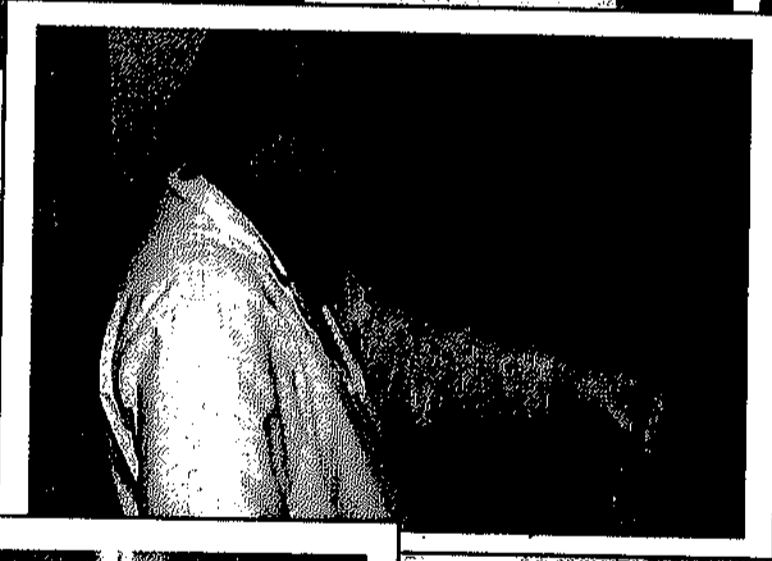
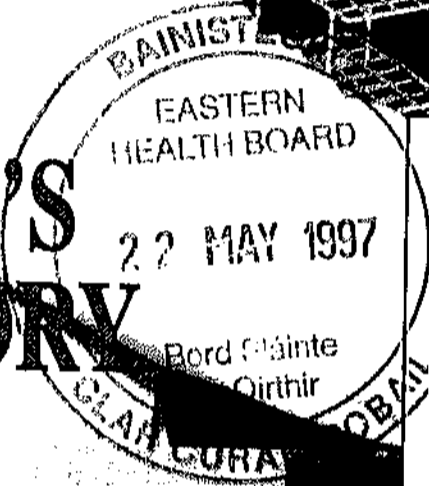




**BORD SLÁINTE AN IARTHAIR
WESTERN HEALTH BOARD**

**Western
Region
P.M.C.C.
PUBLIC
ANALYST'S
LABORATORY**



**ANNUAL REPORT
FOR YEAR ENDED
31st DECEMBER 1996**

— MAY 1997 —



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ANNUAL REPORT FOR 1996
WESTERN REGION PUBLIC ANALYSTS LABORATORY,
UNIVERSITY COLLEGE HOSPITAL,
GALWAY.

1. INTRODUCTION:

1.1 Scope:

The laboratory provides a service in analytical chemistry in the testing of food, drugs and water supplies in the areas served by the Western, North-Western and Mid-Western Health Boards.

1.2 Administration:

The laboratory is administered by the Western Health Board, and, apart from fees for private work, the cost of the service is borne by this Board. For administrative purposes, the laboratory is divided into five sections, viz;

- Food
- Water/Effluent
- Drugs/Toxicology
- Air Monitoring
- Miscellaneous

1.3 Work-load for 1996:

The total number of samples tested during 1996 was 10,869. They may be classified as follows:-

Food	.....	2165
Water/Effluent	.....	7231
Pharmaceuticals/Toxicology	.....	382
Air Monitoring	.....	958
Miscellaneous	.....	133

2. FOOD:

2.1 Food Safety Board:

For many years, control over the quality of food has been exercised by five Government Departments; Agriculture, Food, and Forestry; Health; Tourism and Trade; Marine; and Environment. The Department of Agriculture has responsibility for the production of food, Health deals with health and safety aspects, Tourism and Trade exercise control over labelling and advertising, Marine looks after production and certification of fish, and Environment, through the Local Authority Veterinary Officers, supervise slaughter of animals for meat production. Generally, each department works alone; there is little or no co-ordination with the result that there has never been an overview of the quality of Irish food from the farm to the consumer. Recent events, notably the BSE scare, the alleged widespread use of clenbuterol and growth promoters in cattle and the European wide survey by consumer associations on the level of antibacterial residues in pork tarnished the image of Irish food on both the home and export markets.

To remedy this, the Government established a group made up of Secretaries and other Senior Officials from the Departments of Health; Agriculture, Food and Forestry; Marine; Environment; Enterprise and Employment; and Tourism and Trade to undertake a comprehensive review of the whole food safety system in the country. The key recommendation from the group was that an independent statutory based Food Safety Board be established. This recommendation was accepted by the Government and an Interim Board was appointed by the Minister for Health pending the enactment of legislation to establish the Board on a permanent basis.

2.1 Food Safety Board: (Contd/...)

The functions of the Board are:-

- *"Supervision/audit vis-à-vis other state agencies having responsibility for food control.*
- *Research - it can commission research and also collaborate with other agencies in this respect.*
- *General co-ordination of work programmes by State agencies.*
- *Advisory functions: - it will take over the functions currently discharged by the Food Safety Advisory Board.*

It is envisaged that the Board will work on the basis of predetermined annual programmes. This will enable it to undertake detailed analysis of selected areas but it will also be able to respond to new situations and developments as they arise.

The primary function of the board is its audit/supervisory role in relation to other food control agencies. This will allow it to act as a third party guarantor of the effectiveness and adequacy of controls operated by those other agencies. This independent function is seen as vital to its credibility and standing particularly in the context of providing the necessary reassurance to consumers of Irish food at home and abroad (1)

(1) Quotation from Press Briefing at the launch of the Board.

2.1 Food Safety Board: (Contd/...)

Since the enactment of the Health (Official Control of Food) Regulations 1991, food sampling in this region has been directed by a committee with representatives from Environmental Health Officers, Laboratories, Health Board Management and the Department of Health. The committee meets at least once a year to review progress and prepare a sampling plan, the objectives of which are:-

- *to fulfil locally the role outlined in Article 14 of Directive 89/897/EEC viz. "to draw up forward programmes laying down the nature and frequency of inspections to be carried out on a regular basis over a specific period."*
- *to co-ordinate the inspection and sampling programmes.*
- *to ensure uniformity of enforcement throughout the region.*
- *to co-ordinate the work of the inspectors with that of the laboratories.*
- *to carry out surveys in areas of special interest.*
- *to ensure that reports are submitted to the Department in the required format.*

2.1 Food Safety Board: (Contd/...)

In the new situation, it is possible that this type of regional plan would be subsumed into an overall national plan. The task of the new Board in bringing together the inspection/sampling/testing systems of all the existing agencies is a daunting one. If it can be done and if, in addition, research and surveys are carried out on selected areas and results published on a regular basis, the aim of the Board to become the guarantor of the quality of Irish Food can be achieved. This is something that has never been done in this country but, in the present climate, where the interests of the consumer are paramount, the need for such an approach is obvious.

2.2 Sampling Programme:

A copy of the food sampling programme for the year is included in Appendix 2. However, due to industrial action by Environmental Health Officers, the Regional Committee did not meet and the plan was never formally approved. The outcome was that the plan was not followed and enforcement was not as effective as would normally be the case.

Also, the European Commission Recommendation under Article 14*3) of Council Directive 89/397/EEC on the Official Control of Foodstuffs was severely disrupted.

2.2 Sampling Programme: (Contd/...)

That recommendation was for a sampling and testing programme as follows:-

- (1) *Microbiological assessment of dried and fermented ready-to-eat meat and meat products;*
- (2) *Migration of plasticizers into foods.*
- (3) *Temperature of chilled foods on display for sale.*
- (4) *Benzo(a) pyrene in smoked pork products.*

..
Apart from a small number of smoked pork products, the EC programme was not carried out.

During the year, three officials from the European Commission visited the laboratory as part of their inspection of the effectiveness of food control systems in Ireland. Directives 89/397/EEC and 93/99/EEC provide for regular inspections of this nature, the purpose of which is to enable the Commission to monitor and evaluate the equivalence of food law enforcement systems throughout Europe. The first visit was a fact-finding mission to establish how the system in Ireland works. It is envisaged that subsequent inspections will delve more deeply into the day to day working of those involved in the system here.

2.3 Statistics on Food:

A breakdown of the samples received from each Community Care area is given in Table 1 and those on which adverse comments were issued are listed in Table 2.

TABLE 1		
Community Care Area	Number of Samples	Number per 1000 population
Galway	252	1.4
Mayo	180	1.6
Roscommon	208	4.0
WESTERN H/B TOTAL	640	--
Clare	209	2.6
Limerick	301	2.8
North Tipperary	249	2.5
MID-WESTERN H/B TOTAL	759	--
Donegal	363	3.4
Sligo / Leitrim	278	3.3
NORTH WESTERN H/B TOTAL	641	--
MISCELLANEOUS		
General Public	125	--

TABLE 2		
Submitted by	Number of Samples	Number on Which Adverse Reports were Issued
ENVIRONMENTAL HEALTH OFFICERS		
Formal	82	2
Informal	1829	127
General Public (Complaints)	129	85
GENERAL PUBLIC		
Complaints	60	46
Routine	65	2

2.4 Food Quality:

A total of 1911 routine samples was received from Environmental Health Officers (EHO's): adverse reports were issued on 129 i.e. 6.7% . In contrast, of the 189 complaint samples received from EHO's and members of the Public, the number of adverse reports was 131 ie. 69%. This shows that when members of the public complained about food quality, their complaints were justified in the majority of cases. A summary of the findings is given in Appendix 1. The number of routine samples was down on previous years; this appears to have resulted from the industrial action by EHO's.

2.5 Phthalates in Babyfoods:

In June of 1996 the Minister for Health requested that Babyfoods (Infant Formulae) manufactured and/or for sale in Ireland be tested for the presence of phthalate esters, and that the Irish Food Safety Advisory Board consider in general the matter of phthalates in infant formulae. These requests resulted from the detection of phthalate esters in infant formulae by the Ministry for Agriculture Food, and Fisheries (U.K.) laboratories. Phthalate esters are organic chemicals with a variety of industrial uses, including use as plasticisers. The production of phthalic acid esters is over 500 metric tonnes annually; because of their relative stability, phthalates are ubiquitous in the environment and are often found at low levels in food. The EC Scientific Committee for Food (S.C.F.) has set Tolerable Daily Intakes

2.5 Phthalates in Babyfoods: (Contd/...)

(T.D.I.s) of 0.05mg/Kg bodyweight/day (for di-(2-ethylhexyl) phthalate, and for di-butyl phthalate[‡]), of 0.10mg/Kg bodyweight/day (for butylbenzyl phthalate[‡], and for di-cyclohexyl phthalate[‡]), and of 0.2mg/Kg bodyweight/day (for di-ethyl phthalate[‡]).

[‡] temporary T.D.I.s.

The S.C.F. also recommended a "group restriction" for the sum of "other phthalates" of 0.05mg/Kg bodyweight/day. The laboratory undertook the testing of babyfoods for phthalate esters. Two testing methodologies were developed, one to detect a range of specific phthalates, the other to obtain overall results for total phthalates (by conversion of all phthalates present to phthalic acid (salts) before analysis). The results of analysis for five brands are shown in the Table below; they indicate that the T.D.I.s set by the Scientific Committee for Food would not be exceeded by infants feeding at the levels instructed by the Manufacturers. A programme to continue this testing has been set in place for 1997. Some other samples (butter, margarine and silage) were also shown to contain negligible levels of total phthalates.

**Report on Phthalate-Ester-Testing of Dried Infant Formulae
Submitted by Dept. Of Health (Mr. Ray Ellard, C/E.H.O.)**

Phthalate Ester in mg/Kg of Powder								
Sample Description	Lab. Ref. No.	D.M.P.	D.E.P.	D.P.P.	B.B.P.	D.B.P.	D.E.H.P.	Total
SMA GOLD 450g Best Before Date 28.01.98 Code: D6A202 Number 08:11, 10830	FIO 982/96	<0.4	<0.4	<0.4	<0.4	<0.4	<0.8	<1.5
C & G PREMIUM 450g Best Before 20:10:97 Code: 13:07:52 W-8514-20	FIO 983/96	<0.4	<0.4	<0.4	<0.4	<0.4	<0.8	<1.5
NANNY 400g Best Before 1998 03 12 Code 0216 Prod. 1995 03 13	FIO 984/96	<0.7	<0.7	<0.7	<0.7	<0.7	<1.4	<1.5
FARLEY'S FIRST MILK Best Before 24.02.97 Code 512E	FIO 985/96	<0.4	<0.4	<0.4	<0.4	<0.4	<0.8	<1.5
MILUPA APTAMIL 450G Code EXP 22 NOV 97 A	FIO 986/96	<0.4	<0.4	<0.4	<0.4	<0.4	<0.8	<1.5

Code	Phthalate Name	T.D.I.	M.A.C.*
D.M.P. =	Di-methylphthalate:	--	--
D.E.P. =	Di-ethylphthalate:	0.2 mg/Kg Body Wt./day	5.2 mg/Kg
D.P.P. =	Di-n-propylphthalate:	--	--
B.B.P. =	Butyl benzylphthalate:	0.1 mg/Kg Body Wt./day	3.7 mg/Kg
D.B.P. =	Di-n-butylphthalate:	0.05 mg/Kg Body Wt./day	1.6 mg/Kg
D.E.H.P. =	Di-ethylhexylphthalate:	0.05 mg/Kg Body Wt./day	2.3 mg/Kg.
Total =	Tot. Phthalates as D.E.H.P.	Group Restriction for 'other phthalates' = 0.05mg/Kg Body Wt./day	'other phthalates' 2.3 mg/Kg (as D.E.H.P.)
*'MAC'. =	'Quasi Max. Allowable Concentration' (calculated from the T.D.I. and the Manufacturers Feeding Instructions)		

2.6 Aflatoxins in Foods:

The aflatoxins constitute a group of natural toxins produced principally by the moulds *Aspergillus flavus* and *Aspergillus parasiticus*, both of which are common in the tropics and sub-tropics. Although they are acutely toxic at high levels, it is their potent carcinogenicity (Aflatoxin B₁ was recently designated a group 1 human carcinogen by WHO/I.A.R.C.) which has resulted in a European Regulation setting a maximum of just 4 micrograms total aflatoxins per Kg of nuts, nut-products and figs. Aflatoxins may also be found in milk and cereals. In 1996, 40 samples of nuts, nut-products, cereals, spices and dried fruits were tested for aflatoxins B₁, B₂, G₁, and G₂. Two unsatisfactory samples (raw pistachio nuts) were found, resulting in the products being removed from sale.

2.7 Ochratoxin A in Foods:

Ochratoxins are naturally occurring toxic metabolites produced by certain *Aspergillus* and *Penicillium* mould species. The main ochratoxin is Ochratoxin A which is a potent nephrotoxin. As the fungal species capable of producing Ochratoxin A are primarily contaminants of cereals, contamination is most commonly found in various cereals and cereal products. Although there is no Irish standard, a limit of 5 micrograms per kg is under consideration in Europe for control purposes. A total of 23 samples of cereals and cereal products was tested for Ochratoxin A in 1996; no significant contamination was found in any of the samples.

2.8 4-Toluenesulphonamide (4-TSA) in Foods:

In 1993 the EC issued a Rapid Alert concerning the presence of 4-TSA in certain brands of babyfoods containing lamb. The contamination arose because meat was sprayed with the disinfectant chloramine-T, and, despite washing, residues of the metabolite 4-TSA remained and were incorporated into the babyfood.

Because of this and because of other reported uses of chloramine-T to reduce microbial counts in certain foods, some testing for 4-TSA was introduced here. In 1996, 24 samples of babyfood were tested; no residues were detected in any of the samples.

2.9 Nitrite and Nitrate in Foods:-(General & Lettuce/Spinach Survey)

2.9.1. General

Nitrites and Nitrates may arise in foods as a result of their being used as additives (e.g. in cured meats and cheese) or through their presence, nitrate in particular, in vegetables. The principal use of nitrite and nitrate as additives is in cured meats where their action is to assist in the prevention of the formation of botulin toxin. The Irish Preservatives Regulations (SI 337 of 1981) set limits of 200 mg NaNO_2/Kg and 500 mg NaNO_3/Kg for nitrite and nitrate respectively in cured meats; these limits will be reduced to 175 mg NaNO_2/Kg (cured bacon) and 100 mg NaNO_2/Kg (other cured meats), and 250 mg NaNO_3/Kg as a result of the new EC "Additives" Directive 95/2/EC.

2.9 Nitrite and Nitrate in Foods:-(General & Lettuce/Spinach Survey)

2.9.1. General (Contd/...)

In 1996, 51 samples of cured meats were tested; 49 complied with the Regulations with respect to maximum levels; 2 samples had excessive nitrate and nitrite levels - notification of the relevant authorities resulted. A limited number of samples was also declared "unsatisfactory " because of labelling irregularities.

40 - Other miscellaneous foods (mostly vegetables, babyfoods and meats)were also tested; excessive levels were not detected in any of the samples.

2.9.2 Nitrates in Spinach and Lettuce - Survey

Concerns about potential health effects of dietary intakes of nitrate has led the EC to propose a regulation specifying maximum limits for the nitrate content of certain vegetables - lettuce and spinach initially. The limits proposed in draft EC Regulation (VI/3080/93 Rev. 7) are shown below.

2.9.2 Nitrates in Spinach and Lettuce - Survey

Nitrate Limits in Proposed EC Regulation (VI/3080/93 Rev.7)

Vegetable	Harvest Period	Maximum nitrate content (mg NO ₃ /kg fresh product)
Spinach (<i>Spinacia oleracea</i> L.)	1 July '96 to 31 Dec. '98 harvested 1 November to 31 March	3,000
	harvested 1 April to 31 October	2,500
	From 1 January 1999	2,000 (processed product)
Preserved/frozen		
Lettuce (<i>Lactuca sativa</i> L.)	From 1996 harvested 1 November to 31 March	4,500
	harvested 1 April to 31 October	3,500
	harvested 1 May to 31 August	2,500
outdoor lettuce		

To establish nitrate levels in lettuce and spinach available locally, a batch of 23 samples was submitted by the Galway EHO service, and tested. The results are summarised below. The results indicate that no sample exceeded the proposed limits. It is intended to continue this work, especially for winter-grown products which are more likely to contain high nitrate levels.

Report on 23 samples of fresh Lettuce and Spinach
 Submitted by: *Ms. Mary Costello E.H.O., Community Care, Galway.*
 Samples received on 16/9/'96

	Lab Ref. No.	Sample Type	Results of Analysis	
			Nitrate (mg NO ₃ /Kg)	Nitrite (mg NO ₂ /Kg)
1	FIO 1385/96	Lettuce	1,070	<20
2	FIO 1386/96	Spinach	1,170	41
3	FIO 1387/96	Lettuce	570	<20
4	FIO 1388/96	Lettuce	1,760	<20
5	FIO 1389/96	Lettuce	1,390	<20
6	FIO 1390/96	Lettuce	2,780	<20
7	FIO 1391/96	Lettuce	1,630	<20
8	FIO 1392/96	Lettuce	2,240	<20
9	FIO 1393/96	Lettuce	480	<20
10	FIO 1394/96	Lettuce	2,250	<20
11	FIO 1395/96	Lettuce	2,570	<20
12	FIO 1396/96	Lettuce	2,000	<20
13	FIO 1397/96	Lettuce	870	<20
14	FIO 1398/96	Lettuce	1,750	<20
15	FIO 1399/96	Lettuce	1,440	<20
16	FIO 1400/96	Lettuce	1,980	<20
17	FIO 1401/96	Spinach	1,640	<20
18	FIO 1402/96	Lettuce	808	<20
19	FIO 1403/96	Lettuce	1,360	<20
20	FIO 1404/96	Spinach	2,210	<20
21	FIO 1405/96	Lettuce	1,600	<20
22	FIO 1406/96	Spinach	1,160	<20
23	FIO 1407/96	Lettuce	1,680	<20

NITRATE RESULTS

<i>Spinach:</i>	<i>Range: 1,160 - 2,210 mg NO₃/Kg</i>	<i>Mean = 1,545 mg NO₃/Kg (n = 4)</i>
<i>Iceberg Lettuce</i>	<i>Range: 480 - 870 mg NO₃/Kg</i>	<i>Mean = 719 mg NO₃/Kg (n = 3)</i>
<i>Other Lettuce</i>	<i>Range: 570 - 2,780 mg NO₃/Kg</i>	<i>Mean = 1,754 mg NO₃/Kg (n = 16)</i>

2.10 Diarrhetic Shellfish Poisoning (D.S.P.):

D.S.P. is a form of food-poisoning that results from consumption of shellfish which have accumulated toxins produced by marine algae. The phytoplankton which produce these toxins are Dinophysis and Procentrum species. They are found along the West Coast of Ireland and the presence of the toxins, okadaic acid, DTX-1 and DTX-3, frequently results in the closure of bays producing shellfish. The "Official " test for D.S.P. is now a mouse-bioassay, and this test is performed in the Fisheries Research Centre in Dublin, and in two regional labs., in Galway and Cork (these 3 labs. are Department of Marine controlled).

In the Laboratory in 1996, 7 samples of shellfish were tested for okadaic acid using an E.L.I.S.A. method; all samples were found to be satisfactory. The reduction in testing in this area resulted from the E.H.O. 'dispute.'

2.11 Polymerised Triglycerides and Acid Values of Oils:

Cooking oils are subject to complex chemical changes when heated to high temperatures. These changes include oxidation, hydrolysis and polymerisation of the triglycerides present. Many food-control agencies are now looking at the degree of formation of dimeric and polymeric triglycerides (D.P.T.G.s) in cooking oils in restaurants and take-aways.

2.11 Polymerised Triglycerides & Acid Values of Oils: (Contd./.)

In the Netherlands, for example, this is one of the most frequent tests performed on foodstuffs, with over 10,000 samples being tested annually. No Irish statutory limit exists for D.P.T.G.s but the Dutch have a limit of 16%, and the Belgian maximum is 10%.

This testing was introduced in this laboratory towards the end of 1994, the aim being, to enable Environmental Health Officers, when inspecting kitchens, to take samples from the deep-fat fryers to see if overheating has taken place.

10 Samples of oils were tested for D.P.T.G.s in 1996, and 97 samples of oils/fats were tested for 'acid-value' (A.V.). None of the samples were found to have elevated levels of D.P.T.G.s or A.V. ; the bulk of the testing was, however, performed on fresh fats/oils, as used cooking oils were generally not received for analysis because of the industrial action by E.H.O's.

It is hoped to continue in 1997 the work started in 1994/1995 on assessment of D.P.T.G./A.V. levels in used oils in the region.

2.12 Lead and Cadmium in Foods:

The general statutory limit for lead in food in Ireland is 2 milligrams/Kg, with maximum levels from 0.2 to 50 milligrams/Kg for specific food items. The EU commission has produced draft regulation (III/5 125/95 Rev. 2) intended to set new limits for lead and cadmium in food.

During 1996, 208 samples, including tinned fruit and vegetables, fish, spices and herbs, were tested for lead (Pb); no sample was found to exceed its statutory limit.

163 Samples were tested for cadmium (sample types generally as above); the detected levels were all very low.

2.13 Other Metals:

A total of 100 samples of food/drink were tested for various other metals in 1996. There were as follows:-

Aluminium:	33	samples	Chromium:	30	samples
Zinc:	15	samples	Mercury:	8	samples
Vanadium:	13	samples	Selenium:	1	sample

This testing arose largely from requests from the Limerick E.H.O. area. No significant levels of these metals were detected.

2.14 Preservatives in Food:

As part of the laboratory's work in the area of control of the use of additives in food, extensive testing for the permitted preservatives* sulphur dioxide, benzoic acid, sorbic acid, propionic acid, nitrite and nitrate (see 2.9 above), thiabendazole, orthophenyl phenol and biphenyl was carried out. The limits of these preservatives in various foodstuffs are set out in Directive No. 95/2/EC.

* includes the salts of same.

(i) Sulphur Dioxide:

212 Samples of a variety of foodstuffs, mainly sausages, minced meats, burgers, dried fruit and vegetables, and wines, were tested. Of those tested, 10 were found to be unsatisfactory (i.e. in excess of their statutory limit or within the limit but undeclared).

(ii) Post-Harvest Fungicides in Citrus Fruits and Bananas:

The post-harvest fungicides, thiabendazole, orthophenylphenol and biphenyl are permitted as surface-treatment agents in citrus fruits and bananas, the limits being set in Directive 95/2/EC on food additives. Of a total of 20 samples tested, none was found to exceed the limits.

2.14 Preservatives in Food: (Contd...)

(iii) Benzoic Acid:

The commonly used preservative, benzoic acid, was tested-for in 81 samples of foods, mostly soft drinks, salads and jams/preserves. Of these, only 2 were found to be unsatisfactory, due to exceedance of statutory limits.

(iv) Propionic Acid:

118 Samples, largely bakery products, were tested for the permitted preservative, propionic acid; no unsatisfactory samples were found; this level of testing will be scaled down in 1997.

(v) Sorbic Acid:

Of a total of 103 samples of foods, largely salads, soft drinks, cheese, spreads, and yoghurts which were tested in 1996, 8 were found to be unsatisfactory.

2.15 Sweeteners:

8 Food samples, consisting largely of soft drinks, were tested in 1996, each for the presence of three artificial sweeteners, viz. aspartame, acesulfame K and saccharin. All of the samples were found to comply with the limits set by Council Directive 94/35/EC on sweeteners for use in foodstuffs.

2.16 Colours in Foods:

A total of 56 samples, consisting largely of confectionery and soft drinks, was tested qualitatively for colours. No non-permitted colours were detected and the detected colours were generally consistent with the labelling declaration, although, problems with the labelling of 6 samples were found. A new development in the legislation on use of colours in foodstuffs is the setting of statutory quantitative limits for many permitted colours by Directive 94/36/EC. These new quantitative limits have forced the laboratory to introduce new H.P.L.C. testing methodologies.

2.17 Labelling of Food:

The enforcement of the regulations and directives governing the labelling of foodstuffs forms an important part of the work of the laboratory. Pre-packaged foodstuffs, with certain exceptions, must be marked accurately with a name, a list of ingredients, the net quantity, the date of minimum durability, any special storage/use conditions, the name and address of the manufacturer/packer or seller, and with particulars of the place of origin and instructions for use, where absence of this information would mislead the consumer.

Other more detailed labelling requirements concerning e.g. health and nutritional claims, are also contained in the relevant legislation.

2.17 Labelling of Food: (Contd/....)

Prepacked food is examined for labelling irregularities. In 1996 a total of 64 samples was designated unsatisfactory with respect to labelling. The majority of offences were for relatively minor non-compliances although some samples were found to contain undeclared ingredients/additives.

In general, the larger producers comply with the regulations but many of the small manufacturers, e.g. small bakeries, have to be advised to modify their labels.

The accurate labelling of foodstuffs is essential; in particular the labelling of ingredients (such as milk and egg proteins, and nuts) and additives is crucial for individuals with food-intolerances and allergies.

2.18 Rapid Alerts:

The Rapid Alert system operates when a Member State laboratory reports significant contamination in a foodstuff. The European Commission, on being notified, alerts other states to the problem. If samples of the offending food are found, they are removed by the inspectors and submitted to the local laboratories for testing and eventual reporting of results to Brussels. During the year, 20 such Alerts were issued, 9 of which pertained to chemical/physical contamination.

None of the Alerts resulted in samples being submitted to this laboratory.

2.19 Histamine/Biogenic Amines in Foods:

Histamine is a biogenic amine which can arise from the decarboxylation of the naturally occurring amino acid histidine by bacterial enzymes. High levels of histamine are most frequently found in Scombroid fish (tuna, mackerel, skipjack, bonito), although non-scombroid fish such as herring, anchovies, pilchards, salmon, sardines, and other foods (e.g. cheese, fermented sausages and fish paste, and some fermented vegetables) may also have elevated levels. Raised levels of histamine are frequently found in fish that have caused scombroid fish poisoning (or Ichthyosarcotoxism).

Histamine levels are used as an indicator of the condition. The symptoms are similar to those of a food-allergy. The maximum allowable level of histamine in fish is set by Directive 91/493/EEC. A maximum average concentration of 100mg/Kg (mean of 9 samples), a maximum of 2 samples with levels between 100 and 200 mg/Kg, and a maximum of 200 mg/Kg for any one of nine samples taken, are the applied criteria for acceptance.

84 Samples of fish, fish-spreads and cheeses were tested for histamine in this laboratory in 1996. Of the total tested, only one was found to be unsatisfactory for histamine. The method used also detects a range of other biogenic amines. When evidence of the presence of other biogenic amines is found, a second test, quantifying a total of 9 amines, is performed.

2.19 Histamine/Biogenic Amines in Foods: (Contd/...)

This latter test was performed on 25 samples in 1996. One of the samples, a smoked salmon, showed high levels of histamine (250mg/Kg), cadaverine (880mg/Kg) and agmatine (400mg/Kg). Because of this result, and of some previously detected (but low!) levels of amines in other such products, a survey of retail -level smoked fish was carried out; samples were received from the Galway E.H.O. service.

10 Brands were tested, and 9 of these showed no significant levels of any of the 9 amines. One sample gave results of 143mg/Kg for cadaverine and 127mg/Kg for agmatine. In 1997 it is hoped to concentrate testing for biogenic amines at restaurant/catering level.

2.20 Bottled Waters- Metals and Pesticides:

During the year a total of 59 samples of bottled waters was tested. 30 Samples were tested for 5 metals, viz. Lead, Cadmium, Aluminium, Sodium and Potassium. None of the samples had significant levels of any of the metals, although some labelling irregularities were found. Testing for these parameters will be reduced in 1997.

29 Samples were tested for 4 persistent organochlorine pesticides viz. lindane, dieldrin, aldrin, and D.D.T. No residues were detected in any of the samples. Testing for these parameters will be reduced for 1997; it is hoped to begin testing for the presence of herbicides in bottled waters in 1997.

2.21 Parasitic Worms in Fish:

The presence of visible roundworms (nematodes) in fish is often of concern to the consumer, although it is known that the two principal worms, *Phocanema* ('cod-worm') and *Anisakis* ('herring-worm') are readily killed by cooking. Both larvae are killed in one minute at a temperature of 60°C or over; in practice this means that cooking a fillet 3cm thick for 10 mins. at 60°C or higher will kill any worms present (source: U.K., M.A.F.F./Torry Research Station - Advisory Note No. 80).

Most cases of illness caused by the ingestion of live *Phocanema* and *Anisakis* have been reported in countries where raw or lightly cured fish is commonly eaten. *Anisakis* larvae are reported as being resistant to some salting and marinating processes. Two relevant quantitative standards for 'worms' in fish are:

1. A Codex Alimentarius standard which allows a maximum of 5 worms in 1 Kg of fish of certain species (worms to be 3mm min. encapsulated diameter or 1 cm min. length).
2. The White Fish Authority/Torry Research Stn. (U.K.) standard which proposes a maximum of 3 worms per 3.2Kg of fillets of white fish, as judged by visual examination.

2.21 Parasitic Worms in Fish: (Contd/...)

From the fish-processing point of view, it is known that storage without gutting, particularly at relatively high temperatures, may increase the likelihood of migration of the parasites into the flesh.

Of the routine samples of white fish received in this laboratory in 1996 for general examination, no roundworms were detected.

2.22 General Food Testing:

In addition to the above testing, the routine analysis/examination of food continued. Compositional analyses were carried out where such standards exist, as well as routine checks for the presence of contaminants, additives and adulteration in food and drink.

The laboratory also performs a number of tests related to the food-technology/processing aspects of production. Testing in this area includes determination of sugar content, pH, moisture, efficiency of pasteurisation (milk, eggs and meats), alcohol content, preservatives (see 2.14 above), and packaging integrity; this type of testing is useful in the context of food safety, food-preservation and food - spoilage.

Due to the move to new premises of our sister laboratory in Dublin, a number of samples from the E.H.B. region were received and tested; these included 28 samples of human blood, 8 samples of grass and 4 milks (all for heavy metals testing).

2.22 General Food Testing: (Contd/...)

Various other testing during the year covered baseline studies for heavy metals in food/grass from mining areas, and a survey of animal blood lead levels.

2.23 Complaint Samples:

Complaint samples arise because of contamination, infestation or extraneous matter in foods. (see Appendix 1 for a breakdown). A total of 189 complaint samples, received from the EHO service and the public, was investigated.

Most of the complaints arise when consumers find objects such as insects, hair, general dirt or unidentified foreign bodies in food. The foods most commonly involved are cereals, bakery products, milk, canned food and chocolate. Also, problems sometimes arise due to spoilage because of prolonged storage. The cases are frequently settled at local level but some resort to legal action for redress.

2.24 EU Programme: (See 2.2 above)**Benzopyrenes in Smoked Pork/Products:-**

Benzopyrenes are examples of Polycyclic Aromatic Hydrocarbons (P.A.H.s) which may arise in foodstuffs that are smoked or barbecued. Of particular interest, due to its high toxicity, is benzo(a)pyrene, the determinand specified in the 1996 EC Recommendation (see 2.2 above). There is no Irish legal limit for benzo(a)-pyrene in foods, the German limit of 1 µg/Kg is appropriate.

10 Samples of smoked 'pork' products were tested for both benzo(a)- and the related benzo(e) pyrene. No residues of either contaminant were found in any of the 10 samples. The table below summarises the results.

The samples were provided by the Galway E.H.O. service

Benzopyrenes in Smoked Meat Products.

Sample Reference No.	Sample Type	Benzo(a)pyrene Concentration	Benzo(e)pyrene Concentration
FIO 81/1997	Smoked Ham	<1.0µg/Kg	<5.0µg/Kg
FIO 82/1997	Smoked Ham	<1.0 µg/Kg	<5.0µg/Kg
FIO 83/1997	Smoked Ham	<1.0 µg/Kg	<5.0µg/Kg
FIO 84/1997	Smoked Ham	<1.0 µg/Kg	<5.0µg/Kg
FIO 85/1997	Smoked Rashers	<1.0 µg/Kg	<5.0µg/Kg
FIO 86/1997	Smoked Rashers	<1.0 µg/Kg	<5.0µg/Kg
FIO 87/1997	Smoked Rashers	<1.0 µg/Kg	<5.0µg/Kg
FIO 88/1997	Smoked Rashers	<1.0µg/Kg	<5.0µg/Kg
FIO 89/1997	Smoked Rashers	<1.0µg/Kg	<5.0µg/Kg
FIO 90/1997	Smoked Rashers	<1.0µg/Kg	<5.0µg/Kg

2.25 Alcopops/Alcoholic Lemonades:

During the year a number of samples of this new type of product, "alcoholic soft drinks", was received. There has been some public concern about the use of such products, in particular by very young drinkers.

11 Such brands were received (8 from the Western Health Board) and tested for a number of parameters (alcoholic strength, additives and general composition/labelling.); the results of analysis for the W.H.B. samples are to be found in the Table below (P.32). The determined alcoholic strengths were found to be in good agreement with the labelled values, for each of the samples. As can be seen from the Table, all of the products, except one, were found to contain significant levels of preservatives, sorbic and/or benzoic acid. It appears that there is no legal obligation to label the ingredients in these products. Article 6.3 of the "Labelling of Foodstuffs" Directive (79/112/EEC) states that within four years of the notification of the directive (1983 at latest!) new rules for labelling beverages containing more than 1.2% by volume of alcohol will be introduced - these rules do not appear to have been introduced!

2.25 Alcopops/Alcoholic Lemonades:(Contd/...)

Whether or not preservatives are needed to give these drinks a reasonable shelf life is not clear. But, what is clear is that Annex III of directive 95/2/EC does not provide for the presence of preservatives in such drinks. Clarification from the Commission is required to establish why they are not included in the Annex - it is hoped to pursue this matter in 1997.

**Report on 8 Samples of Alcoholic, bottled drinks -
submitted by Mr. P. Hickey, E.H.O., on 21/10/96**

Lab. Ref. No.	Sample Description	Alcoholic Strength (% Vol.)		pH	Sol. Solids as sucrose *(%)	Benzoic Acid mg/L	Sorbic Acid (mg/L)
		Found	(Labelled)				
FIO 1607/96	Bacardi Breezer Orange	5.42	(5.4)	3.64	10.1	<5	217
FIO 1608/96	Bacardi Breezer Pineapple	5.44	(5.4)	3.62	10.1	<5	162
FIO 1609/96	Mug Shot	5.38	(5.5)	3.49	10.5	131	<5
FIO 1610/96	Corky's Strawberry	4.79	(4.7)	2.81	9.7	162	<5
FIO 1611/96	Polo Extra Dry	3.92	(4)	3.21	6.5	87	83
FIO 1612/96	Hooper's Hooch-Blackcurrant	5.19	(5.1)	3.21	11.0	<5	<5
FIO 1613/96	Woody's Strawberry & Lemon	4.74	(4.7)	2.92	9.4	193	167
FIO 1614/96	Woody's Mexican Lime	4.77	(4.7)	3.43	9.0	194	163

* direct refractometer reading.

2.26 Inhibitory Substances in Pork:

During the year the much publicised results of testing by a Belgian laboratory (for the European Consumer Associations) of E.U. - samples of retail meat were reported. The results indicated that 17% of the tested Irish pork samples showed the presence of antibiotics.

Testing in this laboratory in 1996 yielded the following results for pork chops processed in Counties Galway, Mayo and Roscommon (samples provided by the respective E.H.O. services from slaughterhouse and retail premises):

<u>Samples Tested</u>	<u>Positives</u> (for inhibitory Substances)
85	5

The screening procedure used also gave a number of borderline results. Further monitoring is taking place in 1997.

It is of interest that some producers themselves are now undertaking screening of their produce for antibiotic residues. Furthermore a Department of Agriculture approved scheme of self-regulation, involving out-contracted testing by approved (by Department of Agriculture), public and private laboratories is currently up-and-running. These two largely self-regulatory mechanisms, in conjunction with the "Official" enforcement by veterinary and Health Board staff should reduce the incidence of inhibitory substances in Irish meat, in much the same way as self-regulation by the dairies has contributed to a reduction in levels of antibiotics in milk. Further monitoring will indicate if the situation has improved.

2.27 Visits by Latvian, Russian and Belarussian Delegations (2

Chernobyl-affected regions):-

During the year separate visits, under the auspices of DEVCO Ireland, by delegations from the Agricultural Centre for Radiology and Chemical Control (Russia) and the Institute of Hygiene and Epidemiology (Belarus) were made to the laboratory. The groups also visited other Irish laboratories and government departments to view our food-control systems.

A visit by a Latvian Food-Control group also took place.

2.28 Food Sampling/Analysis Plan 1996:

At the beginning of the year a Sampling/Analysis Plan for 1996 was prepared and circulated to the region's Principal E.H.Os. With extra staff and equipment, the aim was to extend the scope of the service with particular emphasis on contaminants, additives and toxins in foods. A copy of the plan is included in Appendix 2.

The purpose of this plan is to introduce order into the timing of testing of routine samples (excluding complaint samples). The laboratory can achieve a high productivity and cost-effectiveness only if ordered batch-testing of samples is implemented. This means that a substantial proportion of the work must be carried out by surveys.

2.29 Food Law Enforcement Practitioners (F.L.E.P.):

F.L.E.P. is an informal grouping of food law enforcement practitioners representing the management of Food Control interests in the European Community. Its terms of reference include the exchange of information and co-operation between European colleagues in order to further develop mutual confidence and trust in the resolution of practical control problems. The importance of F.L.E.P from our point of view is that it brings together enforcement personnel from all over Europe who are doing similar work; in particular the opportunity to confer with the European laboratories, who have traditionally had access to superior resources and facilities, is invaluable to us.

The Western Health Board is currently a member of F.L.E.P. When one views the Official Control of Foodstuffs Directive, F.L.E.P, the Karolus programme, EC Directive 93/99 and the assessments by the European Food Enforcement Inspectorate, the inevitable conclusion is that Food Control is no longer a local issue, rather, it is one of international importance. This means that the enforcement services in this country have to be brought up to international standards and that our work in the immediate future must focus on developing our services toward that end. During the year a member of staff attended the ninth F.L.E.P. meeting, in Bussum, the Netherlands. This contact is invaluable to the laboratory.

2.30 Directives 89/397 and 93/99:

Directive 89/397 on the Official Control of Foodstuffs specifies that testing of food be carried out by "Official Laboratories" and that a list of these be sent to the Commission for publication in the official journal of the European Commission. Directive 93/99 requires "Official Laboratories" to comply with the requirements of EN 45001 (Accreditation) before the 1st November 1998 or lose their status.

In this laboratory, the accreditation process in the food unit commenced in 1992; to-date 75% compliance has been achieved. A programme is in place to complete the work before the deadline in the directive. This work has been helped by increased staff and funding provided by the Western Health Board and the Department of Health.

3. WATER/EFFLUENTS:

3.1 Introduction:

The laboratory provides a service, on an agency basis, for the nine Local Authorities in the Region, to monitor Public Water Supplies. The European Communities (Quality of Water for Human Consumption) Regulations 1988 contain quality standards for drinking water and also set out the frequency and type of testing to be carried out. In addition, bathing waters are checked for compliance with the European Communities (Quality of Bathing Water) Regulations 1992. A service is also provided for local industry and private individuals. The number of samples tested during the year was 7231.

They were received from the following sources:-

Source	Number
Galway	1381
Galway County Council	151
Galway Corporation	401
Mayo	593
Roscommon	269
Roscommon County Council	42
Donegal	708
Sligo/Leitrim	353
North Tipperary	394
Clare	569
Clare County Council	278
Limerick	307
Asahi	326
Miscellaneous	999
Haemodialysis Units	460
TOTAL	7231

3.2 Public Water Supplies:

All Public Water Supplies and Group Schemes in the region are monitored on an ongoing basis. The type and frequency of testing is laid down in the regulations. The frequency varies in relation to the size of the supply; the small schemes are checked just once a year while the large plants that supply 200,000 cubic metres per day, or that serve a population of 1 million or more, are monitored on a daily basis. The type of testing is divided into four categories as follows:-

Minimum Monitoring (C1) - odour, taste, conductivity or other physico-chemical parameters, bacterial counts.

Current Monitoring (C2) - odour, taste, turbidity, temperature, conductivity or other physico-chemical parameters, pH, nitrite, nitrate, ammonia and bacterial counts.

Periodic Monitoring (C3) - current monitoring and other parameters determined by the Sanitary Authority having regard to all the factors which may affect the quality of the drinking water supplied to users and which may enable the ionic balance of the constituents to be assessed.

Occasional Monitoring (C4) - The onus is on the Sanitary Authority to determine the parameters according to the circumstances, taking account of all factors which might have an adverse effect on the quality of the drinking water supplied to consumers.

3.2 Public Water Supplies: (Contd/...)

Parameters other than those listed in Part 1 of the schedule to the regulations may be included. This type of analysis will arise only where local circumstances are such as to pose a threat to the quality of the supply.

The C1 testing is usually carried out at the treatment plants. The work of this laboratory is concerned mainly with C2 and C3 monitoring. The analysis that is routinely performed is sufficient to cover the requirements of the regulations for both types of monitoring. It includes all the parameters that are likely to adversely influence the quality of the supplies in this region.

3.3 Aluminium in Public Water Supplies:

The maximum admissible concentration for aluminium in drinking water is 0.2 milligrammes per litre. Residues arise because the aluminium salts, that are used as a coagulant in the treatment of raw water to make it potable, are not fully removed in the post-treatment filtration process. All treated supplies are monitored. The results for 1996 are summarised below.

Results in mg/litre

Samples	<0.02	≥0.02 - 0.2	≥0.2 - 1.0	>1.0
620	126	322	136	36

3.4 Fluoridation of Public Supplies:

The fluoridation of water supplies is controlled by two pieces of legislation viz. (1) the Health (Fluoridation of Water Supplies) Act 1960, which empowers the Minister for Health following consultation with the Minister for the Environment, to make regulations requiring Sanitary Authorities to add fluoride to public supplies, in order to bring the level up to between 0.8 and 1.0mg/litre, and (2) the 1988 Regulations (S.I. No. 81 of 1988) which set a maximum admissible concentration of 1,000micrograms/litre (1 mg/litre).

The fluoridation is carried out by local authorities on an agency basis for the Health Boards. The latter pay for the service. The role of the laboratory is to carry out a monthly distillation test on each supply, as required by the regulations.

The results are summarised in Appendix 3. Because of industrial action by Environmental Health Officers, the number of samples from some locations was well below the specified monthly rate.

3.5 Killala Bay Monitoring:

3.5.1 Introduction:

In 1976 the Asahi company established a textile manufacturing plant in Killala, Co. Mayo. The industry uses acrylonitrile and methyl acrylate, two volatile and flammable chemicals, in the process.

At the time, concern was expressed in the Killala area that the discharge of an effluent containing low levels of these chemicals to Killala Bay would have adverse environmental effects. Because of this, the County Council set up a monitoring committee, with terms of reference to prepare and oversee a monitoring programme for the effluent and the bay. The Committee has representatives from Mayo County Council, Sligo County Council, the Western and North Western Health Boards and the Asahi Company. The initial programme involved round the clock monitoring of the effluent and monthly checks on the bay. In light of experience, this was scaled down after five years to twice-weekly sampling of the effluent. Monthly testing of the bay has continued.

3.5 Killala Bay Monitoring: (Contd/...)

In addition, periodic biological surveys of the bay are carried out. This laboratory looks after the chemical testing of both the effluent and the bay, while Forbairt undertakes the biological testing. The sampling of the effluent and bay is carried out by one of the Board's Environmental Health Officers. The whole programme is extensive and may be summarised as follows:-

3.5.2 Effluent:

The sampling officer visits the plant twice a week and on each occasion collects two samples, a random sample at the discharge point and a composite sample which is representative of the effluent over the previous 24 hour period. During the year 214 samples were examined, the results of which were forwarded on a weekly basis to the County Council in Mayo.

3.5.3 Killala Bay:

Samples of sea water are collected on a monthly basis from nine locations around the perimeter of the bay viz. Lacken Pier, Kilcummin Pier, Killala Pier, Pollaheney Pier, Easkey Pier, Enniscrone Strand, the River Moy in Ballina beside the Cathedral, and the River Moy one mile north of Ballina. The number of samples tested during the year was 108. They were tested for acrylonitrile, methyl acrylate, cyanide and pH.

3.5 Killala Bay Monitoring: (Contd/...)

The analysis is extended once a year to include suspended solids, nitrate, ammoniacal nitrogen, biochemical oxygen demand, phosphate, lead, copper, zinc and iron.

3.5.4 Diffuser Pipe:

The pipe from which the effluent is discharged is located on the sea bed off Killala. Once a year it is inspected by divers. During this operation, 4 samples are collected from the sea directly over the discharge point. These are tested for acrylonitrile, methyl acrylate, cyanide, suspended solids, ammoniacal nitrogen, biochemical oxygen demand, nitrate, phosphate, lead, copper, zinc and iron.

3.5.5 Fish:

Each year, in Autumn, staff from the laboratory visit Ross Beach, Enniscrone Beach, Moyne Beach and the area around Killala Pier to collect specimens of shell fish. These species are chosen because of their known tendency to concentrate chemicals from water and because they are resident in the bay all year round. They are tested for acrylonitrile, and methyl acrylate.

3.5 Killala Bay Monitoring: (Contd/...)

3.5.6 Results:

No trace of acrylonitrile or methyl acrylate was detected in any of the samples of sea water or fish specimens from the bay. Since the monitoring commenced in 1976, there appears to have been no change in the quality of the water or fish life in the bay and the effluent does not seem to have had any adverse effect on the local aquatic environment.

3.6 Water from Private Sources:

The laboratory has always provided a service to the general public, and to industry on a fee-paying basis, to test new and existing water supplies and also to monitor effluent discharges.

The number of such samples received during the year was 999.

3.7 Haemodialysis Water:

A service is provided to the hospitals in the region, to test the quality of the water used in the haemodialysis units. The number of samples involved was 460.

4. PHARMACEUTICALS AND TOXICOLOGY:

4.1 Pharmaceuticals:

A total of 48 pharmaceutical products was tested during the year.

They were received from:-

Irish Medicines Board (IMB)	...	42
Department of Health	...	1
Industry	...	2
European Pharmacopoeia/PIC	...	3

Since 1976 the laboratory has provided a service to the National Drugs Advisory Board, now the Irish Medicines Board, on a contract basis to test drugs and medicines. The objectives of the scheme are:-

- (a) to test products requiring a Product Authorisation to see if they comply with the E.P., B.P., U.S.P., B.P. (Vet) or the applicant Company's finished product specification;
- (b) to test the methods of analysis submitted by the applicant;
- (c) to deal with complaints from Physicians, Veterinarians and members of the public;
- (d) to test samples taken at retail level.

4.2 Official Medicine Control laboratories (OMCLs):

The OMCL's are a group of laboratories that have been designated as official laboratories throughout Europe for the purpose of testing pharmaceuticals for licensing and for assessing quality in the distribution network. As part of their work, they organise collaborative studies and proficiency testing schemes.

In 1995, the laboratory participated in 4 collaborative studies; the results of 2 of the studies were published in 1996;

(1) *Interlaboratory study on the Analysis of Ampicillin by Liquid Chromatography.*

Journal of Pharmaceutical and Biomedical Analysis
14(1996) 1151 - 1156.

(2) *Interlaboratory Study of the analysis of Amoxicillin by Liquid Chromatography.*

Journal of Liquid Chromatography and Related Technology
19(20) 3305 - 3314 - 1996.

In 1996, the laboratory took part in one proficiency study on HPLC.

Participation in the work of the OMCLs is valuable in that it acts as a form of external quality control and, as such, is of importance in the work for the Medicines Board.

4.3 Toxicology:

The number of examinations carried out by the toxicology unit was 336. They were made up as follows:-

Alcohol (Post Mortem)	255
Alcohol (R.T.A.)	43
Strychnine	9
Paraquat	9
Drug Screen	9
Miscellaneous	11

This service is mainly for the Consultant Pathologists in the Western Health Board. The number of samples taken under the Road Traffic Act for alcohol determination was 43 of which 40 were above the legal limit.

5. ENVIRONMENTAL:

Air Pollution Monitoring:

The quality of the air in Galway City is monitored at three locations, viz. Public Analyst's Laboratory, University College Hospital; Corporation Office, Sandy Road; and the Waterworks, Terryland. The parameters measured are sulphur dioxide and smoke/particulate matter. These arise from the burning of fuel, mainly coal. Excessive levels cause air pollution, and, in certain atmospheric conditions, can result in smog. Air quality in Ireland is controlled by the Air Pollution Act of 1987. Air quality standards are set out in SI No. 244 of 1987. A copy of these is incorporated in Appendix 5.

The regulations give effect to the EEC Directive 80/779, the objective of which is to improve the protection of human health and the environment. The regulations contain limits which should not be exceeded at various times of the year. The results for Galway City are given in detail in Appendix 4 with a summary in the table below.

	Location		
	P. A. Lab.	City Hall	Waterworks
Sulphur Dioxide (SO ₂)	10	12	7
Smoke	11	11	8

Results in micrograms per cubic meter. (Average for the year)

The results are all very low. The standards were not exceeded at any time during the year and it is clear that air pollution is not a problem in Galway City.

6. LABORATORY ACCREDITATION.

In analytical chemistry as in all fields of testing today, laboratories must demonstrate competence to carry out their work. This is achieved through the internationally recognised system of accreditation. Laboratories must comply with the EN 45000 series of European Standards. The Government sponsored body with responsibility for accreditation in Ireland is the Irish National Accreditation Board. As mentioned in paragraph 2.30, Official Laboratories engaged in food testing must meet the standard before 1st November 1998 or lose their status. In other areas, accreditation is still voluntary but more and more people are demanding an accredited service and will not accept less.

In our case, accreditation work started in 1989 and to-date considerable progress has been made. Our water and pharmaceutical laboratories are accredited for routine work and, as mentioned in paragraph 2.30, 75% compliance has been reached in the food unit. A programme is in place to complete the work in time to meet the deadline in directive 93/99.

7. **NEW LABORATORY:**

The contract to build the new laboratory was signed in September 1996, work on the site in the grounds of University College Hospital commenced in October '96. The work is scheduled to finish in September 1997 and it is hoped that the laboratory will be operational before the end of the year.

In regard to equipment, all serviceable existing instruments will be transferred to the new premises. Some new equipment will, however, be required. A submission has been made to the Department of Health by the Programme Manager setting out what is required and seeking the necessary funding.

8. **STAFF TRAINING:**

In September 1992, the European Council made a decision to adopt an action plan for the exchange between Member State administrations, of national officials who are engaged in the implementation of Community legislation required to achieve the internal market. This led to the Karolus exchange programme which will last for five years from 1st January, 1993. One of the areas covered is foodstuffs (in particular, those with responsibility for official inspection of food in accordance with Articles 4 and 5 of Directive 89/397 EEC).

8. STAFF TRAINING: (Contd/...)

During the year, one of our staff availed of the programme to study abroad. Mr. Rory Mannion spent 2 weeks in the State Laboratory in Finland. Also, since the directive on the Official Control of Foodstuffs places such emphasis on training, all staff undergo ongoing training and are sent to appropriate courses as they become available

As mentioned, personnel engaged in Food Law Enforcement in Latvia, Russia and Belarus visited the laboratory on fact-finding missions. The international contacts are of value in that they give staff an insight into what is happening abroad and what must be done here to maintain standards.

9. FINANCE:

9.1 Income/Expenditure:

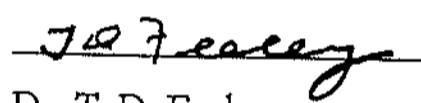
The net budget allocation for the year was £802,551; the net expenditure was £797,983.

10. STAFF:

The list of staff is given in Appendix 6. During the year, Ms. Mary Finan was promoted to Senior Laboratory Technician, Dr. Bernard Lynch replaced Dr. Garry Kearney; he left to take up a post with the Southern Health Board. Ms. Sylvia O'Flynn replaced Ms. Helen O'Carroll who left in 1995. Also, Ms. Catriona Greaney joined on a job-sharing scheme with Ms. Elaine Goldrick.

As head of the laboratory, I want to thank all the staff for the dedicated way in which they carried out their duties during the year.

Signed:



Dr. T. D. Feeley,
(Public Analyst)

APPENDIX I

Laboratory Results which Revealed Infringements 1996

SAMPLES FROM ALL SOURCES

	Number of Samples with Infringements	Chemical/Physical Contamination	Composition	Labelling and presentation	Others	Total No. of samples received
1. Dairy Products	61	26	20	8	7	493
2. Eggs and egg products.	0	0	0	0	0	9
3. Meat and meat products, game and poultry	59	33	0	15	11	443
4. Fish, crustacea, molluscs.	5	2	0	3	0	118
5. Fats and oils.	3	1	2	0	0	53
6. Soups, broths and sauces	1	1	0	0	0	34
7. Cereals and bakery products.	37	32	0	5	0	145
8. Fruits and vegetables.	22	17	0	4	1	286
9. Herbs and spices.	0	0	0	0	0	16
10. Non-alcoholic drinks.	12	6	0	4	2	141
11. Wine.	0	0	0	0	0	10
12. Alcoholic drinks other than wine.	3	2	1	0	0	55
13. Ice and desserts.	1	1	0	0	0	32
14. Cocoa. and cocoa preparations. coffee and tea.	1	1	0	0	0	17
15. Confectionery.	30	6	0	24	0	163
16. Nuts and nut products.	4	3	0	0	1	46
17. Prepared dishes.	19	18	0	0	1	89
18. Foodstuffs intended for particular nutritional uses.	1	1	0	0	0	1
19. Additives	2	1	0	1	0	9
20. Materials and articles intended to come into contact with foodstuffs.	1	1	0	0	0	1
21. Others	0	0	0	0	0	4
TOTALS	262	152	23	64	23	2165

Laboratory Results which Revealed Infringements 1996

ROUTINE SAMPLES FROM ENVIRONMENTAL HEALTH OFFICERS

Product	Number of Samples with Infringements	Chemical/Physical Contamination	Composition	Labelling and presentation	Others	Total No. of samples received
1. Dairy Products	45	10	20	8	7	458
2. Eggs and egg products.	0	0	0	0	0	8
3. Meat and meat products, game and poultry	32	6	0	15	11	394
4. Fish, crustacea, molluscs.	5	2	0	3	0	114
5. Fats and oils.	2	0	2	0	0	52
6. Soups, broths and sauces	0	0	0	0	0	33
7. Cereals and bakery products.	5	0	0	5	0	103
8. Fruits and vegetables.	5	0	0	4	1	243
9. Herbs and spices.	0	0	0	0	0	16
10. Non-alcoholic drinks.	6	0	0	4	2	131
11. Wine.	0	0	0	0	0	10
12. Alcoholic drinks other than wine.	1	0	1	0	0	46
13. Ice and desserts.	1	1	0	0	0	31
14. Cocoa, and cocoa preparations, coffee and tea.	0	0	0	0	0	16
15. Confectionery.	24	0	0	24	0	149
16. Nuts and nut products.	2	1	0	0	1	40
17. Prepared dishes.	0	0	0	0	0	55
18. Foodstuffs intended for particular nutritional uses.	0	0	0	0	0	0
19. Additives	1	0	0	1	0	8
20. Materials and articles intended to come into contact with foodstuffs.	0	0	0	0	0	0
21. Others	0	0	0	0	0	4
TOTALS	129	20	23	64	22	1911

Laboratory Results which Revealed Infringements 1996

COMPLAINT SAMPLES SUBMITTED TO ENVIRONMENTAL HEALTH OFFICERS BY THE PUBLIC

Product	Number of Samples with Infringements	Chemical/Physical Contamination	Composition	Labelling and presentation	Others	Total No. of samples received
1. Dairy Products	11	11	0	0	0	13
2. Eggs and egg products.	0	0	0	0	0	0
3. Meat and meat products, game and poultry	18	18	0	0	0	28
4. Fish, crustacea, molluscs.	0	0	0	0	0	3
5. Fats and oils.	0	0	0	0	0	0
6. Soups, broths and sauces	0	0	0	0	0	0
7. Cereals and bakery products.	17	17	0	0	0	23
8. Fruits and vegetables.	11	11	0	0	0	20
9. Herbs and spices.	0	0	0	0	0	0
10. Non-alcoholic drinks.	2	2	0	0	0	4
11. Wine.	0	0	0	0	0	0
12. Alcoholic drinks other than wine.	2	2	0	0	0	2
13. Ice and desserts.	0	0	0	0	0	1
14. Cocoa, and cocoa preparations, coffee and tea.	1	1	0	0	0	1
15. Confectionery.	5	5	0	0	0	6
16. Nuts and nut products.	2	2	0	0	0	3
17. Prepared dishes.	13	13	0	0	0	22
18. Foodstuffs intended for particular nutritional uses.	1	1	0	0	0	1
19. Additives	1	1	0	0	0	1
20. Materials and articles intended to come into contact with foodstuffs.	1	1	0	0	0	1
21. Others	0	0	0	0	0	0
TOTALS	85	85	0	0	0	129

Laboratory Results which Revealed Infringements 1996

COMPLAINT SAMPLES SUBMITTED TO THE LABORATORY BY THE PUBLIC

Product	Number of Samples with Infringements	Chemical/Physical Contamination	Composition	Labelling and presentation	Others	Total No. of samples received
1. Dairy Products	5	5	0	0	0	7
2. Eggs and egg products.	0	0	0	0	0	1
3. Meat and meat products, game and poultry	8	8	0	0	0	12
4. Fish, crustacea, molluscs.	0	0	0	0	0	0
5. Fats and oils.	1	1	0	0	0	1
6. Soups, broths and sauces	1	1	0	0	0	1
7. Cereals and bakery products.	15	15	0	0	0	19
8. Fruits and vegetables.	6	6	0	0	0	6
9. Herbs and spices.	0	0	0	0	0	0
10. Non-alcoholic drinks.	3	3	0	0	0	4
11. Wine.	0	0	0	0	0	0
12. Alcoholic drinks other than wine.	0	0	0	0	0	0
13. Ice and desserts.	0	0	0	0	0	0
14. Cocoa, and cocoa preparations, coffee and tea.	0	0	0	0	0	0
15. Confectionery.	1	1	0	0	0	1
16. Nuts and nut products.	0	0	0	0	0	1
17. Prepared dishes.	6	5	0	0	1	7
18. Foodstuffs intended for particular nutritional uses.	0	0	0	0	0	0
19. Additives	0	0	0	0	0	0
20. Materials and articles intended to come into contact with foodstuffs.	0	0	0	0	0	0
21. Others	0	0	0	0	0	0
TOTALS	46	45	0	0	1	60

APPENDIX 2

FOOD SAMPLING/ANALYSIS PROGRAMME 1996							
Jan.	Microbiological (see attached)	Milk/Dairy Products (General) Milks, Butter. etc.	Meat/Fish (+ products)	Miscellaneous Foods (additives: colours, sweeteners, min. oils. etc.) Note 3	Miscellaneous Foods (Aflatoxins) Note 7	Misc. Vegetables (NO ₂ /NO ₃) Note 12	Production, Catering etc. 'Inspection' Samples ¹ (e.g. Bakery products) Note 1
Feb.	Microbiological (see attached)	Cheese and Yoghurt Spreads and Salads (for preservatives)	Bottled Waters	Miscellaneous Foods (as above)	Frying Oils etc. esp. Fish - fryer oils (DPTGS + Acid Value) Note 15	Cereals Note 10	Production, Catering etc. 'Inspection' Samples ¹ (e.g. Bakery products)
Mar.	Microbiological (see attached)	Milk/Dairy Products (General) Milk. Butter etc.	Spirits/Beer/Wine etc. (alcohol, preservatives, metals) Note 2	Citrus Fruits & Bananas (for Fungicides) Note 6	Soft Drinks (additives)	Babyfoods (Disinfectant Residues + filth + metals) Note 8	Production, Catering etc. 'Inspection' Samples ¹ (e.g. Bakery products)
Apr.	Microbiological (see attached)	Milk/Dairy Products (General) Milk. Butter etc.	Meat/Fish (+ products) including Scombroid Fish (+ Fish products) for histamine Note 13	Miscellaneous Foods (SO ₂) (meats, dried fruit etc.)	Miscellaneous Foods (Nitrate and Nitrite)	Smoked Fish (phenols) Note 9	Production, Catering etc. 'Inspection' Samples ¹ (e.g. Bakery products)
May	Microbiological (see attached)	Milk/Dairy Products (General) Milk. Butter etc.	EC recommendations 1996 Smoked Pork and Plastics Note 14	Shellfish (D.S.P.) Note 4	Miscellaneous Foods (Heavy metals) Note 5		Production, Catering etc. 'Inspection' Samples ¹ (e.g. Bakery products)
Jun.	Microbiological (see attached)	Milk/Dairy Products (General) Milk. Butter etc.	Spirits/Beer/Wine etc. (as above) Note 2	Shellfish (D.S.P.) Note 4	Jams/Preserves etc. + Mayonnaise prods. (preservatives)	Ices & Ice-Cream & Frozen Confectionery	Production, Catering etc. 'Inspection' Samples ¹ (e.g. Bakery products)
July	Microbiological (see attached)	Milk/Dairy Products (General) Milk. Butter etc.	Meat/Fish (+ products)	Shellfish (D.S.P.) Note 4	Farmed Fish (residues) Note 16	Ices & Ice-cream & Frozen Confectionery	Production, Catering etc. 'Inspection' Samples ¹ (e.g. Bakery products)
Aug.	Microbiological (see attached)	Cheese and Yoghurts Spreads and Salads (for preservatives)	Bottled Waters	Shellfish (D.S.P.) Note 4	Soft Drinks (additives)	Ices & Ice-cream & Frozen Confectionery	Production, Catering etc. 'Inspection' Samples ¹ (e.g. Bakery products)
Sep.	Microbiological (see attached)	Milk/Dairy Products (General) Milk. Butter etc.	Spirits/Beer/Wine etc. (as above) Note 2	Shellfish (D.S.P.) Note 4	Jams, preserves etc. + Mayonnaise prods. (preservatives)	Cereals Note 10	Production, Catering etc. 'Inspection' Samples ¹ (e.g. Bakery products)
Oct.	Microbiological (see attached)	Milk/Dairy Products (General) Milk. Butter etc.	Meat/Fish (+ products) Including Scombroid Fish (+ Fish products) for histamine Note 13	Shellfish (D.S.P.) Note 4	Miscellaneous Foods (Heavy Metals) Note 5	Babyfoods (Disinfectant residues etc.) Note 8	Production, Catering etc. 'Inspection' Samples ¹ (e.g. Bakery products)
Nov.	Microbiological (see attached)	Milk/Dairy Products (General) Milk. Butter etc.	Bottled Waters	Apple Juice especially cloudy Juice (Patulin.)	Miscellaneous Foods (Aflatoxins) Note 7	Potato Products	Production, Catering etc. 'Inspection' Samples ¹ (e.g. Bakery products)
Dec.	Microbiological (see attached)	Milk/Dairy Products (General) Milk. Butter etc.	Spirits/Beer/Wine etc. (as above) Note 2	Citrus Fruits & Bananas (for fungicides) Note 6		Misc. Foods (Nutritional claims) Note 11	Production, Catering etc. 'Inspection' Samples ¹ (e.g. Bakery products)
JAN. - DEC.		Tap waters from manufacturers (where relevant); margarine, butter and desiccated coconut (for moisture); others on request.					

N.B. PLEASE SEE ATTACHED NOTES

NOTES

1. Including ingredients, additives, liquid-eggs (a-amylase), flour etc. for general testing including infestation/filth, sensory tests etc.
2. Esp. Argentinean Wines (for methanol contamination).
3. According to label, and where feasible in laboratory.
4. Applies only to areas where Shellfish are harvested (includes Water Samples for Dinophysis).
5. Esp. canned foods; including e.g. chopped tomatoes, fruit juices etc. for Sn/Pb/Cd/Hg etc.
6. Thiabendazole, orthophenyl-phenol and biphenyl.
7. E.g. Nuts and Nut-products, Dried Fruits and Spices, esp. Figs from Turkey, Pistachio Nuts (Iran), Peanuts (Brazil), Figs and Fig-products, Dates. (Previously identified as hazards by EU labs.)
8. E.g. 4-Toluenesulphonamide; also some (previously identified) Babyfoods containing vegetables for NO_2/NO_3 (sampling from one county (Galway?) only).
9. E.g. Pentachlorophenol (banned in fish - smoking products), when possible.
10. For moisture/infestation and ochratoxin (include coffee also) and fumonisin (corn-products) (when possible).
11. Including table salt (for Iodide).
12. e.g. Lettuce and Beet
13. e.g. Mackerel (especially smoked), herring, kippers, tuna, sardines, fermented fish pastes, fermented sausages.
14. Benzo pyrenes in cured pork; migration of plasticizers - further arrangements to be made before April 1st 1996.
15. Limits: D.P.T.Gs (16%); Acid Value: 3.0
16. When possible.

APPENDIX 3

APPENDIX 3			
FLUORIDATION OF WATER SUPPLIES :- GALWAY			
Location	Number of samples	Range (ug/l)	Mean (ug/l)
Galway City	83	700 - 1090	859
Athenry	13	770 - 1030	885
Ballinasloe	11	820 - 930	885
Carna	12	840 - 1170	943
Clarinbridge	11	420 - 1130	868
Clifden	12	660 - 970	853
Kilcolgan	1	-	680
Kinvara	--	--	--
Mid-Galway Regional	1	-	960
Mountbellew	--	--	--
Oughterard	1	-	780
Portumna	12	770 - 1600	910
Spiddal	14	810 - 1040	959
Dunmore/Glenamaddy	--	--	--

APPENDIX 3			
FLUORIDATION OF WATER SUPPLIES :- MAYO			
Location	Number of samples	Range (ug/l)	Mean (ug/l)
Achill	11	255 - 1100	781
Ballina	24	710 - 1040	862
Ballinrobe	--	--	--
Ballyhaunis	12	710 -1280	949
Belmullet	12	630- 1160	940
Lough Mask Regional	12	760 - 910	834
Killala	--	--	--
Kiltimagh	12	110 - 1040	795
Shrule	11	190 - 1170	713
Swinford	12	840 - 1100	935
Claremorris	10	600-1180	943
Westport	12	830-1090	944

APPENDIX 3			
FLUORIDATION OF WATER SUPPLIES - ROSCOMMON			
Location	Number of Samples	Range (ug/l)	Mean (ug/l)
Ballinlough	7	200 - 840	389
Castlerea Regional	8	760 - 1030	927
Castlerea Urban	7	940 - 1150	1000
Cortober	6	620 - 940	813
Four Roads/Mt. Talbot	7	130-1005	726
Roscommon Town	22	610 - 1030	825
North East Regional	3	1000 - 1030	1013
North Roscommon Regional	7	450 - 1235	849
South Roscommon Regional	28	170-1140	754

APPENDIX 3			
FLUORIDATION OF WATER SUPPLIES :- DONEGAL			
Location	Number of Samples	Range (ug/l)	Mean (ug/l)
Buncrana	13	< 100 - 1120	356
Bundoran	12	700 - 1000	868
Cranford	11	720 - 1195	969
Donegal Town	12	750 - 1525	971
Dunfanaghy/Creeslough	4	860 - 970	898
East Inishowen Regional	10	780 - 1200	942
Frosses/Inver	12	130 - 1100	815
Glenties/Ardara	--	--	--
Gortahork/Falcarragh	--	--	--
Letterkenny	13	740 - 950	832
Lettermacward	3	< 100 - 1170	473
Lough Mourne	11	135 - 980	792
Rosses Regional	4	700 - 1020	909

APPENDIX 3			
FLUORIDATION OF WATER SUPPLIES :- SLIGO/LEITRIM			
Location	Number of samples	Range (ug/l)	Mean (ug/l)
Kinsellagh	12	690 - 930	833
Lough Gill	11	790 - 970	871
Lough Easkey	3	< 100 - 910	617
Lough Talt	13	730 - 1020	893
Carrick-on-Shannon	--	--	--
Ballymote	12	200 - 1100	691
Manorhamilton	--	--	--

APPENDIX 3			
FLUORIDATION OF WATER SUPPLIES - LIMERICK			
Location	Number of samples	Range (ug/l)	Mean (ug/l)
Abbeyfeale	13	640 - 1600	982
Adare	1	--	840
Askeaton	1	--	840
Ballyagran	11	740 - 980	882
Kilmallock	12	820 - 1130	1019
Newcastle West	1	--	440
Rathkeale	12	810 - 1130	942
Clooncagh	1	--	900
South West Regional	2	705 - 815	760
Limerick City	3	710 - 940	843

APPENDIX 3			
FLUORIDATION OF WATER SUPPLIES :- CLARE			
Location	Number of samples	Range (ug/l)	Mean (ug/l)
Ennis	22	840 - 920	880
Ennistymon	11	820 - 1080	976
Kildysart	--	--	--
Kilkee	12	620 - 1200	874
Kilrush	--	--	--
Lisdoonvarna/Killeaney	12	600 - 1080	768
Shannon	12	530 - 1030	849
West Clare New Doolough	--	--	--
West Clare Old Doolough	--	--	--
Limerick City.	--	--	--

APPENDIX 3			
FLUORIDATION OF WATER SUPPLIES :- NORTH TIPPERARY			
Location	Number of samples	Range (ug/l)	Mean (ug/l)
Borrisokane	2	870 - 920	895
Nenagh	1	--	170
Newport	1	--	790
Roscrea	1	--	130
Templemore	1	--	740
Thurles	2	800 - 1000	900
Castleconnel	9	740 - 910	843
Murroe	10	780 - 960	877

APPENDIX 4

APPENDIX 4AIR POLLUTION DATA.

Concentration of Smoke & Sulphur Dioxide in the atmosphere
during 1996 at Public Analysts Laboratory.

	Microgrammes per cubic metre					
	Smoke			Sulphur dioxide		
	Average Reading	Highest Reading	Lowest Reading	Average Reading	Highest Reading	Lowest Reading
Jan.	20	53	7	16	30	3
Feb.	21	50	1	16	31	3
Mar.	17	36	5	13	20	7
Apr.	13	30	5	14	26	7
May	8	16	4	11	18	5
Jun.	5	9	0	8	13	2
Jul.	2	6	0	9	46	2
Aug.	3	7	0	10	74	3
Sept.	5	14	0	10	73	2
Oct.	4	14	0	9	81	2
Nov.	5	14	2	3	7	1
Dec.	22	65	6	9	18	3
Ave.	10	26	3	11	36	3

APPENDIX 4**AIR POLLUTION DATA**

Concentration of Smoke & Sulphur Dioxide in the atmosphere
during 1996 at Sandy Road.

	Microgrammes per cubic metre					
	Smoke			Sulphur dioxide		
	Average Reading	Highest Reading	Lowest Reading	Average Reading	Highest Reading	Lowest Reading
Jan.	17	40	2	8	31	3
Feb.	--	--	--	--	--	--
Mar.	--	--	--	--	--	--
Apr.	9	32	3	10	23	3
May	6	15	2	13	25	4
Jun.	3	7	0	10	29	1
Jul.	4	21	1	34	364	9
Aug.	5	9	1	13	39	4
Sept.	7	21	1	13	29	6
Oct.	8	25	1	11	23	4
Nov.	23	67	4	8	13	4
Dec.	21	83	3	7	12	2
Ave.	11	33	2	12	54	4

Note: -No results given for months February and March due to instrument breakdown.

APPENDIX 4**AIR POLLUTION DATA.**

Concentration of Smoke & Sulphur Dioxide in the atmosphere
During 1996 at Galway Waterworks.

	Microgrammes per cubic metre					
	Smoke			Sulphur dioxide		
	Average Reading	Highest Reading	Lowest Reading	Average Reading	Highest Reading	Lowest Reading
Jan.	15	47	2	9	23	1
Feb.	14	39	2	8	30	1
Mar.	15	36	1	9	15	2
Apr.	7	23	1	4	12	1
May	4	13	1	6	12	3
Jun.	2	6	1	5	10	1
Jul.	1	3	1	8	13	2
Aug.	2	3	1	6	11	1
Sept.	5	13	1	9	16	5
Oct.	4	10	1	8	15	4
Nov.	14	48	1	9	16	4
Dec.	15	59	1	7	14	2
Ave.	8	25	1	7	16	2

APPENDIX 5

APPENDIX 5SCHEDULEPART 1.AIR QUALITY STANDARDS FOR SULPHUR DIOXIDE

PERIOD	AIR QUALITY STANDARD ($\mu\text{g}/\text{M}^3$)
Year (1st of April to following 31st of March).	<p style="text-align: center;">80</p> <p>(Median of daily values obtained during the period where the corresponding median of suspended particulates is more than 40)</p> <p style="text-align: center;">or</p> <p style="text-align: center;">120</p> <p>(Median of daily values obtained during the period where the corresponding median of suspended particulates is less than or equal to 40)</p>
Winter (1st of October to following 31st of March)	<p style="text-align: center;">130</p> <p>(Median of daily values obtained during the period where the corresponding median of suspended particulates is more than 60)</p> <p style="text-align: center;">or</p> <p style="text-align: center;">180</p> <p>(Median of daily values obtained during the period where the corresponding median of suspended particulates is less than or equal to 60)</p>
Year (1st of April to following 31st of March).	<p style="text-align: center;">250</p> <p>(98 percentile of daily values obtained during the period where the corresponding percentile of suspended particulates is more than 150).</p> <p style="text-align: center;">or</p> <p style="text-align: center;">350</p> <p>(98 percentile of daily values obtained during the period where the corresponding percentile of suspended particulates is less than or equal to 150)</p>
Any four or more consecutive days within a year (1st of April to following 31st of March).	<p style="text-align: center;">250</p> <p>(Daily value obtained during the period where the corresponding daily value for suspended particulates is more than 150)</p> <p style="text-align: center;">or</p> <p style="text-align: center;">350</p> <p>(Daily value obtained during the period where the corresponding daily value for suspended particulates is less than or equal to 150).</p>

APPENDIX 5PART 11.AIR QUALITY STANDARDS FOR SUSPENDED PARTICULATES.

PERIOD	AIR QUALITY STANDARDS (ug/M3)
Year (1st of April to following 31st of March)	80 (Median of daily values obtained during the period)
Winter (1st of October to following 31st of March)	130 (Median of daily values obtained during the period)
Year (1st of April to following 31st of March)	250 (98 percentile of daily values obtained during the period)
Any four or more consecutive days within a year (1st of April to following 31st of March)	250 (Daily value obtained during the period)

APPENDIX 5PART IIIAIR QUALITY STANDARD FOR LEAD

PERIOD	AIR QUALITY STANDARD (ug/M ³)
Year (1st of January to following 31st of December).	2 (Mean of dally values obtained during the period).

PART IV.AIR QUALITY STANDARD FOR NITROGEN DIOXIDE.

PERIOD	AIR QUALITY STANDARD (ug/M ³)
Year (1st of January to following 31st of December)	200 (98 percentile of mean hourly values obtained during the period.)

L.S.

GIVEN under the Official Seal of
the Minister for the Environment this
18th day of September 1987.

PADRAIG FLYNN

Minister for the Environment.

EXPLANATORY NOTE.

(This note is not part of the Instrument and does not purport to be a legal interpretation).

These Regulations specify air quality standards for Sulphur Dioxide, Suspended Particulates, Lead and Nitrogen Dioxide. Similar standards are contained in the following EEC Directives to which these Regulations thus give effect):

- No. 80/779/EEC of 15th July, 1980 (O.J. No. L229/30, 30th August, 1980) on air quality limit values and guide values for Sulphur Dioxide and Suspended Particulates.

- No. 82/884/EEC of 3rd December, 1982 (O.J. No. L378/15, 31st December, 1982) on a limit value for lead in the air and

- No. 85/203/EEC of 7th March, 1985 (O.J. No. L87/1, 27th March, 1985) on air quality standards for Nitrogen Dioxide.

Under Section 50 (3) of the air Pollution Act, 1987, a Local Authority must take appropriate steps to secure compliance with an air quality standard where it is being, or is likely to be, exceeded in any part of their functional area.

APPENDIX 6

APPENDIX 6STAFF

<u>PUBLIC ANALYST:</u>	DR. D. FEELEY.
<u>DEPUTY PUBLIC ANALYST:</u>	MR. P. CANAVAN.
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<u>CHIEF LABORATORY TECHNICIAN:</u>	MR. P. HEHIR.
<u>SENIOR LABORATORY TECHNICIANS:</u>	MR. J. CREAVERN. MR. M. O'FLAHERTY. MR. M. PATTEN. MS. M. FINAN.
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<u>CLERK/TYPISTS:</u>	MS. M. MULVANEY. MS. M. RUSHE. (Job-sharing) MS. M. MULLARKEY.
<u>CLEANER:</u>	MS. M. MALCOLM.