Press release
15 December 2020

Grigeo Klaipėda provided responsible authorities with international expert findings regarding estimation of damage

Cardboard manufacturer Grigeo Klaipėda reported to have submitted to the Klaipėda Regional Prosecutor's Office, the Environmental Protection Department, and the Environmental Protection Agency an opinion of foreign experts regarding possible damage to the environment when incompletely treated wastewater was discharged into the Municipal company's Klaipėdos Vanduo collector. An analysis regarding remedying of damage was carried out by TIG Environmental, an international environmental company. According to its findings, the area of the Curonian Lagoon affected by Grigeo Klaipėda's wastewater must have been limited, and neither the fish nor zooplankton has been affected.

"The company assumes and will assume responsibility for its activities, therefore, seeking to establish the fact and the extent of damage to the environment, we have selected on our own initiative through a tender process and have engaged international experts to carry out a multi-month expert examination and to present their opinion. Having received the material from the experts, we have immediately handed it over to the responsible authorities, which, we believe, will be able to proceed with the investigation," says Tomas Eikinas, General Manager of Grigeo Klaipėda.

He has emphasized that Grigeo Klaipėda does not have the necessary competence to comment on the expert findings, hence, their assessment has been passed on to environmental professionals: "We have just ordered, furnished data and documents to the experts, forwarded an expert examination report and an opinion issued on its basis. We are ready to present them together with the experts from TIG Environmental to the responsible authorities directly and to answer any questions posed."

In April-October, the assessment examination of the possible damage to the water condition of the Curonian Lagoon caused by Grigeo Klaipėda's partially treated wastewater was headed by Dr Carlo Monti – an Italian scientist and Executive Director of TIG Environmental Forensic Examination, who had conducted environmental impact assessments in different EU member states and in other foreign countries worldwide.

The report consisting of almost 12,500 pages analyses the composition of the combined wastewaters of Grigeo Klaipėda and Municipal company Klaipėdos Vanduo because they get mixed before entering the lagoon, their impact on the local environment, the biodiversity, the ecological condition of the Curonian Lagoon, and the landscape. It has been found that the area of the Curonian Lagoon affected by Grigeo Klaipėda's wastewater must have been limited, and neither the fish not the zooplankton has been affected.

It has also been emphasized by TIG Environmental that remedying of environmental damage must be based on the principles and methods of remedying such damage as defined in EU Directive 2004/35/EC, giving the priority to non-monetary environmental compensation methods.

Monitoring results from the Environmental Protection Agency, Municipal company Klaipėdos Vanduo, the Klaipėda Seaport Authority, a survey of the Curonian Lagoon condition performed by the University of Klaipėda, analysis results from the State Food and Veterinary Service as well as Grigeo Klaipėda's wastewater test results rendered by independent laboratories were used during the examination. Due to the type of wastewater pollutants generated from the company's operations, the use of BOD_7 materials, total nitrogen and total phosphorus streams has been chosen as an indicator because biological wastewater treatment plants are used for their treatment.

The expert report states that the impact of nitrogen and phosphorus in Grigeo Klaipėda's wastewater on the water quality at the Klaipėda Strait (and the Curonian Lagoon) was supposedly either low or totally insignificant. The findings in the report also confirmed that due to significant differences in the amount of effluent discharged by the Municipal company's Klaipėdos Vanduo discharger to the Klaipėda Strait (and the Curonian Lagoon) and due to the reduction of BOD_7 during the oxidation of the organic matter, the area in the Curonian Lagoon affected by the concentration of BOD_7 of Grigeo Klaipėda's wastewater was supposed to be limited. Simulation results confirmed that the effect of the release of BOD_7 substances even in the worst-case scenario, presuming that 85 percent of the company's wastewater might have been discharged biologically untreated, occurred only in the area near the discharger. This finding is corroborated by the fact that no decrease of the permissible oxygen concentration in the Klaipėda Strait has been reported by the official monitoring.

During the calculations, the experts of TIG Environmental took account of the fact that the rounded average concentration of oxygen at the Klaipėda Strait was 8 mg/l. According to their calculations, an average water flow of 840 m^3/s goes into the Klaipėda Strait[1]. Bearing in mind the said water quantity and the 8 mg/l oxygen concentration in the water, the calculated total oxygen flow in the strait was 6720 g/s, and the maximum possible load of BOD_7 substances, which could have been created by Grigeo Klaipėda's wastewater mixed with Municipal company's Klaipėdos Vanduo wastewater, was approximately 62.5 g/s.

Thus, the maximum crucial oxygen consumption of BOD_7 substances, which could have been caused by the amount of the incompletely treated wastewater from Grigeo Klaipėda and the treated wastewater from Municipal company' Klaipėdos Vanduo, corresponds to approximately 1 percent of oxygen flows in the Klaipėda Strait. This means that the chemical recovery of the system by stopping the flow of BOD_7 effluents occurs in an instant.

According to the findings, the limit value for a total nitrogen flux was not exceeded by 10 mg/l and for a total phosphorus flux – by 0.5 mg/l. Also, based on the Environmental Protection Agency's annual water status survey reports of the Curonian Lagoon, the report indicates that from 2012 to 2016, the River Nemunas transported from 1,236 to 1,795 t/year of phosphorus and from 31,752 to 62,680 t/year of nitrogen into the Curonian Lagoon from the nearby farms and cities. The cumulative effect of those nutrients on ecological conditions is evident in the lagoon, but the additional amount of nutrients discharged by Grigeo Klaipėda might have formed a very small part of the nutrient inflow into the Curonian Lagoon i.e., from 0.009 percent up to 0.046 percent of nitrogen and from 0.02 percent up to 0.13 percent of phosphorus.

The impact of BOD_7 substances flow on the surface water layers of the Klaipėda Strait near the discharger and the Klaipėda Port (hereinafter – the Port) has been assessed. However, an average concentration decrease, when comparing the best-case scenario and the worst-case scenario, is small. The lowest average oxygen concentration in the worst-case scenario in the surface water layers of the port area is 8.8 mg/l. The simulation also confirmed that the effluent did not affect the benthic layers (on the bottom of the Curonian Lagoon) thus, the benthic communities were not affected either.

The expert findings indicate that the BOD_7 substances, total nitrogen and total phosphorus in the company's partially untreated wastewater did not affect the fish community, including demersal

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Note: source: Gasiūnaitė, Z.R., D. Daunys, S. Olenin, and A. Razinkovas. 2008. "The Curonian Lagoon." In Ecology of Baltic Coastal Waters, edited by U. Schiewer. Berlin: Springer

(deep-sea and near-bottom) and migratory fish. Zooplankton is also unlikely to be affected as the limit oxygen concentration that could affect this community is 4.5 mg O_2/l.

Considering that nitrogen and phosphorus associated with the incompletely treated wastewater discharged by Grigeo Klaipėda make up a very small part of the total inflow, it has been found that the said nutrients do not have a measurable effect on the Curonian Lagoon, nor is there any anticipated change in the ecological functions that may be associated with the discharge by the company of incompletely treated wastewater.

About TIG Environmental

TIG Environmental is an international company conducting scientific research to determine water or groundwater contamination not only in the current but also in the previous period. The company provides technical services to identify and assess contaminated sites.

Carlo Monti is the executive director of forensic examination at TIG Environmental. He is a world-renowned scientist specializing in environmental forensics and chemical pollution. Dr C. Monti has acquired the Milan University master's degree in biology, and Parma and University of California, Davis – Environmental Sciences doctoral (Ph.D.) degree.

About Dr C. Monti's experience

Dr Carlo Monti has more than 25 years of experience in assessing the regulation and modification of river flows, the release of chemicals into water basins, lakes, lagoons, seawater, and their transformations as well as the environmental impact of nuclear energy. He has worked on a number of projects that have evaluated the impact of human activities, energy production and activities in the oil and gas industry, and the release of nutrients and chemicals on aquatic and terrestrial ecosystems.

Dr Monti has carried out numerous risk and environmental impact assessments for sites and resources affected by the discharge of industrial effluents into aquatic ecosystems. Studies have been conducted in Europe, North Africa, South America, Central America, Asia, the Middle East, and the Persian Gulf region. Dr Monti has advised the Italian Government in drafting national legislation on the assessment of risks to soil, sediment, groundwater, and environmental harm, ensuring their smooth implementation.

He is a co-author of the authoritative publication "The EU Environmental Liability Directive: A Commentary" published by Oxford University Press in 2013.

Largest environmental impact and risk assessment projects by Dr C. Monti:

- *He led a forensic project to assess the health damage caused by ENEL company (Rome) in Porto Tolle.*
- *He directed the assessment of health damage caused by ILVA company, operating in Taranto, and which attracted great interest.*
- *He assessed the risks to health and the environment from the effluent discharged into the River Durance (Provence, France) by a chlorinated hydrocarbon plant.*
- *He carried out environmental impact studies for two oil rigs in the Libyan Sea (Bouri Field).*
- *He investigated waste water discharged from a chlorinated hydrocarbon plant into the River Durance (Provence, France) in the past and the resulting environmental risks.*
- *He carried out the characterisation, risk assessment and design process for the national facility in Trieste where the soil and groundwater were contaminated.*