

Research projects in and around the water protection areas of Veitur Utilities and ON Power

Knowledge is lacking in groundwater flows in the water protection area of Veitur Utilities and ON Power. It has been decided that research will be undertaken to better prepare for land use and water management decisions, as well as to ensure the quality of drinking water into the future.

Water protection for the Capital Area

- Veitur carried out tests in Vatnsendakriki in 2020 to assess the impact of increased production from Vatnsendakriki on the water resources of Hafnfjörður. The test was part of Veitur's and the Municipality of Kopavogur's monitoring plan, which was presented in parallel with the utilization license application. The Municipality of Hafnarfjörður was consulted as well as the National Energy Authority. The engineering firm Vatnaskil handles the processing of the test. Results are expected in January 2021.
- A dense network of water level meters in monitoring wells in the vicinity of the capital area was used to monitor and understand the impact of Veitur's water extraction intake in Vatnsendakriki on the water source of other water utilities in the capital area.
- Annual revision of the groundwater model for the capital area
- Veitur and Matís' collaborative project on DNA analysis of microorganisms in surface water, soil and groundwater to better understand the relationship between microbial contamination and environmental factors ended 2020. Experts at Matís and Veitur have written a peer-reviewed scientific article on the project and it has already been approved for publication in FEMS Microbiology Ecology 2021
- Research on real-time measurement of microbial flora in water using a cell flow monitor for quality control and water utilization. Three cell flow meters give a contemporary information of the microbial quality of drinking water in separate water abstraction areas. The equipment is already used for real-time monitoring and control of water quality in the lower water intake area of Veitur in Heiðmörk, as well as for improved resource utilization. At the same time, sampling was increased to better understand the relationship between measurements of the total microbial volume and deviations in water quality that may occur in intensive precipitation and thawing events.
- Measurements of weather factors like snow thickness along with temperature, humidity, water content and conductivity in the soil are used to monitor the relationship between weather, environmental factors and microbial pollution. In addition, a network of continuous soil thermometers was installed throughout Veitur's catchment areas in Heiðmörk. The data is collected for research purposes.
- Summary of research in recent years at Myllulækjartjörn in Heiðmörk, incl. water level data, drilling data, irrigation experiment and microbiological measurements, and suggestions for improvements to improve water quality in the area.
- Installation of equipment for continuous monitoring of particles, acidity, conductivity, temperature and fluorine content on main pipeline 1 and 2. The measurements are useful for research and real-time monitoring of water quality and monitoring of the amount of volcanic substances that can be transmitted to the water bubbles during eruptions. This is a part of Veitur's monitoring and response plan for volcanic eruptions on the Reykjanes peninsula and elsewhere.

Water protection in the Grabrokarhraun Lava

- Installation of water level meters in research wells in Seleyri area to assess the water level and drawdown caused by water abstraction.
- Age analysis of particles from drinking water wells in Grábrókarhraun Lavafield to assess their origin.
- Sampling from springs in mt. Hafnarfjall to confirm water quality in the area.

Water protection in the Hengill Area

- Increasing number of water level meters in monitoring wells in the vicinity of the capital area to better understand the effect of water extraction on groundwater level and groundwater flow
- Annual revision of the groundwater model for the capital area
- Groundwater chemical monitoring in the vicinity of the geothermal power plants to monitor the potential impact of geothermal energy on the groundwater resource
- Model calculations of master's students at Reykjavík University and RE's employees on the flow of wastewater from the Nesjavellir power plant in Nesjahraun Lavafield to assess the distribution and effect of heat addition to the groundwater system in the lava.