



**NORTHUMBRIAN  
WATER**  
Scientific Services



Northumbrian Water **Scientific Services**

Leading with science



[www.nwss-labs.co.uk](http://www.nwss-labs.co.uk)

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# Welcome to Scientific Services



**At our core is the provision of a high quality and efficient service. Our UKAS accredited laboratories are recognised as being among the best in the UK and our scientists and experts represent the industry on a number of international bodies.**

Our three main laboratories located in Newcastle Upon Tyne (Howdon), Northumberland (Horsley), and Essex (Hanningfield) employ over 100 highly skilled and dedicated scientists, covering 150 methods accredited to ISO 17025, DWTS and MCERTS standards. From these laboratories over 1.2 million tests per year are carried out on samples from across the UK and Ireland, for chemical and microbiological parameters.

We value customer satisfaction very highly and through our experienced customer team work closely with our clients to understand their needs and deliver exceptional service. Our commitment to quality, innovation and technical competence ensures that we proactively invest in equipment and services, as well as our laboratories, demonstrated by the recent investment of £2 million at our Howdon facility.



**Ceri Jones**

Regulation and Scientific Services Director

# About us



# Our values

## We take our company values seriously.

They form a set of guiding principles that inform and advise all of our business activities. They are integral to our sense of who we are, how we behave, and how we do business.

All of our employees are challenged daily to live these values.



### Customer focused

- We provide accurate high quality data to our customers.
- We build close working relationships with our customers.
- We liaise with customers extensively to deliver what they want when they want it.

### Results driven

- Our data meets strict quality standards and reporting deadlines.
- We work hard to continually identify more efficient ways of working.

### Ethical

- We strive to develop our people and help them to achieve their goals.
- We never compromise on the quality of the data we produce.
- We value feedback and use it as a resource to generate future performance improvements.

### Creative

- We challenge our methodologies, continually looking for improvement.
- We actively seek new technology and develop innovative ways of working.

### One team

- We work in partnership with our colleagues across the business to deliver unparalleled expertise in water and wastewater.



# Our partners

## Northumbrian Water Scientific Services is part of the Northumbrian Water Group (NWG).

NWG's main business is the collection, treatment and supply of drinking water and the collection, treatment and disposal of waste waters & sludge. It operates through two large utility companies;

- **Northumbrian Water Limited** - which provides water and sewerage services to 2.6 million people in the North East of England.
- **Essex & Suffolk Water** - which provides water services to 1.8 million people in the South East of England.

The group also provide water and waste water services outside of these regions, with contracts in Scotland, Ireland and Gibraltar:

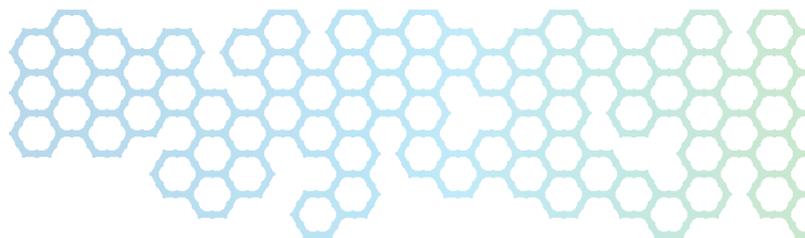


- **Caledonian Environmental Services plc** - responsible for the construction and operation of waste water treatment assets in Levenmouth, Scotland.
- **Ayr Environmental Services Limited** - a joint venture for the construction and operation of waste water treatment assets in Ayrshire, Scotland.
- **Northumbrian Water Projects Limited (NWPL)** - responsible for the operation and maintenance of waste water treatment assets in Cork, Ireland.
- **AquaGib Limited** - responsible for the operation and maintenance of Gibraltar's water supply network.

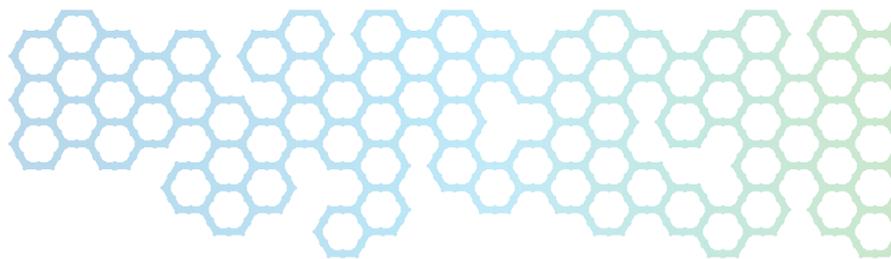
We provide analytical services to all group companies, with specific focus on the regulatory and operational requirements of Northumbrian Water and Essex & Suffolk Water.

We also provide an extensive range of analytical services to external commercial clients.

Please visit our website at [www.nwss-labs.co.uk](http://www.nwss-labs.co.uk) to learn more.



# Our technology



## **We invest heavily in new systems and new instrumentation to remain at the forefront of analytical technology.**

We invest over half a million pounds each year to equip our laboratories with the very best systems available. Our latest acquisitions include:

### **Photometric analysers**

We have three of the latest Photometric Analysers based at our Howdon and Hanningfield laboratories. They have greater speed and capacity compared with continuous flow instruments and require very small sample and reagent volumes, thereby reducing cost and waste. Using some of the most advanced technology these analysers provide highly accurate and efficient determination of nutrients and hardness in both drinking water and waste water samples.

### **Cryptosporidium**

At our Horsley laboratory we have recently invested in Filita-Max xpress® technology to improve the speed and quality of our Cryptosporidium methods. Offering a breakthrough in Cryptosporidium and Giardia capture and recovery, it meets both UK and US regulatory requirements.

### **Liquid Chromatography-Mass Spectrometry (LCMS)**

We have invested in state of the art Triple Quadrupole LC/MS systems at our Howdon Laboratory for the determination of acid herbicides, urons and various other organic compounds. The analyses are performed to DWTS standards for potable waters and ISO 17025 for waste waters. With ultra-sensitive performance these instruments provide a fast and robust solution for simultaneously quantifying, screening, and confirming analytes.

### **Purge and trap**

Scientific Services use the latest, fully automated purge and trap GCMS systems for the analysis of volatile organic compounds such as THMs and solvents at low concentrations in potable and waste waters. Analyses are performed to DWTS and ISO 17025 standards to ensure a high level of confidence in results.



### Bar-coding

Every sample received at our laboratories is registered on our Laboratory Information Management System (LIMS) and each individual sample bottle is assigned a unique bar-coded label. Using hand-held scanners the barcode acts as a chain of custody at all points of sample transfer.



### Field data capture

Using the latest mobile computing technology we can now capture all field data relating to sample collection. Our system uses bar-coding and GPS technology to clearly identify individual sample bottles, to record date and time of sampling, and to record the GPS location for each sampling event. It also fully integrates with our LIMS, expediting the sample registration process and providing a robust and auditable chain of custody with full traceability of all activities throughout the life of the sample.

### Direct data capture

We use direct data capture systems to provide data transfer between our instruments and our LIMS. This integration saves time and significantly reduces the risk of transcription errors, thereby safeguarding sample data integrity. The system also checks and flags sample and QC results against their target values and consent limits, providing greater quality control throughout.



# Our laboratories



 NORTHUMBRIAN  
WATER  
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# Our laboratory services

**Our laboratories are recognised as being among the best in the UK water industry.**

Our main laboratories are:

- ▶ **Howdon** – Organic chemistry, inorganic chemistry and metals analysis.
- ▶ **Horsley** – Microbiology and cryptosporidium analysis.
- ▶ **Hanningfield** – Inorganic chemistry, microbiology and biology analysis.

The laboratories are managed as one unit although they operate from three separate locations. They use a single Laboratory Information Management System (LIMS), use common procedures and practices and operate under a single UKAS accreditation.

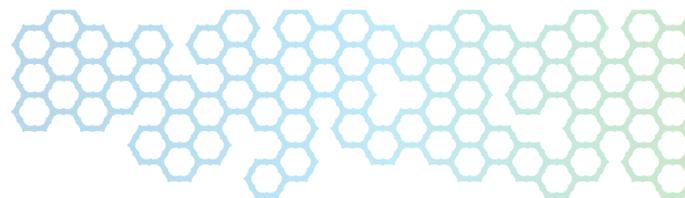


Across the three main laboratories we process over 300,000 samples per year and conduct 1.2 million tests. We have over 150 methods that are accredited to ISO 17025, DWTS and MCERTS standards.

In line with our core values our laboratories are committed to providing customers with a high quality and value for money service by:

- **Providing accurate and timely data.**
- **Continuously seeking and implementing improvements and efficiencies.**
- **Embracing new technology and developing innovative ways of working.**
- **Maintaining our high standards and reputation within the industry.**
- **Working across the UK and internationally to promote best practice.**

# Our Howdon laboratory



## Our flagship laboratory is at Howdon in Newcastle Upon Tyne.

This 3,200m<sup>2</sup> multi-functional laboratory was recently re-designed and extensively refurbished in a two million pound project.

### Key changes include:

- Increased analytical capacity.
- Expanded sample reception area to expedite sample registration.
- Newly configured to optimise workflow and flexibility.
- New laboratory equipment to provide latest analytical technology.

### At Howdon we conduct analysis on a broad range of sample types:

- Potable waters
- Waste waters
- Effluents
- Solids
- Sludges
- Air

### Across these various matrices we hold UKAS, MCERTS and DWTS accreditation for a comprehensive range of determinands including:

- Metals.
- BOD, COD, pH, conductivity, turbidity, colour and suspended solids.
- Ammonia, nitrate, nitrite and total nitrogen.
- TOC and fluoride.
- Pesticides and herbicides.
- VOCs and SVOCs (including PAHs, phthalates, organotins) and hydrocarbons.
- Dioxins, PCBs and PBDEs.





In addition to our routine methods, we have extensive experience in developing methods for our customers and in testing for unknown organic compounds.

**Our team is highly qualified and experienced, fully meeting regulatory competency requirements.**

# Our Horsley laboratory

## At Horsley in Northumberland we have a dedicated microbiology laboratory.

This facility offers a wide range of microbiological analysis on a variety of sample types, including:

- Potable waters in distribution.
- Private water supplies.
- Bottled waters.
- Coastal bathing waters.
- Swimming pools and spas.
- Purified waters.
- Borehole waters.
- Raw waters.

## These water types can be analysed for a diverse range of determinands, including:

- Coliforms.
- E.coli.
- Total Viable Counts (TVC's).
- Clostridium perfringens.
- Faecal streptococci (enterococci).
- Pseudomonas aeruginosa.
- Legionella (risk management, sampling, testing and building hygiene services).
- Cryptosporidium.
- Endotoxins.

In addition to this extensive water testing experience our Horsley laboratories offer microbiological testing of environmental samples including the testing of clean room facilities.





**Our employees are qualified microbiologists who have a wealth of experience operating in a regulatory environment and who meet the DWI's competency requirements in full.**

# Our Hanningfield laboratory

## **Our Hanningfield laboratory serves our clients in the South East of England.**

We have extensive experience in the microbiology, biology and inorganic chemistry of potable waters. It conducts analysis on a broad range of waters including:

- Potable waters in distribution.
- Private water supplies.
- Bottled waters.
- Coastal bathing waters.
- Swimming pools and spas.
- Purified waters.
- Borehole waters.
- Raw waters.



These waters can be analysed for an extensive range of microbiological and inorganic chemistry determinands, including:

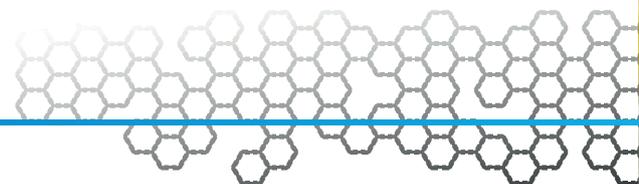
### **Microbiology and biology:**

- Coliforms.
- E.coli.
- Total Viable Counts (TVC's)
- Clostridium perfringens.
- Faecal streptococci (enterococci).
- Pseudomonas aeruginosa.
- Legionella (risk management, sampling, testing and building hygiene services).
- Zooplankton.
- Algae.

### **Inorganic chemistry:**

- pH, conductivity, turbidity, colour.
- Ammonia, nitrate, nitrite, chloride, calcium, magnesium.
- Taste and odour.

We have a dedicated overnight courier service which uses refrigerated vehicles to transfer samples between each of our laboratories. This helps our laboratories to operate as a single integrated unit and ensures that the full range of Scientific Services testing is available to you irrespective of your location.





As with our other laboratories, our Hanningfield team has a wealth of experience and meets the DWI's competency requirements in full.

# Our customers

## We work with clients of all sizes across a broad range of industries.

This includes blue chip multi-nationals through to small local companies.

Irrespective of the size of the client we aim to work in close partnership with them to develop long standing relationships. This enables us to understand our client's needs and to tailor our service to fit them.

On this page you will find a selection of companies that we provide our services to. Whatever your analytical requirements, we are confident that we can meet your needs. Feel free to contact us on **0870 320 4567** and we will be happy to help.

You will find further information on our work with some of these companies on our website. There we have detailed case studies describing the analytical solutions we have provided to our clients.

Please visit [www.nwss-labs.co.uk](http://www.nwss-labs.co.uk) for further details.



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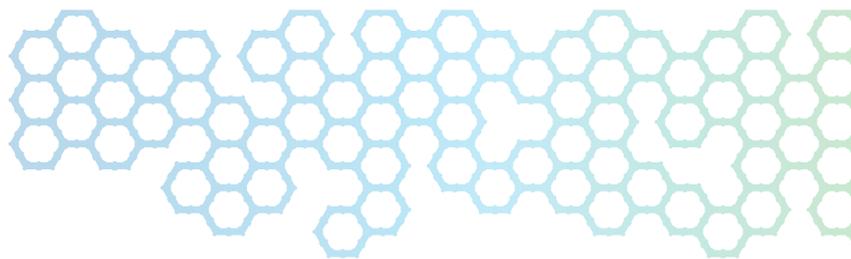
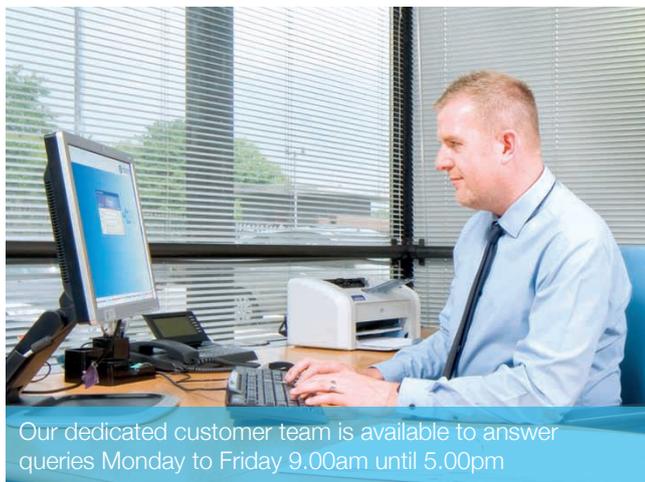


# Our customer team

**We are proud of the high standards of service that we provide to our clients.**

Our customer team comprises friendly, knowledgeable people whose aim is to provide industry leading customer service to our clients. The team contains highly experienced project managers, many of which are science graduates with laboratory backgrounds. They are available Monday to Friday from 9.00am until 5.00pm to help you with any queries that you may have.

The customer team is based at our Howdon laboratory but routinely manages projects across the UK and internationally.



The team will guide you through the process from your very first contact. They will help to:

- ▶ Clarify your analytical requirements.
- ▶ Prepare quotations.
- ▶ Arrange dispatch of bottles and subsequent sample collection.
- ▶ Keep you updated on the progress of your samples.
- ▶ Prepare your reports and invoices.

Your individual contact will serve as your dedicated project manager throughout the project.

You can rest assured that you will always have access to experienced employees who will be happy to help you.

Our customer team conducts regular contract review meetings with clients. This approach ensures that we continually tailor our service to our client's requirements.

**Please feel free to contact us to discuss your analytical requirements:**

t: **0870 320 4567 / 0191 296 8366.**

e: **nwss.customer@nwl.co.uk**

w: **www.nwss-labs.co.uk**



# Other activities

# Accreditation of our work

## What is accreditation?

Accreditation is a formal, third party recognition of competence. For laboratories worldwide this means compliance to the international standard, ISO 17025.

## Accreditation not certification

ISO 17025 contains specific technical requirements for the personnel employed and for the operations carried out. We are directly assessed by the United Kingdom Accreditation Service (UKAS) to confirm demonstration of:

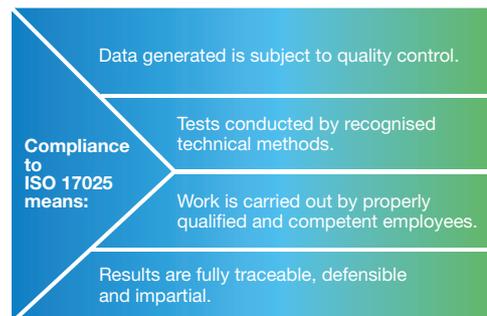
- ▶ **Competence.**
- ▶ **Impartiality.**
- ▶ **Performance capability.**

We also hold higher-level accreditation to both the DWI's Drinking Water Testing Specification (DWTS) and the Environment Agency's MCERTS schemes, which have additional technical requirements.

We currently have around 150 accredited analytical methods and over 1,000 accredited tests.

## Our accreditation team

Internal compliance with ISO 17025 is achieved by independent auditing by a team of five dedicated auditors. This team conduct over 300 audits per year, covering all aspects of the quality system.



## Our quality system

We pride ourselves on our reputation for providing a quality service and continually review and update our systems through continuous improvement and extensively benchmarking our activities.

## Proficiency testing

Proficiency testing schemes are inter-laboratory comparison programs that allows us to monitor and improve the quality of our measurements. They provide an objective assessment of the reliability of data that we produce. We invest over 60 thousand pounds each year to participate in numerous external schemes, including:

- LGC Aquacheck (water and effluent chemistry).
- Leap (water and effluent chemistry, water microbiology, cryptosporidium).
- RTC (water chemistry).
- HPA (microbiology, cryptosporidium).
- WASP (air emissions analysis).
- STACKS (air emissions analysis).
- Dioxin 16th Intercal.
- LGC Crypts (cryptosporidium).
- Charles River (endotoxins).

# Our sampling service

**As an integral part of Northumbrian Water, Scientific Services has expertise in the sampling of numerous different types of water.**

**This includes the sampling of:**

- Waste waters and effluents.
- Borehole waters.
- Surface waters.
- Potable waters (including private water supplies and bottled waters).
- Bathing waters (including coastal waters, swimming pools and spas).
- Purified and process waters.

Our sampling team and the methods they follow are accredited to rigorous standards. This provides confidence that the samples collected are representative of the water source in question.

**The standards to which our sampling team are accredited include:**

- UKAS & MCERTS for waste waters.
- UKAS for potable waters.
- DWTS for potable water sampling (fully meeting DWI requirements).
- GMP for purified and process waters.



The bulk of our sampling expertise is delivered to Northumbrian Water and to Essex & Suffolk Water to help them safeguard their regulatory compliance. They value our expertise in the planning and delivery of sampling programmes and our application of auditable, defensible and traceable sampling processes. The use of an expert sampling team gives them the confidence that samples are collected and transported to the laboratory under appropriate conditions, which is an essential pre-requisite to high quality analysis.

Some of our commercial clients are also able to benefit from our sampling expertise. The availability of this service is dependent upon your location and upon your specific requirements. Please contact us and we'll be happy to discuss what we can do to meet your needs.

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[nwss.customer@nwl.co.uk](mailto:nwss.customer@nwl.co.uk)  
0870 320 4567/0191 296 8366



Our Howdon laboratory at Newcastle Upon Tyne