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CHANGES IN GROUNDWATER SULPHATE CONTENT IN ESTONIAN OIL SHALE MINING AREA

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Dewatering of oil shale mines lowered groundwater level in the Keila-Kukruse aquifer and caused an increase in sulphate content about 50 times due to intensive oxidation of pyrite of natural origin. As sulphate ion is mobile, it may be used as an indicator to investigate changes in sulphate content of post-mining groundwater of the Keila-Kukruse and Lasnamäe-Kunda aquifers of the Ordovician system in the area of closed and working mines.

Investigation of sulphate ion distribution is one possible way to know how groundwater moves in lateral direction, both during flooding of underground mines and after reaching steady-state conditions.