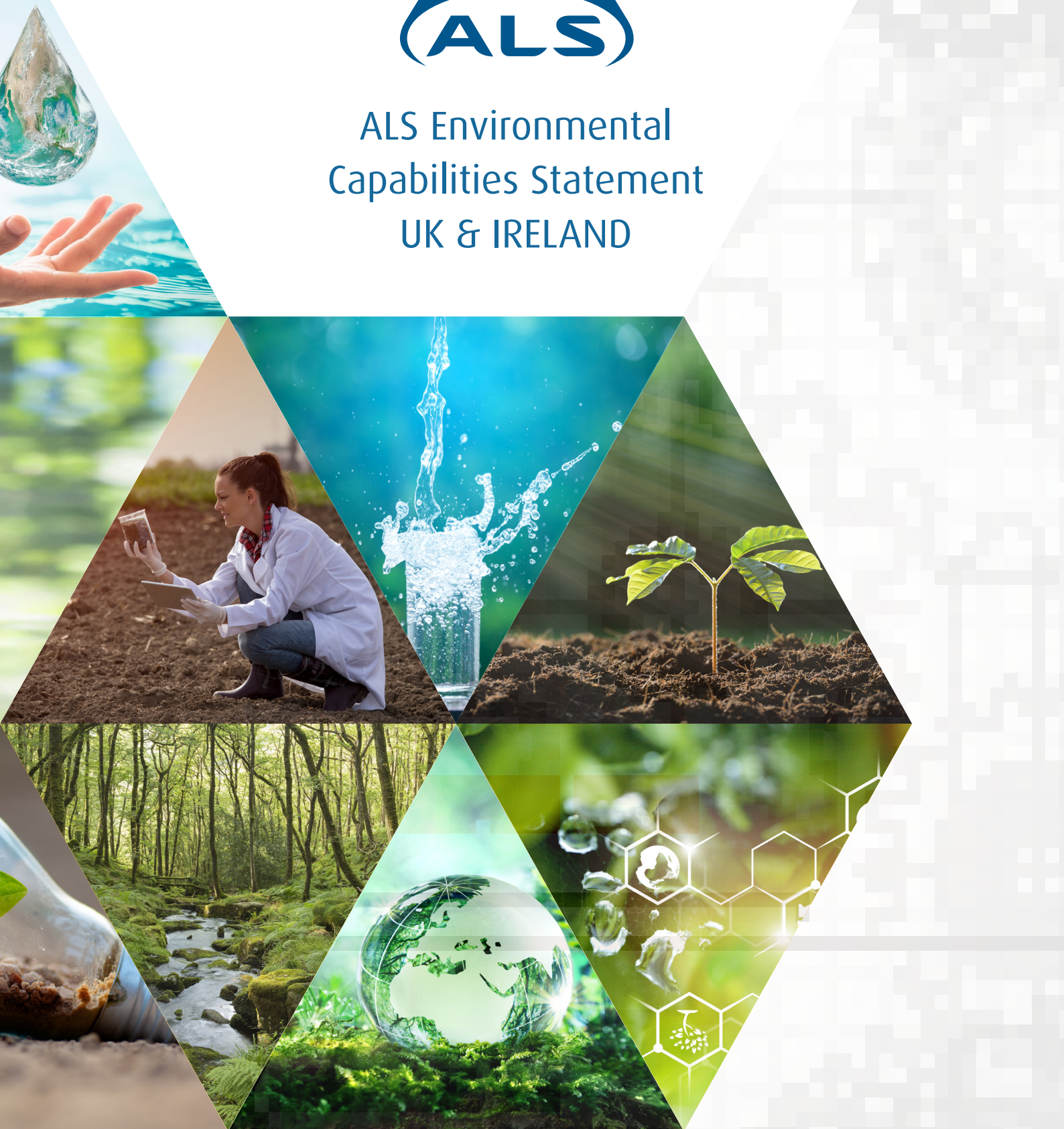




ALS Environmental Capabilities Statement UK & IRELAND





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SERVICE

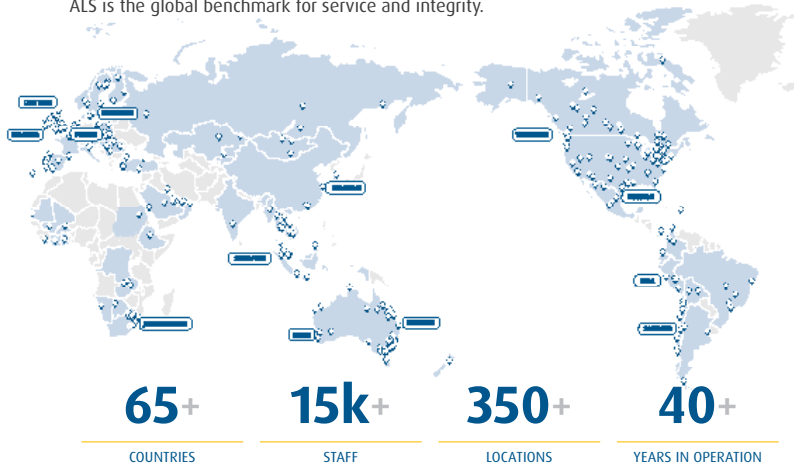
VALUE

RELIABILITY

Company Overview

ALS is a global leader in the provision of analytical laboratory and technical services. Today, ALS processes more than 40 million samples per year and is one of the largest technical services groups in the world with more than 15,000 staff. We operate from over 350 locations in over 65 countries throughout Asia, North America, Australia, South America, Europe, and Africa, and have demonstrated strong business performance for over 40 years.

ALS is the global benchmark for service and integrity.



We have built our reputation around technical innovation, quality, a deep understanding of the industry, and by being a true technical services partner to many companies across a broad spectrum of end markets covering most geographies.

We are a global company, yet remain agile through the local application of expertise, procedures and practices. The consistent daily application of our Core Values guides the provision of efficient, competitive, and environmentally and socially sustainable services at each of our operations.

Sustainability: A key priority for ALS

“Our strategy, and approach to sustainability, is now increasingly at the core of who we are as a business. To me personally, our commitment to sustainability reflects the true culture of ALS.”

– Raj Naran, CEO ALS Limited.

- A key part of this commitment is ALS’ ‘Local Actions, Global Impact’ campaign which demonstrates that even small scale projects with modest savings attached to them can collectively have a global impact when applied to 350+ locations.
- Within ALS in the UK, the initiatives implemented so far include rainwater harvesting, the introduction of waterless sanitary ware and LED lighting, voltage optimisation and the implementation of various recycling initiatives.



Welcome to ALS

ALS Environmental are the UK and Ireland's premier laboratory service, providing leading environmental testing solutions to the water treatment, waste management, construction, contaminated land remediation and utilities sectors. Our specialist chemistry and microbiology analytical services provide fast and reliable results, giving our clients and their stakeholders the confidence to make the right decisions in a fast-paced business environment.

Laboratory testing of soil, water and gas samples is at the core of our business and this is augmented by a team of dedicated professionals who ensure clients get the best possible experience of working with ALS. Key Account Managers, Project Managers and Technical Specialists assist our clients in finding bespoke solutions to meet their specific requirements. We are committed to delivering a reliable, consistent, high quality service to our clients.

We offer an extensive range of tests designed to meet the demands of UK regulatory bodies including the Environment Agency, Scottish Environment Protection Agency, Natural Resource Wales, the Irish Environmental Protection Agency and the Drinking Water Inspectorate. Our work is quality and environmentally assured through the international standards, ISO 17025:2017 and ISO 45001:2018 certification for the management of Health and Safety.

ALS' laboratories are extensively equipped to facilitate the analysis of metals, organic, inorganic and microbiological pollutants in a range of matrices that cover Groundwater, Surface Water, Untreated Sewage and Treated Sewage Effluent, Drinking Water, Soil, Sludge, Minerals, Hazardous Waste and Trade Effluent.

We offer a complete data management solution from site through to bespoke reporting formats. Our industry leading online data services and field app enable our clients manage their data easily and efficiently.

The ALS team consists of Chemists, Microbiologists, Environmental Scientists, Data Managers, Lab Technicians, Field Sampling Technicians and Health & Safety experts. This range of skills and expertise enables us to fully address the needs of our clients, providing an average throughput of over 7 million tests per annum.

Our People

Any company is defined by its people. ALS recognises that its staff are absolutely integral to the success of the business and to the way in which it is perceived, whether it be through the value of their interactions with clients or the quality of the testing they undertake. In short, every ALS employee has the opportunity to create a positive 'ALS Experience'.

At ALS we endeavour to create an environment that will attract the best people and enable them to develop a fulfilling career, growing as individuals and enriching our dynamic and diverse team. Above all, we want our employees to enjoy working at ALS by engaging in stimulating work and making new friends.

Many of our staff are affiliated to, or participate in, professional bodies, institutions and trade organisations allied to their area of work. These include the following:

- The Royal Society of Chemistry
- The Royal Society of Biology
- The Association of Geotechnical and Geo-environmental Specialists
- Public Health England
- Working groups on BSI, CEN and ISO Committees
- The Drinking Water Inspectorate Laboratory Group
- The British Standards Institution
- The Legionella Control Association
- The Water Management Society
- The Standing Committee of Analysts (SCA) – an expert group of Microbiologists

Core Values

Our core values are clear and simple and are incorporated in every aspect of daily operations.

Our core values are:

- Honesty and Integrity
- Exceeding Client Expectations
- Belief in our Ability
- Hard Work and Continuous Improvement
- Doing it Better
- Celebrating Success
- Safety as a Priority
- People Development





Accreditations

To ensure conformity with procedures and the ongoing effectiveness of our quality systems we undergo stringent audits and reviews on a regular basis. These aim to verify that the organisation has the necessary equipment, staff, facilities and control mechanisms in place to produce scientifically sound and trustworthy data.

We are committed to delivering the highest quality analytical results and assure this quality through participation in a wide range of nationally and internationally recognised standards and proficiency schemes.


Our laboratories and sampling teams are accredited/certified under the following Quality Systems:

- UKAS ISO 17025:2017
- Drinking Water Testing Specification for Potable Chemical and Microbiological Testing
- ISO 14001:2015 for Environmental Management Systems
- ISO 45001:2018 for Health and Safety Management Systems
- MCERTS for the Chemical Analysis of Soils
- MCERTS for Sampling and Chemical Testing of Water
- The Legionella Control Association

ALS Environmental participate in the following proficiency testing schemes:

- AQUACHECK - Water and environmental scheme
- CONTEST - Contaminated Land analysis scheme
- PHE - Water bacteriology and Legionella scheme
- CRYPTS - Measurement of Cryptosporidium oocysts in treated water supplies
- AIMS - Identification of Asbestos in bulk material
- LEAP - Emergency Water Quality Incident Scheme
- QWAS - Water bacteriology and Legionella scheme
- AISS - Asbestos in Soil Scheme

With one of the broadest portfolios of accreditation and highly trained staff, ALS Environmental gives you the confidence to act on the analysis we provide and makes us your ideal laboratory partner.





Quality

The basis of Analytical Quality Control (AQC) is the provision of spiked/blank AQC samples on a routine basis to working laboratories. These are independently prepared from different standards and materials to those in routine use within the production area.

AQC samples are analysed using the same methodology as the test samples and the results compared statistically to the expected outcomes. Direct AQC samples provide assurance with regard to instrument calibrations and spikes/blank AQC samples provide assurance with regard to overall method performance and recovery. No results are reported without being supported by appropriate AQC data.

AQC data is recorded on control charts which are regularly audited by technical managers to identify trends in method performance and allow appropriate preventive actions to be implemented on an ongoing basis.

Some variations to the above scheme occur in certain work areas eg. Soil/Sludge Analysis. For Soil/Sludge, certified reference materials (CRM) are frequently used for the AQC process.

Preparation of AQC standard/spikes

Quality Control solutions are prepared by designated staff who have been trained in the procedures involved. Where possible all standards, reference materials, and solvents are purchased from different suppliers to those used by the working laboratories.

Frequency of AQC solutions

For organic compounds in waters a set of AQC solutions consists of at least one blank AQC and one spiked AQC solution. One set is included with every batch of twenty or less samples. If there are more than nineteen samples then a further set is included with every nineteen or fewer samples.

The following table illustrates the procedure:

Samples in batch	Sets of AQC solutions
1-19	1
20-38	2
39-57	3

For Sludge/Soil samples a set of AQC solutions often consists of a CRM and a 'direct AQC', and for inorganics in water only a direct AQC is used when no sample preparation is needed.

Where duplicate analysis is used, then the duplicate analysis is at the same frequency as above.

Control charts

Control charts are used to ensure that a method is in statistical control i.e. the measurement process is performing within its defined operational criteria and for regulated methods (MCERTS & DWTS) is meeting regulatory limits for precision, bias and uncertainty of measurement.

Single value charts (Shewhart charts) are the most common type in a Chemistry Laboratory. These charts are established using the mean and standard deviations obtained from the statistical analysis of data derived either from the initial performance tests or from results obtained in operational use.

Control limits

For chemistry methods AQC results are plotted onto control charts on an ongoing basis. The method is deemed to be out of statistical control in the following cases:

- a) When an AQC result exceeds $+3s$ or $-3s$ limits i.e. the action limits on a control chart (Shewhart chart)
- b) When two consecutive AQC results exceed $+2s$ or $-2s$ limits on a control chart (Shewhart chart)

Where this is the case the results associated with a 'failed' AQC are not considered to be robust and so are rejected and scheduled for retest.

Control charts are subject to regular review by laboratory technical managers to identify trends in method performance and where appropriate control chart control limits are revised to reflect method performance on an ongoing basis.

Performance testing & Validation

Method Performance tests and validation is carried out on all methods prior to their use for analysis of samples. For potable waters the tests are to conform to DWI requirements i.e. the protocol in NS30 (Manual on Analytical Quality Control for the Water Industry - WRC) Sections 5.1 and A5.1.

Performance tests and validations are repeated when any changes are made in the analytical system which may affect method performance. In addition, method performance data is periodically reviewed, and performance tests and validations are repeated where the data suggests a meaningful change in method performance.

If there is any doubt as to the effects produced by a change then the Quality Manager is consulted.

Microbiological AQC

The monitoring of microbiological tests for internal quality control is based on a variety of approaches such as those described below.

Guidance Charts

In a similar way to chemistry control charts, quantitative AQC results using counts from a suitable reference material, are plotted on Shewhart charts. Due to the more random distribution of organisms in a sample there can be a wider scatter of results, hence charts used in microbiology are termed "guidance charts". Similar control limits are applied, with breaches initiating investigation of associated sample results. The charts are also frequently monitored to identify trends and biases.

Media

Quality control of media is essential to maintain confidence in its consistency, quality and sterility and to ensure the ability of the medium to support specific microbial growth. In addition to sterility checks, the ability of media to support the growth of the target organism - and, where relevant, inhibit the growth of non-target organisms is - tested on the day of manufacture. When pre-prepared media is purchased, these tests are carried out both on receipt and on the day of use.

Split Samples

Split samples, i.e. a sample divided into sub-samples, are used to monitor consistency in enumeration. Microorganisms are not evenly distributed in samples and consequently it is expected that different numbers of organisms will be recovered from each sub-sample.

A 95% confidence interval for the 2nd count based on the first count is derived from tables and recorded and monitored for AQC purposes.

Incubation Conditions and Aseptic Technique

The incubation conditions are monitored for every batch of samples to ensure that growth of the target organism has occurred. Similarly, a sterile simulated sample or 'blank' is processed with every batch of samples to monitor aseptic technique. A non-target organism may also be processed, particularly in the confirmation stages, to ensure that no false positive results occur.

Water Testing

(Coventry, Wakefield & Otterbourne Laboratory)

Microbiology & Legionella Testing

ALS Environmental provides a comprehensive range of microbiological, chemical and legionella testing for a wide variety of clients drawn from the following industries:

- » Water Utility and Water Treatment
- » Waste Treatment
- » Facilities Management
- » Hospitals and Local authorities
- » Environmental (e.g. bathing waters)

Being members of the Legionella Control Association (LCA) we understand the emphasis placed on laboratory analysis for the Control of Legionella. With 2 methods for testing Legionella (Traditional culture and rapid PCR) and an understanding and appreciation of the implications of ACOP L8, HSG 274 and HTM04-01 we are your ideal analytical partner for all of your water hygiene monitoring requirements.

We have a dedicated, purpose-built Legionella facility for the isolation and detection of Legionella bacteria. The laboratory in Coventry is UKAS and DWTS accredited. We provide drinking water analysis that is managed by skilled Microbiologists. We are members of the Legionella Control Association and participate in the Health Protection Agency Water EQA schemes for Legionella Isolations, providing Quality assurance of our capability to all our clients. ALS Environmental was also the first UK environmental laboratory to utilise rapid confirmation technology using MALDI-ToF Mass Spectrometry in 2014.

Drinking Water Analysis

ALS is one of only a handful of commercial laboratories to have several dedicated Drinking Water Testing Standard (DWTS) accredited sites. Our laboratories in Wakefield, Coventry & Otterbourne enable us to provide analysis which is in line with the Public and Private Drinking Water Regulations.





Water Testing

(Coventry, Wakefield & Otterbourne Laboratory)

Waste Water

Our state of the art waste water laboratory in Coventry is equipped with the latest analytical technology to support our clients in complying with local legislation and regulations. From automated pH robots to high end GC-MS we have a range of analytical instruments to help support your testing needs.

To meet your water and wastewater analytical requirements, we offer an additional range of environmental testing solutions including expert laboratory analysis covering:

- Ground Water
- Process Water
- Recreational Water
- Saline Water
- Surface Water
- Trade Effluent
- Treated Sewage
- Untreated Sewage

Healthcare

ALS Environmental provide a range of testing to the healthcare sector. Our microbiology & Legionella capabilities covers the analysis of within-premises hot and cold water systems to meet the requirements of HTM 04-01, HSG274 or your water safety plan. In addition we offer analysis of Washer-disinfector rinse waters and Dialysis fluids for a range of chemical and microbiological parameters and Endotoxins.

Soils & Contaminated Land

(Hawarden Laboratory)

ALS provides a comprehensive range of services for environmental consultants and contractors involved in the investigation, assessment and remediation of land contamination. Our scope includes the analysis of soils, waters, ground gases and vapours. Our laboratory facilities benefit from continuous investment in state-of-the-art equipment.

As well as providing a broad scope of conventional analyses, we also offer more specialised testing including Per- and Polyfluoroalkyl Substances (PFAS), 1,4-Dioxane, Polybrominated diphenyl ethers (PBDEs), Hexabromocyclododecane (HBCDD) and a range of other emerging contaminants. Whilst maintaining our commitment to continuously innovate, we are also continuously improving our services and adding more tests to our UKAS scope of accreditation.

With a highly experienced and qualified client services team, we offer an exceptional client experience by providing dedicated single points of contact. Along with a personalised service and fast turnarounds, we take pride in providing technical support. At an operational level, we maintain a high ratio of senior and experienced staff to assist clients with all manner of technical queries. All senior staff are readily contactable by phone and email and will respond to queries promptly at all times. Our staff focused culture has also resulted in a very low turnover, so you can be confident that you will be working with the same team.

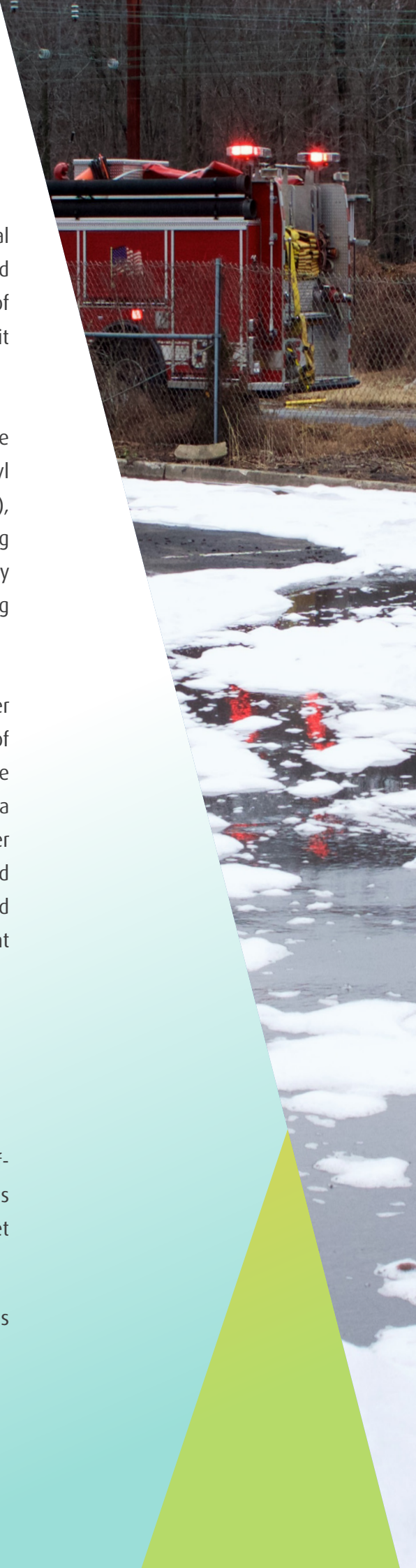
Specialist Services

(Hawarden Laboratory)

Our team of highly qualified and experienced professionals, using state-of-the-art equipment, is able to respond dynamically to the individual needs of our clients. With the benefit of many years of experience in the market we have expertise in managing a wide range of various projects.

ALS offer a range of non-standard suites and subcontracted testing options including:

- Saline Testing
- Radiological Analysis
- Personal Care Products and Pharmaceutical Testing
- Dioxins and Furans





PFAS (poly- and perfluoroalkyl substances) Testing

PFAS are challenging contaminants because most constituents cannot be detected by conventional analytical techniques. The sources of PFAS in the environment, such as Aqueous Film Forming Foam (AFFF), involve complex mixtures of many PFAS constituents. Assessment of sites impacted by PFAS require decisions to be made on the most robust, accurate and reliable data.

PFOS (perfluorooctane sulfonic acid) and PFOA (perfluorooctanoic acid), termed long-chain PFAS, are the best known examples and have been the focus of regulatory attention. Their potential impact on human health has been recognised globally as they are extremely persistent, bio-accumulative and toxic. More recently, concern has extended to a much wider number of the PFAS including short-chain PFAS that are generally more soluble and mobile in groundwater. ALS are your ideal analytical partner for all of your PFAS testing requirements.

Testing based on BS10176:2020 Taking soil samples for determination of VOCs

We understand that legislation plays a major role within this industry and now offer analysis based on the NEW regulation BS 10176. This standard is intended to improve the reliability of soil sampling by introducing procedures which can minimise the loss of volatile organic compounds (VOCs) to atmosphere during and after sample collection.

These approaches allow the soil to retain its original structure and minimise any disturbance. This recently published British Standard specifies methods for taking soil samples for the determination of VOCs and ALS have developed a range of approaches based on the standard to meet the requirements.

Waste Management

ALS provides services for those involved in hazardous classification of soil and disposal of material to landfill. Our testing is carried out to confirm the which European Waste Catalogue (EWC) code should be assigned in accordance with Technical Guidance WM3. Analytical results can be reported in the latest HazWasteOnline format (.HWOL files). We carry out Waste Acceptance Criteria (WAC) testing to determine the appropriate class of landfill. We also provide a range of analyses for potential coal tar bound arisings.

Once the analytical results have been authorised by appropriately qualified laboratory personnel, the results become available for reporting to our clients. This is performed by our auto-reporting system and is sent to the clients via email as a pdf copy. Once set up in this system the results will be delivered consistently in the correct format every time. The system also has the facility to send copies of results to other contacts (as agreed with the primary client) on a job-by-job basis or ongoing dependent on our clients' requirements.

Clients who have trigger, regulatory or consent limits to consider can have these mounted onto our system to allow speedy additional or re-analysis to be instigated, usually before the original completion date. All breaches of these limits are communicated back to the client by our Client Services Team as soon as the laboratory team informs them. In the meantime, the samples are being analysed to the clients' specifications regarding the breach, without any delay.

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myALS™

ALS provide industry leading data management services via their web based portal known as 'myALS'. This system allows users to manage logistics, scan sample barcodes, place orders, set alarms for exceedances, view results and download bespoke report templates.

This innovative system has a number of benefits that include:

- » Real time online access to your analytical data
- » Search and filter functionality, access and manage your data history
- » Personalise and customise your data interface
- » Export data in a format that best suits you
- » Access to certificates and reports at your convenience
- » No hidden access costs, completely free to use

The combination of myALS and the mobile app gives ALS' clients a complete paperless solution for the management of project data from the site through to reporting stage. The system eliminates the need to re-key any data from point of creation but also offers the flexibility to manage and edit information at any time without compromising data integrity.

Security

myALS is a secure password protected service that requires registration, ensuring complete confidentiality for our clients.

If you would like to know more about myALS, please contact our Client Services Team.

Sample Analysis

Analysis is conducted utilising the most appropriate method available. All methods are documented and procedures indicated within the methodology are followed for all samples. The method used for analysis is indicated on the final report by a method code.

In order to minimise the impact of equipment failure on reporting timely results, ALS Environmental have staff that are skilled in the repair and maintenance of routine instrumentation. For critical equipment, we have maintenance contracts with the manufacturer with guaranteed response times from the initial call. Wherever possible, we also have back up instruments that can be used in the event of a breakdown.

We have a wide range of analytical instrumentation including: GC-FID, GC-MS, GCxGC-FID, GC-MS/MS, LC-MS, LC-MS/MS, ICP (OES and MS) as well as full complement of inorganic analyses.

We are continually striving to develop methods that offer improvements in precision, accuracy or sample throughput and are pleased to share the benefits with our clients.

Sample Stability

Following the guidance provided by the Laboratory Committee of the European Cooperations for Accreditation, relating to the handling of samples prior to analysis and the effect of this on the validity of test results, UKAS has stated that it will be strengthening its focus on this area during assessment visits to laboratories.

We have improved the service we offer for Chemistry and Microbiology analysis by making changes to our working practices to ensure that the requirements of this new guidance are met.

Some of the changes may have an impact on our Clients working practices and we look forward to working together to deliver completed analysis within stability time.





Sample Containers

Since many parameters of sample quality change in transportation and even at the time of sampling, it is important that the correct container is used for analysis or group of analysis to deliver sample integrity.

At ALS Environmental it is our policy to provide all sample containers for the necessary containment and transportation of sample material. These come complete, where necessary, with fixing agents and preservatives to ensure validity of your analytical test.

ALS offer a nationwide container delivery service and the containers are despatched via our dedicated courier service.

Where necessary, sample containers are despatched in insulated cooler boxes together with ample packing material, of custody documentation, and any additional items we feel would make the clients task easier on site.

Sample Receipt

At ALS we have a dedicated Sample Receipt team at each site focused on the identification of sample containers.

The teams register the sample details and label the containers according to Sample Origin, Analysis Requirements and Job Reference details. In the event that a client request for analysis is unclear the client is contacted to clarify their analytical requirements and agree a priority for analysis.

An order acknowledgement is produced and despatched to the Client to confirm receipt of sample material and identify Job Reference Number. Samples are then sent to the relevant departments for analysis.

For more information on our Sample Receipt procedure, please contact our Client Services Teams.

Sample Management

Chain of custody forms are supplied for clients to log all relevant information and to provide details of sample handling between dispatch from site and receipt at the laboratory.

When samples arrive at one of the laboratories, they are passed directly to sample registration. This section examines the samples for satisfactory documentation, correct number of bottles, container integrity and appropriate sample size. Details of analysis, matrix type, detection limits, turnaround time, and the preferred results format are then registered onto the central computer system.

This assigns each sample a unique laboratory number that corresponds to the original sample description and is used to track the sample as it passes through all the stages of analysis to reporting. Once the samples are registered, worksheets are generated for our analysts. By using our specifically developed software, we are able to prioritise work according to our clients specific reporting deadlines. If the samples require transporting to a different location for analysis, they are set aside to be despatched with the dedicated overnight courier network.

Each sample's status and progress is continuously monitored through the central computer system with the raw data being downloaded directly from the instruments. Quality checks and client-specific limits are evaluated online. Additional validation allows results to be checked against pre-set limits, known interrelationships between parameters and the physical condition of the sample. In the case of more complex reports the data is collated by a delegated senior member of production staff. Before we issue any results all test results entered onto the computer must be authorised by the relevant laboratory manager or delegated senior member of staff.

All paperwork associated with the sample (worksheets, raw data, and final report) is archived for at least six years. Any alterations follow strict quality assurance procedures.





Field Services

(Hawarden & Coventry Laboratory)

ALS Environmental offers a broad portfolio of sampling services that are ISO 17025, DWTS and MCERTS accredited, where appropriate. Our range of environmental monitoring services are designed to help support clients in meeting their requirements and to comply with environmental regulations.

Our fields of specialism include:

- Drinking Water sampling
- Waste Water sampling
- Surface Water sampling
- Groundwater monitoring
- Ground gas monitoring
- Vapour sampling

Our experienced field technicians are highly trained and have fully equipped temperature controlled vehicles. We provide a tailored independent, one-stop environmental and sampling service.

Transport

ALS takes pride in the quality of its nationwide sample collection service. We collect from most UK postcodes or Irish addresses. Our Client Services team can book a time to suit your collection needs using our dedicated courier system.

In addition to this we have approximately 50 sample drop off points located across the UK for your convenience. Samples can also be dropped off direct into our laboratory locations. The details and guidance for this is on our website under the 'Client Services' section. Please contact your laboratory directly for more information.

For Ireland we have a number of logistic solutions for samples being returned to Coventry/Wakefield or Hawarden laboratories.

For Land clients we can offer overnight collections utilising our logistics partner for samples being returned to the Hawarden laboratory.

Our Client Services Team can book a time to suit your collection needs using the most suitable courier network.



www.alsenvironmental.co.uk



Water Testing

Coventry

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Soils & Contaminated Land

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