

PEOPLE  
WHO  
PROTECT

## PRODUCTS AND SERVICES:

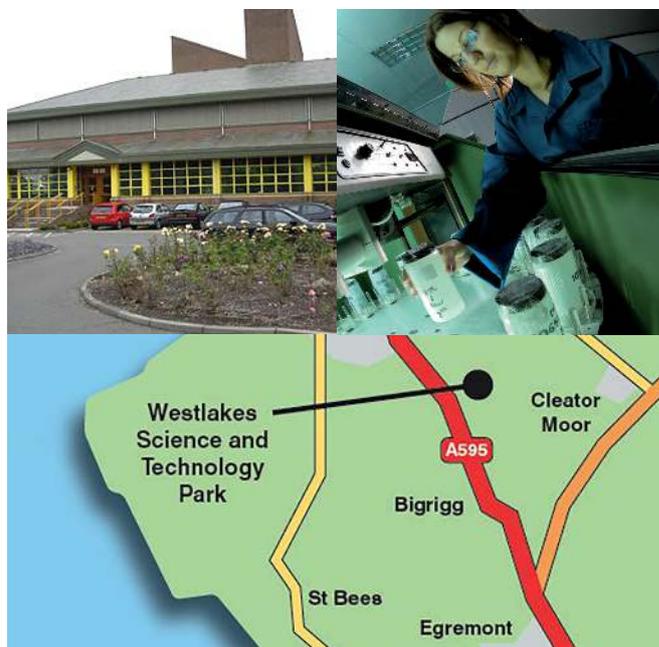
# Radio-analytical Services

## OVERVIEW

A world-class capability for analytical services to support quality, safety and environmental standards, regulatory compliance and research and testing programmes in nuclear, civil and industrial sectors.

## INSTRUMENTATION CAPABILITY

- Total alpha using ZnS scintillation counters
- Total Beta & Gas Flow Proportional Counters
- Low and High Resolution Gamma Spectrometry
- Low Energy Photon Spectrometry
- Liquid scintillation counting
- Cerenkov counting
- Alpha spectrometry
- Inductively Coupled Plasma - Mass Spectrometry
- High performance liquid chromatography
- Atomic absorption spectrometry



## OUR PRODUCT IN DETAIL

Cavendish Nuclear offers a world-class capability for analytical services from its Greeson Court environmental laboratories, to support quality, safety and environmental standards, regulatory compliance and research and testing programmes in nuclear, civil and industrial sectors.

Greeson Court, located in a modern, purpose-built 4,200 m<sup>2</sup> facility in Whitehaven Cumbria UK, provides a wide range of leading edge analytical techniques that can be applied to a multitude of environmental, biological and effluent sample types.

Specific measurements can be provided to match the individual requirements of industrial companies, government organisations, research institutes, universities and local authorities.

With its close proximity to Sellafield, Europe's largest licensed nuclear site, Cavendish Nuclear offers a unique understanding of the regulatory issues relating to the protection of personnel and the environment.

A new Controlled Area facility has been set up to support the special requirements of more active, decommissioning and site closure samples without impacting on other workstreams.

The Controlled Area facility allows more radioactive samples (e.g.: decommissioning samples) to be handled and analysed. This allows samples to be transferred easily and rapidly from a client's Controlled Area to the laboratory for subsequent analysis.

### Quality Assured

A rigorous quality control and management framework is implemented, which includes United Kingdom Accreditation Services (UKAS) accreditation to BS EN ISO/IEC 17025:2017 – the International quality standard for testing and calibration laboratories.

The laboratory is registered with UKAS to No 1604. The Quality Management System is accredited to BS EN ISO 9001:2015 and Environmental Management System to BS EN ISO 14001:2015.

The laboratory also participates in external quality assessment schemes, including Aquacheck, Procorad, RIQAS, Cadug, The Nuclear Signatures Interlaboratory Measurement Evaluation Programme (NUSIMEP), Quality Assurance of Information for Marine Environmental Monitoring in Europe, HSE tritium intercomparison, NPL Environmental Intercomparison.

Involvement in these schemes further demonstrates our commitment to delivering clients a high quality service and provides confidence that the laboratory is able to accurately and correctly analyse samples.

In comparison with peer group service providers Cavendish Nuclear has repeatedly demonstrated its ability to deliver cost-effective analytical solutions to consistently high standards of quality, within agreed time scales and budget.

### A flexible range of services

Cavendish Nuclear offers its analytical skills and resources on a standalone basis to support existing programmes or as an integral component of additional related services to support nuclear and civil operators.

These additional services include:

- HSE - Approved personal Dosimetry Services (ADS) support.
- Measurement of liquid and aerial effluent streams for compliance with regulatory discharge authorisations.
- Measurement of all types of environmental samples to comply with the Compilation of Environmental Agency Requirements (CEAR).
- Sample collection and preparation on-site.
- Management and control of the logistics of sample movement from the customer's site to Environmental Laboratories. This includes the services of a Dangerous Goods Despatch Officer to ensure compliance with Transport Regulations, Radiological Protection Advisers (RPA) and Radiological Protection Supervisors (RPS) to ensure the health and safety of the workforce and public from ionising radiation.

- Consultancy and advice on the design of sampling regimes and site characterisation, development of specifications, and the analysis and interpretation of results.

### Wide-ranging analytical capability

Radioactive isotopes measured include:

- Alpha emitting radio isotopes, including: 210Po, 226Ra, 237Np, 241Am, 244Cm, U and Pu isotopes.
- Beta emitting radio isotopes, including: 3H, 14C, 35S, 36Cl, 90Sr, 99Tc and 129I.
- Gamma emitting radio isotopes, including: 60Co, 106Ru, 129I, 131I, 134Cs and 137Cs.
- Total alpha, beta and gamma screen.
- Other measurements include:
  - Alkalinity, hardness, salinity, DO, TON, anions, BOD, COD, TSS, TDS, pH, colour, turbidity, conductivity, trace metals, non-metallic cations
  - Sample matrices include:
    - Liquids - water (surface water, groundwater and seawater), milk, trade effluents, oils.
    - Solids - filter papers, grass, vegetation, soils, silts, sediments, concrete, building materials, zeolites and charcoal
    - Food products, including: meat, vegetables, seaweed, fish and shellfish.
    - Body fluids and tissues - urine, faeces, wounds and wound dressings, nose blows.

State-of-the art instrumentation, specialist skills and technical know-how are applied to the analyses of a variety of complex matrices providing cost-effective solutions within rigorously controlled quality standards.

Analytical data produced by Cavendish Nuclear supports statutory environmental assessment, remediation and internal dose assessment programmes operating within major nuclear sites.



### FOR MORE INFORMATION, CONTACT:

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