

Abstract

Radiohydrochemical exploration took place in east part of the „smrčinský” pluton between „Skalná-Plesná-Bad Brambach in years 2016-2018. The main aim of the exploration was location and thorough research of possible occurrence of waters with radioactive concretion higher than 1500 Bq/l. That is a value for radioactive mineral waters given by the “lázeňským” law number 164/2001 Sb.

Most important area is Plesná-south where was discovered several springs with values exceeding 5000 Bq/l. Eminent spring is called “Břetislav-Radonka” and lies one kilometre southwest from the train station Plesná-Šneky with an activity of about 12.5 kBq / l ^{222}Rn and a flow rate of about 2.5 l / min. It is the most active surface discharge of radon mineral water in the Czech Republic

Another significant source area is north of Skalna - north. These springs were discovered almost 60 years ago, Dr. Marie Zukriegelová. The main source of this area was named after its discoverer - the "Marie Z" spring with an activity of 5800 Bq / l ^{222}Rn . Further the research focused on historical radioactive conduit which were used to supply village Skalné with water. The conduit was separated on two “branches” and the younger one was built ten years after the first one. In both pipes were found radioactive waters and the most important spring is “Pod skalou” with measured activity value of 7950 Bq/l and a flow rate of about 1.5 l / min.

All the above-mentioned area located on Smrčiny granite, in particular the Muscovite manifold. The radon water cluster was also found on the tertiary and reached values of up to 3115 Bq / l ^{222}Rn . Acidulous waters were generally low activity. An exception is the Wettinguelle spa source with an activity of up to 24 kBq / l ^{222}Rn in Bad Brambach. The Sauerling source also has an increased activity, up to 867 Bq / l ^{222}Rn .

The most important sources were chemically analyzed. In the case of cold, low mineralized (CM 90 - 142 mg / l) radioactive waters, this is a hydrochemical type of Ca-Na-SO₄. The studied acidulous waters have a more varied composition.