

# eal

## Environmental Analysis Laboratory

Division of Research  
Southern Cross University



Environmental  
Analysis Laboratory



**Southern Cross**  
University

ABN: 41 995 651 524



## About us

EAL — Southern Cross University's Environmental Analysis Laboratory — is an Australian leader in providing high quality analytical results and assistance to environmental, agricultural and industrial managers.

It undertakes the chemical analysis of plant, water, soil, and compost samples and a wide range of other liquid and solid materials, providing specialist analytical services to university, government, corporate, business and private clients.

State-of-the-art equipment and modern facilities enable EAL to offer valuable research support to multiple research projects within Southern Cross University and to participate in collaborative projects with other universities and research bodies throughout Australia and overseas.

A commercial unit owned and operated by the University, EAL sits within the Division of Research. It was established in 1992 and celebrated its 21<sup>st</sup> birthday in 2013.

EAL functions on a self-funding basis, covering its own staffing and operational costs. It financially supports internal research projects being undertaken by University staff and postgraduate researchers, and contributes significantly to the ongoing development and improvement of the University's laboratory equipment and facilities.

EAL management and staff have a strong commitment to quality assurance, providing world-standard work in the shortest possible time frame, at commercially competitive prices. Full confidentiality and security are provided for all contract analytical work. EAL can offer 24, 48 and 72-hour turn-around-times.

See our website for details:

[scu.edu.au/eal](http://scu.edu.au/eal)

## Our services

### EAL offers state-of-the-art laboratories to analyse:

- plant and leaf tissue
- water including river, bore, dam, spring, creek and tank water
- acid sulfate soil and rock
- soil samples including soil from agriculture, infrastructure projects, building sites, contaminated sites and domestic gardens
- compost, mulch and fertiliser
- human, animal and livestock hair.

### EAL provides analytical results used for comprehensive consultancy services including:

- Contaminated land assessments and remediation plans
- Acid sulfate soil assessments and management
- On-site sewage management assessment and design
- Environmental impact assessment
- Environmental compliance and monitoring
- Strategic environmental planning advice and project management
- Farm nutrients and water management programs.

## Diversification and innovation

EAL's flexibility and capacity to diversify into new and innovative testing parameters attracts enquiries from a wide range of research and commercial entities.

Some of these tests include:

- Lead in paint — restorations in old buildings
- DGT Phosphorus in soil — a more accurate measure of the growing crop's phosphorus requirements than conventional methods
- Sediment trial testing — used by major road building contractors
- Australian Standards Testing for composts, soil conditioners, mulches and potting mixes.



## Our accreditation

EAL is accredited by the National Association of Testing Authorities (NATA) in accordance with ISO/IEC17025-2005, for its technical competence in the field of Chemical Testing. The EAL 'Commercial Price List' lists the EAL NATA accredited methods. EAL is also a member of the Australian Soil and Plant Analysis Council (ASPAC), routinely undertaking inter-laboratory testing. EAL participates in the National Low Level Nutrient Trials, National Measurement Institute Proficiency Studies, Global Proficiency WaterChek and FertChek Trials. As a member of Interlab Australia, a group comprised of some 25 council-based laboratories, EAL undertakes monthly proficiency testing.

## Our clients

EAL provides specialist analytical services to government, corporate, business and private clients.

### Major EAL clients include:

- CSIRO (Commonwealth Scientific and Industrial Research Organisation)
- Australian Government Department of Climate Change
- Australian Government Murray Darling Basin Commission
- Various state government departments of primary industry e.g. New South Wales, Queensland, Victoria and South Australia
- New South Wales Government Transport Roads and Maritime Services
- Australian local government departments and agencies
- GHD — one of the world's leading engineering, architecture and environmental consulting companies
- Coffey International Limited — providers of specialist services in geotechnical engineering and geophysics, groundwater and environmental engineering
- Companies such as Abi Group, Boulderstone and Leightons, involved in highway and other construction

- Other private businesses, organisations and members of the public
- Research departments of other universities e.g. University of Western Sydney, Monash University, University of Wollongong, University of Newcastle, University of Tasmania, to name a few.

EAL is a part of the Royal Australian Chemical Institute, a major supporter of local LANDCARE groups, Catchment Management Associations (CMA), SOILCARE groups and works with the local TAFE on environmental courses. EAL also supports industry scholarships for study in Environmental Science and Engineering at Southern Cross University.

## SCU research centres

EAL works closely with Southern Cross University's research centres and staff. These relationships facilitate rapid access to innovation, industry-leading knowledge and the sharing of up-to-date data.

Research Centres include:

- Southern Cross Plant Science Special Research Centre
- Southern Cross GeoScience Special Research Centre
- Centre for Coastal Biogeochemistry Research
- Marine Ecology Research Centre
- Forest Research Centre.

For further information about research at SCU visit:

[scu.edu.au/research](http://scu.edu.au/research)



## Our tests

### Water

Routine analysis is conducted on bore, dam, spring, creek and tank water for physical, chemical and bacteriological parameters. Resulting data is used in a broad spectrum of suitability assessments. These include drinking, domestic, recreational, agricultural, stock and irrigation uses. EAL also routinely conducts environmental monitoring of waters for physiochemical parameters and metals, nutrients, salts, bacteria and algal biomass.

### Soil, plants, composts and fertilisers

Nutrient deficiencies and fertiliser requirements are assessed through specialised analysis of agricultural soils, plants and soil additives for chemical and physical parameters. All agricultural soil testing has a seven-to-10-day turn-around depending on time of receiving the sample. Plant testing is conducted twice weekly, allowing fast turn-around times. Compost and fertiliser packages are also available. For full details see our product list on our website.

### Acid sulfate soils

EAL is involved in acid sulfate soil research and method development for the identification and management of these soils. There are two main analysis packages available: (1) The CRS suite and (2) SPOCAS suite. EAL recommends the CRS suite as the preferred technique. Unlike the SPOCAS suite, the CRS method is not affected by significant interferences from sulfur in organic matter or sulfate minerals. EAL also routinely conducts pH screening and acid volatile sulfur (AVS) testing developed by world-leading researchers at Southern Cross University.

### Effluent monitoring

EAL is contracted by Lismore City Council to monitor the council's sewage treatment works operations. All effluent discharges into local waterways are regularly tested for their compliance with strict Environmental Protection Authority requirements. Lismore City Council is committed to maintaining the quality of local waterways and uses EAL to monitor local business waste-water discharges and groundwater leachate from the council tip facility.

### Environmental surveys and monitoring

EAL provides analytical support for a wide range of consultancy studies involving environmental surveys and monitoring. This can include the analysis of trace elements in water, soils, sediments and selective and sequential extractions, as well as the determination of sediment texture and mineralogy and micro-organism identification and counting. These applications relate to contaminated sites, urban development, old agricultural land, and major road works and their impacts on the environment.





## Our equipment

### EAL's analytical laboratory equipment includes

- Lachat Flow Injection Nutrient Analyser x 2
- Smart Chem 200 Nutrient Analyser
- Leco CNS 2000 Analyser x 2
- Leco Trumac CNS Analyser
- Perkin Elmer Elan DRC-e Inductively Coupled Plasma Mass Spectrometer (ICPMS)
- Perkin Elmer NexION 300D Inductively Coupled Plasma Mass Spectrometer (ICPMS)
- Perkin Elmer Optima 4300 DV Inductively Coupled Plasma Optical Emission Spectrometer (ICPOES) x 2
- NewWave Laser Ablation System with Agilent Inductively Coupled Plasma Mass Spectrometer (ICPMS)
- Bruker-AXS D4 X-ray Diffraction (XRD)
- Leica 440 Scanning Electron Microscope with EDX (SEM-EDX)
- Zeiss EVO/LS15 Scanning Electron Microscope with EDX (SEM-EDX)
- Soxtherm 2000 Auto Oils and Grease Analyser
- Malvern Mastersizer 2000 Particle Size Analyser
- Thermo-Finnigan Delta V Plus Isotope Ratio Mass Spectrometer (IRMS) interfaced with Flash EA 1112, Aurora 1030 TC/TOC Analyser and Trace GC Ultra
- PANalytical EPSILON 3-XL Xray Fluorescence Analyser(XRF)
- CRS Analyser x 2
- Mantech AutoMax 197 pH/EC Analyser
- Waters Ion Chromatography System
- Shimadzu TOC-L Nitrogen Analyser with ASI-L Auto Sampler.

## Our sample collection service

### EAL offers a sample collection service facilitated by

- A 4WD trailer-mounted deep core sampling rig
- A wide range of Dormer soil augers and specialised soil collection devices
- A wide range of water collection devices
- A number of specialised field monitoring instruments
- Access to a range of aquatic craft for waterborne sampling and monitoring.





## **EAL – Environmental Analysis Laboratory**

### **How to contact us**

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