

## IMPROVING DATA RELIABILITY AND DRIVING EFFICIENCY

Northumbrian Water Group use the Hach SL1000 to improve data reliability and drive efficiency.

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Hach's Chemkeys are a self-contained reagent system that uses the same trusted technology available for decades but in a simple self-contained package. In 2022, Northumbrian Water Group (NWG) attained UKAS accreditation for the Hach SL1000 hand-held analyser for free and total chlorine testing in drinking water using Chemkeys. Subsequently, NWG implemented a full roll out to the whole regulation and assurance water quality sampling team. This programme has increased greatly the accuracy, precision, and ease of acquisition of data collected by the teams and has facilitated informed decision making across the region.

### What was the Problem?

The sampling team experienced intermittent problems with their Quality Control samples resulting in the need for repeated investigation. This resulted in lost time in investigations and subsequent remedial actions. The team had been using handheld colorimeters to measure free and total chlorine in both customers' homes and on site. After significant investigation, it was shown that there were certain users who consistently performed the chemical test better than others. The implementation of additional training improved the situation to some degree but did not fully solve the issue.

### How was SL1000 Used?

The SL1000 with associated Chemkey reagents were implemented to replace the traditional powder or tablet DPD methods formerly used by the sampling teams to carry out chlorine tests in customers' homes, water treatment works and at service reservoirs. The SL1000 removes the variation associated with different sampling staff and leads to the provision of more precise and accurate data to enable



confident decision making. The Hach SL1000 Portable Parallel Analyzer (PPA) allows sampling staff to perform chlorine analysis testing with less than half the manual steps as the original technique. In addition, it allows highly accurate results, with less opportunity for errors, in a fraction of the time. With provision to allow up to six parameters, tested in parallel, the SL1000 is a fully portable colorimeter that provides 75% faster testing by the use of Chemkey reagents than the previous use of powder pillows. All chemicals and processes are entirely contained within the Chemkey, eradicating the manual handling of reagents.

### What are the Benefits obtained?

The principal savings achieved by utilising the Hach system was in sampler time. Previously a skilled technician could perform the free and total DPD tests, and the other customer tap required tests in about 6 minutes. With the use of the Chemkey system, all technicians regardless

of experience can complete the tests required in 90 seconds. The SL1000 can perform both free and total chlorine tests simultaneously with this application. It is now possible to complete four different parameter Chemkey tests at the same time. Another key benefit associated with the use of Chemkey reagents is the reduction of operator error. All technicians require training to complete any chlorine testing schedule, but with the Chemkeys the automation and simplicity of data collection improves the repeatability and accuracy of the data.

One of the most important benefits is the improvement in traceability of data. It is essential that NWG maintain good records of sample data, and the SL1000 allows thousands of data points to be stored along with date and time information. The data can be uploaded and stored easily to comply with both the DWI and UKAS requirements.

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