

# Monitoring the impact of the Jeremenko pit on water quality in Ostravice

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The study was performed to determine the impact of mine water discharges from the Jeremenko pit on water quality in the Ostravice River. Sampling of mine and surface water took place within the project SUWAT: Cross-border cooperation within the monitoring of chemical and radiation contamination of surface water by mine water [1]. This project is led by the VSB - Technical University of Ostrava (VŠB - TUO) in cooperation with the The Central Mining Institute (GIG), Katowice.



## THREE SAMPLING POINTS

- „A“ – before the inflow of mine water
- „B“ – at the inflow itself
- „C“ – behind the inflow of mine water (mixing mine water with water from the river Ostravice)

GPS coordinates		
Supply point (A)	Supply point (B)	Supply point (C)
49°48'07.829"N 18°16'54.053"E	49°48'11.817"N 18°16'56.502"E	49°48'14.834"N 18°16'59.731"E



The measurement itself took place from the spring of 2019 to the spring of 2020, ie in one calendar year. The dates of the sampling days were set so that three samples were taken in each of the seasons.

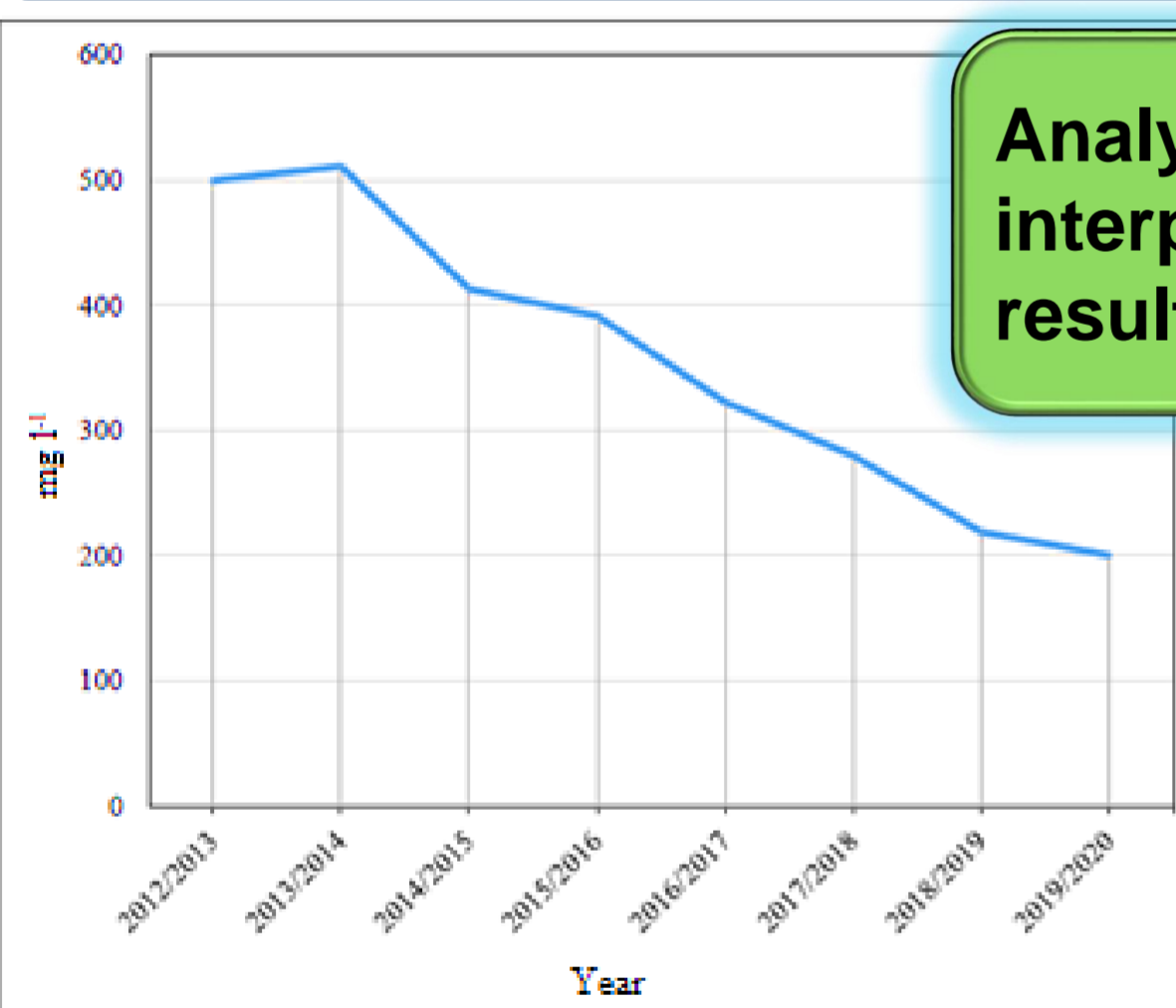


Figure 1. The average annual concentration of sulphates in the mine water from the Jeremenko pit [2]

## Analysis and interpretation of results

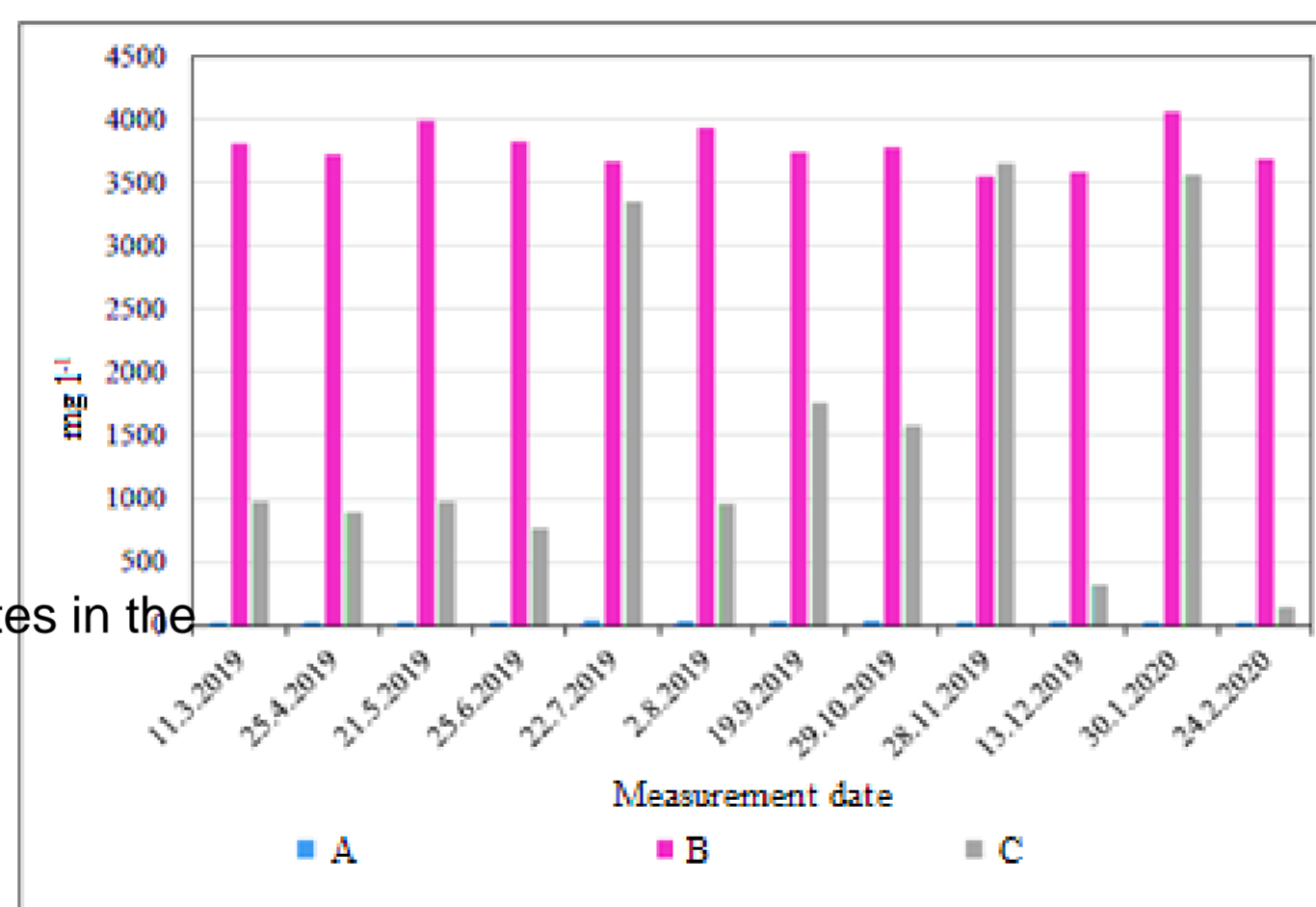


Figure 2. Measured values of chlorides

- temperature,
- water reaction
- conductivity
- chlorides
- sulfates
- iron and manganese
- dissolved and undissolved substances

According to the research, mine water is strongly mineralized with an increased content of salts, chlorides, sulphates and has an increased temperature of up to 28 °C.

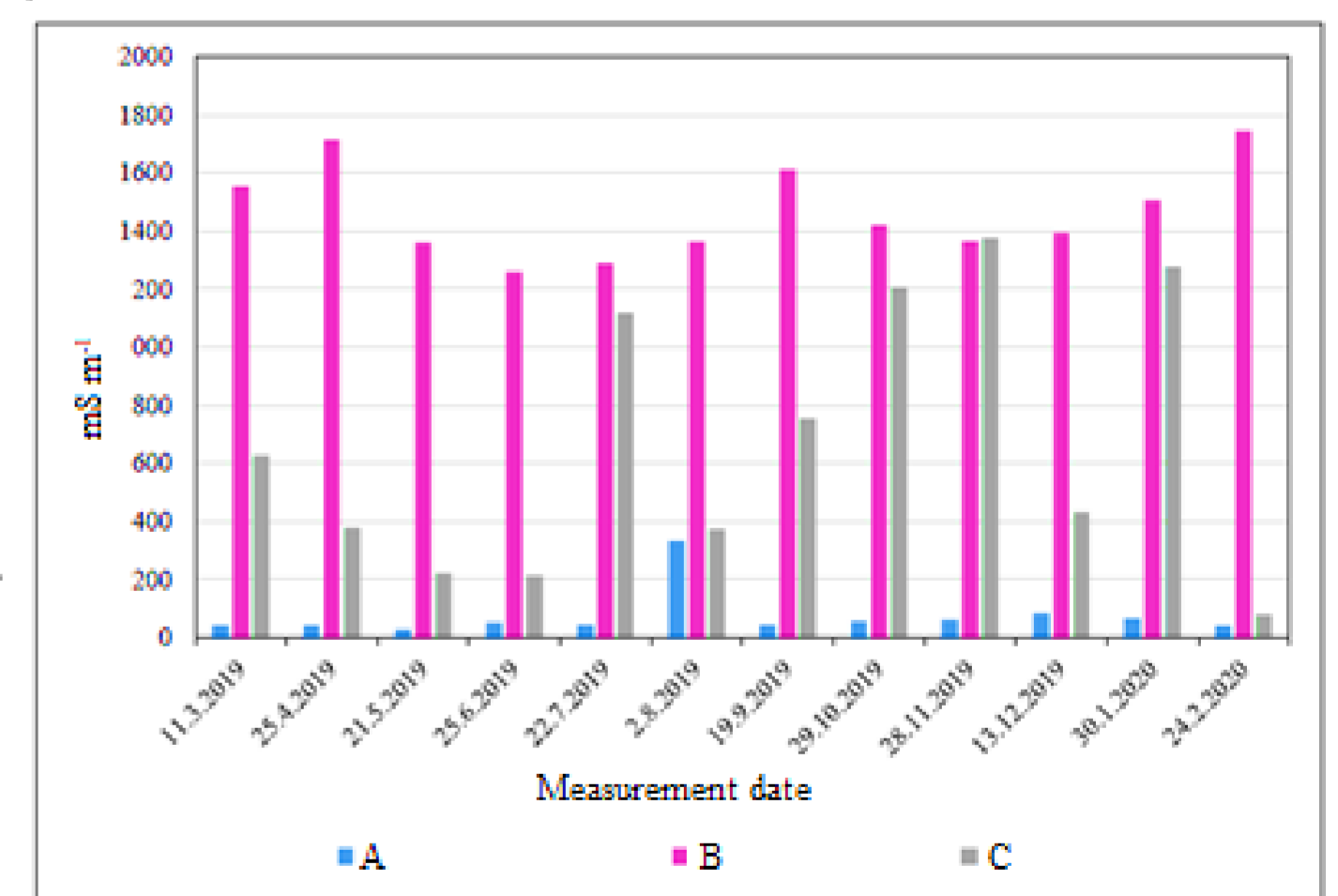


Figure 3. Measured values of conductivity

Based on the analysis of individual results, a significant effect of the inflow of mine water from the Jeremenko pit on the water in the Ostravice River in its immediate vicinity was proved.

When compared with the results of other authors, it was found that the concentration of sulfates and chlorides in mine water decreases in the long run.

### References:

- [1] SUWAT: Cross-border cooperation in the monitoring of chemical and radiation contamination of surface waters by mine waters. [Internet]. Water contamination. VSB – Technical University of Ostrava, Czech Republic; © 02/2019 – 04/2021 [cited 2021 Jun. 1]. Available from: <https://www.kontaminacevod.cz/en/home/>
- [2] Jelínek P. ZPRÁVA o výsledcích monitoringu a stavu složek životního prostředí o. z. ODRA za rok 2018 [Internet]. DIAMO. Ostrava: DIAMO, státní podnik; 2019 [cited 2020 Apr. 1]. Available from: [https://www.diamo.cz/storage/app/media/dokumenty/ODRA/Z-01-RP-sp-22-01\\_ODRA\\_2018.pdf](https://www.diamo.cz/storage/app/media/dokumenty/ODRA/Z-01-RP-sp-22-01_ODRA_2018.pdf)

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