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Drinking Water Quality Regulator for Scotland

DRINKING WATER QUALITY **IN SCOTLAND 2013**

PRIVATE WATER SUPPLIES

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1_PRIVATE WATER SUPPLIES

Private water supplies (PWS) are drinking water supplies which are not provided by Scottish Water as part of their core function and are the responsibility of the owners and users of the supplies.

In 2013, the data provided to the Drinking Water Quality Regulator (DWQR) by local authorities stated that there are 20,193 private supplies in Scotland, 277 more than reported in 2012. This data shows that around 164,000 people (3% of Scotland's population) live or work in premises that rely daily on a private water supply. This figure, however, does not take into account the large numbers of the public who may use premises with a private water supply in the course of leisure activities, or visitors to Scotland each year who are exposed to these private water supplies.

Private supplies vary greatly in their nature, ranging from springs and boreholes serving individual properties to larger groundwater or surface water supplies. Not all private water supplies are found in rural areas, many can be found in towns and cities. **Table 1.0** provides a summary of private water supplies in each local authority area. The data show that there are 2,330 Type A supplies and 17,863 Type B supplies. Type A PWS are those which supply 50 or more people, provide 10 or more cubic metres a day, or regardless of the number of people served or the volume supplied, are supplied as part of a commercial or public activity. 847 of the Type A supplies come from surface water sources with the remaining 1483 coming from ground water sources. Type B PWS are all other domestic PWS.

The Type A supplies include 1,214 holiday lets, 163 B&Bs, 113 hotels, 102 caravan parks/campsites, 109 visitor centres, 45 community halls, 10 schools, 3 hospitals, and a range of other facilities such as restaurants, cafes and doctors' surgeries in addition to domestic properties.

Table_ 1.0 Supplies summary

LOCAL AUTHORITY	TYPE A1	TYPE A2	TYPE A3	ALL TYPE A SUPPLIES	TYPE B	*EXEMPT*	TOTAL NUMBER OF SUPPLIES
Aberdeen City	2	0	0	2	42	0	44
Aberdeenshire	206	0	0	206	7,604	1	7,810
Angus	40	2	0	42	387	0	429
Argyll and Bute	424	8	0	432	1,412	2	1,844
City of Edinburgh	3	0	0	3	14	0	17
Clackmannanshire	3	0	2	5	22	0	27
Comhairle nan Eilean Siar	17	0	0	17	32	0	49
Dumfries and Galloway	166	7	1	174	1,210	0	1,384
Dundee City	0	0	0	0	1	1	1
East Ayrshire	15	0	0	15	181	0	196
East Dunbartonshire	1	0	0	1	15	0	16
East Lothian	5	1	0	6	36	1	42
East Renfrewshire	5	1	0	6	142	0	148
Falkirk	1	0	0	1	8	0	9
Fife	35	0	0	35	293	3	328
Glasgow City	0	0	0	0	0	0	0
Highland	684	1	0	685	1,661	1	2,346
Inverclyde	7	0	0	7	53	0	60
Midlothian	4	0	0	4	61	0	65
Moray	94	0	0	94	703	2	797
North Ayrshire	18	1	0	19	262	1	281
North Lanarkshire	0	0	0	0	15	0	15
Orkney	32	0	0	32	202	0	234
Perth and Kinross	256	5	1	262	1,252	7	1,514
Renfrewshire	5	1	0	6	6	0	12
Scottish Borders	151	1	0	152	1,271	1	1,423
Shetland	2	0	0	2	61	0	63
South Ayrshire	22	0	0	22	208	1	230
South Lanarkshire	25	0	0	25	277	0	302
Stirling	62	0	0	62	371	1	433
West Dunbartonshire	4	0	0	4	15	0	19
West Lothian	9	0	0	9	46	0	55
Scotland	**2,298**	**28**	**4**	**2,330**	**17,863**	**22**	**20,193**

1.1_ RISK ASSESSMENT

The Private Water Supplies (Scotland) Regulations 2006 (the 2006 regulations) place a duty on local authorities to risk assess all Type A supplies and to review these risk assessments annually. Additionally, local authorities must provide advice and assistance on risk assessments to those responsible for Type B supplies on request. These risk assessments should determine whether the supply poses a potential risk to health and, if so, the action required to safeguard health in the short term and improve the supply in the longer term.

Table 1.1 shows that in 2013 95% of Type A supplies had a completed or reviewed risk assessment. This is an improvement on last year where only 89% had a completed or reviewed risk assessment.

PWS BOREHOLE HEADWORKS

Table_ 1.1 Type A risk assessment summary

LOCAL AUTHORITY	ALL TYPE A SUPPLIES	RISK ASSESSED OR REVIEWED	RA COMPLIANCE	2012 COMPLIANCE	2011 COMPLIANCE
Aberdeen City	2	2	100	0	No data
Aberdeenshire	206	199	96.6	95	98
Angus	42	42	100	100	100
Argyll and Bute	432	410	94.91	88	89
City of Edinburgh	3	1	33.33	50	50
Clackmannanshire	5	5	100	100	100
Comhairle nan Eilean Siar	17	17	100	85	85
Dumfries and Galloway	174	172	98.85	163	100
Dundee City	0	0	-	-	-
East Ayrshire	15	14	93.33	100	100
East Dunbartonshire	1	1	100	100	-
East Lothian	6	6	100	70	33
East Renfrewshire	6	6	100	91	100
Falkirk	1	1	100	100	100
Fife	35	35	100	100	97
Glasgow City	0	0	-	-	-
Highland	685	684	99.85	98	97
Inverclyde	7	7	100	100	88
Midlothian	4	4	100	100	0
Moray	94	87	92.55	94	97
North Ayrshire	19	13	68.42	95	100
North Lanarkshire	0	0	-	-	-
Orkney	32	32	100	91	73
Perth and Kinross	262	260	99.24	100	97
Renfrewshire	6	6	100	100	100
Scottish Borders	152	103	67.76	6	97
Shetland	2	2	100	100	100
South Ayrshire	22	22	100	96	93
South Lanarkshire	25	23	92	91	96
Stirling	62	60	96.77	98	100
West Dunbartonshire	4	4	100	100	100
West Lothian	9	9	100	100	100
Scotland	**2,330**	**2,227**	**95.58**	**89**	**95**

Generally, all local authorities performed well in completing their risk assessments; with 17 compared to 13 last year reporting that they had completed 100% of required risk assessments or reviews. Angus, Clackmannanshire, East Dunbartonshire, Falkirk, Fife, Inverclyde, Midlothian, Renfrewshire, Shetland, West Dunbartonshire and West Lothian councils have achieved a 100% in 2012 and 2013. Nine local authorities have completed at least 90% or more of their risk assessments, with the City of Edinburgh, North Ayrshire and Scottish Borders the only local authorities completing less than 90%. Of the authorities with large numbers of private water supplies, Aberdeenshire, Dumfries and Galloway, Perth and Kinross and Highland councils are to be commended for achieving risk assessment compliance in excess of 95%.

In 2012 Scottish Borders completed 6% of their risk assessments, this was concerning to DWQR and advice and support was provided to the Council. There has been a huge improvement in 2013 with 67% being completed. Although further work is needed, DWQR are encouraged with the improvement by Scottish Borders and would expect to see this continue next year. We would also expect to see an improvement in compliance from the City of Edinburgh Council and North Ayrshire Council, with the relatively small number of Type A supplies they have, 100% compliance is achievable.

Although there is an improvement in risk assessment compliance from 2012's figure of 89%, this year's compliance shows no improvement on that of 2010 and 2011. DWQR is striving for 100% compliance and will work with local authorities to achieve this.

1.2_ SAMPLE COMPLIANCE

Local authorities are required by the 2006 Regulations to sample each Type A supply in their area at least once a year. **Table 1.2** shows the minimum sampling frequency required for Type A supplies. Type B supplies must be sampled by local authorities within 28 days of being requested by the owner or user of the supply and are not subject to routine annual monitoring.

Table 1.2_ Type A supply

VOLUME	REQUIRED SAMPLES
≤ 100	1
> 100 – ≤ 1,000	4
> 1,000	>4 (dependent on volume)

Table 1.3 shows that in 2013, Aberdeen City, Angus, City of Edinburgh, Clackmannanshire, East Dunbartonshire, Falkirk, Inverclyde, Midlothian, Orkney, Renfrew, West Dunbartonshire and West Lothian were the only local authorities to sample 100% of their Type A supplies. Of the local authorities with large numbers of supplies both Highland and Perth and Kinross were able to sample 95% or more of their Type A supplies. We expect local authorities to address any issues within their sampling schedule to ensure all Type A supplies are sampled.

Table 1.3_ Type A supplies sampling frequency compliance

LOCAL AUTHORITY	TOTAL TYPE A SUPPLIES	SUPPLIES SAMPLED	COMPLIANCE
Aberdeen City	2	2	100.00
Aberdeenshire	206	191	92.72
Angus	42	42	100.00
Argyll and Bute	432	364	84.26
City of Edinburgh	3	3	100.00
Clackmannanshire	5	5	100.00
Comhairle nan Eilean Siar	17	8	47.06
Dumfries and Galloway	174	155	89.08
Dundee City	0	-	-
East Ayrshire	15	14	93.33
East Dunbartonshire	1	1	100.00
East Lothian	6	5	83.33
East Renfrewshire	6	1	16.67
Falkirk	1	1	100.00
Fife	35	31	88.57
Glasgow City	0	-	-
Highland	685	652	95.18
Inverclyde	7	7	100.00
Midlothian	4	4	100.00
Moray	94	87	92.55
North Ayrshire	19	13	68.42
North Lanarkshire	0	-	-
Orkney	32	32	100.00
Perth and Kinross	262	261	99.62
Renfrewshire	6	6	100.00
Scottish Borders	152	105	69.08
Shetland	2	1	50.00
South Ayrshire	22	20	90.91
South Lanarkshire	25	24	96.00
Stirling	62	51	82.26
West Dunbartonshire	4	4	100.00
West Lothian	9	9	100.00
Scotland	**2,330**	**2099**	**90.09**

The 2006 regulations require “Check Monitoring” for all Type A supplies. This is a standard suite of tests from the 2006 regulations and the purpose of this monitoring is to provide information on the microbiological and organoleptic (taste and odour) quality of a supply, as well as, information on the effectiveness of any water treatment on it. Check parameters are ammonium, coliform bacteria, colony counts, colour, conductivity, *E. coli*, hydrogen ion (pH), odour, taste and turbidity. Samples should be taken for aluminium and iron where these metals are used as flocculants during water treatment, *Clostridium perfringens* must be monitored where the water originates from or is influenced by surface water, we would also recommend it is monitored if the source and the supplies influence is unknown, and nitrite must be monitored if chloramination is used as a disinfectant.

In 2013, a total of 72,306 tests were carried out on PWS, 53,343 from Type A supplies and 18,963 from Type B supplies.

DWQR has carried out an assessment of sampling compliance with check monitoring requirements for each local authority for 2013 based on the data returns provided by each authority. In 2013, sample compliance for Type A supplies for all tests carried out is 90%. However, of the 90% of Type A supplies sampled, only 85% were sampled in full accordance with the Regulations. Of the 20,899 check monitoring tests required (excluding taste and odour) only 17,794 were taken. Although an improvement on the 80% that were correctly sampled in 2012, this is still not acceptable and DWQR would expect to see this improve next year.

It is disappointing to note that, based on the information available, of 31 local authorities, only four achieved full compliance with their check sampling duties. Although this is an improvement on 2012, where only 2 local authorities achieved full compliance, it is still clearly an area that needs to be improved upon.

Further analysis of sampling compliance data shows a shortfall in the number of samples which should have been taken for *E. coli*. In 2013, 2,330 samples should have been taken for *E. coli*, however, the data provided shows that only 2,135 samples were taken. This is concerning given that 13.6% of Type A supplies failed the standard for *E. coli*. There are clear health risks associated with *E. coli* and untreated; poorly treated and poorly maintained private water supplies. The DWQR would encourage local authorities to review their sampling programme to ensure they are sampling for the correct parameters, especially *E. coli*, when required.

Sample rates for colour, taste and odour are low. Coloured water is very common in Scottish surface waters and many private water supplies have no treatment that will remove it. Colour is an important parameter because it provides an indication of the organic content of the water, which can have a detrimental effect on the efficacy of UV disinfection, and must be sampled at the required frequency. Taste and odour has a lower sampling compliance because of concerns that private supplies are often not microbiologically safe, and that this analysis would present a health and safety risk to staff in the laboratory.

"Audit" monitoring must also be carried out for all Type A supplies, and the range of parameters to be sampled depends on the outcome of the risk assessment of supplies and also from the results of previous monitoring. The 2006 regulations require local authorities to review any decisions made on parameters to be included under audit monitoring at least once in every five years. DWQR will be contacting local authorities and requesting evidence that this has been done. This will be reported on next year.

The Scottish Government issued Information Letter 1/2011 in February 2011 giving guidance to local authorities on the requirements for data reporting and sampling requirements. This letter can be found at:
http://www.dwqr.org.uk/technical/information-letters/privatesupplies.htm.

The Scottish Government will also be providing further guidance on sample requirements, frequencies and charging.

2_WATER QUALITY

Many private water supplies suffer from inadequate treatment and poor or variable raw water quality. Consequently, compliance with the standards for drinking water quality is often much lower than for Scottish Water's public supplies. Year on year comparisons are hard to make, especially with the smaller, Type B, supplies which are not required to be sampled consistently every year.

Table 2.1 shows a summary of the overall compliance of Type A and Type B samples across Scotland.

Table 2.1_ Summary of PWS sample compliance

PARAMETERS	NUMBER OF TYPE A TESTS	NUMBER OF TYPE A FAILS	% OF TYPE A FAILS	COMPLIANCE (%)	NUMBER OF TYPE B TESTS	NUMBER OF TYPE B FAILS	% OF TYPE B FAILS	COMPLIANCE (%)
All Parameters	40,620	2,241	5.52	94.48	14,521	1,632	11.24	88.76
Aluminium	543	11	2.03	97.97	77	9	11.69	88.31
Ammonium	2,001	9	0.45	99.55	161	4	2.48	97.52
Coliform Bacteria	2,138	530	24.79	75.21	1,167	478	40.96	59.04
Colony Counts 3@22C	2,115	-	-	-	297	-	-	-
Colour	1,988	305	15.34	84.66	224	31	13.84	86.16
E. coli	2,135	290	13.58	86.42	1,167	236	20.22	79.78
Hydrogen ion (pH)	2,107	333	15.80	84.20	1,075	308	28.65	71.35
Iron	987	130	13.17	86.83	676	86	12.72	87.28
Lead (25)	982	41	4.18	95.82	975	36	3.69	96.31
Manganese	872	59	6.77	93.23	648	83	12.81	87.19
Odour	1,581	2	0.13	99.87	713	0	0.00	100.00
Taste	1,247	14	1.12	98.88	253	0	0.00	100.00
Total Trihalomethanes	48	3	6.25	93.75	4	0	0.00	100.00
Turbidity	2,098	40	1.91	98.09	984	52	5.28	94.72

2.1_ MICROBIOLOGY

In 2013, just over three quarters of samples taken from private water supplies across Scotland did not contain any coliforms, as required by the Regulations. This leaves 530 samples that did contain at least one coliform. Although mostly non-pathogenic in themselves, the presence of coliforms can indicate that the water has become contaminated or that any disinfection process on the supply is not operating correctly.

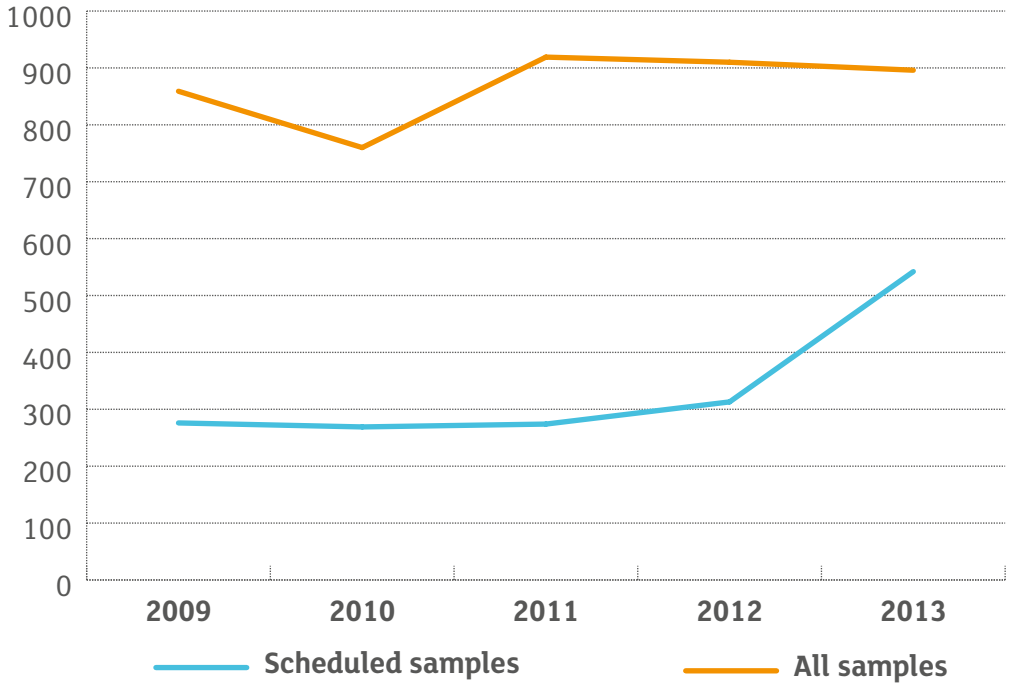
Table 2.2_ Sample compliance for *E. coli*

LOCAL AUTHORITY	NUMBER OF TYPE A TESTS	NUMBER OF TYPE A FAILS	COMPLIANCE (%)	NUMBER OF TYPE B TESTS	NUMBER OF TYPE B FAILS	COMPLIANCE (%)
East Renfrewshire	0	0	-	2	0	100.00
Clackmannanshire	11	0	100.00	3	2	33.33
City of Edinburgh	3	0	100.00	2	1	50.00
Shetland	1	0	100.00	2	1	50.00
East Lothian	6	0	100.00	5	2	60.00
East Ayrshire	13	0	100.00	56	18	67.86
South Ayrshire	20	0	100.00	10	3	70.00
Midlothian	4	0	100.00	14	4	71.43
Aberdeen City	2	0	100.00	2	0	100.00
East Dunbartonshire	1	0	100.00	2	0	100.00
Falkirk	1	0	100.00	0	0	-
Inverclyde	7	0	100.00	0	0	-
West Dunbartonshire	3	0	100.00	0	0	-
Moray	87	3	96.55	59	5	91.53
Orkney	32	2	93.75	11	4	63.64
North Ayrshire	14	1	92.86	7	3	57.14
South Lanarkshire	24	2	91.67	9	1	88.89
Fife	29	3	89.66	20	2	90.00
Highland	652	72	88.96	118	27	77.12
West Lothian	9	1	88.89	0	0	-
Perth and Kinross	288	33	88.54	96	22	77.08
Aberdeenshire	152	19	87.50	479	60	87.47
Stirling	51	7	86.27	18	5	72.22
Dumfries and Galloway	179	31	82.68	99	29	70.71
Scottish Borders	106	19	82.08	64	25	60.94
Angus	48	9	81.25	0	0	-
Argyll and Bute	378	82	78.31	82	19	76.83
Renfrewshire	6	2	66.67	6	2	66.67
Comhairle nan Eilean Siar	8	4	50.00	1	1	0.00
Scotland	**2,135**	**290**	**86.42**	**1,167**	**236**	**79.78**

E. coli, which can cause illness, were detected in 13.6% of Type A private water supply samples taken across Scotland. This figure is clearly of concern, and the reduction in the number of supplies at risk from these failures must be a priority. The picture is even worse with Type B supplies, which often serve single properties.

It is difficult to compare compliance results between local authorities due to the wide disparity in numbers of supplies between local authorities and the number of different factors which may influence sample results, however some trends are apparent and worthy of further consideration. An example is the difference in *E. coli* compliance between some of the larger council areas – Highland and Perth and Kinross councils achieve compliance for *E. coli* of in excess of 88%, whereas compliance in Argyll and Bute is much lower at 78.3%. There are a number of potential reasons behind this, and DWQR will be reviewing this further in 2014. Interestingly, this difference is not apparent for Type B supplies, where compliance is actually higher in Argyll and Bute than for their Type A supplies, and the results are much closer to those for the other larger authorities at around 80%. Looking at Type B, Aberdeenshire compliance for *E. coli* is particularly good at 87.4%, and on a par with its Type A results, although this does of course still mean that more than one in ten samples contain *E. coli*.

Fig. 1_ *E. Coli* failures by year



The chart above shows year on year failures for *E. coli* for all private supplies. Scheduled samples refer only to the samples required under the regulations, whereas the "all sample" dataset relates to all *E. coli* tests done on PWS.

The number of *E. coli* failures occurring on private supplies appears fairly static, except for the upturn in scheduled sample failures in 2013 which is striking. This is due to an increase in the number of scheduled samples taken, rather than a deterioration in the quality of supplies .

Table 2.3_ Supplies failing for *E. Coli* in past six years

NO. YEARS SUPPLY FAILING FOR *E. COLI* OUT OF LAST 6	NO. SUPPLIES
1	1938
2	522
3	149
4	50
5	16
6	2

Table 2.3 shows that, although the majority of supplies have no reported sample failures for *E. coli*, a substantial number have failed more than once in the past six years, with two supplies failing in each of the previous six years and 16 failing in five of them.

The lack of improvement in *E. coli* compliance is disappointing, given the extensive efforts of local authorities in trying to bring about an improvement. During 2013 DWQR visited a number of local authorities to discuss supplies that had been failing for a number of years and understand the issues involved in bringing about an improvement. Although the quality of private supplies is a complex area and improvements are not always easy to achieve or maintain, DWQR believes owners and users must take responsibility for the quality of their private supplies and the greater use of enforcement powers available to local authorities should play a part in this, especially where parameters are of significance for health, such as *E. coli*.

SPRING WATER COLLECTION TANK

Table 2.4_ Microbiological compliance by source type

SOURCE TYPE	MICROBIOLOGICAL COMPLIANCE (TYPE A)	MICROBIOLOGICAL COMPLIANCE (TYPE B)
Groundwater Borehole	95.57	85.03
Groundwater Spring	86.97	73.31
Groundwater Well	88.25	81.27
Surface Water Watercourse	79.78	65.89
Surface Water Loch	79.85	68.63
Surface Water Rainwater	73.85	70.83
Unknown	81.66	74.80

Source type appears to have a significant bearing on microbiological quality. **Table 2.4** shows compliance of scheduled samples for microbiological parameters (in this instance, comprising coliforms, *E. coli*, *Clostridium perfringens*, *Enterrococci*) by water source type, regardless of any treatment present on the supply. This clearly shows that groundwater sources, especially boreholes, are far less likely to suffer from microbiological contamination than surface water sources. Having said this, they are not completely compliant and it should not be assumed that underground waters are immune from contamination, although it is also possible that some of this contamination originated after the water reached the surface.

Table 2.5_ Microbiological failures on supplies having disinfection

	% OF ALL FAILS OCCURRING ON SUPPLIES HAVING DISINFECTION	
PARAMETER	TYPE A	TYPE B
Coliform Bacteria	60.75	20.08
E. coli	57.59	19.49
Enterococci	60.10	24.32
Clostridium perfringens	64.85	23.08

Table 2.5 shows how many of the microbiological failures occurred on supplies that were reported to DWQR as having some form of disinfection process. It is evident that these account for a significant proportion of all failures on Type A supplies, throwing into question the effectiveness of these disinfection processes or the hygienic nature of the way in which the water is distributed after treatment to the point at which it is consumed. Although at first glance this appears to be less of an issue with Type B supplies, the lower percentages for these are likely to be a reflection of the much smaller proportion having a disinfection process.

The data highlights the importance of a number of factors associated with the disinfection of private supplies. These are:

- adequate pre-treatment so that the water is of a suitable quality to be disinfected
- installing a disinfection process that is appropriate to the quality of the incoming water
- installing a disinfection process that is adequately sized for the demand placed on the supply
- a programme of maintenance appropriate to the nature of the disinfection process and its usage

2.2_ OTHER QUALITY PARAMETERS

Of the other parameters for which private water supplies are tested, compliance is lowest for colour, hydrogen ion (pH), iron and manganese.

Colour

Colour in water is usually due to naturally occurring organic substances that are derived from peaty soils and common in upland water sources of the type often found in Scotland. Although these substances clearly have an aesthetic impact on the water, a primary concern is that the same compounds that cause coloured water also absorb ultraviolet radiation, a method frequently used to disinfect private water supplies. This means that less energy is available to kill pathogens, rendering the process ineffective and presenting a risk to those drinking the supply.

Unfortunately, colour can be difficult and costly to consistently remove from water supplies, consequently many PWS do not have treatment for it, which is reflected in the poor compliance.

Iron and Manganese

In private water supplies, these parameters tend to be naturally occurring, although iron can also be derived from corroded iron pipework. Again, the impact of these parameters is apparent in the aesthetic qualities of the water, but they can also have an effect on UV disinfection systems by coating UV lamps and reducing efficiency.

Iron and manganese removal on private supplies is possible, and there are a number of filters available on the market for this purpose. Dissolved manganese often requires pre-oxidation, which may necessitate the dosing of an oxidant chemical.

Hydrogen Ion (pH)

This parameter is a measure of the acidity of the water. Most upland supplies naturally have a very low pH, and this is the cause of most of the failures of the standard. Hydrogen ion had the poorest compliance for any non-microbiological parameter, and more than a quarter of tests on Type B supplies failed the standard.

Although not directly of acute health significance, low pH (i.e. highly acidic), waters can dissolve metals from plumbing and sanitary fittings. This can lead to high concentrations of lead, nickel and copper, which can have health implications as well as staining sanitary ware. In 2013, 16 Type A supplies failed for both pH and Copper, while 11 failed for pH and lead.

Treatment for low pH on private water supplies is relatively easy, using a simple filter filled with alkaline media such as limestone granules.

2.3_ NOTICES

Once a local authority has identified that a supply has quality or quantity issues and poses a risk to health, action must be taken to ensure that all users are informed and given appropriate advice to safeguard their health in the short term. Users must also be informed of any required improvement works and the timescales in which these works must be carried out. DWQR is of the opinion that lasting improvements are best achieved by putting in place a notice formally setting out the requirements. Where public health is not at risk, other advice may relate to cleaning and disinfecting storage tanks, replacing UV tubes or filter cartridges or cleaning out the catchment area. In many instances, local authorities work with users of the supply to achieve improvement and only where this is unsuccessful, is a formal Improvement Notice issued.

The benefit of a notice compared to informal advice is that if there is any disagreement about the need for a supply to be improved or who is responsible for carrying out the work, there is a formal process of appeal and thereafter, the relevant person(s) is under a legal duty to carry out the necessary improvements. It also ensures any required works are carried out in a timely manner, it is not appropriate to allow these timescales to drag when there is a risk to health.

The data provided showed that in 2013 eight notices were served. DWQR finds this disappointing due to the percentage of tests failing and more specifically, the percentage of tests failing for *E. coli* as discussed earlier in this report. From the data provided to DWQR there are 149 supplies that have failed for *E. coli* for three years or more, with 16 supplies failing for five years. This is not acceptable and it is concerning that the number of notices served by local authorities is so low. The use of notices to deal with those supplies that are persistently failing to meet the standards is a course of action which should be pursued. The DWQR will be working with local authorities involved to ensure these issues are resolved. The Scottish Government will also be providing guidance on notices.

3_PRIVATE WATER SUPPLY GRANT

The Scottish Government introduced a grant scheme in conjunction with the 2006 Regulations to assist users and owners of private supplies to bring their supplies up to modern standards. The scheme is non-means tested and available to domestic households and businesses. The maximum grant which may be awarded is £800. However, the local authority may pay in excess of £800 where they are satisfied that the eligible person could not, without undue hardship, finance the expense of the approved works without such a grant.

The scheme is intended to assist with the one-off capital cost of installing treatment to help ensure the provision of safe drinking water. It does not cover the ongoing maintenance and disinfection of a private supply which is the responsibility of the user.

In 2013 – 2014, £845,449 in grants were awarded for PWS improvements. According to the data provided by local authorities this money improved 291 supplies and 564 properties.

An example of where grant funding has been awarded and good management of the supply is demonstrated is the Ardlethen supply in Aberdeenshire. This is a small type B supply consisting of 5 properties. This supply had quality and quantity issues. Originally the users of this supply relied on the land owner, on whose land the source was situated, to deal with any issues with this water supply. After prolonged problems and inadequate solutions provided by the land owner, the users sought advice from the local authority. After discussions with the local authority they decided to form a community supply and find an alternative source of water. The local authority along with a local contractor sourced an alternative water supply, work was undertaken and improvements were made across the supply system from the source through to drinking water taps, with work being completed on the protection and management of the new source, improved storage tanks and improved pipe work. £6,200 in private water supply grant was provided to the community to assist with the costs of the improvements. The community set up a bank account where it was agreed that each household would pay £200 per year towards any maintenance costs as well as build up a reserve to assist with any future improvement costs. A chair was elected and they arrange meetings and ensure minutes etc are circulated to each user. They also keep the users up to date with any issues or events relating to the supply, for example, the outcome of the annual maintenance, sample results etc. The community also got legal advice and a contract was agreed and signed by the land owner of the new source to ensure their access to the water supply would not be stopped.

Since the development of this community supply, the users have not had any issues with quality or quantity. Their supply has an annual maintenance check which is carried out by a local contractor. This is a very good example of a community (regardless of how small) working together to find a solution to their private water supply issues instead of individuals trying to find individual household solutions. In doing this they have found a solution to their private water supply issues as well as taking measures to ensure this is sustainable in future years.

The DWQR recognises the importance of the grant scheme in supporting users to improve private water supplies, but it is essential that they commit to maintaining treatment systems to protect public health in the long term. Owners and users of PWS should contact their local authority's Environmental Health department for advice and details of how to apply for a grant.

4_IMPROVING PRIVATE WATER SUPPLIES

There are a number of activities and strands of work in which DWQR staff were involved in 2013. A lot of this work will only fully show benefit in the longer term.

This includes:

PWS Workshop

In October 2013, the DWQR hosted a workshop on PWS for the different agencies involved in PWS, including local authorities' Environmental Health representatives, the Scottish Government, and the National Health Service. There were a number of presentations given by stakeholders, and the theme was enforcement. Feedback of the event from delegates was very positive.

V(TEC) Action Group

The Action Plan sets out 86 recommendations designed to tackle VTEC/*E. coli* O157 infection in Scotland. The recommendations are the result of the multi-agency Action Group, which considered ways to disrupt the transmission of VTEC from source to human beings. The Action Group will oversee the implementation of the recommendations. There are a number of actions relating to drinking water. DWQR will be overseeing the implementation of these recommendations and reporting on their progress to the Action Group. These actions have been included in the PWS Strategy. A copy of the action plan can be found here **http://www.scotland.gov.uk/Publications/2013/11/8897/0**.

Improved Data Returns

The data returns for 2013 have been the best yet received by DWQR. The level of completeness has risen year on year for the last two years, so much so, that more detailed analysis on the state of PWS across the country is possible. Additional guidance and information on how to complete the data return and what we expect to see reported in it, will be issued later in 2014.

DWQR will also be investigating adding additional information to the data return. This will include adding the Unique Property Reference Number (UPRN) for each house and premise on a PWS. This will allow DWQR to better understand sampling activities on a supply. We will also be trialling the use of the water charges for the Council Tax Register to help local authorities find properties that may not be in their PWS Registers. These are longer term goals and clear guidance will be issued and consultation with local authorities sub-group will take place before full implementation is required.

Community Supplies

Some initial work has started on determining the benefits of community supplies and the steps required to encourage communities to work together in developing solutions, improving and taking responsibility for their private water supply. This work is in its infancy and links with the work the newly formed Scottish Government Rural Provision Group will be doing. The aim of this group is to support the delivery of the Scottish Government priorities in rural communities, in particular with a view to improving water and sewerage provision in rural areas.

PWS Strategy

The three main objectives which this strategy aims to ensure are:

- A robust, clear regulatory framework to ensure that Scotland is complying with European obligations
- Comprehensive information and advice is available for owners and users of private water supplies and local authorities
- Measurable improvements in compliance and reduction of risk to public health

The Strategy document will be managed by the Scottish Government (Drinking Water Quality Division). A Steering Group will be established to guide and advise the lead agencies, and shall consist of representatives from the Convention of Scottish Local Authorities (CoSLA), Health Protection Scotland, DWQR, Scottish Government Health, Society of Chief Environmental Health Officers in Scotland (SoCOEHS) and REHIS, the group will be chaired by the DWQR. There shall be an annual review of progress with implementation of the actions in this strategy by the Steering Group, and progress with performance measures shall be measured three years after the launch of the Strategy.

Development of Performance Measures with local authorities

The DWQR has been working closely with the Society of Chief Environmental Health Officers in Scotland (SoCOEHS) to identify a range of performance measures for private water supplies. This will allow local authorities to report on key activities, to benchmark with others, and for the Scottish Government to review their performance. This work has progressed well and we have developed and agreed three measures relating to sampling programmes; risk assessments and the public health interventions taken to protect public health in the event of a sample failure.

CURRENT RESEARCH

Colour

Research into the effect of raw water quality on the effectiveness of UV disinfection of private water supplies. The work will also look at how such processes are operated and maintained. This research is ongoing, and we are likely to have the results early next year.

PWS Grant

This project will look at the way the grant has been used to improve private water supplies across Scotland and identify whether it has been a successful tool in improving quality, and if these improvements protect public health. The project will identify opportunities to improve the effectiveness of the grant, or alternative methods of encouraging owners and users of PWS to improve the quality of their supply. We are hoping this project will be completed in 12 months.

5_PRIVATE WATER SUPPLIES QUERIES AND COMPLAINTS

If owners or users have any queries about their PWS they should contact their local authority for advice. There is also a website at **www.privatewatersupplies.gov.uk**. Any complaints about a local authority's PWS duties should be directed to the relevant local authority and if the complaint is not satisfactorily resolved, the local authority's formal complaints process should be followed. However, if there is an immediate concern for health or if it is thought that the complaint has not been dealt with satisfactorily, the DWQR can be contacted for advice.

6_FURTHER INFORMATION

Further information and advice on PWS and also the grant scheme can be obtained from Environmental Health teams at local authorities and also at **www.privatewatersupplies.gov.uk**

ANNEXES

ANNEX A - THE REGULATORY FRAMEWORK

The regulatory standards for drinking water quality in Scotland largely stem from European Directives. These standards are based on guidelines, developed by the World Health Organisation, to protect public health.

Our key domestic water quality legislation includes:

The Water (Scotland) Act 1980 (as amended)

- Scottish Water must supply wholesome water for domestic purposes. It is a criminal offence to supply water unfit for human consumption;
- Scottish Ministers must take enforcement action against Scottish Water if it fails in its duty to supply wholesome water (as defined in the relevant regulations) unless the failure is trivial or Scottish Water is complying with a legally binding undertaking to remedy the matter;
- local authorities must take appropriate steps to keep themselves informed about the wholesomeness of public water supplies in their area and notify Scottish Water if not satisfied; and
- local authorities are required to secure improvements to private water supplies if they consider them necessary.

The Water Industry (Scotland) Act 2002

- created the post of Drinking Water Quality Regulator for Scotland (DWQR);
- set out responsibility for enforcing the Water Supply (Water Quality) (Scotland) Regulations 2001;
- defines DWQR's independent status;
- defines DWQR power to obtain information, power of entry or inspection and power of enforcement; and
- DWQR also has emergency powers to require a water supplier to carry out works to ensure quality of water supplied is safe for public consumption.

The Private Water Supplies (Scotland) Regulations 2006

The 2006 Regulations came into force on 3 July 2006, they;

- define wholesomeness in accordance with the EC Drinking Water Directive 98/83/EC;
- require local authorities to classify private supplies according to size and use;
- require local authorities to monitor, risk assess and report on private supplies in their area according to classification and risk; and
- require local authorities to provide advice to private supply owners and ensure improvements are carried out.

The Private Water Supplies (Grants) (Scotland) Regulations 2006

- provides for grants to be paid to eligible persons to enable them to improve their private water supply; and
- is administered by local authorities and provides for non-means tested grants of up to £800 per property.

The Water Quality (Scotland) Regulations 2010

The 2010 Regulations came into force on 20th April 2010, they;

- further transpose the requirements of Directive 98/83/EC most particularly in respect of water quality failures which are attributable to the domestic distribution system in establishments and premises where water is supplied to the public;
- require local authorities to investigate such water quality failures to determine its cause;
- instruct remedial action through the service of a notice on the person who owns, or is responsible for, the domestic distribution system;
- ensure that affected consumers are notified of any risk to their health.
- the 2010 Regulations also make a number of technical amendments to the Water Supply (Water Quality) (Scotland) Regulations 2001 and the Private Water Supplies (Scotland) Regulations 2006; and
- create a duty to minimise contamination from disinfection by-products and to verify the effectiveness of the disinfection process.

ANNEX B - INDEX OF INFORMATION LETTERS ISSUED DURING 2013

Information Letter number	Title
Public Supply	
2013/1	The handling of contacts about drinking water quality from non-domestic consumers
2013/2	Authorisation of different standards
2013/3	Requirement and expectations for supply-specific disinfection strategies
Private Supply	
2013/1	Temporary departures

Copies of these letters are available on the DWQR website:
www.dwqr.org.uk

The DWQR may be contacted either by writing to:

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