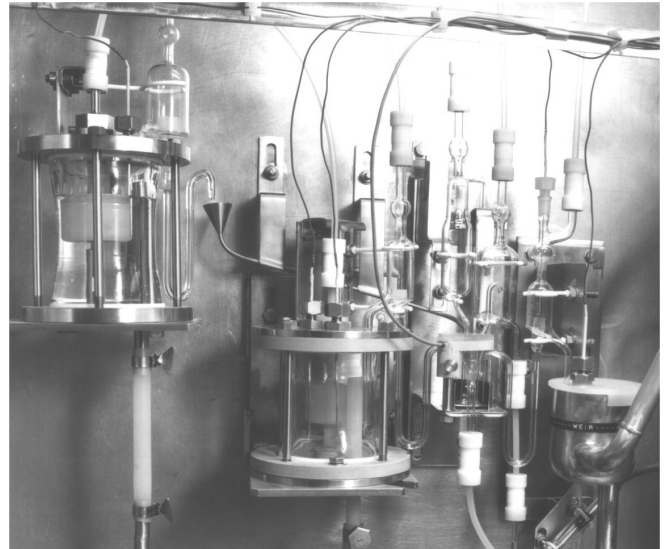




NNL's professional on-line wet chemical analysis service is backed up by more than 30 years experience in designing, commissioning and supporting process analysers for the Sellafield reprocessing plants.

Our on-line automatic chemical analysis service is essential for near realtime process control and effluent monitoring in order to satisfy stringent safety requirements.

NNL recognises that when dealing with radioactive or other hazardous materials, standard commercial analysers are often impractical. NNL has the necessary expertise to either customise off the shelf items for use in hazardous environments or to build bespoke instruments. We use a variety of novel and patented liquid handling techniques to deliver unparalleled reliability with minimal maintenance. Our instruments are often safety related and controlled by bespoke software developed in compliance with BS EN61508.



## Liquid-Handling Techniques

- Continuous segmented flow/flow injection analysis
- Batch analysis: delivering sample and reagents, mixing and disposing without any moving parts
- High dilution: using sampling valves and dispensers to achieve dilution factors in the order of  $10^4$  to  $10^6$
- Proportional sampling: for representative sampling of bulk flows without any moving parts

## Analytical Techniques

- Colorimetry, UV / Vis / NIR Spectrophotometry
- Electrochemistry
- pH and potentiometric titration
- X-ray fluorescence
- Time-resolved laser-induced fluorescence

## Application Portfolio

- Uranium (IV) and (VI) from trace to high concentrations in aqueous and solvent phases
- Uranium and free acidity in combination
- Nitrite and nitrous acid
- Hydrazine
- Oxalate
- Iron (II) / iron (III) ratio
- Hydroxide (in caustic scrubbers)

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