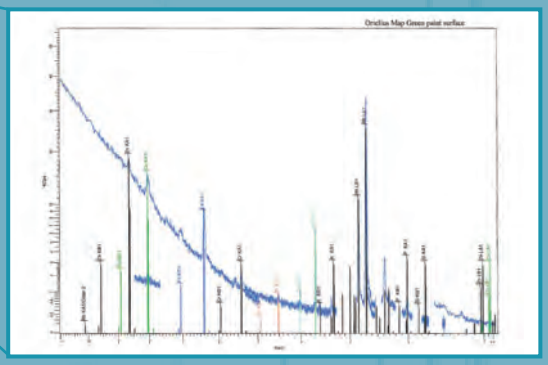
The State Laboratory
An tSaotharlann Stáit

Annual Report 2011



The State Laboratory provides a comprehensive analytical and advisory service to government departments and offices, thereby enabling them to implement their regulatory programmes and attain their strategic objectives. Staff are actively involved in EU and international analytical affairs. The State Chemist has enforcement and referee status under various Acts of the Oireachtas and their implementing regulations.
The State Laboratory operates in accordance with a documented quality system based on an international standard for competence of testing laboratories (ISO/IEC 17025) and is accredited by the Irish National Accreditation Board as being in compliance with this standard for specific areas of work (INAB Reg. No. 146T). The State Laboratory is an EU National Reference Laboratory for additives for use in animal nutrition, for dioxins and PCBs in food and animal feed, and for veterinary residues and mycotoxins in food of animal origin.

Design and Artwork: Paul Martin Communications Limited
Leagan Gaeilge: Carn Translations

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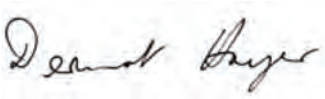
1. Introduction by State Chemist

In 2011 the State Laboratory has continued to provide a high quality analytical and advisory service to its client Government Departments, at a time of considerable national financial difficulty.

Despite the challenging environment in which it operates, and despite the loss of experienced staff through retirement, the Laboratory has maintained its ability to effectively serve the needs of its clients. It has achieved these goals through the continuing professionalism of its staff, the ongoing commissioning of new and advanced analytical equipment, the enhancement of the range and sensitivity of the analytical techniques used, and the consolidation of its role as the primary advisor on analytical chemistry to its client departments. By regularly monitoring the actual needs of its clients as their requirements change, the State Laboratory continually adapts itself to provide the best possible analytical and advisory service at the level required in a modern developed society.

The Annual Report for 2011 which follows sets out in summary form the official data on the Laboratory's activities and performance, and gives some insight into the range and technical complexity of the chemical analysis which it carries out on behalf of its client departments.



Dermot Hayes
State Chemist

2. Enhancing Analytical Service to Clients

Advanced instrumental methods of chemical analysis have led to great gains in sensitivity, selectivity and speed of analysis. A rapid and more comprehensive service can be provided to clients using advanced and streamlined systems, when compared with older classical methods of analysis. Newer highly sensitive equipment and techniques permit the identification of many chemical compounds at much lower levels than was technically possible previously. Samples can now be screened for large number of components. In the past, such information could have been obtained only through expensive and time-consuming techniques, involving the commitment of human and technical resources on a larger scale.

The Purpose of Chemical Analysis

Modern analytical chemistry is concerned with separating what can be called the 'chemical of interest' from the dominant or background components of a sample. In the State Laboratory this is done to meet the particular requirements of its different clients. In a working laboratory, samples are derived from real-life situations. This contrasts with a research laboratory, where samples may be relatively clean or simple. Samples in the State Laboratory may come from products of commerce, from foodstuffs, from animal feedingstuffs, or from biological samples from living or dead organisms. The chemicals of interest to the client are frequently only a minor component in a much larger background of substances, with the quantity of the chemical of interest being quite low in absolute terms. Low concentrations of chemicals in a sample inevitably give rise to analytical challenges. With older techniques, it might have proved impossible to analyse reliably for certain substances at very low levels which the Laboratory can now analyse for routinely.

Classical Chemistry Techniques

The classical chemical techniques that were used in the past continue to be relied upon in certain situations. Among these was the selective precipitation of the chemical of interest, followed by weighing the precipitate. Other well-established procedures involved the reaction of the chemical of interest with chemical reagents. This produced a distinctive colour which could be measured, either by direct visual examination, or by sophisticated spectrophotometric techniques. These methods yielded good results, and formed the basis of the iconic media images that characterised analytical chemistry since the beginning of the 20th Century, most notably the image of coloured chemicals in test tubes.

But while these techniques were effective, they had drawbacks. They were time-consuming and were insufficiently selective and sensitive. Chemically similar compounds could not be distinguished in all cases. In the case of the analysis of sugars, for example, it was not possible to measure the content of fructose and glucose; only the combined content of these two sugars could be measured, under the collective name "invert sugar".

Instrumental Chromatography

The major development in chemical analysis in the latter half of the 20th century was in instrumental chromatography. In these chromatographic methods, it was necessary to separate the 'chemical of interest' from the 'background'. This is relatively easy when the chemical is at a high concentration. However, the task becomes more demanding as the client requires analysis of compounds that may be present at very low concentrations. For example, medicinally active substances, which can be potent at very low levels, may occur at such low concentrations. In foodstuffs, low-level concentrations of certain chemicals can have potentially deleterious effects on the consumer. Accordingly, it is necessary for regulatory authorities to be in a position to detect and quantify even very low levels of certain substances of interest.

Detecting substances at very low concentrations

Technical problems have to be overcome when analysing substances at lower concentrations. Analytical samples from real situations tend to be complex in terms of their composition. As the levels of interest become lower, such as with residues of veterinary drugs in meat, a lot of sample clean-up becomes necessary to remove interfering background substances. This is difficult and time-consuming preparatory work, but because it is undertaken, sophisticated analytical techniques can be applied to samples that would otherwise be impossible to analyse.

Over time, incremental improvements were made in separation techniques, to address difficulties with analysing complex samples. However, a practical barrier inherent in improving sample separation and preparation meant that there was a limit to how much of an

improvement could be achieved in this way. A radical technical breakthrough was needed.

This came with the development of highly selective mass detectors. These were analytical instruments that could be manipulated to identify compounds of interest while virtually ignoring everything else in a sample. This has allowed the automation of previously very complex work. As a result, screening techniques applied to Toxicology samples now see up to 60 compounds which would previously have had to be analysed in multiple tests. Substantial savings in staff time and analytical resources have been achieved, while simultaneously providing a better and faster service to clients.

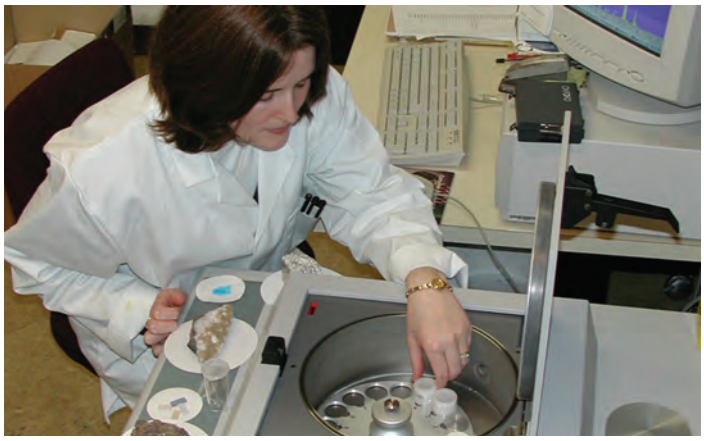
Advantageous to all clients

Among other areas which have benefited from the improvements in this technology is the analysis for toxic heavy metals such as lead and cadmium. In older techniques each metal had to be measured separately. We now have the possibility of measuring all the metal components in a mixture simultaneously.

The benefits of applying advanced technology is that the State Laboratory is in a position to offer a more wide-ranging, objectively improved and more comprehensive service to client departments for the same or lower costs.

3. The Range of Application of Chemical Analysis

The State Laboratory has the technical resources and the expertise to provide analytical services to its clients over a wide range of sample types. The requirements of clients lead to novel applications of the laboratory's resources each year. In 2011 work was undertaken on behalf of the National Library of Ireland. Of particular use for conservation projects are instruments such as Fourier Transform Infra Red spectroscopy (FTIR), X-ray Fluorescence (XRF) and optical microscopy, which can be used in conjunction with a number of general chemical procedures to detect the organic and elemental constituents of the objects requiring conservation.



To celebrate Dublin City of Science 2012, in the exhibition *Particles of the Past*, the National Library of Ireland decided to showcase a fascinating selection of science-related gems, from 17th century home remedies and early archaeological drawings to Captain Cook's journal.

The National Library's copy of the Ortelius Map was among the items chosen for the exhibition. This map, which dates from 1592, needed conservation before being placed on public display. During its conservation, samples were sent to the State Laboratory for analysis. X-Ray Fluorescence (XRF) analysis provided information on the pigments on the map. Optical microscopy assisted with identification of the fibres used in the paper. This information was incorporated into the decisions that were made when determining the correct course of conservation treatment in the Library. The results of the analysis were also displayed in the exhibition.

4. Numbers of Samples Tested

The tables below summarise the numbers of samples tested, set out in the three broad divisions of Agriculture samples, Revenue samples and samples from Coroners, the Department of the Environment, Community and Local Government and the Irish Medicines Board.

Agriculture		
Category of Sample	**No. of Samples**	**No. of Analytes Tested For**
Animal Feedingstuffs	906	6,500
Fertilisers / Limestones	297	649
Plant Health	2,598	3,463
Mycotoxins in Feed and Food	386	1,733
Dioxins in Feed and Food	421	5,932
Veterinary Residues in Food	1,172	10,334
Veterinary Medicines	26	26
Nitrates in Vegetables	94	94
Heavy Metals in Vegetables	517	1,034
Poisons in Dead Bird Remains	152	1,824
Sample Total:	**6,569**	**31,589**

Revenue		
Category of Sample	**No. of Samples**	**No. of Analytes Tested For**
Customs / CAP	612	745
Hydrocarbon Oils	1,792	10,713
Alcohols	297	654
Sample Total:	**2,701**	**12,112**

Coroners / Environment / IMB		
Category of Sample	**No. of Samples**	**No. of Analytes Tested For**
Human Toxicology	3825	211,458
Environment	99	1,072
Medicinal Products	117	247
Heritage Protection	50	75
Sample Total:	**4,091**	**212,852**

5. New Analytical Methods

The following new analytical methods were developed in 2011:

- Determination of 11 Coccidiostats at Carryover Levels in Animal Feedingstuffs by LC MS/MS
- Determination of Mercury in Animal Feed by ICP MS
- Determination of Flubendazole in Feed by HPLC
- Determination of 11 Non-Steroidal Anti-Inflammatory Drugs in Kidney by LC MS/MS
- Determination of Zeranol and 4 metabolites in Liver by LC MS/MS
- Determination of 12 Toxicants in Bird Remains and other samples by LC MS/MS
- Determination of 2 medicinal compounds in Veterinary Products by LC PDA
- Determination of Drugs of Abuse in Urine by LC MS/MS extended to include 5 new drugs
- Determination of 14 Cannabinoid and Spice Compounds in Urine by LC MS/MS
- Determination of 7 Non-Steroidal Anti-Inflammatory Drugs in Blood by LC MS/MS
- Determination of Manganese in Petrol by ICP OES and by XRF
- Determination of FAME in Diesel
- Determination of Sulphur in Marine Oil by XRF
- Determination of 13 new drugs in Medicinal Products by HPLC .

6. Administration and External Scrutiny

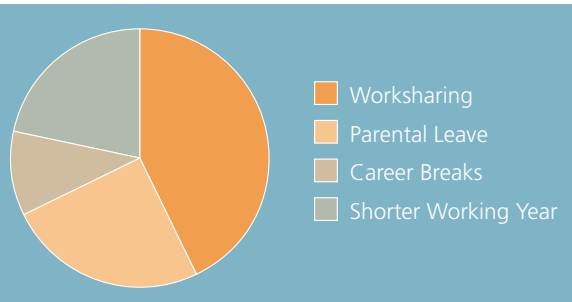
Under the Croke Park Agreement there is a requirement for all public bodies to focus on the needs of the citizen and to be more responsive and more cost effective. The challenge for the Laboratory will be to address how service delivery is to be maintained in the context of reduced staffing and resources.

Sick Leave

The Croke Park Agreement tasks all public bodies with reducing the level of sick leave by 10%, resulting in improved productivity and providing cover for reduced staffing levels. In 2011 there was a 16% drop in the number of sick days taken over 2010.

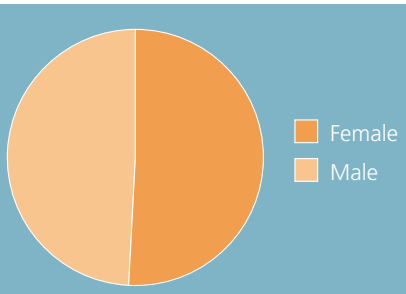
Family Friendly Policies and Equality of Opportunity

State Laboratory staff have access to a wide range of family friendly policies, including work-sharing, flexitime, parental leave and term time. However, since the moratorium on recruitment was introduced in 2009, shortfalls arising from staff availing of these measures have to be absorbed by the Laboratory.



Scheme	No. of staff availing of scheme over the course of 2011
Worksharing	12
Parental Leave	7
Career Breaks	3
Shorter Working Year	6

The Laboratory is committed to an equal opportunities policy. At the end of 2011 the numbers of males and females in each grade is given in the table below.



Gender Breakdown in The State Laboratory

Grade	Female	Male
State Chemist	0	1
Principal Chemist	1	1
Senior Chemist Grade I	4	3
Assistant Principal	1	0
Technical Information Mgr	0	1
Chemist Grade II	4	4
Chemist	10	10
Higher Executive Officer	1	1
Senior Laboratory Analyst	7	6
Laboratory Analyst	16	8
Staff Officer	1	1
Clerical Officer	3	2
Storekeeper	0	2
Head Laboratory Attendant	0	1
Laboratory Attendant	0	5
Total	**48**	**46**

Financial Information

The table below summarises the State Laboratory financial expenditure in 2011, with figures for 2010 provided for comparative purposes.

Gross Expenditure	2010 €,000	2011 €,000
A1. Salaries Wages & Allowances	5100	5006
A2.Travel and Subsistence	33	27
A3. Incidental Expenses	195	208
A4. Postal & Telecommunications Services	72	66
A5. Apparatus & Chemical Equipment	2447	1705
A6. Office Premises Expenses	1334	1341
A7. Consultancy Services	13	12
Gross Total:	**9194**	**8366***

*Rounded figure

External Scrutiny

Accreditation Surveillance Audit

To ensure wide and international acceptability of our results, our key analytical procedures are accredited to ISO/IEC Standard 17025. Maintenance of this accreditation requires an annual surveillance visit by INAB, which was successfully completed in May 2011.

Financial Auditing

The State Laboratory's Audit Committee met twice in 2011. Internal audits were conducted on the Financial Reporting, Treasury and Revenue Cycle (April 2011) and Payroll Adjustments and Business Risk Management (November 2011).

The Comptroller and Auditor General's Office carried out the annual audit of the 2010 Appropriation Account in April 2011. No significant issues were raised during the audit.

Customer Charter

The Laboratory has agreed specific performance targets with all its major clients. These targets include issues such as turn-around time; methods of analysis to be used; and reporting requirements. This is detailed later in the *Progress Report on Customer Charter Objectives*.

Freedom of Information

There were no requests to the Laboratory for information under the Freedom of Information Acts during 2011.

Staffing

Six staff left during 2011. One Chemist resigned and two Laboratory Attendants retired. One Assistant Principal and two Clerical Officers left on completion of their secondment and were replaced on secondment by a new Assistant Principal and two new Clerical Officers following an interview process.

In 2011 the Laboratory continued with the student placement scheme in association with Dublin City University, Dublin Institute of Technology, Limerick Institute of Technology and the National University of Ireland, Galway. Four students were placed in areas complementary to their academic discipline for six months. One graduate was given a six month placement as part of the Willing, Able Mentoring Programme (WAM) and a further two graduates were given internships under the Government's JobBridge National Internship Scheme.

Partnership Committee

The Partnership Committee met on two occasions during 2011.

7. Conference & Seminar Presentations by State Laboratory Staff

Virtualisation of a complete IT infrastructure. Paper presented by Michael O'Donnell at the **Labware Customer Education Conference 2011**, Nordwijkerhout, The Netherlands.

Seminar on Statistics, Traceability and Measurement Uncertainty conducted for public & private sector participants by Joe Fitzsimons and Sean Earley, as part of the **JRC-IRMM Metrology in Chemistry TrainMIC** programme.

A rapid sample preparation procedure utilizing hybrid quadrupole linear ion trap mass spectrometry detection as an analytical strategy for controlled drugs in blood and application to forensic cases in Ireland, (2011). Paper presented by G. Dowling, at the **Society of Forensic Toxicologists (SOFT)/ The International Association of Forensic Toxicologists (TIAFT)** meeting in 2011, San Francisco, USA

Evaluation of Supported Liquid Extraction (SLE) for the determination of cannabis and synthetic cannabinoids in blood. (2011). Paper presented by G. Dowling, at **Society of Forensic Toxicologists (SOFT)/ The International Association of Forensic Toxicologists (TIAFT)** meeting in 2011, San Francisco, USA

8. Publications by State Laboratory staff

G. Dowling and E. Malone
A confirmatory method for the determination of basic nonsteroidal anti-inflammatory drugs in bovine plasma by liquid chromatography tandem mass spectrometry, **Journal of Pharmaceutical and Biomedical Analysis** 54, (2011), 1136-1145

G. Dowling and L. Regan
A method for CP 47, 497 a synthetic non-traditional cannabinoid in human urine using liquid chromatography tandem mass spectrometry, **Journal of Chromatography B** 879, (2011), 253-259

G. Dowling and L. Regan
A new mixed mode solid phase extraction strategy for opioids, cocaines, amphetamines and adulterants in human blood with hybrid liquid chromatography tandem mass spectrometry, **Journal of Pharmaceutical and Biomedical Analysis** 54, (2011), 1136-1145

9. Meetings attended by State Laboratory staff

A significant proportion of the work of the State Laboratory is concerned with representing the interests of its client department and offices at external meetings, both in Ireland and internationally.

The State Laboratory services EU and other international committees at the request of its client Departments. Laboratory personnel also participate in the work of other international expert scientific bodies and conferences. This work depends on the availability in the Laboratory of a range of expertise in the application of analytical science. This level of expertise is maintained through the participation by staff in international meetings and scientific conferences.

The following is a representative selection of the meetings that were attended by State Laboratory personnel in 2011 on behalf of client departments and offices and in furtherance of scientific improvements in the work of the Laboratory.

- State Claims Agency meetings
- Codex Alimentarius meeting
- EU coordination meeting on Codex Alimentarius.
- 17th Meeting of the CCQM (Consultative Committee for Amount of Substance), BIPM (Bureau International Des Poids et Mesures). "
- ASSET/Safefood Food Integrity and Traceability Conference
- EU-RL Workshop on Dioxins and PCBs in Food and Feed
- 12th Workshop on Brominated and other Flame Retardants
- Dioxin 2011
- EU-RL Workshop on Dioxins and PCBs in Food and Feed
- Scientific Sub-committee of the World Customs Organisation
- EU Customs Code Committee, Tariff and Statistical Nomenclature Section (Agriculture/Chemical sector)
- EU Project Group meetings concerning the Chemical Chapters of the Harmonized System /Combined Nomenclature
- EU Project Group meetings concerning the Food Chapters of the Harmonized System /Combined Nomenclature
- EU Economic and Tariff Questions Group (Duty Suspensions)
- Committee for Directives relating to Textile Names and Labelling
- Working Group on Textile Names and Labelling
- Customs Laboratories Steering Group (European Customs Laboratories Group: GCL)
- GCL meeting on Proficiency Test on the Meursing Table parameters
- GCL meeting on Proficiency Test on Mineral Oils
- German Customs Chemists Conference
- Developing euro-denaturants for the purposes of the exemption of alcohol from excise duties: Fiscalis 2013 Seminar.
- Chemical Names and their translation: Customs 2013 Workshop

10. Accredited Tests

INAB Accredited tests (Summary of Schedule of Accreditation; Edition 13 of 25/06/2010*)

Matrix	Measurand	Test Method
Animal Feedstuffs	Crude Protein	Method based on EU Commission Regulation 152/2009 Annex III (C)
Animal Feedstuffs	Crude Oils and Fats	EU Commission Regulation 152/2009 Annex III (H)
Animal Feedstuffs	Crude Oils and Fats & Crude Fibre	NIR Spectroscopy
Animal Feedstuffs	Crude Ash	Method based on EU Commission Regulation 152/2009 Annex III (M)
Animal Feedstuffs	Crude Ash	Gravimetric method using a Microwave Furnace
Animal Feedstuffs	Crude Fibre	EU Commission Regulation 152/2009 Annex III (I)
Animal Feedstuffs	Moisture	EU Commission Regulation 152/2009 Annex III (A)
Animal Feedstuffs	Nicarbazin	In House HPLC method with DAD, based on CANFAS-STM-4-CT94-2216
Animal Feedstuffs	Trace Elements: Copper,Manganese & Zinc	EU Commission Regulation 152/2009 Annex IV (C) (Atomic Absorption Spectroscopy)
Animal Feedstuffs	Trace Elements: Copper,Manganese & Zinc	Method based on EU Commission Regulation 152/2009 Annex IV (C) using Microwave Pressure Digestion and Atomic Absorption Spectroscopy
Animal Feedstuffs	Magnesium	In house method based on ISO 6869:2000 using Microwave Digestion and Flame Atomic Absorption Spectroscopy
Animal Feedstuffs	Arsenic	In house method using Dry Ashing and Hydride Generation Atomic Absorption Spectroscopy
Animal Feedstuffs	Lead, Cadmium & Cobalt	EN15550:2007 using Pressure Digestion and Graphite Furnace Atomic Absorption Spectroscopy for PB & Cd. In house method based on EN15550:2007 for Co.
Animal Feedstuffs	Monensin, Narasin & Salinomycin	EN ISO 14183. HPLC method using Post Column Derivatisation.
Animal Feedstuffs	Crude Protein	EN ISO 16634-1:2008. Nitrogen Content by Consumption according to the Dumas Principle.
Animal Feedingstuffs	Ash insoluble in HCl	EU Commission Regulation 152/2009 Annex III (N)
Animal Feedingstuffs	Macro and Trace Elements: Ca, Na, Mg, P, Fe, Mn, Cu, Zn, Co	ICP OES with Microwave digestion
Animal Feedingstuffs	Heavy Metals: As, Pb, Cd	ICP MS with Microwave digestion
Animal Feedingstuffs **	Coccidiostats	In house method using liquid extraction, detection by LC-MS/MS.
Animal Feedingstuffs **	Antibiotics	In house method using liquid extraction, detection by LC-MS/MS.
Milk (Liquid & Powder)	Aflatoxin M1	Based on an EU/STM method. Extraction and IA column clean-up. Determination by RP HPLC with Fluorescence Detection.
Straight and Compound Animal Feedstuffs	Aflatoxin B1	Based on an EU/STM method. Extraction and IA column clean-up. Determination by RP HPLC with fluorescence detection.
Feed and Cereals	Ochratoxin A	In house method using IA column cleanup and RP HPLC with fluorescence detection.

Matrix	Measurand	Test Method
Lettuce, Spinach & Cabbage	Nitrates	In house based on EN12014-2:1997-04. Determination by anion exchange chromatography following extraction and clean-up.
Feed and Cereals	Aflatoxin B1 and Ochratoxin A	ROSA Charm Immunoassay based screening method
Pharmaceutical Samples	Identification and / or quantification of pharmaceuticals samples: Flexible Scope (Analyte and Range)	In house method using HPLC –DAD.
Petrol and Diesel Fuels	Sulphur	ISO 20884:2004 Wavelength Dispersive X-Ray Fluorescence Spectroscopy
Petrol and Diesel Fuels	Hydrocarbon Content: Aromatics, Olefins and Benzene	Multidimensional GG. ISO 22854:2008
Gas Oil	C.I. Solvent Yellow 124	In house method. Determination by HPLC.
Alcoholic Drinks	Alcoholic Strength by Volume	In house using a density meter following distillation.
Cheese & Processed Cheese	Total Solids Content	EN ISO 5534:2004 (IDF 4:2004). Gravimetric following oven drying.
Cheese & Processed Cheese	Fat Content	EN ISO 1735:2004 (IDF 5:2004). Gravimetric following acid digestion, solvent extraction and oven drying (Schmid-Bondzynski-Ratzlaff principle).
Milk and Milk Products	Fat Content	IDF 1C:1987;(IDF 13C:1987;IDF 16C:1987;IDF 9C:1987 (Rose-Gottlieb Principle).
Pure starches, Animal feed, Foods	Starch	EEC Directive 72/199/EEC (Annex 1), determination by the Polarimetric Method (Ewers principle).
Meat and Meat Products	Nitrogen	ISO 937:1978 Kjeldahl Method
Meat and Meat Products	Hydroxyproline	In House Method based on ISO 3496-1994.
Blood & Urine	Amphetamine Class Compounds	In house method. Determination by GC with MS detection using internal standards following liquid-liquid extraction and derivatisation.
Blood & Urine	Ethanol	In house method. Determination by internal standard quantitation using Headspace GC with Flame Ionisation Detection.
Blood	Carbon Monoxide	Automated Spectroscopic Method using an IL682 CO-Oximetry Instrument
Animal Plasma and Milk	Confirmatory Analysis of Non Steroidal Anti Inflammatory Drugs. Flexible Scope (Matrix, Analyte and Range)	In house method using solid phase extraction, and detection by LC-MS/MS.
Animal Urine	Confirmatory Analysis of Hormones. Flexible Scope (Matrix, Analyte and Range)	In house method using solid phase extraction, detection by LC-MS/MS.
Animal Kidney Fat	Confirmatory Analysis of Gestagens. Flexible Scope (Matrix, Analyte and Range)	In house method using solid phase extraction, detection by LC-MS/MS.
Animal Serum	Confirmatory Analysis of Nitroimidazoles. Flexible Scope (Matrix, Analyte and Range)	In house method using liquid liquid extraction and detection by LC-MS/MS.

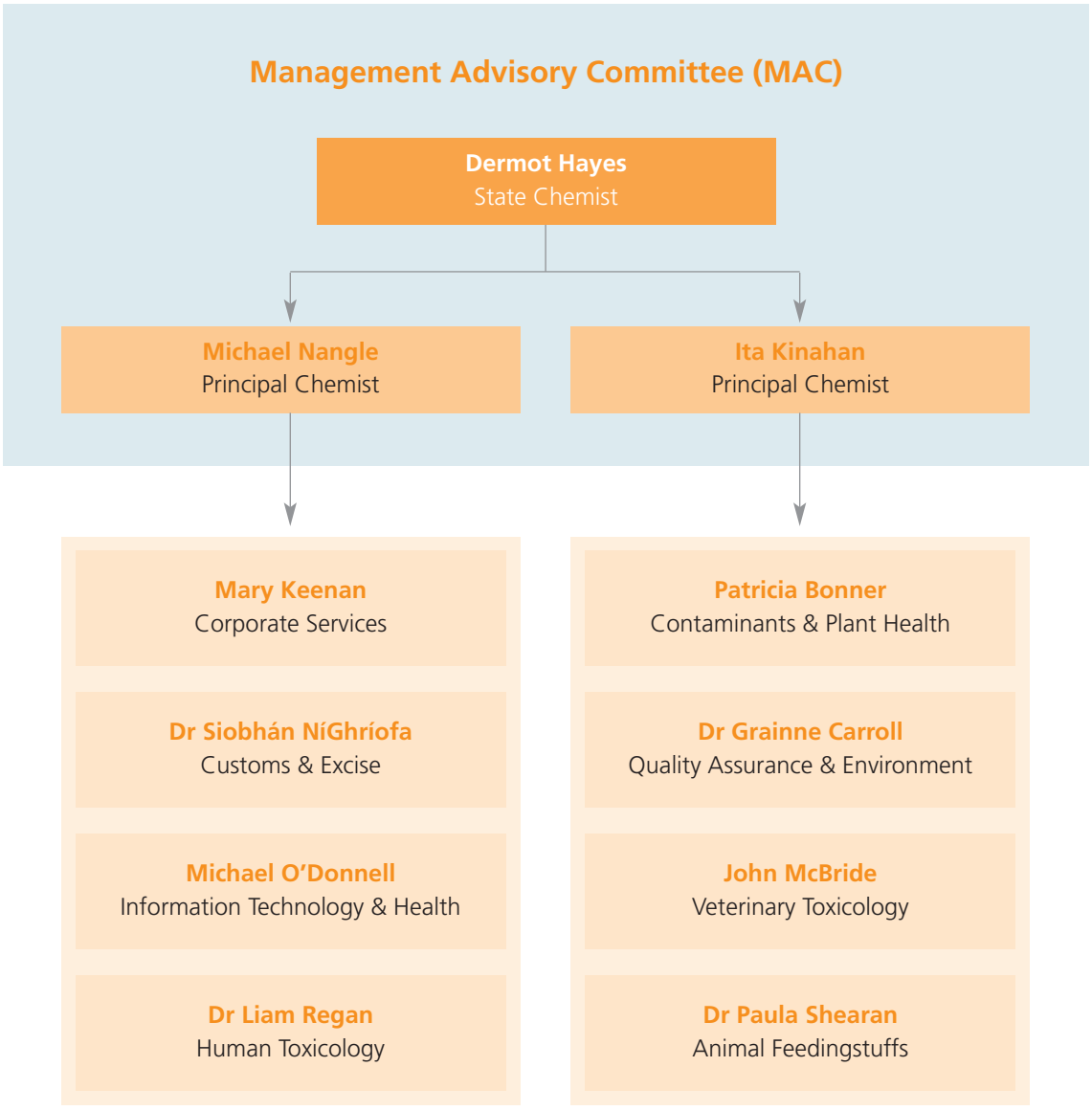
Matrix	Measurand	Test Method
Animal Urine	Confirmatory Analysis of Hormones. Flexible Scope (Matrix, Analyte and Range)	In house method using solid phase extraction, detection by LC-MS/MS.
Animal Kidney Fat	Confirmatory Analysis of Gestagens. Flexible Scope (Matrix, Analyte and Range)	In house method using solid phase extraction, detection by LC-MS/MS.
Animal Serum	Confirmatory Analysis of Nitroimidazoles. Flexible Scope (Matrix, Analyte and Range)	In house method using liquid liquid extraction and detection by LC-MS/MS.
Animal Serum	Confirmatory Analysis of Hormones. Flexible Scope (Matrix, Analyte and Range)	In house method using solid phase extraction, detection by LC-MS/MS.
Eggs	Confirmatory Analysis of Nitroimidazoles. Flexible Scope (Matrix, Analyte and Range)	In house method using liquid liquid extraction, detection by LC-MS/MS.
Animal Urine ***	Confirmatory Analysis of Corticosteroids. Flexible Scope (Matrix, Analyte and Range)	In house method using solid phase extraction, detection by LC-MS/MS.
Poultry Liver ***	Confirmatory Analysis of Resorcylic Acid Lactones. Flexible Scope (Matrix, Analyte and Range)	In house method using solid phase extraction, detection by LC-MS/MS.
Food and Feed	Dioxins and Dioxin like PCBs	In House GC/HRMS
Food and Feed **	Dioxins and Dioxin like PCBs	Screen by DR CALUX

* For further details, see our schedule of accreditation (Reg. 146T) on the INAB website (www.inab.ie).

** Not on 13th Ed. of INAB Schedule of Accreditation but assessed in 2011 and to be added to next addition.

*** Not on 13th Ed. of INAB Schedule of Accreditation but added to LAAT in 2011 under Flexible Scope.

11. Organisational Structure: Management Advisory Committee & Section Managers



12. Energy Use Statement

In 2011, the gross energy consumption by the State Laboratory was as follows

- Electricity 2,432,774 kWh
- Gas 4,151,681 kWh
- Total 6,584,455 kWh

The State Laboratory conducted an Energy Survey to try to identify where savings may be made in energy use.

The most significant initiatives to achieve a reduction in energy use in 2012 will be

- To lengthen the night downtime period, when energy use is minimized,
- To reduce further the amount of plant operating at night,
- To meter the consumption of energy more tightly.

The possibility of having real-time display of energy usage available to management will be investigated further in 2012.

13. Progress Report on Customer Charter Objectives

The State Laboratory's mandate is to provide Government Departments and Offices with an analytical and advisory service that supports their policies and regulatory programmes. The State Laboratory is committed to providing a quality analytical and advisory service to all its customers and to meeting the challenges presented by changing regulatory customer needs and new and emerging technologies. The goal of the Customer Charter is customer satisfaction through the delivery of a quality service. The State Laboratory is committed in this Charter to:

1. Provide a top quality analytical and advisory service for its customers in an efficient and effective manner appropriate to the customer's needs and commensurate with the principle of fitness for purpose.

   Service level agreements with clients are in place for the analytical work of the laboratory.

2. Provide adequate Service Level Agreements to customers detailing the standard of service to be provided including specific targets for sample turn around times.

   The service level agreements in place deal with all aspects of the service provided to clients, including quality of service, range of service, timeliness, advice, helpfulness and flexibility.

3. Meet the commitments given in the Service Level Agreements.

   Client satisfaction ratings with the service provided ranged from 100% very satisfied or fairly satisfied with the Quality of Service and Helpfulness, 99% very or fairly satisfied with Advice and Flexibility, 88% very satisfied or fairly satisfied with the Range of Service and 68% very or fairly satisfied with the Timeliness of the Service.

4. Hold regular meetings with customers to review the quality of the service provided, to identify future legislative trends and their impact on customers' requirements and to manage customers' expectations where these are unreasonable.

   Meetings are regularly held with clients.

5. Operate in accordance with a documented quality system based on an international standard for competence of testing laboratories (ISO/IEC 17025) and obtain and hold accreditation from the Irish National Accreditation Board for specific areas of work where required by the customer or by regulation.

   The Laboratory is accredited for 49 test procedures to the ISO/IEC 17025 Standard. Internal audits conducted by a team of trained auditors ensure compliance with the international standard. Accreditation is granted by a national independent third party, the Irish National Accreditation Board (INAB), which assesses and monitors ongoing compliance with the requirements of this standard. INAB carry out an annual surveillance visit to ensure ongoing compliance with their requirements.

6. Provide competent and impartial expert witness testimony in courts of law on issues relating to its analytical and advisory services.

   Staff attend court as expert witnesses where required.

7. Provide advice and information as requested within an agreed timescale.

   Performance is monitored against agreement made in Service Level Agreements and reviewed at least yearly. The Laboratory's Key Outputs and Impact Indicators are published in the Revised Estimates Volume available on the Department of Finance website www.finance.gov.ie.

8. Continuously adapt the analytical service to technical progress and develop greater analytical capacity through the evaluation of emerging technologies and the introduction of new methods and new instrumentation.

   This is set out in this Annual Report.

9. Ensure that the expertise and analytical capability is developed to provide for the anticipated future analytical and advisory needs of customers.

   Extensive analytical training is carried out.

10. Remain current with developments in relevant analytical and regulatory areas by attending meetings of EU and other international organizations and by representation on relevant scientific working groups.

    Staff attend the relevant meetings.

11. Contribute towards the development of international documents & guides concerned with chemical and bio analysis.

    Relevant contribution made at meetings attended.

14. State Laboratory Staff List by Grade, 31 December 2011

State Chemist
Dermot Hayes

Principal Chemist

Ita Kinahan	Michael Nangle

Senior Chemist

Patricia Bonner	John McBride	Michael O'Donnell	Dr Paula Shearan
Dr Grainne Carroll	Dr Siobhan Ní Ghriofa	Dr Liam Regan	

Chemist Grade II

Joe Foley	Eileen McCarron	Frances Mahon	Joanne Ryder
Dr Yvonne Kavanagh	Dr Sean McGowan	Dr Ed Malone	Mark Sutton

Technical Information Manager Grade II
Dr Michael O'Gorman

Chemist

Dr Jonathan Carroll	Dr John Fields	Dr Mark McDonald	Dr David Savage
Dr Eleanor Dixon	Niamh Fitzgerald	Eddie McGrath	Dr Julie Tierney
Michael Doyle	Joe Fitzsimons	Sharon O'Keeffe	Claire Timbs
Dr Sean Earley	Myra Keogh	John Reilly	
Dr Pierrick Fevrier	Una McArdle	Ruth Reilly	

Senior Laboratory Analyst

Sheevaun Cody	Tom Harbison	Marian Lyons	Aengus O'Briain
Angela Cunningham	Sean King	Noreen Monahan	Keith Pearson
Geraldine Dowling	Neil Lucey	Fiona Noonan	Mairead Rowsome
Bernard Hanratty			

Laboratory Analyst

Sinead Bermingham	Laura Flynn	Sheila Martin	Denis Ryan
Judith Boyle	Marella Gallagher	Ciara McDonnell	Dennis Sheehan
Ann Marie Bragason	Madeleine Gibbons	Alan Murphy	Johanna Skelton
David Canny	Carol Gleeson	Olivia O'Connor	Fiona White
Patricia Carter	Anita Heffernan	Keith O'Sullivan	
Simon Daly	Ray Kelly	Colm Reid	

Head Laboratory Attendant
Paul Hirtes

Laboratory Attendant

Simon Chiu	Syl O'Neill	Chris Taaffe
Tom Gaule	Declan Powell	

Storekeeper

Ciaran Browne	Damien Duffy

Corporate Services

Mary Keenan - Assistant Principal Officer	Liz Ellard - Clerical Officer
Nuala Talty - Higher Executive Officer	Ross Fitzgerald - Clerical Officer
Hugh Drumm - Higher Executive Officer	Geraldine Gaffney - Clerical Officer
Phyllis Barry - Staff Officer	Anne O'Dwyer - Clerical Officer
John Clancy - Staff Officer	Damian Savage - Clerical Officer

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