







LGC's experience as a designated institute

EURAMET DI Workshop 18-19 February 2016, Copenhagen

Mike Sargent LGC Limited, Teddington, UK

Origins of LGC

• Chemical measurements in support of government legislation

1842: Inland Revenue Laboratory

1860: Customs Laboratory

- 1894: The Government Laboratory
- Fertilisers & Feeding Stuffs Act, 1893
 - Head of laboratory has statutory role of referee analyst
- 18 subsequent Acts and Statutes of Parliament named the Government Chemist as referee analyst
- The laboratory became known as the Laboratory of the Government Chemist (LGC)



Custom House, London 1860-1894



Laboratory at Clement's Inn, 1897

LGC's early role in chemical metrology



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Sir Thomas Edward Thorpe, FRS. Principal of the Laboratory, 1894-1909

Established first atomic weight table, 1903, with FW Clarke (USA) and K Seubert (Germany).

Honorary president of IUPAC Atomic Weights Committee until his death in 1924.

Letter of appreciation from Ernest Rutherford, 1907 for the exact atomic weight of radium

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LGC's development to the present day

1842	1996	2003/04	2009/10	Today
Laboratory of the Board of Excise is founded to protect excise	LGC Limited established as the Laboratory of the Government	Focus on science- dependent activities	Acquisitions focused on services (Agowa, Forensic Alliance)	Focus of activities is on intellectual property and new product development
duty payable on tobacco importation into the UK	Chemist is privatised	678 employees £56m turnover	Over 35% of revenue within Standards, the only product business	Acquisitions focused on pharma and agbio (KBio in Genomics, QBAS in Health Sciences)
	employees £15m turnover		Footprint across Europe (focused on UK and Germany)	50% revenue on products, with KBio acquisition and Standards growth
			1,380 employees £130m turnover	Increasing footprint in US and RoW
				2,000 employees £247m turnover

LGC Group acquisitions

- Promochem Group
 Mikromol
 - QM / Aquacheck
 - Breitländer
- Forensic Alliance
- Institut für Blutgruppenforschung (IfB)
 - Focus Forensics
 - Kalagate
 - AGOWA
 - Cardiff Bioanalytical Services
 - HFL Sport Science
 - KBioscience

LGC operates out of 21 countries, with laboratories and centres across Europe and the US, as well as sites in Brazil, China and India.

- Industrial Analytical, South Africa
 - Analytical Reference Materials International (ARMI), USA
 - VHG Labs, Inc
 - Bio Senate
- Quotient Bioanalytical Sciences
 - Dr Ehrenstorfer
 - Biosearch Technologies, Inc
 - Thistle QA
 - Maine Standards Company



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LGC as a national measurement institute

- UK Government White Paper: Measuring up to the competition
 - Chemical and bio-analytical measurements part of the UK National Measurement System
 - In 1988/89 LGC joins NPL in Teddington as an integral part of the UK NMI
 - Remit to improve UK analytical science and facilitate the global acceptance of UK measurements results
- Valid Analytical Measurement (VAM) Programme established by LGC for delivery of its new NMI role





All LGC staff in Teddington 9 April 1991

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Valid Analytical Measurement Programme

- Promote a UK and international chemical metrology infrastructure
- Develop the tools needed for better chemical measurements
- Promote the concepts of valid measurements









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Promotion of chemical metrology by LGC



- Progress made in the UK from 1988
 - Networks established with the RSC
 - Activities such as traceable CRMs, VAM Bulletin, guides and GUM training courses
- International progress was problematic
 - Initial CIPM and EUROMET response to chemical metrology was unfavourable
- Founded a network of European analytical chemistry laboratories
 - Initial meeting at LGC on 11 Oct. 1988
 - Eurachem officially formed on 18 July 1989, with Bob Kaarls as first chairman
- LGC worked with Bob Kaarls to renew discussions with CIPM and BIPM (Terry Quinn), leading to a CIPM Ad hoc Group to review feasibility of chemical metrology





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LGC's contribution to CCQM

- Member of CIPM Ad hoc Group, 1993 (precursor to CCQM)
- Active support for CCQM Working Groups since 1995
 - Chair Inorganic and Bio-analysis, first chair of Organic WGs
 - Leading participant and coordinator of key comparisons and pilot studies
- Co-director of BIPM Summer School 2008
- Regular participation in peer reviews of other NMIs and DIs



Participation in CIPM feasibility study for metrology in chemistry, 1993



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Participation in CCQM key comparisons



Coordination of CCQM key comparisons



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Participation in CIPM MRA





Coverage range (total fraction of sub-categories represented)

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Provision of services and research



LGC's metrology team

- 78 FTE staff (~ 60 scientists)
 - 15 inorganic
 - 16 organic
 - 23 molecular and cell biology
 - 24 reference materials, statistics, support functions
- Publications (2011 to 2015)
 - 220 peer reviewed papers
 - 597 conference presentations and posters







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LGC participation in EURAMET research



Programme	Reference	Project Title	LGC Role	EC Co	C Contribution	
iMERA-Plus	JRP4	Regenmed	WP Leader	€	264,633	
	JRP10	Tracebioactivity	WP Leader	€	249,360	
	JRP11	Clinbiotrace	Coordinator	€	427,554	
EMRP	ENG09	Metrology for Biofuels	WP Leader	€	168,534	
		Traceable measurements for monitoring critical pollutants				
	ENV08	under the European Water Framework Directive	WP Leader	€	307,786	
	HLT08	Infect-Met	Coordinator	€	509,252	
	HLT05	Metallomics	WP Leader	€	402,559	
	NEW04	Uncertainty	Partner	€	88,768	
	NEW03	Nano ChOp	Coordinator	€	369,259	
	SIB09	Elements	WP Leader	€	257,630	
	SIB54	Bio-SITrace	Coordinator	€	451,587	
	ENV51	MeTra	WP Leader	€	247,575	
EMPIR	14IND12	Innanopart	Partner	€	165,811	
*	15HLT02	ReMIND	WP Leader	€	300,300	
*	15HLT04	NeuroMet	Coordinator	€	549,675	
*	15HLT07	AntiMicroResist	Coordinator	€	499,538	
TOTAL		[* Agreed to be funded - contract negotiations started]		€	5,259,821	

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Conclusions

- A leading role in establishing consistent chemical measurements since 1842
- Transformation into a multinational company in the 1990s coincided with an expanding role as an NMI
- LGC has made a major contribution to the international metrology infrastructure for chemistry and bioanalysis over the past 25 years
- LGC is recognised globally as a key provider of traceable chemical and bioanalytical measurements
- Our metrology laboratories in Teddington are a world-leading centre for research in the analytical sciences





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Thank you for your attention

Department of Trade and Industry











Office



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