



Document title	Deletion of the HELCOM Hot Spot No. 27 - Kehra Pulp and Paper
Code	10-2
Category	DEC
Agenda Item	10 – Any other business
Submission date	7.10.2016
Submitted by	Estonia
Reference	

Background

The list of significant pollution sites around the Baltic Sea – HELCOM Hot Spots – was established in 1992, as a part of the Baltic Sea Joint Comprehensive Environmental Action Programme (JCP, 1992-2013). By December 2015, over two-thirds of the Hot Spots, 116 out of 162, have been deleted from the list.

The Kehra Pulp and Paper (Hot spot No. 27) was included into the HELCOM list due to its high pollution loads. The pulp and paper plant uses the nearby river for water abstraction and discharge of the wastewater. Today, the technology has improved significantly and the plant has improved its environmental performance considerably. The plant complies with all the existing requirements and continues further improving of its environmental performance by being both socially and environmentally responsible. In the light of the existing HELCOM recommendation kraft pulp industries and also other national legislation there is no reason to consider the plant as a hot spot for the Baltic Sea.

Action requested

The Meeting is invited to consider the information on the compliance of the Kehra Pulp and Paper plant to the existing environmental requirements and conclude on the deletion of hot spot No. 27 “Kehra Pulp and Paper” from the list of HELCOM Hot-Spots.

Deletaion of Hot Spot No. 27 – Kehra pulp and paper

Background information

History

The former Kehra Pulp and Paper Plant was chosen as a Hot Spot because of its responsibility for large amounts of atmospheric emissions and high levels of water pollution. Each year, due to its high consumption of black oil and oil shale for burning, the plant produced 40-50,000 tons of unbleached pulp and released about 2200 tons of SO₂. The plant was also discharging about 350 tons of BOD₅ a year directly into the River Jägala from its untreated ash-pit system.

The Kehra Pulp and Paper Plant was closed between 1993-1994 and reopened in September 1995 under new ownership and the new name of 'Horizon Pulp and Paper'. Horizon Pulp and Paper produces unbleached kraft pulp (i.e. 'so called sulphate pulp'), a batch cooking system and black liquor chemical recovery system. To make its final products, it has three paper machines and equipment for sack production. The present annual production capacity is 50,000 tons of pulp. A new ash-basin return-effluent system was put into operation in February 1997, which made it possible to direct untreated effluent into the biological treatment plant. At present, all the waste water is directed to the biological treatment plant.

Today

Horizon Pulp and Paper Ltd. is a stable, independent customer-oriented company with a long experience and tradition of 100% virgin long fiber unbleached sack kraft paper production, dating back to 1938. The company exports 99% of their production. The company offers a wide range of products, substances and widths, and provides reliable delivery solutions to customers.

The owner of the company is the Tolaram Group from Singapore, holding 100% of shares of Horizon Pulp & Paper Ltd. In 1995, the Group acquired the mill and has since invested a great deal into product development as well as improving mill's efficiencies. In Estonia, Tolaram Group has interests in pulp & paper, FMCG, real estate, textiles and globally has diversified activities in Asia and Africa.

Location of the plant



1. Compliance with the Convention on the Protection of the Baltic Sea Marine Environment

1.1. Summary of the main requirements of the recommendation

1.1.1 Discharge limit values applicable since 2005 in kg per ton of air dry unbleached pulp for plants that started their operation before 1997

Table 1. Limit values in the recommendation

Pollutant	Limit value
COD	
P total	0,02
N total	0,3

1.1.2. The use of chlorine must be prohibited in bleaching.

1.1.3. Limit values on nitrogen should be applied.

1.1.4. BAT should be implemented.

1.2. The compliance to the recommendations in Kehra

1.2.1. Discharge limit values applicable since 2005 in kg per ton of air dry unbleached pulp for plants that started their operation before 1997.

Table 2. Compliance with the limit values

Pollutant	Recommendation	Kehra in 2016
COD	20	4,91
P total	0,02	0,01
N total	0,3	0,04

1.2.2. The use of chlorine

There is no use of chlorine in bleaching, there is no bleaching.

1.2.3. Limit values on nitrogen

The plant is not located on the coast. However, as the plant discharges its wastewater into the river which flows to the Baltic Sea, nitrogen limit values are applied. The limit value for N tot in discharged wastewater is 15 mg/l. The measures N total in discharged water was in 2015 0,49 mg/l. This value decreased significantly in 2013 when the plant finished treating the domestic wastewater from the Kehra town and nearby settlements.

1.2.4 BAT implementation

The Kehra plant is operated based on the integrated environmental permit which includes detailed descriptions of plant's technological processes as well as specific requirements to improve the environmental performance in every process. The integrated environmental permit includes reference to the BAT that complies with both the principles in the recommendation as well as with the ones specified in relevant EU legislation.

The compliance with the principles of the recommendation is following:

Technology required by the recommendation	Description of the used technology in the Kehra plant
Dry debarking with minor wastewater discharges	Dry debarking is used and non-debarked logs go through debarking equipment.
Closed screening	Pulp mass is effectively washed with drum washing machine, sifted particles are completely recooked. Bigger than 8mm particles are sorted out and are 95% recooked.
Stripping of most concentrated condensates and reuse of most condensates in the process	Condensate from heat exchangers and steam concentrators is returned to boiler house and reused for steam production.
Systems which enable the recovery of almost all spillages	Effective leak monitoring and management is in place but since quantities are small and incidental there is no reuse of spillages.
Extended delignification in the digester followed by oxygen delignification	Not appropriate for the technology in use.
Efficient washing before the pulp leaves the closed part of the process	Pulp mass is efficiently washed with drum washing machine.
At least secondary treatment for waste water discharges;	As a pre-treatment a grid equipment and sedimentation pools are used. Discharge water goes through active mud deposit before river. Additional chemical treatment is not necessary because nitrogen and phosphorus is used by active mud.
Partial closure of the bleach plant. The main part of the discharge from the bleach plant is piped to the recovery system	Non-working pumps and equipment have their cooling water closed every time. Main part of used cooling water is reused.
Use of environmentally sound chemicals in the process, for example use of biodegradable chelating agents wherever possible.	Monitoring of environmentally hazardous chemicals and such chemicals are used as little as possible. Used additives are biodegradable according to certifications. Sodium hydroxide is produced by plant for its own use.

2. Compliance with other relevant legislation

2.1. Wastewater treatment

The plants has the permit to discharge wastewater into the river. The wastewater is treated before the discharge, for which mechanical, chemical and biological treatment processes are applied. The treated wastewater is in compliance with the existing requirements for industrial wastewater discharges. The plant used to treat also the wastewater from the residential areas, this however is not the case anymore. The only wastewater originates from the plant as a result of the production.

Table 1: The compliance of water discharges to the river

Pollutant	Limit in mg/l in the permit	2011	2012	2013	2014	2015
Ntot	15	3,86	61,77	1,3	0,49	0,49
Ptot	2	0,67	0,49	0,3	0,2	0,2
BOD7	15	1,65	3,42	2,11	0,43	1,57
COD	250	56,4	72,3	49,1	54,4	50,8
SS	15	10,4	11,6	9,3	8,8	10,4

2.2 Air emissions

Air emissions are regulated as part of the integrated permit. The air emission limits and loads have been set for technological processes and for the whole plant. All emissions are within the limits and they are continuously monitored.

2.3 Hazardous substances in wastewater

In case of hazardous substances special attention is given to the As, Cd, Cr, Cu, Zn, SO₄, NI, Pb as they are most relevant to occur as a result of the production processes. All discharges to the river comply with limit values established for these substances. In case of the exceedance of limit values the mixing zones will be used in the river.

2.4 Wastewater sludge

The treatment and the use of wastewater sludge is done according to the existing permit. Wastewater sludge is separated and treated in order to comply with the requirements for using it further in specific activities such as in agriculture or refurbishing. Today there is no specific and regular use for the wastewater sludge. The treated sludge is used as additional material to close down and remediate the nearby landfills and waste disposal sites. The further use of wastewater sludge is not exactly determined as it depends on general sludge policy in Estonia.

2.5 Other environmental aspects of the site

The Kehra plant uses water from the Jägala River. In order to ensure the sufficient quantity of water the nearby water reservoir is used. In order to reduce the impacts of the reservoir to the fish migration a fish pass was built and put into operation in 2014.

The fish pass of the Kehra Plant

