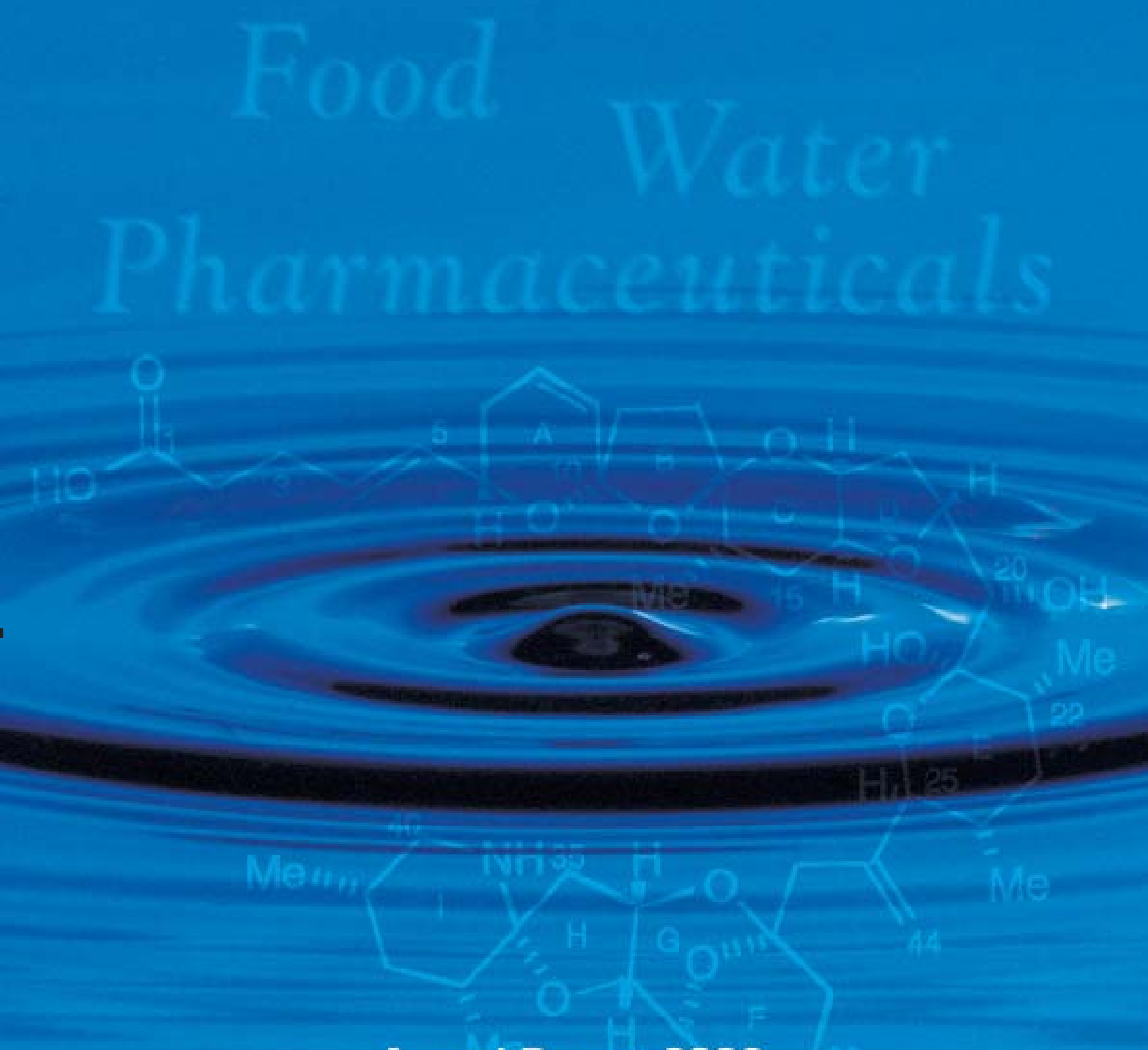
Western Region Public Analyst's Laboratory: annual report 2002 (712Kb)

Western Health Board

Bord Sláinte an Iarthair

Western Region Public Analyst's Laboratory

Saotharlann an Anailisí Phoiblí



Annual Report 2002

Tuarascáil bhliantúil 2002

WESTERN HEALTH BOARD

BORD SLÁINTE AN IARTHAIR

Saotharlann an Anailísi Phoiblí

Western Region Public Analyst's Laboratory

Seamus Quirke Road, University College Hospital, Galway

Tuarascáil bhliantúil 2002

Annual Report 2002

FOR YEAR ENDED 31st DECEMBER, 2002

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1. INTRODUCTION:

1.1. Scope of Laboratory

The Public Analyst's Laboratory in Galway provides a Chemical Analytical service, in the testing of food, water and pharmaceuticals, to three Health Boards:

(a) The Western Health Board;

(b) The North-Western Health Board;

(c) The Mid-Western Health Board.

The laboratory also has a contract with the Irish Medicines Board to analyse pharmaceutical products and a Service Agreement with the Food Safety Authority of Ireland to analyse foods manufactured, distributed or imported into the Country.

Air Quality is monitored for Galway City Council and the Department of the Environment. A Toxicology Service is provided for Health Board Pathologists, Veterinary Inspectors and the general public.

1.2 Administration

The laboratory is administered by the Western Health Board and is given a budget each year to cover its running costs. Special allocations are added to cover new appointments to staff, special projects and new equipment.

The laboratory has four divisions:

a) Food;

b) Water / Environmental;

c) Drugs / Toxicology;

d) Miscellaneous.

1.3 Workload

The number of samples tested during 2002 was as follows.

Food	2,948
Water	9,393
Pharmaceuticals / Toxicology	344
Air Monitoring	1,020
Miscellaneous	183
Total	13,888

2. FOOD:

2.1 Service Contracts and FSAI

In Ireland, Food Safety and Food Hygiene legislation is enforced largely via service contracts between the Food Safety Authority of Ireland (FSAI) and the Official Agencies, including the Health Boards. The second contract between FSAI and the Western Health Board was negotiated in 2002, to begin in January 2003. This second contract covers hygiene inspections, registration etc. of food premises, inspection, sampling and analysis of foodstuffs, and the provision of food hygiene education to caterers etc. The service contracts are monitored at contract liaison meetings, and laboratory / scientific issues relevant to our work are dealt with at meetings between the Public Analysts' Group and FSAI. Two particular areas of examination are the development of analytical specialisation, and the elimination of replication of sampling and analysis in the monitoring programmes.

In the Western Region (NWHB, WHB and MWHB), official chemical and microbiological testing of foods is carried out by the Public Analyst's laboratory (Galway) and by the Official Food Microbiology laboratories (Sligo, Galway and Limerick) respectively. This report deals with the chemical testing service.

Nationally, three Regional Chemical Food Surveillance Programmes are agreed between the Public Analysts' Laboratories, the FSAI and the Environmental Health Officers (EHOs); these programmes are becoming more closely coordinated to effectively form a National Surveillance Plan.

Official food inspection and sampling is carried out in our region by the EHO service. The majority of food samples referred to in this report are official ones taken by EHOs.

Besides the Health Boards, other Official Agencies enforce food safety legislation, particularly at 'production level', in association with FSAI; these agencies include the Dept. of Agriculture and Food (meats, dairy products, eggs, fruit and vegetables, cereals,'veterinary' health, etc.), the Dept. of Marine and National Resources (fish and shellfish, etc.) and Local Authorities (meats, etc.).

2.2 The Food Safety Promotion Board (FSPB).

FSPB is one of six all-island implementation bodies established under the British-Irish Agreement Act, 1999. The functions of the Board include Scientific Cooperation and Laboratory Linkages, Specialised Laboratory Services, Promotion of Food Safety, Surveillance of Foodborne Disease, Communication of Food Alerts, and Food Safety Research. The board uses the logo **SAFEFOOD**. Through its programmes of funding research and inter-laboratory linkages in particular, FSPB has a role in improving laboratory services. FSPB has awarded a grant to this laboratory to purchase technology to screen-test foodstuffs for **dioxins** using a cell bio-assay (DR CALLUX Method).

2.3. Food Testing (Chemical) – 2002.

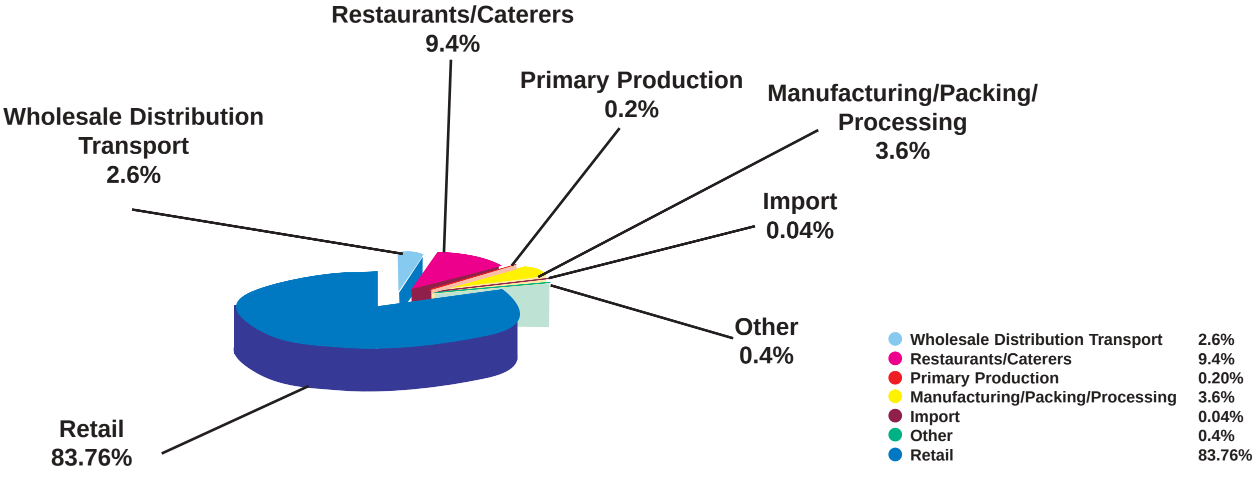
2.3.1 Regional Chemical Programme – 2002.

As in previous years, the food testing for 2002 falls into two categories, Programmed surveillance (see Appendix I) and Non-programmed testing (Food Complaints (2.6), Food-Export Certification and other private samples, Food Alerts (see 2.7), 'follow-up' samples, ad-hoc 'Inspection' samples, FSAI surveys, and other testing requested by EHOs (e.g. surveys from mining areas)). The EHOs implemented the sampling for the 2002 programme effectively and this has benefited the testing service.

The choice of parameters and foods in the Regional Programme (Appendix I) is based largely on: recent Irish and EU results trends, including RASFF Food Alerts; FSAI- identified 'neglected' areas; existing legislation and new concerns; regional food production. To minimise replication, cogniscance is taken of surveillance carried out by other Health Board laboratories and by other Official Agencies who perform food surveillance.

All of the programmed surveys for 2002 (see Appendix I) were executed. We received approx. 10% less samples than expected for 2002. The extensive range of testing provided, and the lab's accessibility for non-programmed testing, results in delay in reporting some of the routine, programmed samples.

Stage at which samles were taken



The diagram above indicates the 'stage' at which samples (excluding complaints and private samples) were taken in 2002. The high proportion (84%) of retail-level samples is apparent.

The European Commission Co-ordinated Programme for 2002 included

1: microbiological assessment of raw fruit juices and of raw fruit and vegetables, and

2: labelling of 'GMO' foods.

No testing related to the above Programme was performed here.

2.3.2 Statistics for 2002.

The geographical area covered by the laboratory has a population of approx. 940,000 (2002 Census) and the number of food samples tested per 1000 population was 3.1 in this annual period.

A total of 2,948 samples of foodstuffs was tested in 2002; they consisted of 226 complaints (see 2.6 below) and 2,722 others. Of the 2,722 above, adverse reports (i.e. test results indicating breaches of Irish Food Law) were issued on 140 (5.1%). The categories of foodstuffs and of infringement are summarised for both complaints and other samples in Appendices 2 (i) to 2 (iv).

Tables 1 and 2 summarise the work for 2002 according to the sampling region and source. Data on the test parameters and foodstuff types are given in more detail in sections 2.4 to 2.7 below:

TABLE 1 (2002)

Community Care Area, E.H.Os.	Number of Samples	Number per 1000* population
Galway	529	2.53
Mayo	378	3.22
Roscommon	173	3.22
Western Health Board Total	**1,080**	
Clare	310	3.00
Limerick	372	2.12
North Tipperary	230	3.76
Mid-Western Health Board Total	**912**	
Donegal	373	2.71
Sligo / Leitrim	307	3.65
North Western Health Board Total	**680**	
MISCELLANEOUS		
Hospitals / Stores	0	---
General Public	183	---
Other Health Boards / FSAI	93	---
Overall Total	**2,948**	

**Based on 2002 Census.*

TABLE 2 (2002)		
Submitted by	**No. of Samples**	**No. on which Adverse Reports were issued**
ENVIRONMENTAL HEALTH OFFICERS (Western Region)		
- Formal	3	2
- Informal	2,494	115
- General Public (Complaints via EHOs.)	175	107
HOSPITAL / STORES	**0**	**0**
GENERAL PUBLIC		
- Complaints	51	40
- Routine	132	5
Other Health Boards / FSAI	**93**	**18**
OVERALL TOTAL	**2,948**	**287**

2.3.3 Summary of Overall Results / Food Quality.

In 2002, as in previous years, a broad range of parameters and food types were included in the surveillance. Testing newly introduced in 2002 includes: acrylamide in fried foods etc. (see 2.4.1 below) and quality of imported chicken fillets (see 2.5.1). Testing for benzo-(a)-pyrene was extended to a wide range of edible oils and 'supplements' (eg. Evening Primrose Oils and Fish Oils). Other areas of significant monitoring in 2002 include gluten in 'gluten-free foods (see 2.5.2), mycotoxins in nuts / cereals, etc. (see 2.4.3), and additives in processed foods (see 2.5.3).

Despite the various contamination instances indicated in this report, **the testing carried out here in 2002 once again indicates that the quality of food available to the consumer is generally high.**

To obtain an overall picture of the safety and hygiene of our food supply, results related to microbiological quality, operational food hygiene, animal health (veterinary), and to other production-level controls must also be considered. The FSAI, through its Annual Report, News Bulletins and other publications, provides a broad overview of Food Safety and Food Control activities in Ireland.

2.4 Contaminants – Natural and Man-made.

2.4.1 Acrylamide in Fried Foods.

The recent discovery of acrylamide, a genotoxic (DNA-altering) animal carcinogen, in a number of processed foodstuffs, e.g. potato chips, has stirred considerable concern in those responsible for food safety. The discovery was first made by Swedish Chemists working in association with the Swedish National Food Administration. Although some experts consider the presence of acrylamide in certain processed foods to be of great significance, it remains to be seen if it will emerge as a real public health matter. Considerable worldwide research into assessing the true risk of acrylamide in food, and into reducing the levels in food, has been progressed since 2002. Both the Galway and the Dublin Public Analyst's Laboratories initiated the introduction of acrylamide testing methodologies soon after the contamination was discovered. The Food Safety Authority of Ireland (F.S.A.I.) hosted a seminar on acrylamide in early 2003, bringing together a number of E.U. experts in the field.

A preliminary survey of acrylamide in 22 samples, covering a range of foodstuffs available on the Irish market, was carried out in late 2002. Results ranged from less than 200 to 1,920 microgram/kg. Only the rye crispbread samples contained acrylamide above 1,000 microgram/kg. This work is continuing in 2003, with a view to broadening the range of foodstuff types to be tested, and to look at acrylamide levels in specific Irish food commodities.

2.4.2 Benzo-(a)-Pyrene in Oils and Oil Products.

Benzo-(a)-pyrene is a carcinogenic hydrocarbon found in smoke and occasionally in certain processed foods. Following a number of Food Alert Notifications in 2001, testing of Olive Pomace Oils and related products was initiated here. For 2002 it was decided to substantially broaden the surveillance to cover other food-grade cooking oils and oil supplements.

Table 3 below summarises the results of analysis for 2002:

Table 3 Summary of Benzo-(a)-pyrene testing in 2002			
	Number of Samples		
Sample Categories	**No. of Samples Tested**	**Non-Complying** (>2µg / kg)	**Complying**
Evening Primrose Oil	66	9*	57
Olive Oil	32	0	32
Cooking Oil	19	0	19
Olive Oil & Veg. Spreads	11	0	11
Other Oil Supplements (Cod Liver, Fish & Starflower)	13	0	13
Olive Pomace Oil	6	0	6
Salad Dressings	3	0	3
Others	2	0	2
Totals	**152**	**9**	**143**

**results range: 3.1 – 59 µg / kg*

9 samples of Evening Primrose Oil (EPO) out of 66 tested were shown to be contaminated (greater than 2µg / kg) with benzo-(a)-pyrene. The extensive national survey of EPOs resulted from a relatively high contamination rate found in a preliminary local survey. The national EPO sampling was carried out by F.S.A.I.

The lack of detected contamination in the other 81 tested vegetable oils, spreads and supplements is reassuring.

2.4.3 Mycotoxins (Fungal Toxins).

Mycotoxins are naturally occurring toxins sometimes found in foodstuffs as a result of contamination with moulds such as Aspergillus and Penicillium species. Considerable effort is put into controlling mycotoxin levels worldwide and they account for a significant number of E.U. Rapid Alert Notifications (See 2.7 below).

Table 4 summarises the result of testing in 2002.

TABLE 4: MYCOTOXINS – TESTING RESULTS FOR 2002							
Toxin(s)	Foodstuff	Control Limit		No. of Samples Tested	"Complying" Samples		"Non-Complying" Samples ie. Above Limit
		Limit	Basis		"Not detected"	Detected but Below Limit	
Aflatoxins (B_1, B_2, G_1, G_2)	Nuts	2µg / kg (B_1) 4µg / kg (total)	SI 400 of 2001	44	41[1]	2	1
	Peanut Butter	"	SI 400 of 2001	56	35[1]	20	1
	Dried Fruit	"	SI 400 of 2001	15	14[1]	1	0
	Others	"	SI 400 of 2001	4	4[1]	0	0
	Spices	5µg / kg(B_1) 10µg / kg (total)	EU Comm. Reg 472 / 2002	14	8[2]	5	1
Sub-total Aflatoxins				**133**	**102**	**28**	**3**
Ochratoxin A	Cereals and Cereal Products	5µg / kg and 3µg / kg	EU Comm. Reg 472 / 2002	33	31[3]	1	1
	Dried Vine Fruits	10µg / kg	"	47	19[3]	26	2
	Wines and Grape juices	1µg / kg	EU Proposals	8	7[4]	1	0
	Sub-total Ochratoxin A			**88**	**57**	**28**	**3**
Fumonisin B_1	Corn / Maize (& Products) & Breakfast Cereals	1mg / kg	Swiss / FSAI Guide	72	45[5]	26	1
Patulin	Apple Juices Apple & Pear Juice	50µg / L	'International' Limit	27	24[6]	3	0

[1]Not detected corresponds to less than 0.2µgB_1 / kg.
[2]Not detected corresponds to less than 1µgB_1 / kg.
[3]Not detected corresponds to less than 1µg / kg
[4]Not detected corresponds to less than 0.2µg / L.
[5]Not detected corresponds to less than 0.1mg / kg
[6]Not detected corresponds to less than 10µg / L

In 2002, of a total of 133 samples tested here for **aflatoxins**, 3 exceeded their statutory limits (results for these samples varied between 3.6 and 38μg / kg aflatoxin B_1). The rate of non-complying samples for 2002 (3 / 133 i.e. 2.3%) compares with those of: 2001 (12 / 254 i.e. 4.7%); 2000 (11 / 179, i.e. 6.1%); 1999 (8 / 151, i.e. 5.3%).

Of the 88 samples tested for **Ochratoxin A,** 31 had detectable toxin, with just 3 of these exceeding their statutory limit, (2 x raisin samples: 16 and 28 μg / kg; 1 x muesli: 32μg / kg).

72 samples of corn / maize (and products) were tested for the Fusarium toxin, **Fumonisin B_1**. 27 samples contained fumonisin B_1, only one of which exceeded its limit (results ranged from 0.11 to 1.5mg / kg).

27 samples, largely apple juices, were tested for **Patulin**, a mycotoxin which may be produced in over-ripe or bruised apples. Patulin was detected in just 3 samples, with none exceeding the limit of 50μg / L. EU limits for patulin in apple juices and infant juices are being introduced.

Efforts by F.S.A.I. to organise national, central co-ordination of sampling for mycotoxins is ongoing. An increased focus on packing, wholesale and import levels should benefit future surveillance.

2.4.4 Marine Biotoxins in Shellfish.

Marine biotoxins may accumulate in shellfish exposed to seawater containing toxic phytoplankton (marine algae). The toxins include DSP (Diarrhetic Shellfish Poisoning) toxins (okadaic acid and DTX 1-3), AZP (Azaspiracid) toxins and ASP (Amnesic Shellfish Poisoning) toxins. Although the principal official monitoring for marine biotoxins in Ireland is carried out at production level by the Dept. of Marine / Marine Institute, the Health Boards have an agreed, supportive role in targeting retail- and catering- level premises.

In 2002 we tested 161 molluscs (largely raw mussels, raw oysters, processed mussels, and scallops) for DSP (133 samples), AZA (143 samples) and ASP (140 samples) toxins. None of the samples tested exceeded the limits for biotoxins specified in E.U. Decisions 2002 / 225 / EC and 2002 / 226 / EC. These improved results reflect 1: the enhanced control and monitoring by the Marine Institute / Dept. of Marine, in association with FSAI / Molluscan Shellfish Safety Committee, and 2: a reduced level of algal blooms in the shellfish-growing areas.

One interesting result in mid 2002 was the detected presence of elevated (but not excessive) ASP toxins in a number of mussels. Since then, increased production-level monitoring has taken place, and subsequent mussels tested here have not shown elevated ASP.

2.4.5 Heavy Metals.

Recent EU legislation, e.g. Commission Regulation No. 466/2001, sets strict limits for Lead, Cadmium and Mercury in foodstuffs. EU member states are required to monitor for compliance with the new standards.

During 2002, 249 samples were tested here for **Lead (Pb) and Cadmium (Cd)**. The samples tested consisted largely of bottled and flavoured waters, meat and offal, fruit and vegetables, infant formulae, shellfish, spices and herbs. Lead was detected in just 12 samples, and cadmium in 65; none of these exceeded their statutory limits. Three samples of **Calabar chalk** were tested following a "Food Alert", and all three had excessive lead levels (23 -26mg/kg). Calabar chalk is chewed by some African women during pregnancy.

Of 47 samples of various marine foods (fish, shellfish, etc.) tested for **Mercury (Hg)**, two fish (swordfish and shark steak) exceeded their statutory limit.

11 samples of fruit and vegetables from the Silvermines region were tested for **Zinc (Zn)**; all were satisfactory (results range <1 to 13mg/kg).

99 samples of bottled waters and flavoured waters were tested for Arsenic (As) in 2002. Of these, 13 had levels between 5 and 10µg/L, with just one exceeding the new drinking water limit of 10µg/L – see Statutory Instrument No. 439 of 2000.

New EU requirements on sampling of foodstuffs for monitoring of contaminants, including heavy metals, will require new sampling procedures to be introduced in Ireland.

2.4.6 3-Monochloropropanediol (3-MCPD).

3-MCPD may be formed in certain foods as a result of acid hydrolysis, a food processing technique applied in the production of some soy sauces and hydrolysed vegetable protein (HVP). Commission Regulation (EC) No. 466/2001 sets a maximum level of 20 micrograms per kg (20µg/kg) in various foodstuffs, including soy sauces.

59 Soy sauces, 14 oyster sauces, 15 other sauces and 6 marinades etc. were tested here in 2002. Only one sample, a soy sauce (198µg / kg) exceeded the limit of 20µg / kg. These results indicate a sharply decreasing level of 3-MCPD contamination from 1999 (see below for summary).

Year	% Non Complying Samples
2002	1.1% (1 out of 94)
2001	5.5% (9 out of 163)
2000	25% (15 out of 60)
1999	77% (30 out of 39)

2.4.7 Anti-bacterial Substances in Meats.

In 2002, 95 samples of meats (fresh muscle tissue) were screened using the E.C. Four-Plate test for anti-bacterial substances, yielding the following results:

MEAT	NO OF SAMPLES	NO OF "POSITIVE" RESULTS
Chicken	50	0
Pork	32	0
Beef / Lamb	13	0

The number of "positives" obtained in this testing has been very low for a number of years now. Health Board surveillance in this area is now minimal, with the vast majority of control / monitoring performed at meat plants (by the Dept. of Agriculture and Food, and by the Local Authorities).

2.4.8 Histamine / Biogenic Amines.

High levels of histamine are sometimes found in 'scombroid' fish, eg. tuna and mackerel, and in herring and sardines, and also in certain cheeses and fermented foods. Scombroid fish poisoning (Icthyosarcotoxism) may be induced in individuals consuming fish containing excessive histamine. The maximum allowable level of histamine in fish is set by Directive 91 / 493 / EEC which includes an average maximum of 100mg / kg for certain species; high concentrations indicate inappropriate post-mortem handling.

97 samples (fish, fish-products and fermented meats) were tested here for histamine and three other biogenic amines (putrescine, cadaverine and tyramine) in 2002. Just one sample, a tuna steak submitted as a result of a food complaint, had excessive histamine (627 mg/kg). Other elevated results (greater than 100mg/kg for individual amines) were as follows: Putrescine (1 sample:461mg/kg); Cadaverine: 6 samples (119 – 380mg/kg); Tyramine: 2 samples (154 and 518mg/kg).

A small survey of 17 cheeses, including goats' cheese, was carried out; 15 of the 17 had no detectable histamine (less than 20mg/kg), and two had levels of 197 and 423mg/kg. 4 cheeses had tyramine levels above 100mg/kg (range 107 – 297mg/kg); 2 cheeses had cadaverine levels above 100mg/kg (258 and 456mg/kg); 3 cheeses had elevated putrescine levels (189, 267 and 372mg/kg).

2.4.9 Other Contaminants.

Benzene, a constituent of hydrocarbon fuels, may occasionally contaminate water or soft drinks. Statutory Instrument 439/2000 sets 1µg/L as the limit for benzene in drinking water. In 2002, 50 samples of various soft drinks and flavoured waters were tested here. The following results were obtained: 45 samples: <1µg/L; 10 samples: 1 – 5µg/L; 2 samples: 5 - 10µg/L; 2 samples: >10µg/L (72 and 19µg/L).

The composition of **cooking oils** can change considerably with use. Many EU Food-Control agencies monitor oil quality/safety parameters such as acid value, peroxide value and polymerized triglycerides (PTGs). In 2002, 80 samples of used fats/oils were tested for PTGs yielding the following results: less than 3 to 10% (78 samples); 10 – 15% (2 samples). The results may be compared to the Dutch and Belgian limits for PTGs of 15 and 10% respectively. 82 samples (including the 80 above) were tested for **Acid Value**. Of these, 15 (18% of total) exceeded the traditionally used 'limit' of 3.0, with values ranging between 3.4 and 11.3.

2.5 Composition and Labelling, Additives and Food Processing.

2.5.1 Imported Chicken Fillets.

At the request of FSAI, and following concerns raised by the U.K. Food Standards Agency on the quality of imported chicken fillets in the U.K., a national survey on the compositional quality of imported chicken fillets on the Irish market was undertaken. 31 samples of frozen chicken fillets were taken nationally by Environmental Health Officers and tested here for a variety of parameters including fat, protein, (apparent) total meat content, collagen and extraneous water. 14 of the 31 samples were found to be in breach of their labelled composition. The breaches included deficiencies in labelled meat content and in added water (up to ca. 40%). Several samples, from two major Dutch processors in particular, were found to contain undeclared, extraneous collagen (found in skin and other connective tissues). Subsequent, independent

testing indicated the presence of bovine (cattle) and / or porcine (pig) DNA, suggesting a source of the above extraneous collagen. Whilst no direct food safety risks were involved, legal and ethical issues of misleading labelling and the presence of beef and pork material in chicken breast arise. The problem stirred considerable press and T.V. coverage.

The calculation methods for total meat content and added water were those employed by the UK Food Standards Agency. Hydroxyproline testing was carried out on our behalf by the Cork Public Analyst's Laboratory.

The Food Safety Authority of Ireland (FSAI) took responsibility for organising this surveillance and for following-up the results of testing with detailed reporting and recommendations, which have been acted upon by the European Commission, (see e.g. FSAI News, July 2002 for summary report).

A second follow-up survey of 8 samples of chicken breasts revealed 3 samples with meat content lower than the labelled values. This survey was organised by FSAI in conjunction with the Health Boards and the Dept. of Agriculture and Food.

2.5.2 Gluten-free Foods.

Gluten consists of a complex mixture of constituents including a group of proteins called prolamins; these proteins are found in wheat (gliadins), barley (hordeins) and rye (secalins), and they have varying toxicity to coeliacs. Foodstuffs which should be essentially free of residual / contaminating gluten include:

1: Wheat-based foods rendered 'gluten-free'.

2: Naturally 'gluten-free' foods labelled as "gluten-free".

3: Naturally 'gluten-free' foods not labelled as "gluten-free".

In the absence of EU or Codex agreed limits, standards of 20ppm (for naturally 'gluten-free' foods) and 200ppm ('deglutenised' foods) are applied in Ireland. An FSAI scientific group is reviewing, inter alia, the above applied limits.

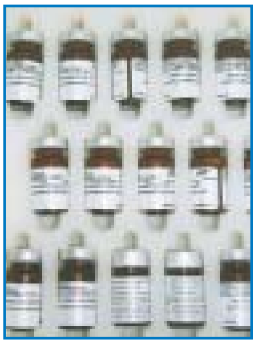
In 2002, a new, improved analytical procedure ('Mendez' R5 ELISA) was marketed; this procedure has improved detection for heat-treated and barley-containing foods in particular. The ELISA (r-Biopharm) method was used here to test 278 'gluten-free' samples, largely cereals and bakery products (breads, biscuits, flours, breakfast cereals, confectionery, etc.), babyfoods and some meat products. – See Table 5 below for summary of results.

TABLE 5 : GLUTEN TESTING RESULTS FOR 2002						
Food Category	**Applied Limit**	**No. of Samples Tested**	**Results Range**			
			<50ppm	51-100ppm	101-200 ppm	>200ppm
Deglutenised Wheat-Based Foods, eg.'gluten-free' flour, bread, certain confectionery etc.	200 ppm	94	80	7	4	3
Naturally'gluten-free' foods, eg. rice-based foods, cornflours, certain confectionery etc.	20 ppm	184	179	2	1	2
Totals		278	259	9	5	5

The results indicate relatively good compliance with the standards, although 5 samples exceeded 200 ppm and 9 samples overall were designated as "unsatisfactory", i.e. in breach of limits. Targeted sampling in 2002 included Cornflours and GMS scheme products from pharmacies (FSAI), Infant Foods and 'Gluten-free' foods manufactured in Ireland. 8 Samples of cornflour, representing the 3 available brands, all had no detectable gluten. Of 77 babyfoods / infant formulae tested, 2 had gluten levels above 20 ppm (43 and 63 ppm).

80 of the 94 'deglutenised' wheat-based G.F. foods (i.e. 85%) had gluten levels of less than 50 ppm, indicating that manufacturers generally do achieve such low levels.

2.5.3 Additives.



Statutory Instruments S.I. 613 of 2002 and S.I. 437 of 2000 authorise usage and set limits for additives in foods. Although concern generally about the presence of additives in the food supply has decreased, the Health Boards continue some monitoring in this area, in particular for sulphites and nitrites which have been identified as requiring surveillance. The Western Region results for 2002 indicate a relatively high level of compliance with the legislation. Table 6 below summarises the results.

Table 6 - Summary of Principal Testing for Additives in 2002					
Additive Details			**No. of Samples Tested**		
Name(s)	Function	Sample Categories	Total	Non-Complying *	Complying
Benzoic & Sorbic acid (Benzoates & Sorbates)	Preservatives	Soft Drinks (28) Cheese / Yoghurt (24) Salads (8) Flavoured Bottled Water (22) Others (23)	105	6	99
Sulphur dioxide (sulphites)	Preservatives	Meats(+ products) (102) Dried Fruit / Vegs. (54) Wines / Beers (33) Others (6)	195	1	194
Nitrite and Nitrate	Preservatives	Cured Meats (+ Products) (175) Other meats (30) Others (4)	209	17	192
Saccharin, Acesulfame K & Aspartame	Artificial Sweeteners	Non-alcoholic Drinks (23) Desserts (6), Others (6)	35	0	35

* Non-complying = undeclared or excessive levels or prohibited use.

The 17 samples found excessive for nitrate were largely raw bacon, rashers and hams.

2.5.4 Food Irradiation Testing.

Although accepted by many as a valuable 'preservation' technique for certain, specified foodstuffs, many consumers in particular remain cautious about the use of food irradiation. At present the list of foodstuffs approved (EU Directives 99 / 2 and 99 / 3 / EC) for marketing includes aromatic herbs, spices and vegetable seasonings. Foodstuffs, including ingredients which are irradiated must be labelled as such.

In 2002, 57 samples (herbs, spices and seasonings) were tested using a screening procedure (PSL). None of the samples tested "positive" for irradiation, although 3 "intermediate" results were obtained, indicating that these samples may have had one or more individual ingredients irradiated. 5 private samples of calcified marine products were tested, of which 4 gave "positive" results. Previous year's results were as follows: 2001: 1 "positive" and 12 "intermediate" results out of 191 samples tested; 2000: O "positive" and 2 "intermediate" of 35 tested; 1999: O "positive" and 10 "intermediate" of 67 tested; 1998: 0 "positive" and 11 "intermediate" of 62 tested.

2.5.5 Phytoestrogens in Soya-based Infant Formulae.

Phytoestrogens (plant oestrogens) are naturally occuring components of many plants. Some recent research has focussed on the levels and effects of the soya plant oestrogens (isoflavones) in soya-based infant formulae. In 2002, a survey of 8 samples of soya-based formulae and 15 other soya products (desserts, yoghurts and drinks) was undertaken. The formulae contained between 220 and 280 mg/kg total isoflavones (expressed as aglucone equivalents). Detailed results were reported to FSAI who requested the testing. Testing performed covered the isoflavones: Daidzin, Glycitin, Glycitein, Genestin, Daidzein and Genistein.

2.5.6 Dairy Products.

A total of 256 samples of dairy products (milk, cream, cheese, yoghurt, butter, etc.) was tested in 2002 for a varying range of parameters, largely pasteurisation efficiency, inhibitory substances (Delvo test), extraneous water, pH, general labelling and, occasionally, fat, protein and M.S.N.F. Of the 217 routine dairy samples received from the Environmental Health Officers, 6 showed infringements, related to the presence of extraneous water and to a pasteurisation deficiency (1 brand of butter). Overall, the 'chemical' testing performed here in 2002 indicates a generally high quality of dairy products on the market. Note: Results of microbiological testing of dairy products are contained in reports of the Health Board Food Microbiology Laboratories and of the Dept. of Agriculture and Food.

2.5.7 Labelling of Foods.

Statutory Instrument No. 483 of 2002 consolidates legislation on the labelling of foodstuffs in general. A large number of other laws give conditions for labelling product-specific foodstuffs. The administration of S.I. 483 of 2002 is primarily the responsibility of the Dept. of Enterprise, Trade and Employment and the FSAI; some enforcement is delegated to the Health Boards. Labelling legislation and enforcement mechanisms are outlined in a new publication by FSAI. Reported increases in food allergies in the EU will require improved control (including testing of foods) of labelling of allergens.

In 2002, 53 samples were designated here as being in breach of Irish labelling law. As in previous years, the type of examination and analysis performed indicates that compliance is generally high, but that some small producers in particular need to improve their labels.

2.5.8 Miscellaneous Composition, etc.

The laboratory performs some routine testing related to food processing and compositional quality.

104 programmed samples of bottled waters and flavoured waters were tested in 2002 for a varying range of parameters including nitrite / nitrate, pH, general labelling and heavy metals, (see 2.4.5 above).

53 samples of **pub-level spirits** screen-tested for alcoholic strength showed no evidence of adulteration.

Other routine testing during the year included 92 samples (flour and other dried foods) for moisture, 75 samples (processed and acidic foodstuffs) for **pH**, 57 samples (jams / preserves, fruit juices, etc.) for **soluble solids as sucrose**, and 50 samples for **ash**.

2.6 Complaint Samples.

Complaint samples arise when consumers find contamination, infestation, spoilage, extraneous matter or other defects in foods. Some complaints arise from food poisoning incidents (these will generally result in microbiological examination). Complaint samples processed in this laboratory usually involve the presence of foreign bodies such as plastic, metal, insects, plant 'debris', general dirt / unidentified material or abnormal odours / tastes in food. Some of the received samples require microbiological examination, and we acknowledge the cooperation of the Food Microbiology service to whom we must occasionally divert samples.

A total of 226 complaint samples, received from the EHO service (175) and directly from the public (51), was investigated here in 2002. Of the 226, the number of adverse reports issued was 147 (65%)* - see Appendices 2(iii) and 2(iv) for a breakdown.

***Previous results:**

2001	2000:	1999:	1998:
75% (180 / 239)	63% (129 / 206);	66% (154 / 233);	70% (139 / 199).

The number of food complaints received represents a tiny proportion of the total number of food items consumed in our region.

2.7 Food Alerts (RASFF) and Hazard / Contamination Reports.

The EU Food and Feed Alert system (RASFF) operates when a member state reports significant contamination in, or risk associated with, a particular lot of food or animal feed. The European Commission, on notification, alerts other member states to the problem. Depending on the estimated risk to consumers, the notifications are treated as Alerts or Non-Alerts. The FSAI, delegated by the Food Safety Promotion Board (FSPB), is the Irish contact point and administrator for RASFF. The number of issued notifications continues to rise year by year, as more food and feed control authorities send information into the system. The increased number of notifications seen in 2002, is explained, in part, by the increased number of meat residues, pesticide residues and feedstuffs being reported.

During 2002, approx. 1,451 notifications (394 Alerts and 1,057 Non-Alert Notifications) were received in this laboratory (via FSAI / EU Websites) – see **Appendix 3** for a summary.

Food Hazard / Contamination reports are issued by the laboratory when contamination deemed significant is detected. Upon risk assessment of the contamination, a Food Alert Notification may or may not be issued by FSAI, depending on their evaluation of risk to the consumer. In 2002, 19 Hazard / Contamination Reports were issued from here; these related to benzo-(a)-pyrene (7), ochratoxin A (3), aflatoxins (2), gluten (2), benzene (2), domoic acid (1), pasteurisation (1) and sulphur dioxide (1).

2.8 Review of Food Laboratory Services and Future Developments.

In late 2002, we were informed of the commissioning by the Dept. of Health and Children of a Strategic Developmental Review of Health Board Food Laboratories (Official Food Microbiology and Public Analysts' Laboratories).

A brief outline of developments relevant to the Public Analyst's service follows.

There has been a Public Analyst's laboratory service in Ireland since 1862 (in Dublin). Since 1978 the service comprises of three Health Board laboratories based in Dublin, Cork and Galway. Up until the early 1990s staffing and resources for food testing were very limited. Considerable resourcing (staff and equipment) of the service was then provided by the Dept. of Health and Children. This strengthening of the service arose from EU legislation, in particular the Official Control of Foodstuffs (Directives 89 / 397 / EEC and 93 / 99 / EEC), which required each member state to have the resources to police foodstuffs at all stages in the food chain. The Dept. of Health and Children facilitated the establishment of three Regional Food Control Committees, based in the geographical areas served by the Public Analysts' laboratories. In the late 1990's the Dept. of Health and Children provided funding for new laboratories in each of the Regions.

Some important, recent developments in Food Control have taken place:

- The establishment of **FSAI** (the Food Safety Authority of Ireland) in 1998 (see **2.1**). FSAI has identified a number of surveillance "gaps" which will require new testing.
- The establishment of **FSPB** (the Food Safety Promotion Board) in 1999 (see **2.2**). FSPB's role in Food Safety Research, Laboratory Linkages and Specialised Laboratory Services has brought it into direct contact with our service.
- **EU / FVO** (Food and Veterinary Office) missions (audits) to Ireland.
- **Accreditation** - increasing demands placed by (new) ISO / IEC 17025 Standard required of Official Food Laboratories.
- Increasing EU Food **legislation** setting new safety standards and limits for foods. In particular the draft EU Food and Feed Regulations appear to have serious implications for the future of the Official Food Microbiology and Public Analysts' Laboratories.

The 5 developments outlined above have inevitably resulted in **increased scrutiny of the function and operation of the Irish Food Control Services, including the laboratories.** The commissioned Strategic Review is both timely and essential to strengthen the laboratories in preparation for the future and to, in particular, ensure the provision of a responsive, high-quality, cost-effective service.

The Review's organisation (Secretariat) has been given to the Food Safety Promotion Board (FSPB). Its Terms of Reference cover the laboratories' legislative functions / responsibilities; specialisations, accreditation, research, staff training, survey work and capacities; facilities and resources; food safety agency needs; effectiveness; rapid reporting of test data; inter-laboratory linkages, etc. The composition of the Review Body is to be decided in early 2003 and the timescale for making the Report and Recommendations is late 2003.

We hope to liaise closely with the Review Group during its work and with those responsible for coordinating the implementation of the Group's recommendations. In the current climate it is essential that the Health Board laboratories be in a position to provide the top-class, public-health based service required by the Irish Food Safety Bodies and Agencies. It is hoped that increased centrally coordinated, national sampling of foods will result from the Review. A testing service with 'core' work, specialised / designated testing, and distinct research and development capacities for each laboratory is required.

3. WATER / EFFLUENTS:

3.1 INTRODUCTION.

The laboratory provides a service to the Local Authorities in the region for the chemical analysis of bathing waters, drinking waters and effluents.

A service is also provided to the General Public, Local Industry and Hospital Renal Dialysis Units.

Bathing Waters are tested for compliance with the Quality of Bathing Water Regulations 1992 (S.I. 155 / 1992).

Drinking Waters are tested for compliance with the European Communities (Quality of Water Intended for Human Consumption) Regulations 1988 (S.I. No. 81 of 1988).

3.2 WORKLOAD

The total number of samples tested during the year was 9,393.

They were received from the following sources:-

SOURCE	NUMBER
Galway (Environmental Health Officers)	1,697
Galway County Council	196
Galway Corporation	591
Mayo	1,412
Roscommon	256
Donegal	1,225
Sligo / Leitrim	721
North Tipperary	655
Clare	526
Limerick	483
Roscommon County Council	168
Miscellaneous	1,463
TOTAL	**9,393**

3.3 Fluoridation of Public Water Supplies

Fluoridation of public water supplies in Ireland started in the early 1960's where regulations made under the Health (Fluoridation of Water Supplies) Act 1960 require Sanitary Authorities to add fluoride to the public water supplies in order to bring the level of fluoride up to between 0.8 mg/L and 1.0 mg/L .

There had been considerable public disquiet regarding the practice of adding fluoride to water.

This has culminated in the Minister for Health and Children appointing a forum to review the fluoridation of public water supplies.

The forum published its report in March 2002.

The overall conclusions are as follows:

- *Water fluoridation has been very effective in improving the oral health of the Irish population, especially of children, but also of adults and the elderly.*
- *The best available and most reliable scientific evidence indicates that at the maximum permitted level of fluoride in drinking water at 1 part per million, human health is not adversely affected.*
- *Dental fluorosis (a form of discoloration of the tooth enamel) is a well recognized condition and an indicator of overall fluoride absorption whether from natural sources, fluoridated water or the inappropriate use of fluoride toothpaste at a young age. There is evidence that the prevalence of fluorosis is increasing in Ireland.*

Some of the principal recommendations are as follows:

- *The fluoridation of piped public water supplies should continue as a public health measure, subject to the other recommendations contained in the report.*
- *In the light of the best available scientific evidence, the Fluoridation of Water Supplies Regulations, 1965 should be amended to redefine the optimal level of fluoride in drinking water from the present level (0.8 to 1.0 ppm) to between 0.6 and 0.8 ppm, with a target value of 0.7 ppm.*
- *The Amended Regulations should reflect advances in the technology of fluoride monitoring and testing and also the most recent international specifications for the quality of the products used in the fluoridation process.*
- *An Expert Body should be established to implement the recommendations of the Forum and to advise the Minister for Health and Children on an ongoing basis on all aspects of fluoride and its delivery methods as an established health technology.*

The results of the laboratories monthly tests are set out in **Appendix 4**.

3.4 Aluminium in Public Water Supplies:

Aluminium salts are used as a flocculent in some treatment plants in order to clarify the water.

Traces of aluminium may persist in the final treated water.

All supplies treated with Aluminium are tested for compliance with the legislation. The Maximum admissible concentration in drinking water is 0.20 mg / L Al.

The results for the year are shown in Table below.

Aluminium in Public Supplies – Results in mg / Litre				
No. of Samples	<0.02	>0.02 – 0.2	>0.2-1.0	>1.0
674	182	387	93	12

3.5 Trihalomethanes: (THMs)

Trihalomethanes (THMs) occur in drinking water as products of the reaction of chlorine with naturally occuring organic matter. They do not occur naturally.

Four members of the T.H.M. Group are of interest with respect to drinking water, namely, **CHLOROFORM, CHLORODIBROMOMETHANE, DICHLOROBROMOMETHANE AND BROMOFORM.**

Concern about T.H.M.'s arise because chloroform is classified as a possible human carcinogen. The current limit for total T.H.M.'s is 100 micrograms / L.

The results for the current year are shown in the table below.

Trihalomethane Results					
Numbers of Analytical Results Expressed in Ranges (µg / L)					
No. of Samples	0 – 50	51 – 100	101 – 200	201 – 300	>300
1064	554	376	110	19	5

3.6 Arsenic in Drinking Water

Inorganic arsenic compounds are classified in Group 1 (carcinogenic to humans) by the International Agency for Research on Cancer.

Raised levels of Arsenic may be found naturally in water or may be as a result of commercial or industrial activity.

The principal forms of Arsenic of interest in drinking water are Arsenite As(III) and Arsenate As(V).

The current limit of 50 micrograms / L As is set to reduce to 10 micrograms / L As in January 2004 (Under the new Drinking Water Regulations (S.I. No 439 of 2000).

A comprehensive survey of Arsenic levels in the region was conducted this year, the results of which are shown in table below.

Arsenic Results (µg / L As)					
No. of Samples	<5	5 to 10	11 to 50	51 to 100	>100
1,024	871	76	39	23	15

These results relate to public water supplies, group water supplies and private wells.

All the elevated levels of Arsenic (>10 micrograms / L) were found in private wells, confined to one geographic area. Each of these supplies were sampled a number of times.

The highest Arsenic level recorded was 177 micrograms / L As.

3.7 Haemodialysis Water:

The laboratory provides a chemical analytical service to the hospitals in the region for the examination of the water used in their haemodialysis units.
The number tested during the year was 399.

3.8 Water from Private Sources:

The laboratory provides a chemical analytical service to the general public and private industry for the testing of water and effluents. The number tested during the year was 789.

4. PHARMACEUTICALS AND TOXICOLOGY:

4.1 Pharmaceuticals:

A total of 67 pharmaceutical (and 1 cosmetic) products was received during 2002. They were received from:

IRISH MEDICINES BOARD :	
Authorised Medicinal Samples	**40**
Enforcement Samples	**10**
Dept. of Health and Children	**8**
EDQM Centrally Authorised Products	**4**
EDQM Proficiency Tests	**4**
Others	**2**

Since 1976, the laboratory has provided a service to the Irish Medicines Board (IMB), formerly the "National Drugs Advisory Board", on a contract basis to test drugs and medicines. The original objectives of the scheme were to :

(a) test products requiring a Product Authorisation to see if they comply with the Pharmacopeia or the Applicant Company's finished product specification

(b) test the methods of analysis submitted by the applicant

(c) deal with complaints from Physicians, Veterinarians and members of the public

(d) test samples taken at retail level.

Over the years, the nature of this work has changed from surveillance of products on the market to functioning as an Official Medicines Control Laboratory with the Irish Medicines Board.

Official Medicines Control Laboratories (OMCL)

The Public Analyst's Laboratory together with the Irish Medicines Board acts as an Official Medicines Control Laboratory (OMCL) under the framework of the European Directorate for the Quality of Medicines (EDQM).

OMCLs operate at two levels: Nationally and at a European level.

National Role of OMCL

At a national level, the laboratory contributes to the protection of public health and the regulatory function of the IMB by providing independent analytical data on medicinal products that enable the IMB to make informed decisions on the quality

of medicines. This independent testing includes areas such as:

- support of pharmacovigilance assessment,
- pre-marketing analysis,
- post marketing surveillance of authorised medicinal products,
- analysis of generic medicines,
- support of GMP inspections,
- evaluation of defect reports,
- analysis of unlicensed (unauthorised) medicines,
- support to the evaluation of the quality part of Market Authorisation files.

European Role of OMCL

At a European level, the laboratory participates in activities of the OMCL Network co-ordinated by the EDQM. These activities include:

- the testing of centrally authorised medicinal products (CAP),
- participation in Proficiency testing studies (PTS),
- Collaborative Market Surveillance Studies.

Quality System

To ensure quality and comparability of results within the Network, OMCLs must operate to a quality system based on ISO/IEC 17025 - the current standard which replaced EN 45001. Since 1991, the laboratory has been accredited to EN 45001 for the analysis of Pharmaceuticals. On 5th May 2002, the laboratory was formally recognised by NAB (National Accreditation Board) as having successfully made the transition to ISO/IEC 17025 .

CAP Testing

In 2002, four Centrally Authorised Products were tested on behalf of the EDQM. It is foreseen that the number of samples tested under this scheme will increase in the coming years.

PTS Testing

The laboratory successfully took part in four EDQM-organised Proficiency Testing Schemes in 2002, covering the following areas:

(a) UV-VIS Spectrophotometry

(b) Dissolution Testing

(c) Steroids in Ointments

(d) Assay of Tablets

Further proficiency tests are planned for 2003.

4.2 Toxicology:

The number of samples tested during 2002 was 277. They were made up as follows:

Alcohol (Post Mortem)	239
Alcohol (R.T.A.)	25
Paraquat	1
Strychnine	3
Miscellaneous	9

This service is mainly for the Consultant Pathologists in the Western Health Board and for Veterinary Surgeons as well as for members of the public. The number of samples tested for alcohol, taken under the Road Traffic Act was 25, of which 21 were above the legal limit.

The laboratory takes part in an External Quality Assessment Scheme (UKNEQAS) organized by Cardiff Bioanalytical Services Ltd. Samples of blood and urine are received on a monthly basis and analysed for ethanol. All results to date from this scheme have been very satisfactory.

5. ENVIRONMENTAL:

5.1 Air Pollution Monitoring:

5.1.1 Sulphur Dioxide and Smoke/Particulate matter.

Air Quality in Ireland is controlled by the Air Pollution Act of 1987.

Air quality standards are set out in S.I. No. 244 of 1987.

Under the regulations the parameters sulphur dioxide and smoke/particulate matter are measured at two locations in the City, viz., City Council Office at Sandy Road and the Waterworks at Terryland.

The average results of the year are shown below:

AIR POLLUTION MONITORING – 2002		
	AVERAGE RESULT IN MICROGRAMS/CUBIC METER	
PARAMETER	SANDY ROAD	WATERWORKS
Sulphur Dioxide (SO_2)	12	10
Smoke (Particulate Matter)	6	3

The monthly results are shown in **Appendix 5**.

The values are very low, the standards were not exceeded at any time during the year.

5.1.2 PM 10s.

The Air Quality Framework Directive (EU Directive 96/62/EC) provides a framework for further EU legislation on the management of air quality (so called daughter directives).

The first such daughter directive was adopted on 22nd April, 1999.

This sets new limit values for a range of parameters and for the first time sets limit values for particulate matter measuring 10 micrometers or less in diameter (PM 10s).

In June of this year the Minister for the Environment and Local Government published the "Air Quality Standards Regulation 2002" (S.I. No. 271 of 2002). These regulations give effect to E.U. Directive 96/62/EC and its daughter directives 1999/301 EC and 2000/69/EC.

Limit values for sulphur dioxide, nitrogen dioxide, oxides of nitrogen, PM10s, lead, benzene and carbon monoxide are set out in the Regulations.

The limits cited in the regulation for PM10s relate from 2002 forward.

The limits for the other parameters must be attained by 2005, and in some cases 2010.

The laboratory operates a PM10 monitoring station at the roundabout close to Barry Motors.

Results for the year are shown in **Appendix 5**.

6. LABORATORY ACCREDITATION.

Background

Accreditation is a formal recognition that a laboratory is competent to carry out specific tests or types of tests. The concept of accreditation was first introduced into the Laboratory around 1989. It was triggered off by a number of events, mainly:

- Directive 89/397/EEC on the Official Control of Foodstuffs which stated that for the enforcement of food law, samples shall be analysed in official laboratories or other laboratories authorised to carry out analysis.
- The Commission's policy published in a document entitled " A Global approach to Certification and Testing" which proposed that all laboratories engaged in testing in the context of EC regulations or directives, should be obliged to show that they satisfy the criteria laid down in the European Standard EN 45001.
- Subsequent Directive 93/99/EEC on Additional Measures concerning the Food Control of Foodstuffs (AMFC) specified that official laboratories comply with EN 45001 before 1st November 1998 or lose their status.

From 1989 onwards, the laboratory built up its scope of accreditation so that it was able to meet the deadline of 1st Nov. 1998. While accreditation was mandatory in the area of Food analysis, the laboratory also extended its scope of accreditation to most of its Water and Pharmaceutical analysis. This was to give formal recognition to the quality of the analysis. The process represented a huge change in working practices for the Laboratory and was a steep learning curve.

ISO/IEC 17025

Early in 2000, ISO/IEC 17025 was published. This new international standard replaced the European EN 45001, the International ISO 25 and the National P1 ILAB standards. The laboratories were given a deadline of 1st Jan. 2002 to transfer to the new standard. The new standard is more detailed and extended and has a broader scope than the standards it replaced. It puts more emphasis on matters such as:

- Document control,
- Validation of Methods,
- Traceability of Reference Standards,
- Measurement Uncertainty,
- Review of requests, tenders, contracts,
- Service to the client,
- Control of nonconforming testing,
- Preventive Actions.

To comply with this new standard, the laboratory had to write a new Quality Manual and new protocols to comply with the new and more stringent requirements.

Following a successful reassessment by the National Accreditation Board (NAB) at the end of November 2001, the Laboratory was granted formal accreditation to ISO / IEC 17025 on 5th May 2002.

The annual NAB surveillance visit took place in mid-May 2002. Our application for an extension to scope in the Food area was approved and we were successful in maintaining accreditation to ISO / IEC 17025 for our existing scope.

Proficiency Testing

As part of our external quality control, the Laboratory participates in a range of proficiency testing schemes. The results are monitored and any non-conformances are investigated and corrective and preventive action is formulated and implemented. Our record to date is very good with very few results outside acceptable limits.

PROFICIENCY TESTING SCHEMES - 2002.

Scheme	Parameters Tested
FAPAS	***Nutritional components (Meat),*** Nitrogen, Moisture, Ash, Fat
FAPAS	***Nutritional components (Cereals)*** Nitrogen, Moisture, Ash,
FAPAS	***HPLC Analysis*** Caffeine, Benzoic Acid, Sorbic Acid, Acesulfame-K,Saccharin,
FAPAS	***Aflatoxins – B1, B2, G1 and G2***.
FAPAS	***Trace Elements*** – Lead, Cadmium, Mercury, Arsenic
FAPAS	***Nitrate / Nitrite***
FAPAS	***Patulin***
FAPAS	***Ochratoxin***
FAPAS	***Fusarium Mycotoxins*** - Fumonisin B1
FAPAS	***3-MCPD***
FAPAS	***Allergens*** Gluten
FAPAS	***Acrylamide***
FAPAS	***Butterfat in Milk***
CHEK	***Preservatives*** – Benzoic Acid, Sorbic Acid, Suphur Dioxide
CHEK	***Polymerised Triglycerides***
CHEK	***HPLC - Histamine***
CHEK	***Aflatoxins*** (Spices)
DAPS	***Alcoholic Beverages***
AQUACHECK	***Water*** –Fluoride, Conductivity, T.O.N., Nitrite, Ammonia, pH, Colour, Turbidity, Iron, Manganese, Aluminium, Arsenic, Trihalomethanes,
EDQM	***Pharmaceutical Analysis*** – HPLC, UV Spectrophotometry, Dissolution
UKNEQAS	***Alcohol*** in Biological samples

STAFF TRAINING / BUDGET / EXTERNAL COMM.

7. Staff Training

Directives 89/397/EC and 93/99/EC, as well as the service contract with the Food Safety Authority of Ireland, place considerable emphasis on training and ongoing professional development. These are achieved by sending staff to courses in the UK and Ireland and on in-house programmes. The rate of change in information technology, legislation, quality assurance demands and new instrumentation is such that to keep staff up-to-date is becoming a full-time task.

8. Budget 2002:

Income / Expenditure:

The Budget for the Laboratory for the year was 2,370,771 Euro. This included a special Food Control Allocation of 60,000 Euro to purchase a liquid chromatograph.

The income for the year was 137,691 Euro.

9. EXTERNAL LIAISON / COMMITTEES etc.:

Laboratory staff participated in a number of 'external' activities and working groups related to our work; in 2002, committee (and sub-committee) meetings with the following groups were attended or organised:

FSAI: -Quarterly Liaison Meetings with Public Analysts' Group;
-Contracts Meetings with Western Health Board;
- Scientific Committee / Sub-committee;
- Molluscan Shellfish Safety Committee;

F.S.P.B. Food Safety Promotion Board – Functional Group (Scientific Co-operation + Laboratory linkages);

Regional Food Control Group (Western Region);

Zoonoses Committee (Western Health Board Region);

SCOOP: Scientific Co-operation in respect of food (various Tasks);

F.L.E.P. F.L.E.P. is an informal grouping of European Food Law Enforcement Practitioners whose terms of reference include the exchange of information and co-operation, in order to develop mutual confidence between National Food Control systems;

I.A.P.A.L: The Irish Association of Public Analysts' Laboratories;

Fluoridation Committee (W.H.B.):

Irish Mass Spectroscopists' Society;

EURACHEM Ireland.

Local Authority – Health Board: (Water monitoring);

Irish Medicines Board: Liaison Meetings.

Appendix 1

<table>
<tr><th colspan="5">Western Region – Food Sampling / Analysis (Chemical) Programme for 2002</th></tr>
<tr><td>Jan 1-15</td><td>"Gluten-free" Foods
(Gluten)
35</td><td></td><td>Bottled Waters
(Arsenic & others)
50</td><td></td></tr>
<tr><td>Jan 16-31</td><td>Infant Formulae & Babyfoods
(Gluten)
35</td><td>Miscellaneous Foods
(Sulphites / SO2)
60</td><td></td><td>Scallops
(ASP Toxins)
10</td></tr>
<tr><td>Feb1-14</td><td>Milk & Dairy Products
(Routine Tests)
40</td><td></td><td>Olive Pomace Oils
(Import / Wholesale / Manufacturing)
Benzo-(a)-pyrene
20</td><td rowspan="2">Mussels, Oysters and (some) Other Molluscs
(Marine bio-toxins)
10</td></tr>
<tr><td>Feb 15-28</td><td>Miscellaneous Foods
(Sorbates / Benzoates)
40</td><td>Soy Sauces, Oyster Sauces, Other Sauces, HVP & Malt Extracts
(Chloropropanols)
30</td><td></td></tr>
<tr><td>Mar 1-15</td><td>Soy-based Infant Foods
(Phytoestrogens)
FSAI Survey
20</td><td>Miscellaneous Foods
(Composition / Labelling)
50</td><td>Peanut Butter, Peanuts, Pistachios and Dried Figs
(Aflatoxins)
30</td><td rowspan="2">Mussels, Oysters & (some) Other Molluscs
(Marine bio-toxins)
10</td></tr>
<tr><td>Mar 16-31</td><td>Cured Meats
(Nitrites / Nitrates)
60</td><td>Corn / Maize (& Products)
(Fumonisin B1)
40</td><td></td></tr>
<tr><td>Apr 1-15</td><td></td><td>"Gluten-free" Foods
(Gluten)
Note 1
35</td><td>Scombroid Fish, Smoked Fish & Raw-milk cheeses
(Biogenic amines)
Note 14
50</td><td>Scallops
(ASP Toxins)
Note 4
10</td></tr>
<tr><td>Apr 16-30</td><td>Miscellaneous Foods
(Artificial Sweeteners)
50</td><td>Miscellaneous Foods
(Sulphites / SO_2)
60</td><td>Frying Oils (Unused) (especially Wholesale Level)
(Benzo-(a)-pyrene)
30</td><td>Mussels, Oysters and (some) Other Molluscs
(Marine bio-toxins)
10</td></tr>
<tr><td>May 1-15</td><td>Dried Vine Fruits
(Ochratoxin A)
30</td><td></td><td>Miscellaneous Foods
(Heavy Metals)
40</td><td>Mussels, Oysters & (some) Other Molluscs
(Marine bio-toxins)
10</td></tr>
<tr><td>May 16-31</td><td></td><td>Cured Meats
(Nitrites / Nitrates)
60</td><td></td><td>Mussels, Oysters & (some) Other Molluscs
(Marine bio-toxins)
10</td></tr>
<tr><td>Jun 1-15</td><td>Soy Sauces, Oyster Sauces, Other Sauces, HVP and Malt Extracts
(Ochratoxin A)
30</td><td>"Gluten-free" Foods
(Gluten)
35</td><td>Used Cooking / Frying Oils
(DPTGs / AV / other)
50</td><td>Mussels, Oysters & (some) Other Molluscs
(Marine bio-toxins)
10</td></tr>
<tr><td>Jun 16-60</td><td>Goats' Milk & Goats' Cheese
(Routine Testing)
40</td><td>Corn / Maize (& Products)
(Fumonisin B1)
40</td><td>Raw Poultry and Pork
(Anti-bacterial substances)
70</td><td>Scallops
(ASP Toxins)
10</td></tr>
<tr><td>Jan - Dec</td><td colspan="4">All Microbiological samples to Microbiology Laboratory - separate programmes. Complaints, EU Rapid Alert samples, other suspect samples and Tap waters from manufacturers (where relevant).</td></tr>
</table>

Western Region – Sampling / Analysis (Chemical) Programme for 2002				
July 1 – 15	**Scombroid Fish and Smoked Fish** (Biogenic amines) 45	**Miscellaneous Cereals and Cereal Products** (Ochratoxin A) 30	**'Pub-level' Spirits Whiskey Gin Vodka** (Adulteration) 100	**Mussels, Oysters & (some) Other Molluscs** (Marine bio-toxins) 10
July 16 - 31	**Olive Pomace Oils & Smoke Flavourings (Import / Wholesale / Manufacturing)** (Benzo-(a)-pyrene) 30	**Bottled Water** (Compositional / Other) 40		**Mussels, Oysters and (some) Other Molluscs** (Marine bio-toxins) 10
Aug. 1 – 15	**Peanut Butter, Peanuts and Pistachio Nuts** (Aflatoxins) 30	**Cured Meats** (Nitrates / Nitrites) 60	**Herbs, Spices and Seasonings** (Irradiation (& Other) 50	**Mussels, Oysters & (some) Other Molluscs** (Marine bio-toxins) 10
Aug. 16 – 31	**"Gluten-free" Foods** (Gluten) 35	**Miscellaneous Foods** (Sulphites / SO_2) 60		**Mussels, Oysters & (some) Other Molluscs** (Marine bio-toxins) 10
Sept. 1 – 15	**Fish / Marine Products** (Mercury) 40		**Peanut Butter, Peanuts, Pistachios & Dried Figs** (Aflatoxins) 30	**Mussels, Oysters & (some) Other Molluscs** (Marine bio-toxins) 10
Sept. 16 – 30	**Milk, Goat's Milk / Cheese & Dairy Products** (Routine Testing) 40	**Soy Sauces, Oyster Sauces, HVP & Malt Extracts** (Chloropropanols) 30	**Corn / Maize (& Products)** (Fumonisin B_1) 40	**Mussels, Oysters & (some) Other Molluscs** (Marine bio-toxins) 10
Oct. 1 - 15	**Olive Pomace Oils & Olive Oil Spreads** (Benzo-(a)-pyrene) 30	**Infant Formulae and Babyfoods** (Parameters to be agreed with FSAI) 30	**Miscellaneous Foods** (Heavy Metals) 40	**Mussels, Oysters and (some) Other Molluscs** (Marine bio-toxins) 10
Oct. 16 – 31	**Red Wine and Vine Fruits** (Ochratoxin A) 30	**Miscellaneous Foods** (Sorbates / Benzoates) Note 30 40	**Scombroid Fish & Fish Pastes** (Biogenic amines) Note 14 45	**Scallops** (ASP Toxins) 10
Nov. 1 – 15	**Peanut Butter, Brazil Nuts, Almonds & Other Nuts** (Aflatoxins) 30	**"Gluten-free" Foods & Infant Foods** (Gluten) 35	**Raw Poultry & Pork** (Anti-bacterial substances) 70	**Mussels, Oysters and (some) Other Molluscs** (Marine bio-toxins) 10
Nov. 16 – 30	**Milks / Creams & Goats' Milk** (Routine Testing) 40	**Apple Juices** (Patulin) 20	**Spices** (Mycotoxins & Irradiation) 20	**Scallops** (ASP toxins) 10
Dec. 1 – 15	**Used Cooking Oils** (DPTGs / AV / Other) 50	**Soft Drinks / Flavoured Waters** (Benzene) 40		**Mussels, Oysters and (some) Other Molluscs** (Marine bio-toxins) 10
Dec. 16 - 31				
Jan. – Dec.	**All Microbiological samples to Microbiology Laboratory - separate programme. All complaints, EU Rapid Alert samples, other suspect samples and Tap waters from manufacturers (where relevant).**			

Appendix 2(i) - Laboratory Results which Revealed Infringements 2002
SAMPLES FROM ALL SOURCES

	Number of Samples with Infringements	Chemical / Physical Contamination	Composition	Labelling (1) and presentation	Others	Total No. of samples received	% of Samples with Infringements
1. Dairy Products	22	18	3	1	0	264	8.3
2. Eggs and egg products	1	1	0	0	0	2	50
3. Meat and meat products, Game and poultry.	59	18	15	23	3	528	11.2
4. Fish, crustacea, molluscs.	5	5	0	0	0	328	1.5
5. Fats and oils.	17	14	3	0	0	158	10.8
6. Soups, broths and sauces.	8	8	0	0	0	135	5.9
7. Cereals and bakery products.	49	46	0	3	0	203	24.1
8. Fruits and vegetables	21	19	1	1	0	179	11.7
9. Herbs and spices	2	1	0	1	0	79	2.5
10. Non-alcoholic drinks	24	16	0	5	3	311	7.7
11. Wine	0	0	0	0	0	21	0
12. Alcoholic drinks other than wine	13	0	0	13	0	81	16.1
13. Ice and desserts	0	0	0	0	0	9	0
14. Cocoa, and cocoa preparations, coffee and tea.	1	1	0	0	0	11	9.1
15. Confectionery	12	8	0	4	0	80	15
16. Nuts and nut products	3	3	0	0	0	117	2.6
17. Prepared dishes	24	24	0	0	0	78	30.8
18. Foodstuffs intended for particular nutritional uses	8	7	0	1	0	250	3.2
19. Additives	0	0	0	0	0	18	0
20. Materials and articles intended to come into contact with foodstuffs	0	0	0	0	0	0	0
21. Others	17	11	5	1	0	96	17.7
Totals	286	200	27	53	6	2,948	9.7

(1) *This refers to labelling requirements under Health legislation only.*

Appendix 2(ii) - Laboratory Results which Revealed Infringements 2002

ROUTINE SAMPLES FROM ENVIRONMENTAL HEALTH OFFICERS

Product	Number of Samples with Infringements	Chemical / Physical Contamination	Composition	Labelling (1) and presentation	Others	Total No. of samples received	% of Samples with Infringements
1. Dairy Products	7	3	3	1	0	225	3.1
2. Eggs and egg products	0	0	0	0	0	0	0
3. Meat and meat products,Game and poultry.	41	0	15	23	3	475	8.6
4. Fish, crustacea, molluscs.	2	2	0	0	0	316	0.6
5. Fats and oils.	17	14	3	0	0	157	10.8
6. Soups, broths and sauces.	3	3	0	0	0	130	2.3
7. Cereals and bakery products.	9	6	0	3	0	147	6.1
8. Fruits and vegetables	4	3	0	1	0	160	2.5
9. Herbs and spices	2	1	0	1	0	78	2.6
10. Non-alcoholic drinks	13	5	0	5	3	285	4.6
11. Wine	0	0	0	0	0	20	0
12. Alcoholic drinks other than wine	13	0	0	13	0	81	16.1
13. Ice and desserts	0	0	0	0	0	8	0
14. Cocoa, and cocoa preparations, coffee and tea.	0	0	0	0	0	10	0
15. Confectionery	4	1	0	3	0	21	19.1
16. Nuts and nut products	2	2	0	0	0	115	1.7
17. Prepared dishes	4	4	0	0	0	42	9.5
18. Foodstuffs intended for particular nutritional uses	2	2	0	0	0	234	0.9
19. Additives	0	0	0	0	0	5	0
20. Materials and articles intended to come into contact with foodstuffs	0	0	0	0	0	0	0
21. Others	12	7	5	0	0	83	14.5
Totals	135	53	26	50	6	2,592	5.2

(1) *This refers to labelling requirements under Health legislation only.*

Appendix 2(iii) - Laboratory Results which Revealed Infringements 2002

COMPLAINT SAMPLES SUBMITTED TO ENVIRONMENTAL HEALTH OFFICERS BY THE PUBLIC

Product	Number of Samples with Infringements	Chemical / Physical Contamination	Composition	Labelling (1) and presentation	Others / Additives	Total No. of samples received	% of Samples with Infringements
1. Dairy Products	10	10	0	0	0	23	43.5
2. Eggs and egg products	0	0	0	0	0	1	0
3. Meat and meat products,Game and poultry.	13	13	0	0	0	28	46.4
4. Fish, crustacea, molluscs.	2	2	0	0	0	6	33.3
5. Fats and oils.	0	0	0	0	0	1	0
6. Soups, broths and sauces.	4	4	0	0	0	4	100
7. Cereals and bakery products.	27	27	0	0	0	39	69.2
8. Fruits and vegetables	10	9	1	0	0	12	83.3
9. Herbs and spices	0	0	0	0	0	1	0
10. Non-alcoholic drinks	10	10	0	0	0	14	71.4
11. Wine	0	0	0	0	0	1	0
12. Alcoholic drinks other than wine	0	0	0	0	0	0	0
13. Ice and desserts	0	0	0	0	0	1	0
14. Cocoa, and cocoa preparations, coffee and tea.	1	1	0	0	0	1	100
15. Confectionery	6	5	0	1	0	7	85.7
16. Nuts and nut products	1	1	0	0	0	2	50
17. Prepared dishes	13	13	0	0	0	25	54.2
18. Foodstuffs intended forparticular nutritional uses	5	4	0	1	0	6	83.3
19. Additives	0	0	0	0	0	0	0
20. Materials and articles intended to come into contact with foodstuffs	0	0	0	0	0	0	0
21. Others	3	2	0	1	0	3	100
Totals	105	101	1	3	0	175	60.3

(1)This refers to labelling requirements under Health legislation only.

Appendix 2(iv) - Laboratory Results which Revealed Infringements 2002

COMPLAINT SAMPLES SUBMITTED TO THE LABORATORY BY THE PUBLIC

Product	Number of Samples with Infringements	Chemical / Physical Contamination	Composition	Labelling (1) and presentation	Others	Total No. of samples received	% of Samples with Infringements
1. Dairy Products	3	3	0	0	0	4	75
2. Eggs and egg products	1	1	0	0	0	1	100
3. Meat and meat products,Game and poultry.	5	5	0	0	0	7	71.4
4. Fish, crustacea, molluscs.	1	1	0	0	0	1	100
5. Fats and oils.	0	0	0	0	0	0	0
6. Soups, broths and sauces.	1	1	0	0	0	1	100
7. Cereals and bakery products.	10	10	0	0	0	11	90.9
8. Fruits and vegetables	7	7	0	0	0	7	100
9. Herbs and spices	0	0	0	0	0	0	0
10. Non-alcoholic drinks	0	0	0	0	0	2	0
11. Wine	0	0	0	0	0	0	0
12. Alcoholic drinks other than wine	0	0	0	0	0	0	0
13. Ice and desserts	0	0	0	0	0	0	0
14. Cocoa, and cocoa preparations,coffee and tea.	0	0	0	0	0	0	0
15. Confectionery	2	2	0	0	0	2	100
16. Nuts and nut products	0	0	0	0	0	0	0
17. Prepared dishes	7	7	0	0	0	10	70
18. Foodstuffs intended for particular nutritional uses	1	1	0	0	0	3	33.3
19. Additives	0	0	0	0	0	0	0
20. Materials and articles intended to come into contact with foodstuffs	0	0	0	0	0	0	0
21. Others	2	2	0	0	0	2	100
Totals	40	40	0	0	0	51	78.4

(1)This refers to labelling requirements under Health legislation only.

Appendix 3

Summary of R.A.S.F.F. Notifications – Alerts and Non-Alerts

Contaminant / Hazard	Foodstuff	1997-2000 Total	2001 Total	2002 Alerts	2002 Non-Alerts	2002 Total
Antibacterial Substances / Growth Promoters	Meat (Crustaceans, Poultry, Beef, etc.) Honey, Milk Powder, Others.	2	37	75	338	**413**
Aflatoxins	Pistachio nuts	100	72	13	65	78
	Hazelnuts	5	4	3	53	56
	Brazil nuts	8	21	1	47	48
	Peanuts	82	42	1	39	40
	Dried Figs	30	16	4	20	24
	Miscellaneous (incl. Peanut Butter).	12	13	2	15	17
	Spices	14	5	2	8	10
	Almonds	8	1	1	5	6
	Apricot Stones	2	0	0	1	1
	Aflatoxins - Sub-totals	**261**	**174**	**27**	**253**	**280**
Pesticides	Fruit / Veg, Herbs / Spices, Tea + Others	63	62	44	131	**175**
Salmonella	Meats (Bacon / Pork, Lamb, Beef)	27	24	29	17	46
	Poultry	18	13	26	12	38
	Fish, Molluscs, Crustaceans & Cephalopods	123	26	3	20	23
	Eggs (+ products)	5	2	6	0	6
	Spices	2	12	3	1	4
	Vegetables + products.	6	3	3	1	4
	Cheese	3	0	3	0	3
	Coconut	6	0	0	1	1
	Frog	10	2	0	0	0
	Miscellaneous	8	4	1	4	5
	Salmonella - Sub-totals	**208**	**86**	**74**	**56**	**130**
Physical / Miscellaneous (e.g. foreign bodies, parasites)	Miscellaneous	18	30	26	47	**73**
Listeria monocytogenes	Fish + Miscellaneous	48	31	16	21	37
" "	Cheese	50	6	9	3	12
Listeria Welshimer	Miscellaneous	1	0	0	1	1
	Listeria -Sub-totals	**99**	**37**	**25**	**25**	**50**
Vibrio parahaemolyticus	Fish, Molluscs, Crustaceans, Cephalopods	52	31	7	21	28
Vibrio cholera	Fish, Molluscs, Crustaceans, Cephalopods	61	19	3	16	19
Other Vibrio Strains	Miscellaneous	10	2	2	1	3
Vibrio alginolyticus	Shrimp	3	1	0	0	0
	Vibrio - Sub-totals	**126**	**53**	**12**	**38**	**50**
Metals(Hg, Pb, Cd, As, Sn)	Various foods	93	29	12	38	**50**
Benzo[a]pyrene / PAHs	Olive / Pomace Oil + Others	3	81	31	3	**34**
"Enterobacteriaceae" / "Coliform"	Fish, Crustaceans + Miscellaneous	56	9	4	28	**32**
Other Microbiology "Poisoning" (e.g. Aerobic Mesophiles)	Various (fish, spices etc)	18	28	4	25	**29**
Additives (e.g. preservatives,colours)	Misc. Processed Foods	3	16	1	23	**24**
Dioxins / PCBs	Feedstuffs, Meat, Poultry, Eggs etc.	2 (20 Revisions)	1	9	15	**24**
Inorganics (I,Cl,CN,Br,F)	Seaweeds + Miscellaneous	5	4	7	8	**15**

Appendix 3 (Continued)

Summary of R.A.S.F.F. Notifications – Alerts and Non-Alerts

Contaminant / Hazard	Foodstuff	1997-2000 Total	2001 Total	2002 Alerts	2002 Non-Alerts	2002 Total
Marine biotoxins (DSP, ASP,AZP)	Bi-valve molluscs	22	14	11	4	**15**
Misc.chemicals (e.g. Benzene)	Miscellaneous	27	11	9	5	**14**
Ochratoxin A	Coffee, Vine Fruits, Spices etc.	21	12	0	13	**13**
Inadequate Cooking Instructions / labelling	Miscellaneous	1	0	0	11	**11**
3-MCPD	Soy sauces largely	4	15	3	7	**10**
SRM and BSE issues	Fresh Meat	0	1	8	0	**8**
Histamine	Various fish	28	4	5	1	**6**
Staph. Aureus / S. enterotoxin	Misc. Foods e.g. Fish, Shrimps, Cheese	21	1	3	3	**6**
Glass Fragments	Miscellaneous	4	8	5	1	**6**
Caliciviruses,Echoviruses, Hepatitis A virus, NLV	Raspberrys, Oysters, Clams, + "Foodstuffs"	3	4	2	2	**4**
C. botulinum / botulinum toxin "botulism", Other Clostridia	Miscellaneous	9	7	2	1	**3**
Radioactivity	Blueberry, Tea, Mushrooms & Others	60	2	0	3	**3**
Inadequate Transport Temps.	Crayfish + others	1	1	0	2	**2**
Bacillus cereus	Miscellaneous	4	2	1	1	**2**
Genetically Modified Organisms	Wheat	-	-	0	1	**1**
Shigella sonnei	Maize, cheese	1	0	1	0	**1**
E. Coli 0157	Meat + Cheese	3	1	0	0	**0**
Zearelenone	Babyfood	1	1	0	0	**0**
Allergens / Allergic Rxns.	Miscellaneous	10	0	0	0	**0**
Inadequate processing	Miscellaneous	5	0	0	0	**0**
Contraband / False Docum'n	Miscellaneous	3	3	0	0	**0**
"Poison" / Extortion	Miscellaneous	3	0	0	0	**0**
"Aerobios mesofilos"	Fish, Shrimps	18	0	0	0	**0**
Summary acc. to	**Contaminant / Hazard**					
Sub-total 'Microbial'	All Foods as above	555	228	128	179	**307**
Sub-total Chemical+physical / others	All Foods as above	643	508	273	904	**1177**
	TOTAL	1,198*	736*	401*	1,083*	**1,484***
Summary acc. To Main Foodstuff / Feedstuff Type						
All Contaminants Hazards	Fish, shellfish etc.	-	-	105	366	**471**
" "	Nuts & nut products	-	-	22	223	**245**
" "	Miscellaneous foodstuffs	-	-	95	135	**230**
" "	Meats & meat products	-	-	95	133	**228**
" "	Fruit & Vegetables	-	-	58	158	**216**
" "	Feedstuffs	-	-	19	42	**61**
	(Total)	1,137*	690*	394*	1,057*	**1,451***

Note: Above data summarise notifications received by Public Analyst's Laboratory, Galway.
Above data excludes additional information notifications / revisions received.
* These totals differ as some notifications related to more than one hazard.

Appendix 4

Fluoridation of Water Supplies – Western Health Board for 2002

FLUORIDATION OF WATER SUPPLIES :- GALWAY			
Location	**Number of samples**	**Range (µg/L)**	**Mean (µg/L)**
Athenry	12	760-950	838
Ballinasloe	13	901-1,050	781
Carna	12	770-1,190	958
Clarinbridge	12	730-970	834
Clifden	12	760-950	850
Dunmore / Glenamaddy	12	800-1,050	888
Galway City	112	810-1,000	898
Kinvara	12	590-1,000	854
Mid-Galway Regional	12	165-950	790
Mountbellew	12	790-1,190	946
Oughterard	12	640-1,010	821
Portumna	13	810-1,890	1,005
Spiddal	12	760-990	845
Tuam	12	670-940	847

FLUORIDATION OF WATER SUPPLIES :- MAYO			
Location	**Number of samples**	**Range (µg/L)**	**Mean (µg/L)**
Achill	10	850-1,220	997
Ballina	23	230-1,080	892
Ballyhaunis	13	440-1,080	899
Belmullet	12	760-920	839
Kiltimagh	12	230-1,130	793
Lough Mask Regional	11	800-1,030	916
Shrule	12	90-1,150	863
Swinford	11	130-1,060	759
Westport	10	490-1,000	698

FLUORIDATION OF WATER SUPPLIES :- ROSCOMMON			
Location	**Number of Samples**	**Range (µg/L)**	**Mean (µg/L)**
Ballinlough	11	800-930	865
Boyle / Arcarne	12	580-910	743
Castlerea Regional	12	740-970	833
Castlerea Urban	12	850-1,000	923
Cortober	12	780-1,320	1,023
Four Roads / Mt. Talbot	12	90-910	635
Grangemore	11	90-1,010	174
North East Regional	12	910-1,000	959
North Roscommon Regional	13	90-1,050	745
Roscommon Town (Central)	12	620-990	873
South Roscommon Regional	13	90-1,090	691

Appendix 4

Fluoridation of Water Supplies North Western Health Board for 2002

FLUORIDATION OF WATER SUPPLIES :- DONEGAL			
Location	**Number of Samples**	**Range (µg/L)**	**Mean (µg/L)**
Buncrana	17	90-1,070	859
Bundoran	13	820-1,174	883
Carndonagh	11	90-800	155
Ballyshannon	12	90-860	217
Cranford	11	610-1,150	825
Donegal Town	13	520-1,460	998
Dunfanaghy / Creeslough	11	660-930	825
East Inishowen	12	860-990	916
Frosses / Inver	10	700-920	791
Glenties / Ardara	12	90-90	90
Gortahork / Falcarragh	21	90-1,030	696
Letterkenny	13	700-840	787
Lettermacward	10	830-960	900
Lough Mourne	11	90-730	535
Milford	11	480-960	751
Rosses Regional	16	310-900	793

FLUORIDATION OF WATER SUPPLIES :- SLIGO/LEITRIM			
Location	**Number of samples**	**Range (µg/L)**	**Mean (µg/L)**
Ballymote	10	130-660	341
Kinsellagh / Ard	6	350-930	668
Lough Gill	30	90-950	219
Lough Easkey	10	580-1,270	925
Lough Talt	7	100-600	306
Manorhamilton	11	800-1,090	924
North Regional Supply	12	90-110	92
Sligo South Regional	6	400-1,000	721
Tubbercurry	8	130-610	324
South Leitrim Regional	12	960-1,090	1,018

Appendix 4

Fluoridation of Water Supplies Mid Western Health Board for 2002

FLUORIDATION OF WATER SUPPLIES :- LIMERICK			
Location	**Number of samples**	**Range (µg/L)**	**Mean (µg/L)**
Abbeyfeale	11	610-940	840
Adare	12	90-1,120	967
Ballyagran	12	720-910	853
Clooncagh	11	850-1,130	965
Kilmallock	10	740-1,080	966
Limerick City	32	90-1,130	573
Newcastle West	11	690-1,080	937
Rathkeale	11	830-980	905
South West Regional	23	540-1,080	937

FLUORIDATION OF WATER SUPPLIES :- CLARE			
Location	**Number of samples**	**Range (µg/L)**	**Mean (µg/L)**
Clarecastle	11	840-1,020	967
Ennis	16	860-1,040	983
Ennistymon	12	760-1,060	891
Kildysart	11	500-1,000	820
Kilkee	12	770-1,000	872
Lisdoonvarna	12	780-1,000	899
Rockmount	12	350-980	858
Shannon	12	740-910	839
West Clare New Doolough	12	800-990	883
West Clare Old Doolough	12	570-970	853

FLUORIDATION OF WATER SUPPLIES :- NORTH TIPPERARY			
Location	**Number of samples**	**Range (µg/L)**	**Mean (µg/L)**
Borrisokane	12	900-1,030	958
Castleconnell	13	90-880	631
Murroe	12	850-960	904
Nenagh	8	90-90	90
Newport	9	90-710	269
Thurles	27	90-890	491
Roscrea	9	90-90	90
Templemore	8	90-150	124

Appendix 5 (i)

AIR POLLUTION DATA

Concentration of Smoke & Sulphur Dioxide in the atmosphere during 2002 at Galway Waterworks.

Micrograms per cubic metre.

	Smoke			Sulphur Dioxide		
	Average Reading	Highest Reading	Lowest Reading	Average Reading	Highest Reading	Lowest Reading
JANUARY	4	17	1	9	19	2
FEBRUARY	3	10	1	11	19	2
MARCH	4	10	1	11	22	2
APRIL	3	10	1	11	18	5
MAY	2	7	1	9	15	6
JUNE	1	4	1	8	11	5
JULY	1	2	1	10	15	3
AUGUST	2	3	1	13	16	10
SEPTEMBER	4	10	1	10	16	6
OCTOBER	5	13	1	11	16	4
NOVEMBER	3	10	1	6	11	2
DECEMBER	7	21	1	12	19	2
Average	3	10	1	10	16	4

Appendix 5 (ii)

AIR POLLUTION DATA

Concentration of Smoke & Sulphur Dioxide in the atmosphere during 2002 at Sandy Road.

Micrograms per cubic metre

	Smoke			Sulphur Dioxide		
	Average Reading	Highest Reading	Lowest Reading	Average Reading	Highest Reading	Lowest Reading
JANUARY	6	23	2	6	10	4
FEBRUARY	5	17	2	7	10	4
MARCH	6	17	2	8	15	4
APRIL	5	15	1	12	18	7
MAY	5	13	2	16	34	7
JUNE	4	10	1	15	25	5
JULY	4	12	2	18	30	7
AUGUST	4	8	1	23	34	16
SEPTEMBER	6	15	1	17	31	10
OCTOBER	9	39	1	9	15	2
NOVEMBER	6	21	1	5	9	2
DECEMBER	10	25	1	7	12	2
Average	6	18	1	12	20	6

Appendix 5(iii)

R + P PARTISOL PLUS MODEL 2025 SEQUENTIAL AIR SAMPLER for 2002

PM10 RESULTS MASS CONCENTRATION (M.C.) µg/m³

STATION: BARRY MOTORS YEAR 2002 — **GALWAY CITY COUNCIL** — **24 Hour M.C. µg/m³**

Day	Jan	Feb	March	Apr	May	June	July	Aug	Sept.	Oct.	Nov.	Dec.
01	-	19	30	18	25	17	18	14	-	18	35	25
02	-	18	-	12	27	08	32	23	-	20	45	19
03	17	12	-	30	41	13	25	22	-	28	24	18
04	14	16	-	25	19	17	13	10	-	26	18	33
05	20	16	33	68	15	24	22	10	-	23	16	35
06	17	39	-	62	15	23	13	10	-	10	20	45
07	22	38	-	26	39	26	11	13	-	15	21	38
08	67	32	23	43	38	21	16	07	-	12	14	24
09	40	21	15	32	39	16	15	15	-	19	10	45
10	35	18	29	39	31	20	26	10	-	36	19	36
11	22	33	38	43	18	20	27	08	-	23	21	48
12	26	34	45	21	12	24	14	14	-	18	12	47
13	34	38	27	20	08	20	13	16	-	21	12	56
14	34	38	32	22	22	20	14	14	-	49	13	48
15	23	38	27	14	23	22	-	35	-	36	24	46
16	19	23	20	15	19	06	16	20	-	40	31	66
17	44	15	10	29	27	29	18	-	-	-	23	45
18	21	24	18	39	18	38	25	14	-	-	25	26
19	-	18	24	13	19	20	15	23	-	38	15	36
20	-	38	25	10	15	13	13	23	52	-	11	45
21	-	27	44	14	12	15	09	18	36	-	10	12
22	-	23	22	46	15	14	16	23	09	-	13	09
23	-	23	39	26	18	13	15	25	21	-	08	11
24	-	19	23	19	21	22	18	13	45	13	10	18
25	-	28	40	25	-	29	13	09	38	-	08	10
26	-	18	33	23	-	20	18	23	34	-	06	11
27	-	18	25	13	-	23	10	20	26	08	10	15
28	-	14	37	12	11	26	07	07	19	-	18	18
29	32		68	19	25	16	09	28	20	-	38	12
30	18		35	19	30	09	12	-	14	-	34	23
31	28		11		28		10	-		-		16
Monthly Mean	28	25	30	27	23	19	16	17	29	24	19	30
No. of Days Exceeding 50µg/m3	1	0	1	2	0	0	0	0	1	0	0	2

No of Days exceeding 50µg/m³ YEAR TO DATE: 7 ANNUAL MEAN 23

STAFF 2002

Public Analyst (Temp)	Mr. P. Canavan	
Deputy Public Analyst (Temp) / Quality Manager	Dr. A. Bruzzi	
Executive Analytical Chemists	Dr. P. Burke	
	Mr. R. Mannion	
	Ms. C. Mulhern	(Part-time)
	Dr. H. McGrath	
	Ms. S. Crowe	
	Dr. Michelle Cuffe	
	Dr. Caroline Lardner	
	Dr. Brenda Clarke	
	Dr. Christopher Laffey	
	Dr. Andrew Flanagan	
	Dr. Leonie Wallace	
Chief Lab. Technician	Mr. P. Hehir	
Senior Lab. Technicians	Mr. J. Creaven	
	Mr. M. O'Flaherty	
	Mr. M. Patten	
	Ms. M. Finan	
	Ms. P. Thornton	
Laboratory Technicians	Ms. E. Clasby	
	Ms. E. Goldrick	(Job-sharing)
	Ms. C. Greaney	(Job-sharing)
	Ms. C. Gilmore	(Job-sharing)
	Ms. S. Davoren	
	Mr. M. Gilligan	
	Ms. N. Brennan	
	Mr. T. Fogarty	
	Ms. S. O'Flynn	
	Ms. N. Madden	
	Ms. A. McCarron	
	Mr. E. Costello	
	Ms. D. Muldoon	
	Ms. A. Maughan	
	Mr. T. Heneghan	
	Ms. M. Finn	
	Ms. M. Maxwell	(Resigned Dec.)
	Ms. L. Mannion	
	Ms. C. Lupton	
Asst. Staff Officer	Ms. M. Mulvaney	
Clerical Officers	Ms. E. Mannion	
	Ms. A. Brogan	(Resigned Sept.)
	Ms. M. MacDermot	
	Ms. M. Merritt.	
Housekeeper	Ms. T. Busch.	

LABORATORY MATTERS - TEAM EFFORT.

In recent times, dramatic changes are occurring in the Chemical Analytical Service provided by the Public Analyst's Laboratory.
In Galway, the capacity to deliver the service depends solely on the staff and resources of the laboratory, which are provided by the Western Health Board and the Department of Health and Children.

As a Regional Laboratory with a population of close to a million within the catchment area, this puts a severe strain on a team that must meet with the everyday challenges that come their way, in order to meet with the needs of their clients.
In January 2003, a new three-year Service Contract was signed with the FSAI. The new European Communities (Drinking Water) Regulations come into force on 1st January 2004 and there is a proposed new contract for pharmaceutical testing. All of these put an increased pressure on staff to deliver.

The Food Safety Promotion Board has opened up new horizons with regard to unexplored avenues in food safety matters. A contract has been signed with the Board to introduce a cell bio-assay to determine levels of Dioxins in food - a first for us.
The traditional role of the Public Analyst's Laboratory has moved into a new dimension. The expertise of the staff has been advanced with the help of training programmes to deal with the challenges, which the provision of a quality analytical service brings.

The scope of Accreditation is constantly developing and all members of staff require much dedication to operate the Quality Assurance System to ensure compliance with ISO / IEC 17025 standard. The development and maintenance of a quality-focused analytical service also requires procedures, which were not generally practised 10 years ago. There is an increasing awareness among clients that a high standard is provided by an accredited laboratory such as ours and that we have the ability to develop the necessary programmes for contract requirements. There also must be an inherent flexibility within the team to perform the tasks that present themselves in a modern Irish industrial economy.

A Review of the Service by the Department of Health & Children is underway at the moment, and it is not possible to determine what effects this will have on the administration of the Laboratories in years to come.
However we anticipate that areas of specialisation will be probed. And we view this development as a necessary step towards the future consolidation and strengthening of the service.

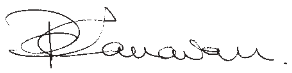
Each individual laboratory will undertake core work in order to maintain legal and contractual obligations, and certain areas of expertise will be expanded so that we may give Value for Money and reduce replication to a minimum.

We are facing an uncertain future, and there is a need to plan for any eventual path for future development. Strategic planning allows for a step by step advancement so that any unwelcome surprises may be kept to a minimum.

National Bodies such as, The Food Safety Authority of Ireland, The Food Safety Promotion Board, The Irish Medicines Board, The Drinking Water National Monitoring Committee, The Irish National Accreditation Board and The Environmental Protection Agency, all have an influence in the day to day operations that constitute the work programmes of the Laboratory, and will continue to do so.

There is a need to participate in a growing number of Committees, Organisations and Liaison Groups in order to inform the Service of new developments.

This describes the general complexity of the Laboratory's working schedule regarding the provision of a Chemical Analytical Service. The Administration of each section, includes quality issues, the issue of reports, contract control, budgeting, safety issues and environment control, supply and distribution, security, re-cycling - all of which gives a small indication of the duties behind the scenes.
Interlaced with these tasks are other functions which individual members of staff undertake alongside their daily duties to ensure that the Laboratory runs smoothly. The Out-of- Hours time spent by staff must be recognised and praised.
This then gives me the opportunity, once more, to thank all of the staff for their dedication to the team effort and for their contribution to the well-earned reputation which can only be achieved with much personal effort and good-will.



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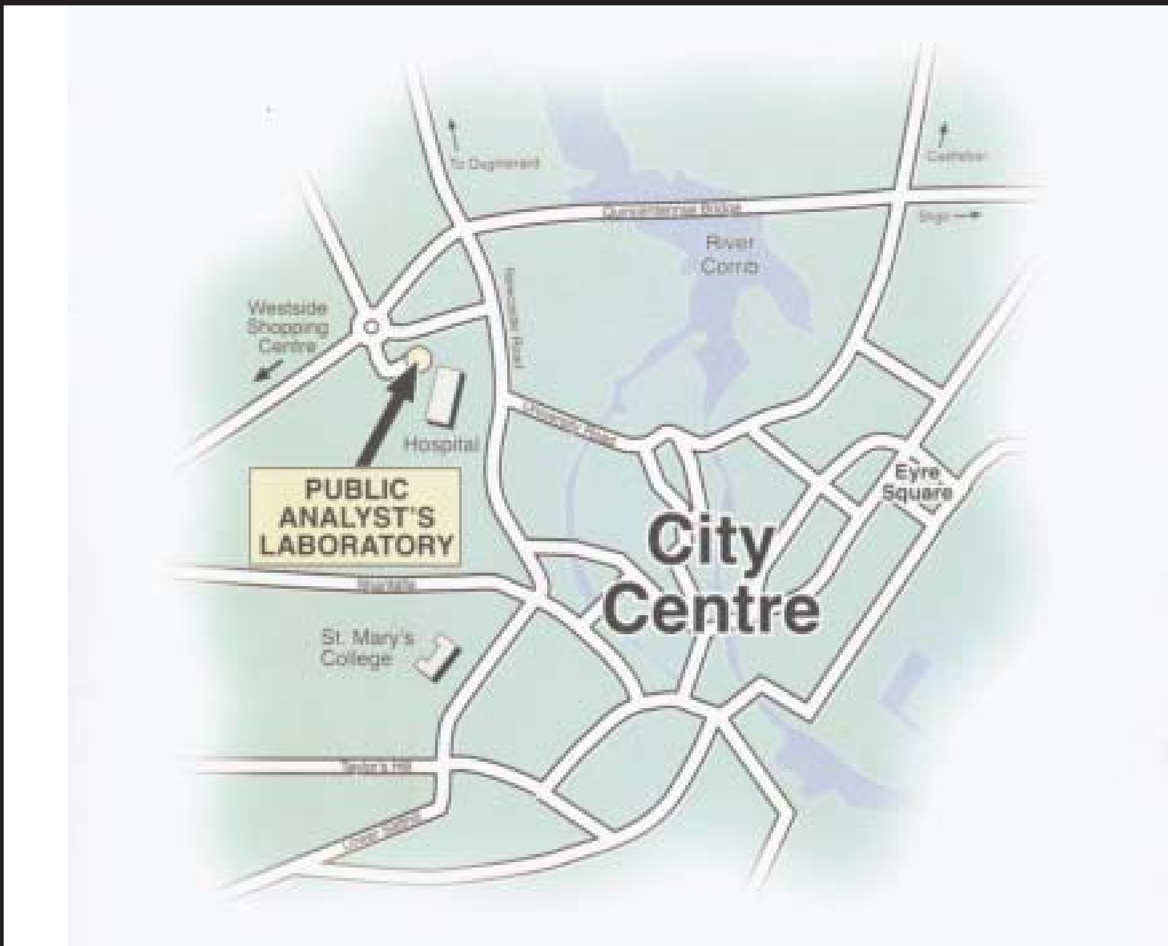
Peadar Canavan
(Temp. Public Analyst.)

Notes



Saotharlann an Anailísi Phoiblí

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