

EA Water Quality - Bathing Water report

BATHING WATERS REPORT

1997

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ENVIRONMENT AGENCY WELSH REGION

1997 BATHING WATER SURVEY

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ENVIRONMENT AGENCY WELSH REGION

1997 BATHING WATER SURVEY

1. BACKGROUND

- 1.1 The Environment Agency (the Agency) was created on April 1 1996, as an amalgamation of the National Rivers Authority (NRA), Her Majesty's Inspectorate of Pollution (HMIP), the Waste Regulation Authorities and some functions of the Department of the Environment (DoE). The Agency assumed the responsibilities of the NRA for the Bathing Water Directive from this date.
- 1.2 EC Directives are agreements between the EC and Member States. Thus the interpretation of them at national level, their adoption into national law, and accountability for compliance with the terms of the directives, lies entirely with national governments.
- 1.3 The EC Bathing Waters Directive (76/160/EEC) was intended primarily to safeguard public health and the environment by reducing the pollution of bathing waters and protecting such waters against further deterioration. Under the Water Act 1989, the Environment Agency has inherited the responsibility of carrying out the necessary monitoring programmes in relation to certain water-related directives, which include the Bathing Water Directive, in England and Wales. The results from these monitoring programmes in Wales are submitted to the Welsh Office (WO) and the Department of Transport, Environment and the regions (DETR). It is for such Government Departments, however, to interpret this and other such EC Directives within England and Wales, and it follows from the preceding paragraph that only they can assess 'compliance' or otherwise with the Directives.
- 1.4 When Directive 76/160/EEC was first adopted, only a limited number of bathing waters were identified by the UK Government. A large list of bathing waters has since been added to the initial list, and all these are included in the Government's report to the EC. If bathing waters are not included in that report then they do not come within the terms of the Directive and thus, by definition, cannot be said to comply, or fail to comply, with its conditions. However, a number of non-identified bathing waters have in the past been routinely monitored by one of the Agency's predecessors, the NRA, and the results included in these reports for comparison.

The NRA decided to cease all non-EC bathing water monitoring from 1994 because it considered that it had sufficient information to characterise these waters. The only exceptions to this are any bathing waters nominated by local councils for consideration for EC Directive "identification". However, in Welsh Region, to enable local councils to continue to apply for the various Seaside awards at non-EC bathing waters, an initiative, now coordinated by the Environment Agency and involving the Welsh Office, Wales Tourist Board, Dŵr Cymru, Hyder Laboratories and the maritime local authorities, has been set up to collect the necessary data. 1997 was the fourth year of this initiative, the results of which are included in this report. It is hoped that the initiative will continue next year, further details of which are given in section 4.

- 1.5 The Directive specifies a range of water quality standards which should be achieved in identified bathing waters and indicates the required monitoring frequency. These standards fall into two categories, mandatory / imperative (I) and guideline (G) standards. Details of the requirements for compliance with these are given in Appendix 1.
- 1.6 The Bathing Waters (Classification) Regulations 1991 were published as a Statutory Instrument on 9th August 1991, bringing the regulations into UK law. The "Notice" and "Directions" were received in 1992.
- 1.7 The Government currently uses the faecal and total coliforms "I" standards as the basis for determining UK compliance with the Directive. Additional microbiological "I" standards concern the occurrence of Salmonella and enteroviruses. Physico-chemical "I" standard parameters are tested as indicated in Appendix 1. The occurrence of faecal streptococci is also examined, although this parameter only has a non-mandatory "G" standard in the Directive. Welsh Region has been granted a derogation for transparency (see Appendix 1) at all its bathing waters from 1991.
- 1.8 Compliance with the "G" standards is not mandatory but the Directive states that Member States should "endeavour" to observe them as guidelines. The "G" standard compliance is specified in Appendix 1.

2. SAMPLING PROGRAMME

The 64 bathing waters reported for Wales in 1997 which are currently identified by the UK Government as falling within the scope of the Directive are displayed on Figure 1 and listed in Appendix 2. This also shows West Kirby which is under Welsh Region operational control but lies outside Wales.

- 2.2 The Government requires that these bathing waters are monitored in accordance with the requirements of the Bathing Waters Directive and the data reported to the WO and DETR by November of each year. This report summarises the results of the monitoring carried out during the 1997 bathing season.
- 2.3 The non-identified bathing waters included in the initiative described in section 1.4 and monitored by the local authorities are displayed in Figure 2 and listed in Appendix 3.
- 2.4 A summary report on the current status of Directive 76/160/EEC compliance in England and Wales will be published by the Environment Agency in March 1998.

3 1997 MONITORING PROGRAMME FOR BATHING WATERS IDENTIFIED AS FALLING WITHIN THE TERMS OF THE BATHING WATERS DIRECTIVE

- 3.1 Monitoring is confined to the period 1st May - 30th September, which includes two weeks sampling prior to the DETR identified bathing season (15 May - 30th September).
- 3.2 Guidance has been issued by DETR indicating the frequency of monitoring required for each parameter. This guidance has been used to develop the monitoring programme within

Welsh Region. DETR specified that faecal and total coliforms should be analysed on at least 20 occasions during the bathing season. Since 1992 the reported faecal and total coliform results have been "confirmed" instead of the "presumptive" results which had been reported in previous years *. The test for Salmonella is carried out twice during the bathing season. The test for enteroviruses is also carried out twice, but up to 1995 only at the bathing waters which failed to achieve the faecal / total coliform standards during the previous bathing season. Since 1996 Welsh Region used a "trigger" to determine whether weekly surveys of the beach indicated deterioration of water quality which could be due to the presence of sewage pollution. Those which failed the trigger were then sampled twice for enteroviruses in addition to the beaches that had failed to achieve the faecal/total coliform standards during 1996. Details of this "trigger" are contained in Appendix 4.

pH is only required to be measured once during the season and the physicochemical parameters are assessed on 20 occasions during the bathing season.

- 3.3 Table 1 shows the compliance of the identified bathing waters with faecal and total coliform "I" standards, as reported by WO / DETR, over the period 1986 - 1997 (the assessment was carried out differently prior to 1986 and therefore cannot be included). It is important to realise that slightly different criteria were used for 1986 and 1987 where a look-up table approach, which also entailed reduced sampling effort, was adopted by the Government. Therefore care must be taken when making any comparison of compliance between 1986/87 and subsequent years. It should also be noted that 1986 - 1991 figures show compliance using "presumptive" results, whereas figures from 1992 show "confirmed" results. Of the 64 bathing waters in Wales, 60 (93.8%) complied with the combined standard (Of the 65 including West Kirby, 61 (93.8%) complied with the combined standard).

In addition, Table 1 indicates those bathing waters which are included in the Dŵr Cymru Welsh Water (DCWW) investment programme designed to meet compliance by the UK with its obligations under the EC Bathing Waters Directive.

- 3.4 Table 2 shows compliance of faecal and total coliforms and Faecal Streptococci with the "G" standards for the identified bathing waters in 1997 as assessed by Welsh Office. This is the water quality standard required for Blue Flag compliance. The table indicates that of the 64 bathing waters in Wales 31 (48.4%) complied with the combined standard (Of the 65 including West Kirby, 31 (47.7%) complied with the combined standard).

*"Confirmation" of the coliform test requires further analysis of all samples to substantiate the result.

4. 1997 MONITORING PROGRAMME FOR BATHING WATERS NOT IDENTIFIED UNDER THE TERMS OF THE BATHING WATERS DIRECTIVE

- 4.1 The NRA ceased monitoring non-identified waters from 1994 but coordinated an initiative to help to ensure that the necessary data was available to enable local councils to nominate waters for Bathing Water awards. The initiative is funded by Wales Tourist Board, Dŵr Cymru, and the Welsh Office, with Hyder Environmental carrying out most of the analyses at cost price. Local councils carried out the sampling to Agency specifications. Cardiganshire, Pembrokeshire and Anglesey Councils wanted more sites monitored than could be included in the scheme so they independently contracted Hyder to carry out the analyses. Swansea Council did not take part in this initiative although they collected samples and had them analysed at Swansea Public Health Laboratory, as in previous years.

The Agency carried out interlaboratory quality control checks to include the Agency's Llanelli laboratory, Hyder Laboratories, Swansea PHLS and Marine Biological and Chemical Consultants (MBCC) in Bangor to ensure consistency. All local councils agreed for their data to be included on the Agency data archive and so be available to the public.

A total of 113 non-identified bathing waters in Wales were monitored during 1997. These results have been reported to the Welsh Office. Due to limited resources it was not possible to report "confirmed" faecal and total coliform results for all samples. Only those samples which exceeded the 2000/100ml faecal coliform standard or the 10000/100ml total coliform standard were "confirmed", with the exception of data reported for Swansea Bay at County Hall, Sketty Lane, Blackpill, Knap Rock, Mumbles Head Pier and Broughton, where all results are "presumptive".

- 4.2 Table 3 shows a summary of the analysis at each of these waters for Faecal Coliforms and Total Coliforms for the period 1986 to 1997. In 1997 a total of 88 non-identified bathing waters (77.9 %) had $\leq 5\%$ samples with >2000 Faecal Coliforms and $\leq 5\%$ samples with >10000 Total Coliforms per 100 ml.
- 4.3 Table 4 shows further analysis of Faecal and Total Coliform and Faecal Streptococci data. A total of 24 of the 113 non-identified bathing waters (21.2 %) had $\leq 20\%$ samples with >100 Faecal Coliforms and $\leq 20\%$ samples with >500 Total Coliforms and $\leq 10\%$ samples with >100 Faecal Streptococci per 100 ml.

5 BLUE FLAG AND SEASIDE AWARDS

- 5.1 The European Blue Flag Scheme is organised by the Federation of Environmental Education in Europe (FEEE). In the UK it is administered by the charity Tidy Britain Group (TBG). European Blue flags are only awarded to those EC identified beaches, where an application has been made by the local authority or an other interested party and they meet the strict water quality and land-based requirements of the award scheme.

The water quality is judged on the results of the analyses of samples taken during the previous bathing season. The 1997 awards required compliance with "guideline" value

water quality standards of the Directive for total and faecal coliforms and for faecal streptococci. In Wales Port Eynon, Cefn Sidan, Tenby North, Whitesands Bay, Aberystwyth North, Tywyn, Barmouth, Pwllheli and Llanddwyn were awarded Blue Flags in 1997.

- 5.2 The Seaside Award scheme was introduced in 1992 and is also administered by TBG. Both EC identified and other beaches are eligible for application of these awards. There are two categories of award, Resort and Rural, depending on whether the beach is part of a managed tourist resort or whether it is a smaller beach with limited facilities, but still has clean water.

Water quality is again judged on the results of the analyses of samples taken during the previous bathing season. In order to be eligible for a "Seaside Award", the beach must meet the mandatory or guideline standards for faecal and total coliforms, along with the specified land-based criteria. In 1997, 70 beaches in Wales received Seaside Awards.

6 REMEDIAL MEASURES REQUIRED TO MEET LONG TERM OBJECTIVE

- 6.1 The long term objective is for all identified bathing waters to comply with the standards laid down in the Directive. In order to facilitate this the former NRA Welsh Region identified and prioritised the remedial works required at identified bathing waters to ensure that Dŵr Cymru Welsh Water (DCWW) discharges were not the cause of failure of the faecal and total coliform standards by the end of 1995. The bathing waters in the Cardiff and Swansea Bay areas should not be failing as a result of improved treatment being provided at some DCWW discharges by the beginning of the 1998 Bathing Water season.

The necessary improvements have been one of the main drivers behind DCWW's investment programme during the last 5 years. Now these improvements are nearing completion, it is clear that in some cases other non DCWW discharges are causing problems for beach compliance. The requirements for remedial works at non-identified bathing waters are being reviewed.

It must be emphasised that compliance is considered an unreliable indication of trends due to the statistical limitations of such a small data set. Variation in compliance from year to year therefore does not necessarily indicate genuine improvements or deteriorations.

7. SUMMARY TABLE OF RESULTS

Bathing Water		Number	Number with ≤5% samples with >2000 faecal and >10000 total coliforms per 100 ml	Percent	Number with ≤20% samples with >100 faecal and >500 total coliforms and ≤10% samples with >100 faecal streptococci per 100 ml *	Percent
EC	Wales	64	60	93.8	31	48.4
	Wales and West Kirby	65	61	93.8	31	47.7
NON EC	Wales	113	88	77.9	24	21.2

All samples were "confirmed" for identified waters, but at non-identified waters only those samples which exceeded the 2000/100ml faecal coliform standard or the 10000/100ml total coliform standard were "confirmed", with the exception of Swansea Bay.

* Criteria used by the Tidy Britain Group in the assessment for awards.

Figure 1

Location of Identified Bathing Water Sampling Sites

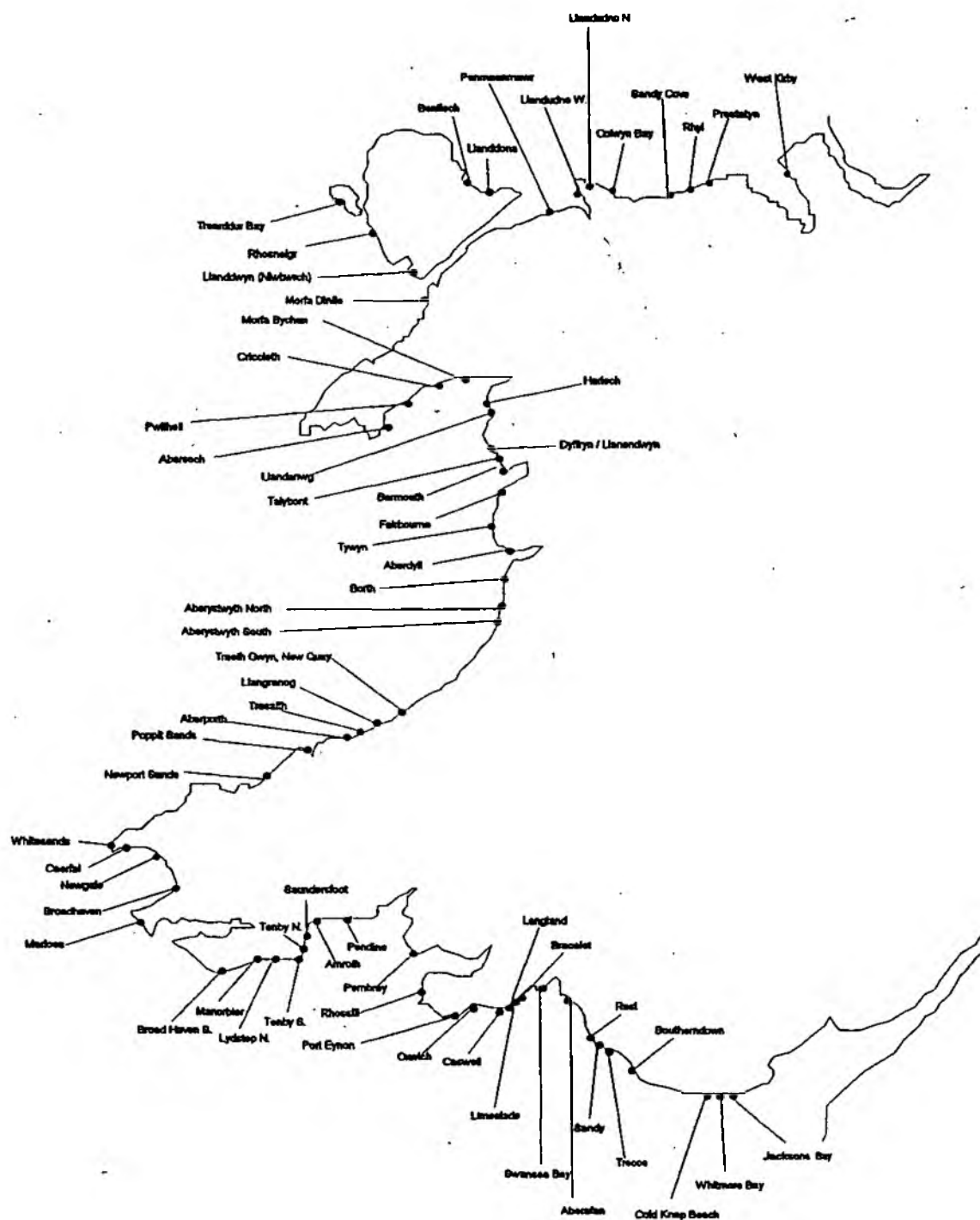


Figure 2

Location of Non-Identified Bathing Waters Sampling Sites



LIST OF BATHING WATERS FOR FIGURE 2

1 Penarth Yacht Club	55 Newport Sounds South	109 Llanddulas
2 Bendricks Beach	56 Ceibwr	110 Abergele
3 Watchouse Bay	57 St Dogmaels Slipway	111 Towyn
4 Fontygary Bay	58 Patch	112 Ffrith Beach
5 Limpert Bay	59 Gwbert	113 Point Of Ayr.
6 Llantwit Major Beach	60 Mwnt at Aberporth	
7 Newton Bay	61 Aberporth E	
8 Aberafan East	62 Penbryn	
9 Jersey Marine East	63 Cil Borth	
10 Jersey Marine Central	64 Cwmtudu	
11 Jersey Marine West	65 Newquay N.	
12 Swansea Bay County Hall	66 Newquay S.	
13 Swansea Bay Sketty Lane	67 Llanina	
14 Swansea Bay Black Pill	68 Little Quay(Cei Bach)	
15 Mumbles Knap Rock	69 Gilfach yr Halen	
16 Mumbles Head Pier	70 Aberaeron S.	
17 Brandy Cove	71 Aberaeron N. 4th Groyne	
18 Three Cliffs Bay	72 Aberaeron N of Outfall	
19 Broughton Beach	73 Aberarth	
20 Llanelli Beach	74 Llanon	
21 Burry Port Beach	75 Llansantffraid	
22 St Ishmael	76 Llanrhystud S.	
23 Llanstephen Beach	77 Clarach Bay N	
24 Ferryside Beach	78 Ynyslas	
25 Morfa Bychan (Pendine)	79 Ynyslas Estuary	
26 Wisemans Bridge	80 Garreg Wen	
27 Coppett Hall Beach	81 Criccieth E	
28 Monkstone Beach	82 Morfa Abererch	
29 St Catherines	83 Llanbedrog	
30 Priory Bay, Caldey	84 Porth Neigwl	
31 Skrinkle	85 Aberdaron	
32 Freshwater East	86 Porth Nefyn	
33 Barafundle	87 Traeth Mawr, Aberffraw	
34 Freshwater West	88 Porth Nobla, Llanfaelog	
35 West Angle	89 Silver Bay	
36 Gelliswick	90 Borth Wen	
37 Sandy Haven	91 Porth Dafarch	
38 Lindsay Bay (St Ishmaels)	92 Sandy Beach	
39 Dale	93 Church Bay	
40 West Dale	94 Cemaes Bay	
41 Martins Haven	95 Bull Bay	
42 St Brides Haven	96 Porth Eilian	
43 Little Haven	97 Traeth Llugwy	
44 Nolton Haven	98 Moelfre	
45 Porthclais	99 Beaumaris	
46 Abereiddy	100 Port Dinorwic	
47 Traethllyn	101 Plas Menai	
48 Abercastle	102 Llanfairfechan Shore Rd	
49 Abermawr	103 Morfa Conwy	
50 Goodwick Harbour	104 Deganwy N. Shelter	
51 Goodwick Beach	105 Penrhyn Bay	
52 Pwll Gwaelod	106 Rhos Road, Colwyn Bay	
53 Cwm yr Eglwys	107 Penrhos, Colwyn Bay	
54 Newport Parrog Beach	108 Colwyn Bay	

Table 1

Comparison of 1986 to 1997 Compliance for Identified Bathing Waters with "I" Values for Faecal and Total Coliforms As Reported by the WO/DETR (P=Pass:F=Fail)

Bathing Water	86	87	88	89	90	91	92	93	94	95	96	97	Completion date in Dŵr Cymru Prog.
Jacksons Bay	F	F	F	F	F	F	F	P	F	P	F	P	98
Whitmore Bay	F	F	F	F	F	P	F	P	F	P	P	P	98
Cold Knap	F	F	F	P	F	P	P	P	P	P	P	P	98
Southerndown	F	P	F	P	P	P	P	P	P	P	P	F	90
Trecco Bay	F	F	P	F	P	P	P	P	P	P	P	P	91
Sandy Bay	F	F	F	P	F	P	P	P	P	P	P	P	91
Rest Bay	F	P	P	P	P	P	P	P	P	P	P	P	91
Aberafan	F	P	P	P	P	P	P	P	P	P	P	P	2000
Swansea Bay	F	F	F	P	F	P	F	F	P	F	F	F	98
Bracelet Bay	P	P	P	P	P	P	P	P	P	P	P	P	98
Limeslade Bay	F	F	P	F	P	P	P	P	F	P	P	F	98
Langland Bay	F	P	P	F	P	P	P	F	P	P	P	P	98
Castwell Bay	P	F	P	P	P	P	F	P	P	P	P	P	98
Oxwich Bay	P	P	P	P	P	P	P	P	P	P	P	P	98
Port Eynon Bay	P	P	P	P	P	P	P	P	P	P	P	P	
Rhossili	F	P	P	P	P	P	P	P	P	P	P	P	97
Pembrey	P	P	P	P	P	P	P	P	P	P	P	P	

Bathing Water	86	87	88	89	90	91	92	93	94	95	96	97	Completion date in Dwr Cymru Prog.
Pendine	P	P	P	P	P	P	P	P	P	P	P	P	
Amroth	F	F	P	P	P	P	P	P	P	P	P	F+	97
Saundersfoot	P	F	P	P	F	P	P	P	F	P	P	P+	97
Tenby North	P	F	F	P	P	P	P	P	P	P	P	P+	97
Tenby South	F	P	P	P	P	P	P	P	P	P	P	P+	97
Lydstep North												P	
Manobier												P	97
Broad Haven South												P	
Marloes												P	
Broadhaven	F	P	P	P	P	P	P	P	F	P	P	P+	98
Newgale	F	P	P	P	P	P	P	P	P	P	P	P	96
Caerfai												P+	
Whitesands	P	P	P	P	P	P	P	P	P	P	P	P+	
Newport North	P	P	P	P	P	P	P	F	F	P	P	P	99
Poppit Sands											P	P	99
Aberporth										P	P	P	95
Trecsaith										P	P	P	95
Llangranog											P	P	97
Traeth Gwyn New Quay	P	P	P	P	P	P	P	P	F	P	P	P	95 and 2000
Aberystwyth South	F	F	P	P	F	P	F	F	F	P	P	P	95

Bathing Water	86	87	88	89	90	91	92	93	94	95	96	97	Completion date in Dŵr Cymru Prog.
Aberystwyth North	P	P	P	P	P	P	P	P	P	P	P	P	95
Borth	P	P	P	P	P	P	P	P	P	F	P	P	
Aberdyfi					F	P	F	F	P	F	F	P	96
Tywyn	F	P	P	P	P	P	P	P	P	P	P	P	95
Fairbourne	P	P	P	P	P	P	P	P	P	P	P	P	post 2000
Barmouth	P	P	P	P	P	P	P	P	P	P	P	P	89
Talybont										P	P	P	
Dyffryn/Llanendwyn										P	P	P	
Llandanwg	P	P	P	P	P	P	P	P	P	P	P	P	98
Harlech	P	P	P	P	P	P	P	P	P	F	F	P	98
Morfa Bychan	F	F	P	P	P	P	F	P	F	P	P	P	
Criccieth	P	F	P	P	F	P	F	P	F	P	P	P	95
Pwllheli	P	P	P	P	P	P	P	P	P	P	P	P	97
Abersoch	P	P	F	P	P	P	P	P	P	P	P	P	2000
Morfa Dinlle			P	P	P	P	P	P	P	P	P	P	
Llanddwyn												P	
Rhosneigr						P	P	P	P	P	P	P	99
Trearddur Bay	F	F	P	P	P	P	P	P	P	P	P	P	91 and post 2000
Benllech	P	F	P	P	F	F	P	P	P	P	P	P	92
Llanddona												P	

Bathing Water	86	87	88	89	90	91	92	93	94	95	96	97	Completion date in Dŵr Cymru Prog.
Penmaenmawr										F	P	P	98
Llandudno West Shore	F	F	F	F	F	F	F	F	F	P	P	P	98/99
Llandudno North Shore	P	P	P	P	F	P	P	P	P	P	P	P	98/99
Colwyn Bay	P	P	P	P	P	P	P	F	P	P	P	P	98/99
Sandy Cove	F	F	F	F	F	F	F	P	P	P	P	P	94 and 2000
Rhyl	F	F	F	F	F	F	F	F	P	F	P	P	94 and 2000
Prestatyn	F	P	P	P	F	P	P	P	F	P	P	P	2000
West Kirby						F	F	F	P	F	F	P	98
Total No. Waters in Wales	47	47	48	48	50	50	50	50	50	55	56	64	
Total No. Pass in Wales	23	28	37	40	35	45	39	42	38	49	52	60	
% Pass in Wales	49	60	77	83	70	88	76	82	76	89	91	94	
Total No. Waters in Wales and West Kirby	47	47	48	48	50	51	51	51	51	56	57	65	
Total No. Pass in Wales and West Kirby	23	28	37	40	35	45	39	42	39	49	52	61	
% Pass in Wales and West Kirby	49	60	77	83	70	88	76	82	76	88	91	94	

From 1992 all samples were subject to "confirmation" of analysis compared with previous years "presumptive" results.

+ 1 sample of 20 taken has been discounted due to an exceptional weather waiver. This sample did not affect compliance with the "G" standard

Table 2

Compliance of Identified Bathing Waters with "G" Values for Total and Faecal Coliforms and Faecal Strentococci as Reported by WO/DETR (P=Pass:F=Fail)

Bathing Water	Overall Pass/Fail
Jacksons Bay	F
Whitmore Bay	F
Cold Knap	F
Southerndown	F
Trecco Bay	P
Sandy Bay	F
Rest Bay	P
Aberafan	F
Swansea Bay	F
Bracelet Bay	F
Limeslade Bay	F
Langland Bay	F
Caswell Bay	P
Oxwich Bay	P
Port Eynon Bay	P
Rhossili	P
Pembrey	F
Pendine	F
+Amroth	F
+Saundersfoot	F
+Tenby North	P
+Tenby South	P
Lydstep N.	P
Manorbier	P
Broadhaven S.	P
Marloes	P
+ Broadhaven	F

Newgale	P
+Caerfai	P
+Whitesands	P
Newport North	F
Poppit Sands	F
Aberporth	F
Tresaith	P
Llangranog	F
Traeth Gwyn New Quay	P
Aberystwyth South	P
Aberystwyth North	F
Borth	F
Aberdyfi	F
Tywyn	F
Fairbourne	P
Barmouth	P
Talybont	P
Dyffryn / Llanendwyn	P
Llandanwg	P
Harlech	P
Morfa Bychan	P
Criccieth	F
Pwllheli	P
Abersoch	P
Morfa Dinlle	P
Llanddwyn (Niwbwrch)	P
Rhosneigr	P

Trearddur Bay	F
Benllech	F
Llanddona	P
Penmaenmawr	F
Llandudno West Shore	F
Llandudno North Shore	F
Colwyn Bay	F
Sandy Cove	F
Rhyl	F
Prestatyn	F
West Kirby	F

+ 1 sample of 20 taken has been discounted due to an exceptional weather waiver. This sample did not affect compliance with the "G" standard.

Table 3 Summary of Non-Identified Bathing waters sampled between 1986 and 1997.
Standards used for assessment are 2000/100ml Faecal Coliforms and 10000/100ml Total Coliforms

Bathing Water	86	87	88	89	90	91	92	93	94	95	96	97
<i>Vale of Glamorgan CBC</i>												
Penarth Yacht Club (19029)	F	F		F	F		F	F	F	F	F	F
St Marys Well Bay (19032)	F	F		F	F	F	F	P	F	F	P	
Bendricks Beach (19076)						F			F	F	F	P
Whitmore Bay (19033)						P						
Whitmore Bay (19035)						P						
Little Island (19056)						P	P	P				
Watchouse Bay (68603)	F	F		F	F	P	P	P	F	P	P	P
Fontygary Bay (19038)	F	P		P	P	P	P	P	P	P	P	P
Limpert Bay (19147)							P		P	P	P	P
Llantwit Major Beach (74050)	P	P		P	P	F	P	P	P	F	P	P
Ogmore by Sea (19042)	F	F										
Ogmore by Sea (19043)	F	F	F	F	F	F	P					
Ogmore by Sea (19044)	F	F										
<i>Bridgend CBC</i>												
Newton Bay (19112)						F			F	P	P	P
<i>Neath and Port Talbot CBC</i>												
Aberafan East (19050)			F	P	P	P	P		P	P	P	P
Aberafan West (19052)			P	P	F	P	P	P				
Margam Sands (19131)	P	F										
Margam Sands (19135)	P	P	F	P	F	P	P					
Margam Sands (74004)	P	F										
Jersey Marine East (74026)	F	F		P			P	P	F	P	P	P
Jersey Marine Central (39153)	F	F	F	P	P	P	P	P	F	P	P	P
Jersey Marine West (39097)	F	F		F			F	P	F	P	P	P
<i>Swansea CC</i>												
Swansea Bay (39098)				P								
Swansea Bay County Hall (74060)								P	P	P	F	F

Bathing Water	86	87	88	89	90	91	92	93	94	95	96	97
Swansea Bay (39100)				F								
Swansea Bay Sketty Lane (39154)									F	F	F	F
Swansea Bay Black Pill (39101)				P		P	P	P	F	P	F	F
Swansea Bay (39102)				F					P	P		
Mumbles Knap Rock (39103)				F		F	P	P	P	P	P	F
Mumbles Head Pier (39104)				F		F	P	F	P	F	P	F
Langland Bay E (39107)						P	P					
Brandy Cove (39170)						P					F	P
Pwlldu (39114)											P	
Three Cliffs Bay West (39117)								P			P	P
Crawley Wood (74062)						P						
Fall Bay (74096)							P					
Broughton Beach (74025)		P		P	P	P	P	P	F	P	P	P
<i>Carmarthenshire CC</i>												
Llanelli Beach (39001)	F	F	F	F	F	F	F	F	F	F	F	P
Llanelli (39002)	F	F										
Burry Port Beach (39003)	F	P	F	P	P	P	P	P	F	F	F	P
St Ishmael (88503)	F								F	F	F	P
St Ishmael (88502)	F											
Llanstephen Beach (39008)	F						F		F	P	F	P
Ferryside Beach (39007)											F	F
Pendine West (39011)			P	P	P	P	P					
Morfa Bychan (88501)	F	P										F
<i>Pembrokeshire CC</i>												
Amroth E (39012)			P	P	P	P	P					
Amroth W (39014)			P	P	P	P						
Wisemans Bridge (32797)								P	P	P	P	F
Coppett Hall Beach (32421)						F		P	F	F	P	P
Saundersfoot E (39016)			P	P	F	F	P					
Saundersfoot Slip (39018)			F	F								
Saundersfoot W (39019)			F	P	P	P	P					

Bathing Water	86	87	88	89	90	91	92	93	94	95	96	97
Tenby N Lifeboat (39021)			P	P	P	P	P					
Tenby S St.Catherines (39022)			P	P	P	P	P				P	P
Tenby S Atlantic Hotel (39023)			P	P	P	P	P					
Monkstone Beach (39574)												P
Priory Bay, Caldey (39573)												P
Tenby S Opp Kiln Park (39025)			P	P	P	P	P					
Lydstep N Beach (39570)						P	P	P	P	P	P	
Skrinkle (39423)							P	P	P	P	P	P
Manorbier Beach (39027)	P			F	F		P	P	P	P	P	
Manorbier (39028)	P			P	P	P	P					
Freshwater East (86210)	P											
Freshwater East (39029)	P			P	P		P		P	P	P	P
Freshwater East (39030)	P			P	P	P	P	P				
Barafundle (39136)							P	P	P	P	P	P
Broad Haven South (32422)						P	P	P	P	P	P	
Freshwater West (39031)								P	P	P	P	P
West Angle (39032)			P		P			P	P	P	P	P
Llanreath Bay (86106)			F		P	P						
Neyland Slip (85110)			F			F						
Milford Beach (39191)						P						
Gelliswick (39037)	P		F		P	F	P	P	P	P	P	F
Sandy Haven (39192)						P					P	P
Lindsway Bay (St Ishmaels) (39572)												P
Dale (39040)		P	P		P	P	P	P	P	P	P	P
West Dale (39571)												P
Marloes (32788)						P		P	P	P	P	
Martins Haven (39041)									P		P	P
Musselwick (39140)						P						
St. Brides Haven (39042)						P				P	P	P
Little Haven (39043)		P			P		P		F	P	P	F
Druidston Haven (39141)							P					

Bathing Water	86	87	88	89	90	91	92	93	94	95	96	97
Nolton Haven (39046)	F						P	P	F	P	P	F
Newgale S (39047)			P	P	P	P						
Newgale N (39049)			P	P	F	P						
Solva (39050)	F						P					
Caerfai (39142)		P				P	P	P	P	P	P	
Porthclais (32686)							F				P	F
Abereddy (39053)		P				P	P	P	P	P	P	P
Traethllyn (39143)											P	P
Traethllyn (32789)								P				
Porthgain (32685)							P					
Trevine (39055)	F											
Abercastle (39056)							P				F	P
Abermawr (39144)											P	P
Goodwick (84004)	P	P										
Goodwick Harbour (39058)	P	F		P	P	P	P	P	P	P	P	P
Goodwick Beach (39059)	P	P		P	P	P	P	P	F	P	F	P
Fishguard (39060)	F	F					P					
Pwll Gwaelod (32790)								P	F	P	F	F
Cwm yr Eglwys (32791)								P	P	F	P	P
Newport Parrog Beach (39063)											F	F
Newport Sands South (39064)			P	P	P	P	P	P	P	P	P	P
Poppit Sands West (39067)	F	F		P	P	P	P	P	P	P		
Poppit Sands East (39068)	P	F		P	P	P	P	P	P	P	P	
Ceibwr (39066)												P
St Dogmaels Slipway (39341)												F
Cardiganshire CC												
Patch (32424)							F	F	F	F	P	F
Gwbert (83515)		F	F				F	F	P	F	F	P
Gwbert (39070)		F										
Mwnt at Aberporth (32425)							P	P	P	P	P	P

Bathing Water	86	87	88	89	90	91	92	93	94	95	96	97
Aberporth (39072)	F	F	F		F	F	F	P	F			
Aberporth E (83502)	P	P	F		F	F	P	P	F		P	P
Tresaith (39073)	F	F		P	F	P	P	P	P			
Penbryn (39147)				P		F	P	P	P	P	P	F
Llangranog (39075)	F	F	F	F	F	F	P	P	F	P	P	
Cil Borth (32851)								P	P	P	P	P
Cwmtudu (32426)							P	P	P	P	P	P
Newquay N (39077)						P	F	P	P	P	P	P
Newquay S (39079)			P	P	P	P	P	P	P	P	P	P
Llanina (39146)				P	F	P	P	P	P	F	P	P
Little Quay (Cei Bach) (39081)	P		P	P	P	P	P	P	F	F	F	P
Gilfach yr Halen (32427)						P	P	P	F	P	P	P
Aberaeron S (39082)	P				P	P	P	P	F	P	P	P
Aberaeron N 4th Groyne (39083)					F	P	F	P	F	P	P	F
Aberaeron N (39084)	P									F	F	
Aberaeron N of outfall (N of Groyne) (39427)					F	F	P	P	F	P	F	P
Aberaeron Harbour (39426)							F					
Aberarth (32428)						P	P	P	P	P	P	P
Llanon (32429)						P	P	P	P	P	F	P
Llansantffraid (32430)						P	P	P	P	P	F	P
Llanrhystud S (39087)						P	P	P	P	P	P	P
Morfa Bychan at Slipway (32431)						P	P	P	P	P	P	
Tanybwlic (32432)						P	P	P	F	P	P	
Aberystwyth Slip (82103)			F	F		F	F	F	F			
Clarach Bay S (39095)	F	P	F	F	F	F	F	F	F	P		
Aberystwyth S (39090)			F	F	F	F	F					
Clarach Bay N (39096)	F					F	F	F	F	P	P	P
Ynyslas (20022)					P	P	P		P	P	P	P
Ynyslas (20399)					F	P	P		P	F	P	F
<i>Gwynedd CBC</i>												

Bathing Water	86	87	88	89	90	91	92	93	94	95	96	97
Aberdyfi (20170)	F	F	F	P	F	F	F					
Aberdyfi (20172)	F	F	F	P	F	F	P					
Aberdyfi (20171)	F	F	F	P								
Llwyngwrl (20189)				F	F	F	F					
Barmouth (20181)				F	P	P	P					
Llanaber (20025)	P		P			P	P					
Talybont (20026)	P				P		P	P				
Llanendwyn (20027)		P			P	P		P				
Black Rock Sands (22540)			P		P	P	P	P				
Garreg Wen (23253)	P	F	F		P	F	F	F	F	F	F	F
Criccieth E (23141)							P		F	P	P	F
Criccieth W (22541)			F	F	F	F	F					
Afon Wen (22543)	F	F	F									
Pen y chain (22544)	P	F	F		P		P					
Morfa Abererch (22545)		P	P		P		P		P	P	P	P
Pwllheli (22546)			F		P	P	P					
Traeth Crugen (22548)		P	P		P		P					
Llanbedrog (22549)	F	F	F	P	F	F	P		P	P	P	P
Abersoch (22550)			F	P	P	P	P					
Abersoch (23346)						P						
Abersoch (22586)							P					
Machroes (20335)						P						
Porth Ceiriad (20334)						P						
Porth Neigwl (23331)					P	P						
Porth Neigwl (25437)							P		P	P	P	P
Aberdaron (22553)	P	P	P	P	P	P	P		P	P	P	P
Porth Oer (22555)	F				P	P	P					
Porth Iago (22556)	P				P	P	P					
Porth Colman (22557)	P				P	P	P					
Porth Tywyn (22558)			P		P	P	P					
Porth Dinllaen (22559)	F	P	F	P	F	P	P	P				

Bathing Water	86	87	88	89	90	91	92	93	94	95	96	97
Porth Nefyn (22560)	F	P	P	P	P	P	P		P	P	P	P
Trefor (22561)	P	P	P		P		P					
Aberdesach (22562)	P	P			P		P					
Pontllynfi (22563)			P			P						
Morfa Dinlle (22564)	P	P										
Dinas Dinlle (23244)	P	P	P		P	P	F					
Plas Menai (23290)				P	P	P	P		P	P	P	F
Port Dinorwic (23252)	F	F			F	F	F		P	P	F	P
Anglesey CC												
Llanddwyn (Niwbwrch) (27537)	F		P		P			P	P	P	P	
Malltraeth (27556)						P						
Aberffraw (27538)	P		P	P			P				P	P
Porth Tre Castell (27539)	P											
Porth Nobla, Llanfaelog (27540)	P										P	P
Rhosneigr (27536)	P	P	F	P								
Rhosneigr (27534)	P	F	F	P	P	P	F					
Traeth Crigyll (27557)						P	P					
Silver Bay, Rhoscolyn (27541)					P						P	P
Borth Wen - Rhoscolyn (27542)					F			P	P	P	P	P
Porth y Garan (27787)	F				P							
Porth Gwr Mawr (27544)						F	F	F				
Porth Dafarch - Trearddur (27546)	P							P	P	P	P	P
Holyhead Newry (27559)						P	P					
Penrhos (27817)	P				F	P						
Porth Tywyn Mawr, Sandy Beach (27547)					P					P	P	P
Church Bay (27548)	P		P		P					P	P	P
Cemaes (27529)	P	F		P	F	P		F			P	P
Bull Bay (27566)											F	P
Porth Eilian, Amlwch (27549)							F				P	P
Traeth Llugwy (27528)	P		P	P	P						P	P

Bathing Water	86	87	88	89	90	91	92	93	94	95	96	97
Moelfre (27561)							F				P	P
Traeth Bychan (27527)	P			P	F		P					
Benllech (27827)			F	P	P	P	P					
Red Wharf Bay (27552)				F		F						
Llanddona (27562)	P			P	P	P		P	P	P	P	
Beaumaris (27829)				F	F	F	F					
Beaumaris (27828)	P			F	P	P	F					
Beaumaris (27757)											P	P
Menai Bridge Pier (27568)						F	P					
<i>Aberconwy and Conwy CBC</i>												
Llanfairfechan Shore Rd (23245)	P	F	F	P	P	P	P	F	P	P	P	P
Penmaenmawr (22996)							P					
Penmaenmawr (22995)	F				P	P	P	P	P			
Penmaenmawr (23006)	P			P	P	P	P					
Penmaenmawr (23005)	P			F	F	P	F					
Morfa Conwy (23246)	F	F	F		F			P	P	F	P	P
Conwy Morfa (25036)	F											
Deganwy N Shelter (25034)					F	F	F	F	P	P	F	P
Llandudno W (25033)					F	F	F					
Llandudno N (25026)						F	P					
Llandudno N (25185)							P					
Penrhyn Bay (25045)	F	F	F		F	F	F	F	F	F	F	F
Rhos Road, Colwyn Bay (25042)			P		F	P	P	P	P	P	P	P
Penrhos, Colwyn Bay (25041)			F		P	F	P	F	P	P	P	P
Colwyn Bay (25020)									P	P	P	P
Llanddulas (3597)			F	P	P	P	F		P	P	P	F
Abergele (3600)							P					
Abergele (3601)	P	P	F	P	F	P	P		P	P	P	P
Towyn (25436)									P	P	P	P
Kinnel Bay (3605)			F	F		F	F					
<i>Denbighshire CC</i>												

Bathing Water	86	87	88	89	90	91	92	93	94	95	96	97
Rhyl Splash Point (3610)			F	P	F	F	F					
Ffrith Beach, Prestatyn (3611)	P	F	F	P	F	F				P	P	P
Prestatyn Barkby (3614)			F		P	F	P					
Gronant (25498)										P	P	
<i>Flintshire CC</i>												
Point of Ayr (3617)		P		P	P	P	P		P	P	P	P
<i>Wirral CC</i>												
Thurstaston Station Rd (3649)						F	F					
Caldycroft Drive (3648)						F	F					
W. Kirby (3646)						P	P					
Total Number Sampled in Wales	89	63	73	83	111	142	149	87	102	102	121	113
Number not Exceeding "I" standards in Wales	47	27	31	59	70	96	112	73	65	82	95	88
% Not Exceeding "I" standards in Wales	53	43	42	71	63	69	76	84	64	80	78	78
Total Number Sampled in Wales and Wirral	89	63	73	83	111	143	150	87	102	102	121	113
Number not Exceeding "I" standards in Wales and Wirral	47	27	31	59	70	97	113	73	65	82	95	88
% Not Exceeding "I" standards in Wales and Wirral	53	43	42	71	63	68	75	84	64	80	78	78

P = \leq 5% of samples with > 2000/100ml for Faecal Coliforms and \leq 5% of samples > 10000/100ml Total Coliforms

F = > 5% of samples with > 2000/100ml for Faecal Coliforms and > 5% of samples > 10000/100ml Total Coliforms

Table 4

Summary of Non-Identified Bathing Waters sampled in 1997. Standards used for assessment are 100/100ml Faecal Coliforms, 500/100ml Total Coliforms and 100/100ml Faecal Streptococci.

Bathing Water	Overall Pass/Fail
Penarth Yacht Club	F
Bendricks Beach	F
Watchouse Bay	F
Fontygary Bay	F
Limpert Bay	F
Llantwit Major Beach	F
Newton Bay	F
Aberafan East	F
Jersey Marine East	F
Jersey Marine Central	F
Jersey Marine West	F
Swansea Bay County Hall	F
Swansea Bay Sketty Lane	F
Swansea Bay Black Pill	F
Mumbles Knap Rock	F
Mumbles Head Pier	F
Brandy Cove	F
Three Cliffs Bay	F
Broughton Beach	F
Llanelli Beach	F
Burry Port Beach	F
St Ishmael	F
Llanstephen Beach	F
Ferryside Beach	F
Morfa Bychan (Pendine)	F
Monkstone Beach	P

St Catherines	P
Priory Bay, Caldey	P
Skrinkle	P
Freshwater East	P
Barafundle	P
Freshwater West	P
West Angle	F
Gelliswick	F
Sandy Haven	F
Lindsway Bay (St Ishmaels)	P
Dale	F
Westdale	P
Martins Haven	P
St. Brides Haven	F
Little Haven	F
Nolton Haven	F
Porthclais	F
Abereiddy	P
Traethllyn	P
Abercastle	F
Abermawr	P
Goodwick Harbour	P
Goodwick Beach	F
Pwll Gwaelod	F
Cwm yr Eglwys	F
Newport Parrog	F
Newport Sands South	P
Ceibwr	F

Patch	F
Gwbert	F
Mwnt at Aberporth	F
Aberporth E	F
Penbryn	F
Cil Borth	F
Cwmtudu	F
Newquay N	F
Newquay S	F
Llanina	F
Little Ouay (Cei Bach)	F
Gilfach yr Halen	F
Aberaeron S	F
Aberaeron N 4th Groyne	F
Aberaeron N of outfall	F
Aberarth	F
Llanon	F
Llansantffraid	F
Llanrhystud S	P
Clarach Bay N	F
Ynyslas	P
Ynyslas Estuary	F
Garreg Wen	F
Criccieth E	F
Morfa Abererch	P
Llanbedrog	F
Porth Neigwl	P
Aberdaron	F
Porth Nefyn	F
Traeth Mawr, Aberffraw	P
Porth Nobla	P
Silver Bay	P

Borth Wen	P
Porth Dafarch	F
Sandy Beach	F
Church Bay	P
Cemaes	F
Bull Bay	F
Porth Eilian	F
Traeth Llugwy	F
Moelfre	F
Beaumaris	F
Port Dinorwic	F
Plas Menai	F
Llanfairfechan	F
Morfa Conwy	F
Deganwy N Shelter	F
Penrhyn Bay	F
Rhos Road, Colwyn Bay	F
Penrhos, Colwyn Bay	F
Colwyn Bay	F
Llanddulas	F
Abergele	F
Towyn	F
Ffrith Beach	F
Point of Ayr	F

P = $\leq 20\%$ of samples with $>100/100\text{ml}$ for Faecal Coliforms, $\leq 20\%$ of samples with $>500/100\text{ml}$ for Total Coliforms and $\leq 10\%$ of samples $> 100/100\text{ml}$ Faecal Streptococci

F = $>20\%$ of samples with $>100/100\text{ml}$ for Faecal Coliforms, $>20\%$ of samples with $>500/100\text{ml}$ for Total Coliforms and $>10\%$ of samples $> 100/100\text{ml}$ Faecal Streptococci

Appendix 1

Criteria for Assessing Compliance with EC Bathing Waters Directive Standards

1. Article 3 of the EC Directive on the quality of bathing waters (76/160/EEC) requires member states to set bathing water quality standards no less stringent than those specified as "Imperative" (I) values in the Annex to the Directive. Article 3 also requires member states to endeavour to observe "Guideline" (G) values as guidelines, whether or not there is a corresponding "I" value.
2. Article 5 sets out the detailed requirements for compliance.

For "I" value determinands:-

- a) 95% of the samples must comply with the "I" value
- b) The 5% not complying with the "I" value must not allow consecutive samples taken at statistically valid intervals to exceed the "I" value, ie. "I" value failures must be of short duration.

For "G" value determinands:-

- a) 90% of the samples must conform with the "G" value (80% in the case of total coliform and faecal coliform parameters).
- b) The 10 (or 20%) not complying with the "G" value must not allow consecutive samples taken at statistically valid intervals to not exceed the "G" value, ie. "G" value failures should be of short duration.

Quality Standards for Bathing Waters used in this Report

<u>Parameter</u>	<u>Imperative Standard</u>	<u>Guide Standard</u>
<u>Microbiological</u>		
Faecal coliforms	2000/100 ml	100/100 ml
Total coliforms	10000/100 ml	500/100 ml
Faecal streptococci		100/100 ml
Salmonella	0 / litre	
Enteroviruses	0 PFU/10 litres	

Appendix 1 (contd)

<u>Parameter</u>	<u>Imperative Standard</u>	<u>Guide Standard</u>
<u>Physico-chemical</u>		
pH	6 - 9	-
Colour	No abnormal change in colour	-
Mineral Oils	No film visible on water surface and no odour	0.3 mg / litre
Surface Active Substances	No lasting foam	0.3 mg / litre
Phenols	No specific odour (0.05 mg / litre)	0.005 mg / litre
Transparency *	Extinction depth of 1m for Secchi disc - equivalent to 6.665 ftu (turbidity)	Extinction depth of 2m - equivalent turbidity value not yet calculated
Tarry Residues and Persistent Floating Solids	-	Must be absent

* Welsh Region has been granted a derogation for transparency at all its bathing waters so is not required to comply with these standards.

Appendix 2

Identified Bathing Water Sample Point Details

Bathing water	Sample Point NGR	Sample Point Number	DETR/WO Number
Jacksons Bay, Barry	ST1220066570	19055	36100
Whitmore Bay Central, Barry	ST1145066250	19034	36200
Cold Knap, Barry	ST0965066400	19037	36300
Southerndown (Centre)	SS8840072900	19100	36400
Trecco Bay Central, Porthcawl	SS8310076300	19114	36500
Sandy Bay Central, Porthcawl	SS8240076500	19117	36600
Rest Bay, Porthcawl	SS8000077900	19122	36700
Aberafan Slip	SS7390089600	19051	36800
Swansea Bay at Slip	JS 6440092100	74006	36900
Bracelet Bay, Mumbles Head	SS6300087100	39105	37000
Limeslade Bay	SS6250087000	39106	37100
Langland Bay West	SS6060087100	39109	37200
Caswell Bay Central	SS5910087400	39111	37300
Oxwich Bay West End	SS5070086200	39123	37400
Port Eynon Bay West	SS4720084800	39127	37500
Rhossili at Hillend	SS4140090000	74010	37600
Pembrey, Cefn Sidan	SS4000099800	39005	37700
Pendine East	SN2380007400	39010	37800
Amroth Central	SN1670006800	39013	37900
Saundersfoot Beach Slip	SN1410004700	39017	38000
Tenby North, Gosker Rock	SN1345000800	39020	38100
Tenby South, Old Outfall	SS1325099850	39024	38200
Lydstep N Beach	SS0920098300	39570	38220
Manorbier Beach	SS0580097400	39027	38230
Broad Haven South	SR9790093900	32422	38240
Marloes	SM7850007500	32788	38280
Broadhaven Central	SM8610013800	84231	38300
Newgale Central	SM8460021700	39048	38400
Caerfai	SM7600024400	39142	38460

Bathing water	Sample Point NGR	Sample Point Number	DETR/WO Number
Whitesands Central	SM7300027000	84232	38500
Newport Sands North	SN0530040700	39065	38600
Poppit Sands West	SN1520048900	39067	38630
Aberporth Beach West	SN2580051700	39072	38660
Tresaith	SN2780051700	39073	38670
Llangranog	SN3100054300	39075	38680
Treath Gwyn, New Quay	SN3980059700	39080	38700
Aberystwyth South	SN5790081400	39091	38800
Aberystwyth North	SN5830082200	39093	38900
Borth, Opposite Hotel	SN6060090100	20023	39000
Aberdyfi	SN6072095800	20171	39050
Tywyn Main Beach Access	SH5767000320	20019	39100
Fairbourne	SM9240013600	20402	39200
Barmouth Coastguard	SH6084015900	20014	39300
Talybont	SH5775021100	20026	39350
Duffryn / Llanendwyn	SH5671022580	20027	39360
Llandanwg Central	SH5669028180	20028	39400
Harlech North	SH5676031480	22596	39500
Morfa Bychan, Black Rock Sands	SH5421035950	22539	39600
Criccieth East	SH5033338075	23142	39700
Pwllheli	SH3710034070	22589	39800
Abersoch South	SH3168027720	22552	39900
Morfa Dinlle	SH4349056690	22564	39970
Llanddwyn (Niwbwrch)	SH4034063050	27537	39980
Rhosneigr	SH3237072120	27536	39990
Trearddur Bay	SH2556078910	27532	40000
Benllech	SH5268082560	27551	40100
Llanddona	SH5660081210	27562	40140
Penmaenmawr	SH7180076930	22995	40180
Llandudno West Shore	SH7655081650	25032	40200

Bathing water	Sample Point NGR	Sample Point Number	DETR/WO Number
Llandudno North Shore	SH7918082270	25046	40300
Colwyn Bay, Op. Railway Underpass	SH8584079170	25049	40400
Sandy Cove, Kinnel Bay	SH9780080600	3604	40500
Rhyl, High Street	SJ0020082600	3608	40600
Prestatyn Central, West Car Park	SJ0585084200	3612	40700
West Kirby, Dee Lane	SJ2100086800	3646	40750

Appendix 3

Non-Identified Bathing Waters Sites Sampled in 1997

Bathing Water	Sample Point NGR	Sample Point Number
Penarth Yacht Club	ST1895070850	19029
Bendricks Beach	ST1360067000	19076
Watchouse Bay	ST1060066200	68603
Fontygary Bay	ST0525065750	19038
Limpert Bay	ST0190066200	19147
Llantwit Major Beach	SS9550067300	74050
Newton Bay	SS8380076940	19112
Aberafan East	SS7445088950	19050
Jersey Marine East	SS7090091600	74026
Jersey Marine Central	SS7040092500	39153
Jersey Marine West	SS6920092000	39097
Swansea Bay County Hall	SS6530092000	74060
Swansea Bay Sketty Lane	SS6290091400	39154
Swansea Bay Black Pill	SS6320089800	39101
Mumbles Knap Rock	SS6250087800	39103
Mumbles Head Pier	SS6320087400	39104
Brandy Cove	SS5850087400	39170
Pwlldu	SS5750087000	39114
Three Cliffs Bay West	SS5330087600	39117
Broughton Beach	SS4190093000	74025
Llanelli Beach	SS4960099500	39001
Burry Port Beach	SN4460000200	39003
St Ishmael	SN3650007500	88503
Llanstephen Beach	SS3550010700	39008
Ferryside Beach	SN3050010400	39007
Morfa Bychan (Pendine)	SN2240007400	88501
Wisemans Bridge	SN1440006000	32797
Coppett Hall Beach	SN1430005300	32421
Monkstone Beach (nr Tenby)	SN1480003100	39574

Bathing Water	Sample Point NGR	Sample Point Number
St. Catherines	SN1382000230	39022
Priory Bay, Caldey	SS1380097000	39573
Skrinkle	SS0804097300	39423
Freshwater East	SS0220097900	39029
Barafundle	SR9920095000	39136
Freshwater West	SR8820099700	39031
West Angle	SM8520003300	39032
Gelliswick	SM8870005600	39037
Sandy Haven	SM8570007300	39192
Lindsway Bay (St Ishmaels)	SM8430006600	39572
Dale	SM8130005700	39040
Westdale	SM7980005800	39571
Martins Haven	SM7610009200	39041
St. Brides Haven	SM8020011100	39042
Little Haven	SM8570012800	39043
Nolton Haven	SM8580018800	39046
Porthclais	SM7430023800	32686
Abereiddy	SM7970031300	39053
Traethllyn	SM8010031900	39143
Abercastle	SM8520033500	39056
Abermawr	SM8810034600	39144
Goodwick Harbour	SM9480038200	39058
Goodwick Beach	SM9480037800	39059
Pwll Gwaelod	SN0050039900	32790
Cwm yr Eglwys	SN0150040100	32791
Newport Parrog Beach (Car Park Slip)	SN0510039700	39063
Newport Sands South	SN0540040500	39064
Ceibwr	SN1090045800	39066
Patch	SN1627048520	32424
Gwbert	SN1590050350	83515
St Dogmaels Slipway	SN1640046900	39341

Bathing Water	Sample Point NGR	Sample Point Number
Mwnt at Aberporth	SN1930051900	32425
Aberporth E	SN2590051700	83502
Penbryn	SN2910052400	39147
Cil Borth	SN3110054400	32851
Cwmtudu	SN3555057650	32426
Newquay N	SN3900060200	39077
Newquay S	SN3910059900	39079
Llanina	SN4030059800	39146
Little Quay (Cei Bach)	SN4100059800	39081
Gilfach yr Halen	SN4354061360	32427
Aberaeron S	SN4530062800	39082
Aberaeron N 4th Groyne	SN4550063400	39083
Aberaeron N of outfall (N of Groynes)	SN4620063500	39427
Aberarth	SN4765063870	32428
Llanon	SN5067066750	32429
Llansantffraid	SN5086067180	32430
Llanrhystud S	SN5230069100	39087
Clarach Bay N	SN5850084000	39096
Ynyslas	SN6030092800	20022
Ynyslas Estuary	SN6120094300	20399
Garreg Wen	SH5607037060	23253
Criccieth E	SH5017537967	23141
Morfa Abererch	SH4031035790	22545
Llanbedrog	SH3339031440	22549
Porth Neigwl	SH2808026310	25437
Aberdaron	SH1733026260	22553
Porth Nefyn	SH3017040840	22560
Traeth Mawr	SH3524067640	27538
Porth Nobla	SH3292071160	27540
Silver Bay	SH2925075160	27541
Borth Wen	SH2732075000	27542

Bathing Water	Sample Point NGR	Sample Point Number
Porth Dafarch	SH2330079900	27546
Porth Tywyn Mawr, Sandy Beach, Llanfwrog	SH2867085160	27547
Church Bay	SH2997089400	27548
Cemaes Bay	SH3732093620	27529
Bull Bay	SH4268094340	27566
Porth Eilian, Amlwch	SH4768092960	27549
Traeth Llugwy	SH4990087520	27528
Moelfre	SH5133086250	27561
Beaumaris	SH6095076000	27757
Port Dinorwic	SH5217067370	23252
Plas Menai	SH5024066120	23290
Llanfairfechan Shore Rd	SH6802075810	23245
Morfa Conwy	SH7574078840	23246
Deganwy N Shelter	SH7750079450	25034
Penrhyn Bay	SH8312081630	25045
Rhos Road, Colwyn Bay	SH8450080490	25042
Penrhos, Colwyn Bay	SH8493079610	25041
Colwyn Bay	SH8527079370	25020
Llanddulas	SH9070078800	3597
Abergele	SH9445079000	3601
Towyn	SH9650079600	25436
Ffrith Beach, Prestatyn	SJ0460083600	3611
Point of Ayr	SJ1210085900	3617

Appendix 4

Enterovirus Trigger

It was considered desirable that there should be a trigger mechanism to initiate enterovirus monitoring in the event of a deterioration in monitored water quality within the bathing season.

The following criteria triggered enterovirus monitoring:-

1. Non-compliance with faecal coliform or total coliform I-value standards within the bathing season (ie. two or more samples out of the planned twenty exceeding the I-value numerical limit during the monitoring period), and/or
2. Significant increase in the amount of sewage derived litter observed in a 10 metre band either side of the Bathing Water sample transect. A scoring system based on the Gerber assessment for sewage debris was used. Details are given below.

"GERBER" ASSESSMENT

The "Gerber" assessment consists of a visual examination of an area of beach (i) extending approximately 50 metres to one side of the sample point along the strandline, (ii) in a 3 metre wide strip down the beach from the strandline to the water's edge, and (iii) 50 metres back to the sampling point along the water's edge. In addition collection of some information regarding weather conditions and beach use is made. The parameters examined with the determinand numbers are listed below. Those used to set the basis for a virus trigger are marked with "+".

4 Time of High Tide (Hours)	9061 Dead Marine Life at Water's Edge
28 Wind Direction (Degrees)	9062 Animal Faeces at Water's Edge
76 Water Temperature (Celsius)	+ 9063 Intact Human Faeces at Water's Edge
1192 Sea State	+ 9064 Grease/Scum Slick at Water's Edge
2153 Cloud Cover	+ 9065 Sewage Debris at Water's Edge
2159 Wind Speed	+ 9066 Condoms/Tampon Applicators at Water's Edge
9031 Dead Marine Life at Strandline	+ 9067 Sanitary Towels at Water's Edge
9032 Animal Faeces at Strandline	+ 9068 Noxious Sewage Odours at Water's Edge
+ 9033 Intact Human Faeces at Strandline	9069 Terrestrially Derived Litter at Water's Edge
+ 9034 Grease/Scum Slick at Strandline	9071 Oil and Tar at Water's Edge
+ 9035 Sewage Debris at Strandline	9076 Number of Bathers (No.)
+ 9036 Condoms/Tampon Applicators at Strandline	9077 Number of Beach Users (No.)
+ 9037 Sanitary Towels at Strandline	9078 Number Taking Part in Water Sports (No.)
+ 9038 Noxious Sewage Odours at Strandline	9170 Salinity (ppt)
9039 Terrestrially Derived Litter at Strandline	9247 Time Relative to High Water (Hours)
9041 Oil and Tar at Strandline	
9045 Dead Marine Life at Strandline to Water's Edge	
9046 Animal Faeces at Strandline to Water's Edge	
+ 9047 Intact Human Faeces at Strandline to Water's Edge	
+ 9048 Grease/Scum Slick at Strandline to Water's Edge	
+ 9049 Sewage Debris at Strandline to Water's Edge	
+ 9051 Condoms/Tampon Applicators at Strandline to Water's Edge	
+ 9052 Sanitary Towels at Strandline to Water's Edge	
+ 9053 Noxious Sewage Odours at Strandline to Water's Edge	
9054 Terrestrially Derived Litter at Strandline to Water's Edge	
9055 Oil and Tar at Strandline to Water's Edge	

All determinands above which have been listed without units are measured on a scale of 0 - 3 as follows:-

- 0 - absence of coded material
- 1 - trace of coded material
- 2 - some at intervals (1-5 items)
- 3 - sufficient to be objectionable (>5 items)

Listed below are brief notes to clarify filling in the log sheet for Garber conditions.

1. HW

Time of high water in British Summer Time nearest to the time of sampling, in hours and minutes.

2. Wind

Wind direction using the first 2 digits of compass bearing.

NORTHERLY = 00 (0 degrees)
EASTERLY = 09 (90 degrees)
SOUTHERLY = 18 (180 degrees)
WESTERLY = 27 (270 degrees)

eg a wind blowing from the North West = 31

3. Temperature

Water temperature degrees Celsius

4. STASEA

State of sea coded as:

0 Calm (Glassy)	Wave height	0 m
1 Calm (Rippled)	Wave height	0 - 0.1 m
2 Smooth (Wavelets)	Wave height	0.1 - 0.5 m
3 Light	Wave height	0.5 - 1.25 m
4 Moderate	Wave height	1.25 - 2.5 m
5 Rough	Wave height	2.5 - 4.0 m
6 Very Rough	Wave height	4.0 - 6.0 m
7 High	Wave height	6.0 - 9.0 m
8 Very High	Wave height	9.0 - 14.0 m
9 Phenomenal	Wave height	Over 14.0 m

5. Cloud Cover

Amount of cloud cover recorded on a scale of 0 to 4:

- 0 - Sun obscured
- 1 - Weak sun, no shadows
- 2 - Weak sun, shadows
- 3 - Sun occasionally obscured by clouds
- 4 - Bright sunshine

6. Wind Speed

Beaufort scale wind force:

- 0 - Calm
- 1 - Light airs
- 2 - Light breeze
- 3 - Gentle breeze
- 4 - Moderate breeze
- 5 - Fresh breeze
- 6 - Strong breeze

7. Gerber Scheme Coded Materials

A transect should be examined of 50 metres either side of an imaginary line passing at a right angle from the shore to the sea through the grid reference if the sampling point.

The quantification of coded materials is clearly subjective but to attempt some standardisation the following has been suggested:-

- 0 - Absence of coded materials
- 1 - Trace of coded materials
- 2 - Some at intervals (1 - 5 items)
- 3 - Sufficient to be objectionable (> 5 items)

Position on beach.

Strandline of last high tide
Between strandline and water's edge
At water's edge

7a Dead Marine Life

Includes crabs, lug worms, heart urchins, etc. Large items such as dolphins and porpoises etc should be reported to the relevant Pollution Control Officer.

7b Animal Faeces

This refers mainly to dog, horse and sheep droppings. Rafts of dried out sheep droppings brought in by high tides do give rise to complaint at some beaches.

7c Intact Human Faeces

Record even small faecal particals that may arise from crude outfalls.

7d Grease / Scum / Slick

This should be sewage derived grease/scum, usually in a visible plume or slick from an outfall.

7e Sewage Debris

This is sewage derived materials other than contraceptives, tampon applicators and intact sanitary towels. It may include cotton buds, toilet paper, hair, backing strips of sanitary towels etc.

7f Condoms / Tampon Applicators

Often only the thick rubber rings from condoms may be found.

7g Sanitary Towels

Complete sanitary towels with absorbant material still present.

7h Noxious Sewage Odours

Distinctive sewage smells - not to be confused with decaying seaweed or agricultural smells.

7i Terrestrially Derived Litter

Litter and debris eg cans, plastic containers, paper, wood etc which is not likely to have been discharged via a sewage outfall.

7j Oil and Tar

Diesel and lubricating oil and the washings from sea going tankers, may be semi solid or globules.

Non Gerber Determinands

8. Number of Bathers

The number of people in the water.

9. Number of Beach Users

The number of people not in the water but on or near the beach.

10. Number Water Contact Sports

The number of people windsurfing, water skiing, jet skiing, tubing, surfing etc.