

ANNEX 3.11:

EXPERT OPINION IN THE PROCEDURE OF ISSUING WATER MANAGEMENT CONDITIONS FOR THE WWTP LESKOVAC, HYDRO- METEOROLOGICAL SERVICE OF THE REPUBLIC OF SERBIA



Republic of Serbia
REPUBLIC HYDROMETEOROLOGICAL SERVICE
No. 91-1-1209/2005-22
31 August 2005
Belgrade
Eng. BP, mr SM/

Upon the request of the Leskovac Municipality, the Hydro-meteorological Service of the Republic of Serbia, pursuant to Article 15 of the Law on Water (Official Gazette of the RS, No. 46/91) issues the following:

OPINION

In the procedure for obtaining water conditions for the technical documentation related to the Wastewater Treatment Plant for the Leskovac Municipality, with outlet into the river South Morava.

Technical documentation for the above plant has to satisfy the following conditions:

1. Level of protection of the WWTP against high flows of the river Veternica and South Morava has to be adopted in compliance with the foreseen elevation of the embankment, constructed for the purposes of flood protection.
2. Characteristic discharges of the river South Morava on the given section are as follows:
 - Calculated high flows
Average recurrence interval of 100 years high flow $Q_{1\%} = 1390 \text{ m}^3/\text{s}$
Average recurrence interval of 50 years high flow $Q_{2\%} = 1210 \text{ m}^3/\text{s}$
 - Medium flow $Q_{\text{medium}} = 33.3 \text{ m}^3/\text{s}$
 - Low flow $Q_{95\%} = 4.00 \text{ m}^3/\text{s}$
3. Characteristic discharges of the river Veternica on the given section are as follows:
 - Calculated high flows
Average recurrence interval of 100 years high flow $Q_{1\%} = 210 \text{ m}^3/\text{s}$
Average recurrence interval of 50 years high flow $Q_{2\%} = 167 \text{ m}^3/\text{s}$
4. Perform hydraulic calculations for the adopted discharge values.
5. Foresee by the Project that all wastewater is directed towards the Central Wastewater Treatment Plant.
6. Foresee by the Project the measurements of quantities of treated water, and types of analyses of the wastewater quality, and treated water quality, in order to establish the efficiency of the given WWTP.
7. Functioning of the Wastewater Treatment Plant should result in obtaining the treated water of such quality which shall not endanger at any time the prescribed quality in the recipient. The final recipient of the treated waste water is the river South Morava, which is classified as class II water course, pursuant to the Decree on water courses categorisation, and the Decree on water classification (Official Gazette of the SRS, No. 5/68). Maximum allowed concentrations of hazardous substances for the II class water courses are defined by the Regulation on hazardous substances in waters (Official Gazette of the SRS, No. 31/82).

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Feasibility Study Leskovac
Final Report

Municipal Infrastructure Agency Support Programme
An EU-funded project managed by the European Agency for Reconstruction
9R5927/CvS/R2006_21/R001

EXPOSITION

By the request No. 353-371/04-02, dated 11 September 2005, the above mentioned Municipality, on behalf of the Investor, PUC Vodovod from Leskovac, requested an opinion of the Republic Hydro-meteorological Service in the procedure for obtaining water conditions. The request was accompanied by the following documentation:

1. Urbanistic conditions for the construction of the Waste Water Treatment Plant for the Leskovac Municipality, Public Company Directorate for Urbanism and Construction of Leskovac, in 2005.
2. Opinion in the procedure for obtaining water conditions for the technical documentation elaboration, related to the construction of the Central Wastewater Treatment Plant for the Leskovac Municipality, for the wastewater discharged upon treatment in the river South Morava, PWMC Srbijavode, WMC Morava, Nis, No. 1727/2, dated 21 July 2005.

Upon review of the documentation submitted, the Department in charge has concluded the following:

Construction of a new wastewater collector and the Central Wastewater Treatment Plant is foreseen, which will solve the problem of collection, treatment and discharge of wastewater for the Leskovac Municipality.

In the Wastewater Cadastre the representative low flow for the profile Grdelica on the river South Morava is a prescribed value $Q_{95\%} = 1.95 \text{ m}^3/\text{s}$, while for Vlasotince on the river Vlasina $Q_{95\%} = 1.93 \text{ m}^3/\text{s}$ (concentrated polluters profiles), which in total corresponds to the data for representative low-flow, as prescribed in conditions No. 2 - Characteristic discharges of high flows and medium flows pursuant to Conditions No. 2 (hydrological station Grdelica on the river South Morava, hydrological station Vlasotince on the river Vlasina) are provided in accordance with the technical documentation of the RHMS.

Characteristic discharges of high flows of the river Veternica, pursuant to the Conditions No. 3, are provided in accordance with the Opinion No. 92-1-1130/2002-22, dated 27 May 2002, issued by the RHMS for the purposes of bridge reconstruction on the main road M-1 Nis-Leskovac. The above opinion stated that the regulation of the river Veternica was partially carried out in the length of approx. 1.0 km, in accordance with the General Design of the WC Velika Morava, Department for erosion and torrents, from 1983. The General Design was elaborated in accordance with the hydrological base-maps from the Study "Characteristic discharges of the river Veternica on the profile of the measurement station Leskovac", executed in the RHMS in 1983, for the purpose of assessment of the Barje reservoir impact on the high flows regime of the river Veternica, on the Leskovac profile.

The envisaged capacity of the WWTP is 250.000 EC, in two stages. The treatment technology consists of mechanical-biological process, based on activated sludge, while the plant itself comprises the aeration chamber with sludge stabilisation. The stabilised sludge from the wastewater treatment process is transported to the landfill for final disposal of these substances, under authorisation of the competent communal bodies, while it may also be used as fertiliser. Characteristics of the treated wastewater are as follows:

- BOD5 = 15-20 mg/l
- SM = 20-25 mg/l.

Based on the above mentioned, the competent body of the RHMS issued an opinion, as stated in the disposition.

Assistant Director

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