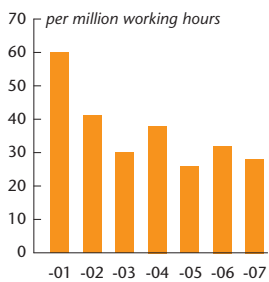
Occupational health and safety

Improvements to occupational safety were sought with a number of measures taken during the year. Eye protectors are now required in all production and maintenance areas, as well as in all loading and unloading sites. Safety training of production personnel was initiated in order to improve occupational safety; the objective is that the entire staff completes the occupational safety certification course. The training will continue over the coming years.

Occupational safety was also promoted with financial incentives. In 2007, the production departments of the mill used a department-specific bonus system, where each month with no occupational accidents was awarded.

The number of sick leave days received special focus. A diploma work exploring the factors affecting occupational well-being was carried out. The study focused on two departments with a highly divergent number of absences. Its objective was to identify the factors that contributed positively to the low absence figures of the other department. The results were processed further into a preliminary plan of action for reducing absences.

**Accidents
causing absence**



Printing: Painotalo Seiska. Paper: LumiSilk 170 g/m².
Implementation: Viestintätoimisto Hyvä Juttu & Henna Raitala.
Photographs: Timo Heikkala.
Translation: Antti Autio.



The cover image features children on a forest excursion arranged by the Stora Enso Oulu Mill in autumn 2007.

**For further information
and EMAS report orders**

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Verification of the interim statement

As an accredited verifier (FIN-V-002), DNV Certification Oy/Ab has audited the internal procedures of the Stora Enso Oulu Mill as well as all information and documentation produced by them, and on the basis of the audit has stated on 4 April 2008 that the environmental statement complies with the requirements of regulation (EC) 761/2001 of the European Parliament and the Council of Europe.

This is a translation of the Finnish language version of the Stora Enso Oulu Mill EMAS Interim Statement 2007. In case of language dispute the Finnish version applies.