

Environment & Heritage Service

Results from Regulatory Monitoring Requirements for Drinking Water Quality in Northern Ireland in 2006

December 2007

Compliance with Drinking Water Quality Standards in Northern Ireland 2006

To satisfy regulatory requirements for monitoring drinking water quality, samples are required to be collected from different locations within the water supply chain: from water treatment works; water supply points; service reservoirs; and water supply zones (consumers' taps). The regulations contain specific schedules which identify what parameters are to be tested and for what circumstances. The results of the monitoring carried out by Water Service for 2006 is presented in the following summary tables.

Table 1.1: Quality of Water Leaving Water Treatment Works – European Directive Standards

Parameter	Prescribed Concentration or Value	Total Number of Tests	Number of Tests Failed	% of Tests Failed	Number of Works with Failures
Nitrite (works)	0.1 mg NO ₂ /l	749	1	0.13	1
TOTAL		749	1	0.13	1

Table 1.2: Quality of Water Leaving Water Treatment Works -National Standards

Parameter	Prescribed Concentration or Value	Total Number of Tests	Number of Tests Failed	% of Tests Failed	Number of Works with Failures
Coliform bacteria	0/100ml	9,704	15	0.15	14
<i>Escherichia coli</i>	0/100ml	9,704	5	0.05	5
TOTAL		19,408	20	0.10	

Table 1.3: Quality of Water Leaving Water Treatment Works - Additional European Monitoring Requirements

Parameter	Prescribed Concentration or Value	Total Number of Tests	Number of Tests Failed	% of Tests Failed	Number of Works with Failures
Colony counts @ 22o C	No abnormal change	9,704			
Colony counts @ 37o C	No abnormal change	9,704			
Residual disinfectant (Free chlorine mg/l)		9,704			
Residual disinfectant (Total chlorine mg/l)		9,704			
Turbidity	1 NTU	9,703	114	1.17	20
TOTAL		48,519	114	0.24	

Table 1.4: Quality of Water Leaving Water Treatment Works – Northern Ireland Requirement

Parameter	Reporting Value	Total Number of Tests	Number of Tests > 1 oocysts/ 100mls	% of Tests Reported	Number of works Reported
<i>Cryptosporidium oocysts</i>	<1 oocysts per 10 litres	1,137	0	0.00	4*
TOTAL		1,137	0	0.00	

* Continuous monitoring at four water treatment works assessed at being at risk, out of a total of 48 water treatment works.

Table 1.5: Quality of Water Leaving Service Reservoirs -National Standards

Parameter	Prescribed Concentration or Value	Total Number of Tests	Number of Tests Failed	% of Tests Failed	Number of Reservoirs with Failures
Coliform bacteria	0/100ml	17,914	68	0.38	40
<i>Escherichia coli</i>	0/100ml	17,914	6	0.03	5
TOTAL		35,828	74	0.21	

Table 1.6: Quality of Water Leaving Service Reservoirs -Additional European Monitoring Standards

Parameter	Prescribed Concentration or Value	Total Number of Tests	Number of Tests Failed	% of Tests Failed	Number of Reservoirs with Failures
Colony counts @ 22o C	No abnormal change	17,914			
Colony counts @ 37o C	No abnormal change	17,914			
Residual disinfectant (Free chlorine mg/l)		17,914			
Residual disinfectant (Total chlorine mg/l)		17,914			
TOTAL		71,656			

Table 1.7: Quality of Water Leaving Supply Points -European Directive Standards

Parameter	Prescribed Concentration or Value	Total Number of Tests	Number of Tests Failed	% of Tests Failed	Number of Supply Points with Failures
1, 2 dichloroethane	3 µg/l	402	0	0.00	0
Benzene	1 µg/l	402	0	0.00	0
Boron	1 mg B/l	402	0	0.00	0
Cyanide	50 µg CN/l	402	0	0.00	0
Fluoride	1.5 mg F/l	399	0	0.00	0
Mercury	1 µg Hg/l	402	0	0.00	0
Pesticides - 2,4-D	0.1 µg/l	402	1	0.25	1
Pesticides -Aldrin	0.03 µg/l	402	0	0.00	0
Pesticides - Alpha Cypermethrum	0.1 µg/l	402	0	0.00	0
Pesticides -Asulam	0.1 µg/l	402	0	0.00	0
Pesticides -Atrazine	0.1 µg/l	402	0	0.00	0
Pesticides -Azinphos methyl	0.1 µg/l	402	0	0.00	0
Pesticides - Bentazone	0.1 µg/l	402	0	0.00	0
Pesticides - Carbendazim	0.1 µg/l	402	0	0.00	0
Pesticides - Chlorfenvinphos	0.1 µg/l	402	0	0.00	0
Pesticides - Chlorpropham	0.1 µg/l	402	0	0.00	0
Pesticides - Chlortoluron	0.1 µg/l	402	0	0.00	0
Pesticides -Clopyralid	0.1 µg/l	402	0	0.00	0
Pesticides - Cypermethrum	0.1 µg/l	402	0	0.00	0
Pesticides -Diazinon	0.1 µg/l	402	0	0.00	0
Pesticides -Dicamba	0.1 µg/l	402	0	0.00	0
Pesticides - Dichlorbenil	0.1 µg/l	402	0	0.00	0
Pesticides - Dichlorophen	0.1 µg/l	402	0	0.00	0
Pesticides - Dichlorvos	0.1 µg/l	402	0	0.00	0
Pesticides -Dieldrin	0.03 µg/l	402	0	0.00	0
Pesticides -Diquat	0.1 µg/l	402	0	0.00	0
Pesticides -Diuron	0.1 µg/l	402	0	0.00	0
Pesticides - Endosulphan Total	0.1 µg/l	402	0	0.00	0
Pesticides - Endosulphan-a	0.1 µg/l	402	0	0.00	0

Table 1.7: Continued					
Pesticides - Endosulphan-b	0.1 µg/l	402	0	0.00	0
Pesticides -Endrin	0.1 µg/l	402	0	0.00	0
Pesticides - Fenitrothion	0.1 µg/l	402	0	0.00	0
Pesticides - Fenpropimorph	0.1 µg/l	402	0	0.00	0
Pesticides - Flumethrin	0.1 µg/l	402	0	0.00	0
Pesticides -Flutriafol	0.1 µg/l	402	0	0.00	0
Pesticides -Gamma- HCH	0.1 µg/l	402	0	0.00	0
Pesticides - Glyphosate	0.1 µg/l	402	0	0.00	0
Pesticides - Heptachlor	0.03 µg/l	402	0	0.00	0
Pesticides - Heptachlor epoxide	0.03 µg/l	402	0	0.00	0
Pesticides - Hexachlorobenzene	0.1 µg/l	402	0	0.00	0
Pesticides - Isoproturon	0.1 µg/l	402	1	0.25	1
Pesticides -Malathion	0.1 µg/l	402	0	0.00	0
Pesticides -MCPA	0.1 µg/l	402	4	1.00	3
Pesticides - Mecoprop	0.1 µg/l	402	4	1.00	2
Pesticides -op-DDT	0.1 µg/l	402	0	0.00	0
Pesticides -pp-DDT	0.1 µg/l	402	0	0.00	0
Pesticides -Parathion	0.1 µg/l	402	0	0.00	0
Pesticides - Pentachlorophenol	0.1 µg/l	402	0	0.00	0
Pesticides - Propetamphos	0.1 µg/l	402	0	0.00	0
Pesticides -Simazine	0.1 µg/l	402	0	0.00	0
Pesticides - Tecnazene	0.1 µg/l	402	0	0.00	0
Pesticides - Terbutryne	0.1 µg/l	402	0	0.00	0
Pesticides -Trifluralin	0.1 µg/l	402	0	0.00	0
Pesticides: Total	0.5 µg/l	402	1	0.25	1
Tetrachloroethene/ Trichloroethene	10 µg/l	402	0	0.00	0
TOTAL		22,466	8	0.04	

Table 1.8: Quality of Water Leaving Supply Points -National Standards

Parameter	Prescribed Concentration or Value	Total Number of Tests	Number of Tests Failed	% of Tests Failed	Number of Supply Points with Failures
Tetrachloromethane	3 µg/l	402	0	0.00	0
TOTAL		402	0	0.00	

Table 1.9: Quality of Water Leaving Supply Points -Additional European Monitoring Requirements

Parameter	Specification Concentration or Value	Total Number of Tests	Number of Tests Failed	% of Tests Failed	Number of Supply Points with Failures
Chloride	250 mg Cl/l	399	0	0.00	0
<i>Clostridium perfringens</i>	0/100 ml	3,157	25	0.79	6
Conductivity	2500 µS/cm	3,194	0	0.00	0
*Gross Alpha	0.1 Bq/l	402	0	0.00	0
*Gross Beta	1 Bq/l	402	0	0.00	0
Sulphate	250 mg SO ₄ /l	399	0	0.00	0
Total organic carbon	No abnormal change	398			
Tritium (for radioactivity)	100 Bq/l	402	0	0.00	0
TOTAL		8,351	25	0.30	

* Monitored for the calculation of total indicative dose.

Number of Supply Points = 48

Table 1.10: Quality of Water at Consumers' Taps (Water Supply Zones) - European Directive Standards

Parameter	Prescribed Concentration or Value	Total Number of Tests	Number of Tests Failed	% of Tests Failed	Number of Zones with Failures
1, 2 dichloroethane	3 µg/l	402	0	0.00	0
Antimony	5 µg Sb/l	480	0	0.00	0
Arsenic	10 µg As/l	480	0	0.00	0

Table 1.10: Continued					
Benzene	1 µg/l	402	0	0.00	0
Benzo(a)pyrene	0.01 µg/l	480	1	0.21	1
Boron	1 mg B/l	402	0	0.00	0
Bromate	10 µg BrO ₃ /l	480	10	2.08	5
Cadmium	5 µg Cd/l	480	0	0.00	0
Chromium	50 µg Cr/l	480	0	0.00	0
Copper	2 mg/l Cu/l	478	0	0.00	0
Cyanide	50 µg CN/l	402	0	0.00	0
Escherichia coli	0/100 ml	5,052	4	0.08	3
Enterococci	0/100 ml	480	0	0.00	0
Fluoride	1.5 mg F/l	399	0	0.00	0
Lead	25 µg Pb/l	480	3	0.63	2
Mercury	1 µg Hg/l	402	0	0.00	0
Nickel	20 µg Ni/l	480	0	0.00	0
Nitrate	50 mg NO ₃ /l	496	0	0	0
Nitrite	0.5 mg NO ₂ /l	496	0	0.00	0
Pesticides - 2,4-D	0.1 µg/l	402	1	0.25	1
Pesticides -Aldrin	0.03 µg/l	402	0	0.00	0
Pesticides - Alpha Cypermethrum	0.1 µg/l	402	0	0.00	0
Pesticides -Asulam	0.1 µg/l	402	0	0.00	0
Pesticides -Atrazine	0.1 µg/l	402	0	0.00	0
Pesticides -Azinphos methyl	0.1 µg/l	402	0	0.00	0
Pesticides -Bentazone	0.1 µg/l	402	0	0.00	0
Pesticides - Carbendazim	0.1 µg/l	402	0	0.00	0
Pesticides - Chlorfenvinphos	0.1 µg/l	402	0	0.00	0
Pesticides -Chlorpropham	0.1 µg/l	402	0	0.00	0
Pesticides -Chlortoluron	0.1 µg/l	402	0	0.00	0
Pesticides -Clopyralid	0.1 µg/l	402	0	0.00	0
Pesticides -Cypermethrum	0.1 µg/l	402	0	0.00	0
Pesticides -Diazinon	0.1 µg/l	402	0	0.00	0
Pesticides -Dicamba	0.1 µg/l	402	0	0.00	0
Pesticides -Dichlorbenil	0.1 µg/l	402	0	0.00	0
Pesticides -Dichlorophen	0.1 µg/l	402	0	0.00	0
Pesticides -Dichlorvos	0.1 µg/l	402	0	0.00	0
Pesticides -Dieldrin	0.03 µg/l	402	0	0.00	0
Pesticides -Diquat	0.1 µg/l	402	0	0.00	0
Pesticides -Diuron	0.1 µg/l	402	0	0.00	0
Pesticides -Endosulphan Total	0.1 µg/l	402	0	0.00	0

Table 1.10: Continued					
Pesticides -Endosulphan-a	0.1 µg/l	402	0	0.00	0
Pesticides -Endosulphan-b	0.1 µg/l	402	0	0.00	0
Pesticides -Endrin	0.1 µg/l	402	0	0.00	0
Pesticides -Fenitrothion	0.1 µg/l	402	0	0.00	0
Pesticides -Fenpropimorph	0.1 µg/l	402	0	0.00	0
Pesticides -Flumethrin	0.1 µg/l	402	0	0.00	0
Pesticides -Flutriafol	0.1 µg/l	402	0	0.00	0
Pesticides -Gamma-HCH	0.1 µg/l	402	0	0.00	0
Pesticides -Glyphosate	0.1 µg/l	402	0	0.00	0
Pesticides - Hexachlorobenzene	0.1 µg/l	402	0	0.00	0
Pesticides -Heptachlor	0.1 µg/l	402	0	0.00	0
Pesticides -Heptachlor Epoxide	0.1 µg/l	402	0	0.00	0
Pesticides -Isoproturon	0.1 µg/l	402	1	0.25	1
Pesticides -Malathion	0.1 µg/l	402	0	0.00	0
Pesticides -MCPA	0.1 µg/l	402	4	1.00	3
Pesticides -Mecoprop	0.1 µg/l	402	4	1.00	2
Pesticides -op-DDT	0.1 µg/l	402	0	0.00	0
Pesticides -pp-DDT	0.1 µg/l	402	0	0.00	0
Pesticides -Parathion	0.1 µg/l	402	0	0.00	0
Pesticides - - Pentachlorophenol	0.1 µg/l	402	0	0.00	0
Pesticides -Propetamphos	0.1 µg/l	402	0	0.00	0
Pesticides -Simazine	0.1 µg/l	402	0	0.00	0
Pesticides -Tecnazene	0.1 µg/l	402	0	0.00	0
Pesticides -Terbutryne	0.1 µg/l	402	0	0.00	0
Pesticides -Trifluralin	0.1 µg/l	402	0	0.00	0
Pesticides: Total	0.5 µg/l	402	1	0.25	1
Polycyclic aromatic hydrocarbons	0.1 µg/l	480	0	0.00	0
Selenium	10 µg Se/l	480	0	0.00	0
Tetrachloroethene/ Trichloroethene	10 µg/l	402	0	0.00	0
Total Trihalomethanes	100 µg/l	704	150	21.31	25 *
TOTAL		35,636	269	0.75	

* For year on year comparison, the number of zones with Total Trihalomethanes failures was 45 in 2005.

Number of Water Supply Zones = 66

Table 1.11: Quality of Water at Consumers' Taps (Water Supply Zones) - National Standards

Parameter	Prescribed Concentration or Value	Total Number of Tests	Number of Tests Failed	% of Tests Failed	Number of Zones with Failures
Aluminium	200 µg Al/l	2,016	36	1.79	11 *
Colour	20 mg/l Pt/Co scale	1,928	7	0.36	7
Hydrogen ion	6.5 -10 pH value	1,928	4	0.21	4
Iron	200 µg Fe/l	1,928	45	2.33	20
Manganese	50 µg Mn/l	1,928	8	0.41	6
Odour	3 at 25oC dilution number	1,928	0	0.00	0
Sodium	200 mg Na/l	480	0	0.00	0
Taste	3 at 25oC dilution number	1,928	2	0.10	2
Tetrachloromethane	3 µg /l	402	0	0.00	0
Turbidity	4 NTU	1,928	1	0.05	1
TOTAL		16,394	175	0.63	

* For year on year comparison, number of zones with Aluminium failures was 21 in 2005.

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Table 1.12: Quality of Water at Consumers' Taps (Water Supply Zones)

Parameter	Specification Concentration or Value	Total Number of Tests	Number of Tests Failed	% of Tests Failed	Number of Zones with Failures
Ammonium	0.5 mg NH ₄ /l	1,928	0	0.00	0
Chloride	250 mg Cl/l	399	0	0.00	0
<i>Clostridium perfringens</i>	0/100 ml	3,157	25	0.79	6
Coliform bacteria	0/100 ml	5,052	41	0.81	26
Colony counts @ 22oC	No abnormal change	1,928	0	0.00	0
Colony counts @ 37oC	No abnormal change	1,928	0	0.00	0
Conductivity	2500 µS/cm	3,194	0	0.00	0
*Gross Alpha	0.1 Bq/l	402	0	0.00	0
*Gross Beta	1 Bq/l	402	0	0.00	0

Table 1.12: Continued Hydrogen ion	>9.5 pH value	1,928	1	0.05	1
Residual disinfectant (Free chlorine) mg/l		5,052	0	0.00	0
Residual disinfectant (Total chlorine) mg/l		5,052	0	0.00	0
Sulphate	250 mgSO ₄ /l	399	0	0.00	0
Total organic carbon	No abnormal change	398	0	0.00	0
Tritium (for radioactivity)	100 Bq/l	402	0	0.00	0
TOTAL		31,621	67	0.21	

* Monitored for the calculation of total indicative dose.



Our aim is to protect, conserve and promote the natural and built environment for present and future generations.

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