

Full Length Research Paper

Arsenic levels in groundwater aquifer of the Neoplanta source area

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As part of a survey on the groundwater aquifer at the Neoplanta source site, standard laboratory analysis of water quality and an electromagnetic geophysical method were used for long-term quantitative and qualitative monitoring of arsenic levels. This study presents only the results of research conducted in the Neoplanta-Koteksprodukt zone for 2005 and 2008 for the purpose of comparison of water quality at the aquifer. Varying levels of arsenic in both industrial and sanitary waters were determined, indicating water pollution with arsenic compounds. The horizontal electromagnetic prospecting method was used to define the extent of the arsenic-polluted zone and pollution direction. Vertical prospecting in the polluted zone helped identify the depth and interval of arsenic infiltration into both soil and water.

Key words: Water source area, arsenic content, electromagnetic method, RADIJAN 2001.

INTRODUCTION

The present research was conducted in the wider area of the City of Novi Sad, the second largest city in the Republic of Serbia. The city is located in the northern Serbian province of Vojvodina about 80 km from the capital city, Belgrade. In geomorphological terms, Novi Sad lies along the southern edge of the Pannonian Basin on the left bank of the Danube. The terrain belongs to the South Bačka (Varoš) loess terrace at the confluence of the Danube-Tisa-Danube (DTD) canal and the Danube, as well as to the Danube alluvial plain. Alluvial plain, alluvial terrace and loess terrace elevations range from 75 to 78, 78 to 81.5 and 81.5 to 82.5 m a.s.l., respectively. In

the unprotected area along the Danube, there is an inundation plain flooded during high river levels.

All research sites where electromagnetic detection of groundwater pollutants was performed are located in the industrial zone of the city; along the left bank of the DTD canal, at potential pollution sites throughout the city and in Petrovaradin. This study presents only the results of research conducted within the Neoplanta-Koteksprodukt zone for 2005 and 2008 for the purpose of comparison of water quality at the source.

MATERIALS AND METHODS

Geoelectricity is one of the oldest branches of applied geophysics. It makes one of the most numerous traditional groups of geophysical methods. Geoelectrical methods are based on application of natural and artificial electrical and electromagnetic fields (Komatina,

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