

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 Utilities and the Vatnsveita Utility of Kópavogur, in collaboration with the Vatnsveita Utility of Hafnarfjörður, carried out tests in Vatnsendakriki in the summer of 2020 to assess the impact of increased production from Vatnsendakriki on water levels in the vicinity, especially in Kaldárbotnar in the Municipality of Hafnarfjörður. The test was part a monitoring plan, which was presented in parallel with the utilization license application. Results were presented in the beginning of 2021 and continued work with the results of the test in 2022. The results show the groundwater model of the area overestimated the effect of the utilization in Vatnsendakriki on the water level in the area and thus the water level in Kaldárbotnar. The parameters in the groundwater model need to be re-evaluated so that it can better predict the effects of future utilization in the area.
- Continued operation of a dense network of water level meters in monitoring wells in the vicinity of the capital area. The network was used to monitor the status of the water supply in the area.
- Annual revision of the groundwater model for the capital area.
- Continuous real-time measurements of microbial flora in water using a cell flow monitor to i) quality control of drinking water and ii) research to identify possible improvements in exposed wells. Today five cell flow meters installed, and they provide a contemporary view of the quality of drinking water in different water extraction areas. The equipment is used in parallel with other environmental measurements for real-time monitoring and control of water quality in both the lower and upper water extraction areas of Veitur Utilities in Heiðmörk, as well as for improved resource utilization. One meter was temporarily installed in station in Grábrókarhraun to monitor the microbial quality in the utility.
- Two new meters were installed for real-time measurements of water quality, one in Heiðmörk, and the other in a water tank in Litluhlíð within the distribution system. It is a new measurement technology that can detect increase in microflora and an increase in other unwanted fine substances that degrade water quality.
- Continuous measurements of weather factors like snow thickness along with temperature, humidity, water content and conductivity in the soil. Data are i) used to monitor the relationship between weather, environmental factors, and microbial pollution and to assess the need for response. ii) to discover variability weather and long-term climate change (long-term measurements to help understanding the effects of climate change), iii) for research purposes to better understand the relationship between the environment, vegetation, and weather on water quality.
- Research at Myllulækjartjörn in Heiðmörk, on impact of water level on microbes in well V-14. The project is not completed.
- Continuous monitoring of particles, acidity, conductivity, temperature, and fluorine in the Heiðmörk water supply area to monitor the possible effects of the eruption in Geldingardalur on the Reykjanes peninsula on water quality in Heiðmörk.

Water protection in West Iceland

- The production wells at Seleyri area were renewed in 2022, to secure water supply from the area for the future. The wells be put into operation in coming years.
- Research well was drilled in Grábrókarhraun area, to find a solution to the fine-particle pollution in Grábrókarveita utility which has been a problem in the utility from the start.
- Complete improvements were made to the controls on water uptake in Grábrókarhraun area, which resulted in less particle release.
- Changes were made to the management of the water intake at Steindórsstaðir area to get a better handle on water level fluctuations that have occurred due to increased use in the utility.

Water protection in the Hengill Area

- Monitoring water level 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.
- The engineering firm Vatnaskil finished a preliminary analysis of the effects of increased production at Engidalskvísl on water resources in the area. Results are expected in the beginning of 2022.
- Chemical monitoring of groundwater in the vicinity of the geothermal power plants in order to monitor the possible effects of geothermal production on the groundwater resource.
- Sampling from springs at wells at Nesjavellir to monitor and increase understanding of variability in water temperature and water quality.
- Thermal imaging of Nesjahraun to increase understanding of the behavior and spread of temperature changes.