

To: *Asociation ZA Drinking Fountains*
Dositejeva 11, Zaječar, Serbia
Contact: Boban Pogarčić
Tel.: 064/8345-236; E-mail: office@zacesme.rs

Belgrade, Oktobar 02 2023.

Laboratory analysis report

No. 43090198

*Analysis of Fish in the Scope of Project:
ECOLOGICAL RESPONSE TO THE
EXPANSION OF MINING IN THE TIMOČKA
KRAJINA.*

Report written by:

Aleksandra Onjia Armacki, B.Sc

Head of the food testing laboratory:

Dr. Žaklina Todorović, B.Sc

Content

1.	INTRODUCTION	3
2.	SAMPLING LOCATIONS.....	3
3.	TECHNIQUES AND METHODS.....	3
4.	EXPERIMENTAL RESULTS	4

1. INTRODUCTION

Anahem d.o.o. Laboratory (hereinafter referred to as Anahem) from Belgrade, Serbia, was engaged by the Association "FOR Fountains for Drinking Water," Zaječar, to perform laboratory analysis of fish samples within the scope of the "ENVIRONMENTAL RESPONSE TO MINING EXPANSION IN TIMOČKA KRAJINA" Project.

The samples were delivered to the laboratory on September 9, 2023, after which a laboratory analysis was conducted in accordance with the client's requirements: measuring radioactivity and the concentrations of Cd, Pb, As, Cu, Hg, Cr, Co, Ni, Mn, Zn, Fe, and Hg.

2. SAMPLING LOCATIONS

The locations where a fish sample was taken for laboratory analysis, on the basis of which the potential pollution of the ichthyofauna can be assessed, are shown in Table 1.

Table 1. Locations and Fish Sample IDs*.

No.	Location	Sample ID
1.	Timok River (below Sokolovica Dam)	4309019801
2.	Brestovačka River (Metovnica)	4309019802

*Uzorci dostavljeni Anahemu

3. TECHNIQUES AND METHODS

Table 2 shows the methods used for the analysis of fish samples.

Table 2. List of methods used for the analysis of fish samples.

Parameter	METHOD
Cobalt (Co), Nickel (Ni), Manganese (Mn), Chromium (total)	DML 1.1
Cadmium (Cd), Lead (Pb), Arsenic (As), Mercury (Hg), Copper (Cu), Iron (Fe), Zinc (Zn)	SRPS EN 15763
Radionuclide content	IAEA TRS 295

4. EXPERIMENTAL RESULTS

Table 3 shows the results of the analysis.

Table 3. Analysis results

Parameter	Sample ID		MDK
	4212029701	4212029702	
Cadmium, mg/kg	0,011	0,069	0,050
Lead, mg/kg	0,012	0,013	0,30
Arsenic, mg/kg	0,051	0,19	-
Copper, mg/kg	0,26	8,4	-
Chromium (total), mg/kg	<0,01	0,014	-
Cobalt, mg/kg	0,036	0,15	-
Nickel, mg/kg	0,22	0,21	-
Iron, mg/kg	13	52	-
Manganese, mg/kg	3,9	11	-
Zinc, mg/kg	28	27	-
Mercury, mg/kg	0,035	0,014	0,50
Cs-137	<2	<2	150*
Cs-134	<2	<2	
U-238	<3	<3	

MDK- Rulebook on maximum concentrations of certain contaminants in food ("Official Gazette of RS", no. 81/2019, 126/2020, 90/2021, 118/2021 and 127/2022)

* Rulebook on the limits of radionuclide content in drinking water, foodstuffs, animal feed, medicines, items of general use, construction materials and other goods put into circulation ("Official Gazette of RS", No. 36/2018).

In the fish sample 4212029702, the concentration of cadmium exceeds the maximum allowed concentration. The concentration of the other analyzed metals does not exceed the maximum allowed concentrations for the parameters whose values are defined by the said Rulebook