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## Compliance with Drinking Water Standards in Northern Ireland in 2008



Northern Ireland Environment Agency

# **Compliance with Drinking Water Quality Standards in Northern Ireland in 2008**

October 2009



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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 for and under what circumstances. The results of the monitoring carried out by Northern Ireland Water Ltd (NI Water) for 2008 are 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 <sub>2</sub> /l	367	0	0.00	0
Total		367	0	0.00	0

**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	8,949	7	0.08	6
<i>Escherichia coli</i>	0/100ml	8,949	2	0.02	2
Total		17,898	9	0.05	

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

Parameter	Specification Concentration or Value	Total Number of Tests	Number of Tests Failed	% of Tests Failed	Number of Works with Failures
Colony counts @ 22°C	No abnormal change	8,949			
Colony counts @ 37°C	No abnormal change	8,949			
Residual disinfectant (Free chlorine mg/l)		8,949			
Residual disinfectant (Total chlorine mg/l)		8,949			
Turbidity	1 NTU	8,949	42	0.47	17
<b>Total</b>		<b>35,796</b>	<b>42</b>	<b>0.12</b>	

**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 >1 Oocysts/100mls	Number of Works Monitored
<i>Cryptosporidium</i> oocysts	<1 oocysts per 10 litres	15	0	0.00	1*
<b>Total</b>		<b>15</b>	<b>0</b>	<b>0.00</b>	

\*Continuous monitoring at one water treatment works assessed at being at risk out of a total of 43 water treatment works. Only 15 samples were taken because there were significant site access difficulties. The WTWs was removed from service during 2008.

**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	17,408	22	0.13	21
<i>Escherichia coli</i>	0/100ml	17,408	4	0.02	4
<b>Total</b>		<b>34,816</b>	<b>26</b>	<b>0.75</b>	

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

Parameter	Specification Concentration or Value	Total Number of Tests	Number of Tests Failed	% of Tests Failed	Number of Reservoirs with Failures
Colony counts @ 22°C	No abnormal change	17,408			
Colony counts @ 37°C	No abnormal change	17,408			
Residual disinfectant (Free Chlorine mg/l)		17,408			
Residual disinfectant (Total chlorine mg/l)		17,408			
<b>Total</b>		<b>69,632</b>			

Number of Service reservoirs = 340

**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	374	0	0.00	0
Benzene	1 µg/l	374	0	0.00	0
Boron	1 mg B/l	371	0	0.00	0
Cyanide	50 µg CN/l	371	0	0.00	0
Fluoride	1.5 mg F/l	370	0	0.00	0
<b>Mercury</b>	1 µg Hg/l	370	<b>1</b>	<b>0.27</b>	<b>1</b>
Pesticides - 2,4-D	0.1 µg/l	371	0	0.00	0
Pesticides - 2,4-DB	0.1 µg/l	371	0	0.00	0
Pesticides - Aldrin	0.03 µg/l	371	0	0.00	0
Pesticides - Alpha-cypermethrin	0.1 µg/l	327	0	0.00	0
Pesticides - Asulam	0.1 µg/l	371	0	0.00	0
Pesticides - Atrazine	0.1 µg/l	368	0	0.00	0
Pesticides - Bentazone	0.1 µg/l	371	0	0.00	0
Pesticides - Bromoxynil	0.1 µg/l	371	0	0.00	0
Pesticides - Carbendazim	0.1 µg/l	371	0	0.00	0
Pesticides - Chlormequat	0.1 µg/l	371	0	0.00	0
Pesticides - Chlorothalonil	0.1 µg/l	371	0	0.00	0
Pesticides - Chlorpyrifos	0.1 µg/l	368	0	0.00	0
Pesticides - Clopyralid	0.1 µg/l	371	0	0.00	0
Pesticides - Cypermethrin	0.1 µg/l	344	0	0.00	0
Pesticides - Diazinon	0.1 µg/l	368	0	0.00	0
Pesticides - Dicamba	0.1 µg/l	371	0	0.00	0
Pesticides - Dichlorbenil	0.1 µg/l	371	0	0.00	0
Pesticides - Dichlorophen	0.1 µg/l	370	0	0.00	0
Pesticides - Dichlorprop	0.1 µg/l	371	0	0.00	0
Pesticides - Dichlorvos	0.1 µg/l	368	0	0.00	0
Pesticides - Dieldrin	0.03 µg/l	371	0	0.00	0
Pesticides - Diuron	0.1 µg/l	370	0	0.00	0
Pesticides - Endrin	0.1 µg/l	371	0	0.00	0
Pesticides - Fenpropidin	0.1 µg/l	368	0	0.00	0

Table 1.7: Continued

Parameter	Prescribed Concentration or Value	Total Number of Tests	Number of Tests Failed	% of Tests Failed	Number of Supply Points with Failures
Pesticides - Fenpropimorph	0.1 µg/l	368	0	0.00	0
Pesticides - Fluroxypyr	0.1 µg/l	371	0	0.00	0
Pesticides - Flutriafol	0.1 µg/l	371	0	0.00	0
Pesticides - Gamma-HCH	0.1 µg/l	371	0	0.00	0
Pesticides - Glyphosate	0.1 µg/l	371	0	0.00	0
Pesticides - Hexachlorobenzene	0.1 µg/l	371	0	0.00	0
Pesticides - Heptachlor	0.03 µg/l	371	0	0.00	0
Pesticides - Heptachlor epoxide	0.03 µg/l	371	0	0.00	0
Pesticides - Isoproturon	0.1 µg/l	370	0	0.00	0
Pesticides - Linuron	0.1 µg/l	370	0	0.00	0
<b>Pesticides - MCPA</b>	0.1 µg/l	375	<b>1</b>	<b>0.27</b>	<b>1</b>
Pesticides - MCPB	0.1 µg/l	371	0	0.00	0
Pesticides - MCPP (Mecoprop)	0.1 µg/l	374	0	0.00	0
Pesticides - Mecoprop P	0.1 µg/l	371	0	0.00	0
Pesticides - Metalaxyl	0.1 µg/l	368	0	0.00	0
Pesticides - op-DDT	0.1 µg/l	371	0	0.00	0
Pesticides - pp-DDT	0.1 µg/l	371	0	0.00	0
Pesticides - Pendimethalin	0.1 µg/l	368	0	0.00	0
Pesticides - Pentachlorophenol	0.1 µg/l	371	0	0.00	0
Pesticides - Phorate	0.1 µg/l	368	0	0.00	0
Pesticides - Propazine	0.1 µg/l	368	0	0.00	0
Pesticides - Propetamphos	0.1 µg/l	368	0	0.00	0
Pesticides - Simazine	0.1 µg/l	368	0	0.00	0
Pesticides - Triclopyr	0.1 µg/l	371	0	0.00	0
Pesticides - Trifluralin	0.1 µg/l	371	0	0.00	0
<b>Pesticides: Total</b>	0.5 µg/l	371	<b>1</b>	<b>0.27</b>	<b>1</b>
Tetrachloroethene and Trichloroethene	10 µg/l	374	0	0.00	0
<b>Total</b>		<b>21,050</b>	<b>3</b>	<b>0.01</b>	

**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	374	0	0.00	0
Total		374	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	369	0	0.00	0
<i>Clostridium perfringens</i>	0/100 ml	2,853	3	0.11	3
Conductivity	2500 µS/cm	2,853	0	0.00	0
*Gross Alpha	0.1 Bq/l	371	0	0.00	0
*Gross Beta	1 Bq/l	371	0	0.00	0
Sulphate	250 mg SO <sub>4</sub> /l	369	0	0.00	0
Total organic carbon	No abnormal change	369			
Tritium (for radioactivity)	100 Bq/l	371	0	0.00	0
Total		7,926	3	0.04	

*\*Monitored for the calculation of total indicative dose.*

Number of Supply Points = 43

**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	374	0	0.00	0
Antimony	5 µg Sb/l	467	0	0.00	0
Arsenic	10 µg As/l	467	0	0.00	0
Benzene	1 µg/l	374	0	0.00	0
Benzo(a)pyrene	0.01 µg/l	467	0	0.00	0
Boron	1 mg B/l	371	0	0.00	0
Bromate	10 µg BrO <sub>3</sub> /l	467	0	0.00	0
Cadmium	5 µg Cd/l	467	0	0.00	0
Chromium	50 µg Cr/l	467	0	0.00	0
Copper	2 mg Cu/l	467	0	0.00	0
Cyanide	50 µg CN/l	371	0	0.00	0
<i>Escherichia coli</i>	0/100 ml	5,823	13	0.22	11
Enterococci	0/100 ml	467	1	0.21	1
Fluoride	1.5 mg F/l	370	0	0.00	0
Lead	25 µg Pb/l	468	6	1.28	5
Mercury	1 µg Hg/l	370	1	0.27	1
Nickel	20 µg Ni/l	467	0	0.00	0
Nitrate	50 mg NO <sub>3</sub> /l	492	0	0.00	0
Nitrite	0.5 mg NO <sub>2</sub> /l	492	0	0.00	0
Pesticides - Aldrin	0.03 µg/l	371	0	0.00	0
Pesticides - Dieldrin	0.03 µg/l	371	0	0.00	0
Pesticides - Heptachlor	0.03 µg/l	371	0	0.00	0
Pesticides - Heptachlor epoxide	0.03 µg/l	371	0	0.00	0
<b>Pesticides - MCPA</b>	0.1 µg/l	375	1	0.03	1
Pesticides - other substances	0.1 µg/l	16,216	0	0.00	0
<b>Pesticides: Total</b>	0.5 µg/l	371	1	0.27	1
Polycyclic aromatic hydrocarbons	0.1 µg/l	467	0	0.00	0
Selenium	10 µg Se/l	467	0	0.00	0
Tetrachloroethene and Trichloroethene	10 µg/l	374	0	0.00	0
<b>Trihalomethanes: Total</b>	100 µg/l	765	141	18.43	24
<b>Total</b>		34,227	164	0.48	

**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
<b>Aluminium</b>	200 µg Al/l	2,124	<b>27</b>	<b>1.27</b>	<b>13</b>
<b>Colour</b>	20 mg/l Pt/Co	2,124	<b>3</b>	<b>0.14</b>	<b>2</b>
<b>Hydrogen ion</b>	>6.5 - <10 pH value	2,124	<b>1</b>	<b>0.05</b>	<b>1</b>
<b>Iron</b>	200 µg Fe/l	2,124	<b>41</b>	<b>1.93</b>	<b>21</b>
<b>Manganese</b>	50 µg Mn/l	2,124	<b>10</b>	<b>0.47</b>	<b>7</b>
Odour	3 at 25°C dilution number	2,124	0	0.00	0
Sodium	200 mg Na/l	464	0	0.00	0
Taste	3 at 25°C dilution number	2,124	0	0.00	0
Tetrachloromethane	3 µg /l	374	0	0.00	0
<b>Turbidity</b>	4 NTU	2,124	<b>2</b>	<b>0.09</b>	<b>2</b>
<b>Total</b>		<b>17,830</b>	<b>84</b>	<b>0.47</b>	

**Table 1.12: Quality of Water at Consumers' Taps (Water Supply Zones) - Additional European Monitoring Requirements**

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 <sub>4</sub> /l	2,124	0	0.00	0
Chloride	250 mg Cl/l	369	0	0.00	0
<i>Clostridium perfringens</i>	0/100 ml	2,853	3	0.11	3
Coliform bacteria	0/100 ml	5,823	58	1.00	28
Colony counts @ 22°C	No abnormal change	2,124			
Colony counts @ 37°C	No abnormal change	2,124			
Conductivity	2500 µS/cm	2,853	0	0.00	0
*Gross Alpha	0.1 Bq/l	371	0	0.00	0
*Gross Beta	1 Bq/l	371	0	0.00	0
Hydrogen ion	<9.5 pH value	2,124	0	0.00	0
Residual disinfectant (Free chlorine) mg/l					
Residual disinfectant (Total chlorine) mg/l					
Sulphate	250 mg SO <sub>4</sub> /l	369	0	0.00	0
Total organic carbon	No abnormal change	369			
Tritium (for radioactivity)	100 Bq/l	371	0	0.00	0
<b>Total</b>		<b>33,891</b>	<b>61</b>	<b>0.18</b>	

\*Monitored for the calculation of total indicative dose.

Number of Supply Points = 61

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