

Assessment of External Laboratories

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EPA Licence Condition

“Where analysis is subcontracted it shall be to a competent laboratory”

Assessing competence

Option 1 :

Use of Formal External Recognition

Option 2 :

Assessment of external laboratories competence by licensee

Formal External Recognition

Accreditation

Accreditation to ISO17025 is defined as formal recognition that a laboratory is competent to carry out specific tests or specific types of tests.

Accreditation to ISO17025

Need to consider:

- Scope of Accreditation
- Parameter, units of measurement
- Matrix
- Method used
- Limit of quantitation
- Uncertainty of Measurement
- Fitness for Purpose
- Sampling/sample integrity

Scope of Accreditation

INAB Classification number (P9) Materials/products tested	Type of test/properties measured Range of measurement	Standard specifications Equipment/techniques used
766 Waters		Documented in-house procedure based on the following standards or specifications (EPS method reference/methodology)
.01 Waters for potable and domestic purposes	Chemical Oxygen Demand 10 - 250,000 mg/l O ₂ pH- 4 - 10 pH units	ISO 15705:2002 (B1/B2 Spectrometry) APHA Section 4500 H+ (B3 Electrometry)
.03 Water for industrial or steam raising purposes	Conductivity 2µ S/cm - 60000 µS/cm Alkalinity 5-20,000 mg/l as CaCO ₃	IS EN 27888:1994 (B4 Electrometry) IS EN ISO 9963-1:1996 (B6 Titrimetry)
.05 Trade Wastes	Total Nitrogen 1 - 12,000 mg/l N	Documented in-house procedure based on EPA 353.2 (B36 Digestion / Spectrometry)
.06 Saline	Total Phosphorus 0.2 - 1500 mg/l P	Documented in-house procedure based on EPA 365.1 (B36 Digestion / Spectrometry)



Scope of Accreditation

Testing performed by the Organisation at the locations specified

Materials/Products tested	Type of test/Properties measured/Range of measurement	Standard specifications/ Equipment/Techniques used	Location Code
WATERS Surface and Groundwater (cont'd)	<u>Chemical Tests and Physical Tests - inorganic chemistry</u> (cont'd)	Documented in-house procedures	
	Total Oxidised Nitrogen (Nitrate and Nitrite)	ES-INN-P-804	Edinburgh
Low ionic strength waters	Alkalinity, pH, conductivity (low ionic strength waters)	ES-INR-P-001 using autotitrator	Aberdeen Edinburgh
WASTEWATERS Untreated and treated domestic and industrial waters	<u>Chemical Tests and Physical Tests - inorganic chemistry</u>	Documented in-house procedures	
	Alkalinity	ES-INR-P-706	Aberdeen
	Alkalinity	ES-INR-P-900	East Kilbride
	Ammonia	ES-INN-P-700 using discrete analyser	Aberdeen
	Ammonia	ES-INN-P-900	East Kilbride



Assessing Laboratories

Laboratory Management and Staff

- Qualified and experienced Laboratory manager and deputy
- Adequate qualified and trained staff
- Training procedures in place for staff
- Training records in place for staff
- Assessment of staff competence
- Training Records up to date

Assessing Laboratories

Commitment to Quality

- Are laboratory facilities appropriate for carrying out tests.
- Documented Quality Manual in place
- Quality manager/co-ordinator appointed
- Quality Control procedures in place
- Regular audits carried out to assess compliance

Assessing Laboratories

Equipment and Calibration

- Documented calibration programme in place
- Are calibration records current
- Has traceability of Calibrations been established
- Is equipment maintained according to manufacturers recommendations and recognised practices.

Assessing Laboratories

Analytical Methods

- Are documented SOPs in place for all relevant methods
- Are procedures based on reference standard methods
- Are procedures in place for method validations
- Has method validation been carried out
- Has method performance been established
- Have the relevant matrices been assessed
- Is it 'fit for purpose' i.e LOQ, Accuracy, Precision, Uncertainty of Measurement.

Assessing Laboratories

Analytical Quality Control

- Documented AQC procedure in place.
- All relevant tests subject to AQC
- Are AQC's evaluated
- Are Controls on AQC 'fit for purpose'
- Are failures dealt with appropriately
- Are External/independent checks carried out
- Are results obtained satisfactory
- Are failures acted on appropriately