

TYNE & WEAR TRADING STANDARDS SERVICE

**METROLOGY LAB REVIEW
2018**

**Tyne & Wear Trading Standards Joint Committee
Saltmeadows Road, Gateshead
United Kingdom, NE8 3AH**

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1. Executive Summary

The metrology laboratory has appointed management staff that are keen and capable of taking the service forward and increasing the revenue generated. The fabric of the building, which is owned by Gateshead, allows for an expansion and possible extension of services offered. The Metrology Laboratory fulfils the statutory requirements of the Weights and Measures Act 1985. If the laboratory wasn't sufficiently funded in the future then Northumberland and Tyne & Wear would be dependent upon the Southern counties to maintain the standards required to perform the statutory duties. There would also be a negative effect upon the local economy as existing clients would need to source an equivalent service in the United Kingdom.

The existing configuration of the facilities and procedures have the potential to be modernised to allow for a stream lined workflow thereby decreasing the time spent on calibrations which in turn decreases the overheads and increases revenue which can be used to develop enhancements to the services offered. The laboratory would benefit from a new approach, more use of computers in calibrations, rewritten quality manual and procedures to reflect modern practices and a core of officers authorised under the system as UKAS competent.

To operate a successful UKAS laboratory requires skills and competencies that are greatly enhanced from those required to be a Weights and Measures Inspector therefore when considering succession planning, a training and mentoring program should be developed. The quality manager does not require as much detailed knowledge as the appointed technical manager, that role is probably the most reliant upon the competency and skill and needs the most investment and an understudy.

The laboratory should develop a succession plan to ensure that if key personnel leave the service, disruption is kept to a minimum. Also, a business continuity plan should be developed in accordance with BS 25999-1 to ensure that the laboratory can continue in the event of system breakdowns etc.

The laboratory needs a better understanding of the local market requirements in terms of metrology and how those needs can be met, thereby contributing even more to the economy of Northern England.

The laboratory operates a screen testing regime for various consumer products and also has UKAS accreditation for the physical testing of toys in accordance with EN71 Part 1. The laboratory also has flexible scope so can test other products based upon the accredited tests.

2. Review Methodology

- Interviews with Metrology Laboratory staff and management
- Walk around of the laboratory, workspace and estate
- Analysis of current business practice, future potential and growth opportunities
- Conversations with equipment suppliers
- Conversations with existing customers

3. Service Overview

The Metrology Laboratory (Met Lab) provides the local and working standards on behalf of Tyne & Wear and therefore fulfils its statutory duties under Part I of the Weights and Measures Act

1985. The Met Lab is therefore able to test the working standards and test equipment used by the inspectorate in support of its services to the economy.

The Met Lab is nationally recognised for its standards and quality. It achieved UKAS accreditation to the E2 level from 0.5 mg to 20 kg, F2 and M1 Levels from 0.5 mg to 25 kg (see Appendix 1) and currently provides a service to the private sector market. The Lab provides services to ensure traceability of calibration and quality of measurement in line with statutory requirements to ensure health and safety, enable taxation, protect consumers and ensure equitable and fair trade.

However, in order to main this level of acclaim the Met Lab requires investment to upgrade its equipment to expand into and/or maintain service levels in the commercial market and meet the needs of its clients.

The Metrology Laboratory, based in Gateshead, currently utilises 6 people and operates an annual turnover of £100,000, gained from providing services within weights and measures, both legal and commercial and in consumer product safety testing.

4. Strategic Context

Section 4 of the Weights and Measures Act 1985 requires the local Weights and Measures Authority to maintain Local Standards of mass, length and volume. A dispensation may be sought from BEIS not to hold same if an agreement was in place with another authority.

If the met lab was not maintained in Gateshead, the department would be entirely dependent upon other providers in the South to provide the calibrations to perform its statutory duties under the Weights and Measures Act 1985. This would entail all working standards and testing equipment to be transported over on a regular basis.

By maintaining the legal metrology capabilities, the funding of which can be offset by offering a commercial service. Without the met lab providing a commercial service, local business would need to source calibrations from other sources which would increase their costs and introduce delays.

The met lab thereby guarantees the independence of the department whilst at the same time provides a necessary service to the local economy.

5. The Core Business Metrology

The Met Lab currently provides the core traditional Trading Standards function of Weights & Measures. The service has the potential for market penetration, service development and growth subject to the appropriate level of investment (both capita and revenue) and support to reposition the service commercially and encourage trade.

5.1. Service Overview

Weights and Measures is traditionally a key function of Trading Standards Services and is the core service of the Metrology Lab.

Within the menu of weights and measures services, the Met Lab provides five key Weights and Measures functions:

- The calibration of E2, F1, F2, M1 weights
- The calibration of trade weights
- Weights and Measures testing to Section 74(4) of the Weights and Measures Act 1985
- Calibration/verification of weighing instruments
- Calibration/verification of measuring instruments

The Met Lab provides UKAS accredited and non accredited services, serving statutory and private sector markets as follows:

Accredited Services
<ul style="list-style-type: none"> • Calibration of E2 level weights 0.5 mg to 20 kg • Calibration of F1 level weights 0.5 mg to 20 kg • Calibration of F2 level weights 1 mg to 25 kg • Calibration of M1 level weights 1 mg to 25 kg
Non Accredited Services
<ul style="list-style-type: none"> • Calibration of M1 level weights from 1 mg up to 1 000 kg • Calibration of weighing Machines, volumetric Measures to 20 litres • Linear Measures • EC Verification of Non-automatic weighing instruments • EC Verification of measuring instruments • Hire of weights

5.2 The Market

The weights and measures market is diverse, ranging from the testing and calibration of small weights used to weigh ingredients in pharmaceutical and food products for example to larger heavy mass weighing equipment to weight ticket lorries to ensure road safety and compliance.

Contracts at the smaller scale end of the service spectrum are more lucrative due to the specialist testing and complexity of equipment required.

The Met Lab hold UKAS accreditation for a wide range of weights from E2 to M1 opening up significant opportunities in the market for expansion and development.

Market research needs to be conducted to find what the local market is like in terms of its calibration requirements and if those needs are being met and if so by whom. Routine trading standards inspections could be used as a research tool to ascertain potential calibration needs.

5.3 Customer Analysis

The key customer base / commercial market for weights and measures services include;

- Scale and weight companies seeking calibration for weights and weighing equipment.
- Manufacturing sector including chemical and pharmaceutical
- Public Health Sector organisations including Hospital and University

5.4 Competitor Analysis

The Met Lab is one of the few UKAS accredited public sector labs in the UK offering mass calibration services.

Local competitors to the Met Lab are two weighing machine accredited organisations, who both use the services offered at present but they do not calibrate their own or client's weights.

5.5 Product Pricing

A survey needs to be undertaken about the pricing structure and how the Met Lab compares against UKAS accredited laboratories In the UK, as a quick survey found some of the lab's prices were not competitive.

5.6 SWOT Analysis

Strengths	Weaknesses
<ul style="list-style-type: none">• Reputation of the Met Lab• Expertise and qualifications of staff• UKAS Accreditation• Holder of local and working standards• Reputation of key staff members within the Trading Standards community• Potential for the fabric of the building to expand into new areas of calibration	<ul style="list-style-type: none">• Transport logistics to return calibrated weights to customers• No capital funding for investment needed to improve the service on offer• Not currently established on a commercial footing (no/little marketing and advertising etc)• Capacity of staff to expand into new markets (time/business skills)• No official capital replacement programme for business critical equipment• No business continuity plan formulated• Old working practices

Opportunities	Threats
<ul style="list-style-type: none"> • Increase market share with hospitals and universities • Training opportunities with hospitals and universities • Increase public sector trade by working with UK local authorities • Accreditation for weighing machine calibration 	<ul style="list-style-type: none"> • Other calibration companies • Other scale companies • Other Metrology Laboratories • Public sector cuts (reactive in opposed to proactive testing and sampling) • Changes in Trading Standards landscape

5.7 Business Growth, New Products, Market Penetration & Diversification – Recommendations & Concerns

There is significant growth potential within the weights and measures market subject to:

- Raising awareness / marketing of the service with potential customer base (public and private sector).
- Securing adequate investment to reposition the services within the market. Without adequate investment in core services business growth potential and further market penetration could be stagnated.

Key recommendations include:

- Explore ways to increase market share / market penetration
- Explore additional opportunities within pharmaceutical and food industries – these contracts historically are the most lucrative due to the amount of items requiring calibration
- Review fees and charges to ensure service competitiveness
- Consider UKAS accreditation for weighing machines
- Consider offering training packages to metrology users outside of local authorities

6. Funding & Finance

6.1 Income

The Met Lab is currently financed through a mixture of traded income and Tyne & Wear

Currently income is £340,000 which is made up from;

- Traded income of £100,000

- TWJC contribution of £240,000

6.2 Expenditure

Expenditure within the Met Lab budget is currently circa £340,000 made up from

- Staffing
- Premises
- Accreditation (£5-7k per annum)
- Supplies & Services
- Grants & Subs
- Re-charges
- Support Services
- Capital Replacement

6.3 Reserves

As of 2016/17 the Met Lab held a reserve budget of £80,000

7.4 Investment Needs

There is currently no dedicated resource for investment in new equipment or replacement equipment to ensure that the Met Lab maintains standards and service quality.

To develop a “fit for purpose” Lab in order to capitalise on business opportunities in the short to mid-term, approximately £100,000 over 5 years is required. This investment covers:

- A replacement programme for comparators which are business critical (see Appendix 2 for current age of equipment)
- An alteration of laboratory accommodation for easier manual handling of 20 kg masses when submitted in large numbers

7. Recommendations & Action Plan

7.1 Short term

- Maintain the laboratory in its present form offering required working standard calibrations and UKAS to E2
- Increase M1 and F2 capability to 50 kg
- Develop a capital replacement programme for business critical comparators, thereby ensuring continuance of business (see Appendix 2)
- Develop a professional web presence so new clients can be aware of services
- Establish a costing for services that is competitive and realistic with regard to overheads
- Develop training programme for all staff

7.2 Mid term

- Create room within the Met Lab to allow adjustment of cast iron 20 kg masses, thereby minimising the manual handling of same
- Develop a business continuity plan to include facilities, equipment and staffing to ensure no interruption to offered services
- Consideration given to developing training packages for metrology users
- Marketing campaign to raise the profile of the Met Lab in the North East and UK

- Market research to gain an understanding of Northern England calibration requirements at E2 level
- Attaining accreditation for weighing machines under UKAS
- Researching possible market for UKAS accreditation in volume measures
- Develop a staff recruitment and retention policy for the laboratory

7.3 Long term

- Investment of new climate control for M1 laboratory to allow F2 calibrations freeing space in the E2 laboratory
- Have built in redundancy with regards to comparators
- Providing more office and laboratory space utilising the existing building footprint but building a second floor. This would allow conferences, training facilities and meeting rooms for the Tyne and Wear Authorities.

Appendix 1

Schedule of Accreditation

issued by

United Kingdom Accreditation Service

2 Pine Trees, Chertsey Lane, Staines-upon-Thames, TW18 3HR, UK

 0292 Accredited to ISO/IEC 17025:2005	Tyne and Wear Trading Standards Issue No: 018 Issue date: 27 October 2016	
	Joint Committee Metrology Laboratory Saltmeadows Road Gateshead Tyne and Wear NE8 3AH	Contact: Mr A Hayward Tel: +44 (0)191 478 4550 Fax: +44 (0)191 478 4550 E-Mail: metrologylaboratory@gateshead.gov.uk Website: www.legalmetrology.info
Calibration performed at the above address only		

DETAIL OF ACCREDITATION

Measured Quantity Instrument or Gauge	Range	Calibration and Measurement Capability (CMC) Expressed as an Expanded Uncertainty ($k = 2$)	Remarks
MASS	(g)	(mg)	1. Intermediate values can be calibrated to an uncertainty interpolated from the next higher and lower values in the table.
	25 000	12.5	
	20 000	10	
	10 000	5.0	
	5 000	2.5	
	2 000	1.0	
	1 000	0.50	
	500	0.25	
	200	0.10	
	100	0.050	
	50	0.033	
	20	0.026	
	10	0.020	
	5	0.016	
	2	0.013	
	1	0.010	
	0.5	0.0080	
	0.2	0.0066	
	0.1	0.0050	
	0.05	0.0040	
	0.02	0.0030	
	0.01	0.0026	
	0.005	0.0020	
	0.002	0.0020	
	0.001	0.0020	
	0.000 5	0.0020	
END			

Appendix 2

Balance Lab

Current in use	Type	Acquired	Use	Expected Life left
XP26003	C	New 11 Feb 2015	E2 - F2	2025
XP5003	C	SH 10 Dec 2011	E2 - F2	2020
XPE2004	C	New 09 Aug 2016	E2 - F2	2026
XPE205	C	New 19 Apr 2016	E2 - F2	2026
XPE56	C	New 19 Apr 2016	E2 - F2	2026
UMT2	C	New March 2000	E2 - F2	Limited
AT201	C	New 28 March 2000	Back Up	No further support by Mettler Toledo (MT)
AX26	C	SH 17 Oct 2006	Back Up	No further support by MT
AX106	C	New 14 Aug 2006	Back Up	No further support by MT
CC20	C	SH Oct 2013	Training	Needs repair
CC500	C	SH Oct 2013	Training	No further support by MT
E1 set 2 Off	Weights	SH 26 March 2007	Traceability	Infinite if cared for
E2 Set	Weights	SH 26 March 2007	Traceability	Infinite if cared for

Garage Lab

Sauter 1Tonne	C		Heavy	Reached serviceable end
Sauter 2 Tonne	C		Heavy	Reached serviceable end

Capacity Lab

F2 Set	Weights	SH 26 March 2007	Traceability	Infinite if cared for
XP26003	C	New 28 Apr 2008	M1	2018
XPE2004	C	New 28 Apr 2008	M1	2018
XPE205	C	New 16 May 2006	M1	2018
AT21	C	New March 2000	M1	No further support by MT
Sauter 60kg EB60	WM	New Nov 1990	Gravimetric	Reached serviceable end
PM1200	WM	New Aug 1990	Gravimetric	2020
AG285	WM	New Apr 2000	Gravimetric	2020
PM6100	WM	New Nov 1990	Gravimetric	2020

Legal Lab

F2 Set	Weights	SH 26 March 2007	Traceability	Infinite if cared for
KA30	C	New Mar 2000	Legal	2020
LA230S	C	SH Oct 2013	Legal	2020
C2000	C	SH Oct 2013	Legal	imminent
C10000	C	SH Oct 2013	Legal	

KEY:	C	Comparator
	WM	Weighing Machine
	SH	Second Hand
	*	First consideration for replacement