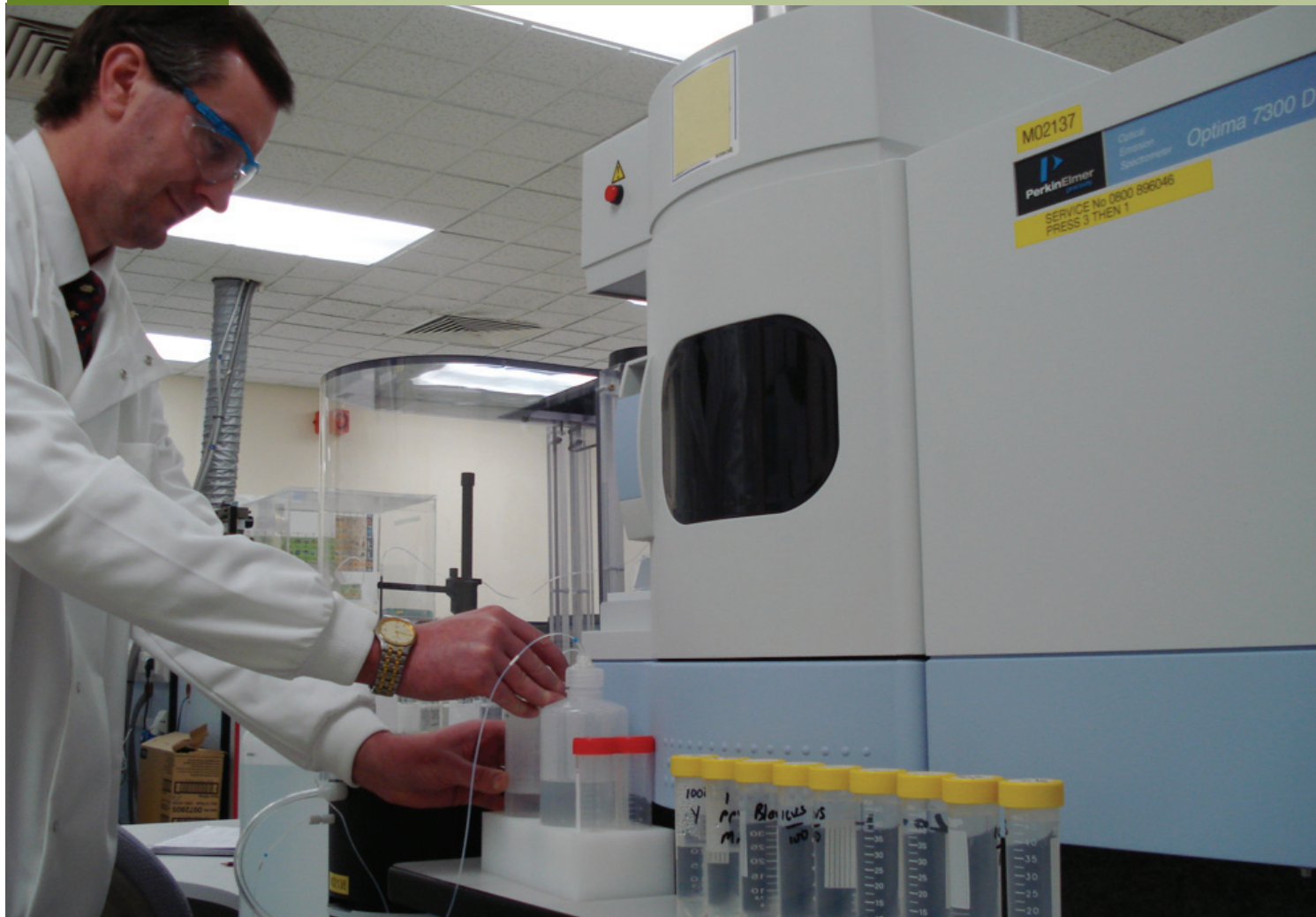


## CASE STUDY

# PerkinElmer and Severn Trent Laboratories Partner to Optimize Fast ICP Method



## Background

Severn Trent Laboratories' (STL) Bridgend facility has utilized ICP-MS technology to perform all of its potable (drinking) water metals analyses since 2001. Up to four instruments operate simultaneously overnight, providing results for 200 samples per instrument. For a suite of 32 metals, results range from sub -g/l level for trace elements such as lead, arsenic and cadmium to hundreds of mg/l for calcium and magnesium. In 2008, STL identified that they could significantly improve productivity by splitting the analysis of these samples using an ICP-MS suite for low-level work and an ICP-OES suite for higher concentration elements.

## Collaboration

Severn Trent Laboratories has chosen PerkinElmer ICP-OES instruments for more than 15 years, with five currently in use at their soils laboratory in Coventry alone. STL chose PerkinElmer® ICP-OES based on its high sample throughput, wide concentration range coverage, freedom from interferences, and the inherent robust nature of the technique, all supported by dedicated technical and service teams. STL contacted PerkinElmer to determine whether the new potable water metals suite could be analyzed using PerkinElmer Optima™ ICP-OES systems. Debbie Hoult, ICP Applications Specialist, PerkinElmer, and Phil Clark, Principal Scientist, STL, collaborated to develop a method that met STL's requirements. The method placed special emphasis on increasing analytical capacity while complying with all United Kingdom Accreditation Services (UKAS), Drinking Water Inspectorate (DWI) and other accreditation requirements.

## PerkinElmer's new FAST Optima ICP-OES System

PerkinElmer's new FAST Optima System is one of the fastest commercially available ICP systems. Fast spectrometer electronics coupled with a high-speed optical system, an injection valve, and a high-speed rinse option on the autosampler, combine to deliver

the system's speed. Sample turnaround time is improved through the dramatic reduction of wash-in/wash-out times. In addition, the potential for cross-contamination is considerably less than with a conventional system because the sample no longer comes into contact with peristaltic pump tubing.

## Results

The collaboration between STL and PerkinElmer significantly increased the capacity of the Bridgend Laboratory to meet its current and future needs. A single FAST Optima ICP-OES instrument running STL's new method analyzes up to three times more samples in the same amount of time than did the ICP-MS instruments.

"When PerkinElmer told me how much the FAST Optima would improve the efficiency of our analysis, I needed some convincing, but the results speak for themselves," said STL Principal Scientist, Phil Clark. "PerkinElmer delivered, commissioned, and performance-tested two new instruments in just two months. The new method not only has increased Bridgend Laboratory's capacity significantly but also has allowed the facility to use fewer chemicals, expend less energy and produce less waste."