



Your local supply, on tap

Annual Report on Water Quality Hertsmere Borough Council 2013

Affinity Water



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1 Introduction

Affinity Water produces an annual report for each local authority regarding the general quality of water supplied to premises in the authority's area. The information includes results of samples taken from water supply zones in the authority's area of responsibility and any associated exceedences (see section 3 Water Quality) relevant to those supply areas i.e. exceedences from supplying water treatment works and service reservoirs. The report also includes details of the actions taken to comply with any enforcement orders, authorised departures and notices under regulation 19(4). This report is for Hertsmere Borough Council and covers the year ending 31 December 2013.

2 Water Treatment Works, Service Reservoirs and Water Supply Zones

A map of the water treatment works, service reservoirs and water supply zones within the Council's area is included in Appendix 1.

In 2013, the Company met the demand for drinking water by operating 83 water treatment works. The water supply to the area covered by the Council was provided by the following WTWs:

Clay Lane 27"
Clay Lane 36"
Iver
North Mymms
Queens
Waterhall

In addition to the above Company-operated water treatment works there was a bulk import of treated water from Anglian Water's Grafham water treatment works. This was used as a supplementary supply to assist demand management.

Treated water from the above works is either passed directly into supply or via one of the following service reservoirs:

Arkley 1 & 2
Arkley 3 & 4
Arkley WT
Brookmans Park
Brookmans Park WT
Bushey Heath 1
Bushey Heath 2
Bushey Heath 3
Bushey Heath 5 East
Bushey Heath 5 West
Epping Green WT
Hatfield

Merry Hill East
Merry Hill West

The Company's area is divided into discrete Water Supply Zones, each with a population of 100,000 or less. In 2013, Affinity Water (Central Region) had 71 such zones.

In 2013, Hertsmere Borough Council's area was served by Zones:

023 Hatfield / Potters Bar
049 Borehamwood / Bushey
050 Barnet
052 Pinner / Stanmore
072 Shenley

Results of analyses for the above Zones can be found in Appendix 2.

3 Water Quality

During 2013 elevated levels of the pesticide metaldehyde were detected three times in Zone 023, in March, May and October. At these times, this zone was supplied from our North Mymms water treatment works. The raw waters that feed this treatment works have been found to contain metaldehyde and at present there are no known practical treatment processes that remove metaldehyde. An Undertaking (see section 5. below) is in place for zones supplied by North Mymms water treatment works. The levels of metaldehyde detected were well below that which could affect public health.

All exceedences of the standards are reported to the Drinking Water Inspectorate (DWI) in monthly exception reports. In the event that the DWI is not satisfied with the Company's explanation of the circumstances and the action taken, enforcement action can be initiated.

4 Cryptosporidium

Listed below is a summary of the results for Cryptosporidium from treatment works that were originally identified as being at significant risk from Cryptosporidium and which supply water to the area covered by the Council.

| Treatment Works | No. of samples taken in 2013 | No. of samples containing oocysts | Maximum Concentration (Oocysts/10 litres) |
|-----------------|------------------------------|-----------------------------------|---|
| Iver | 365 | 0 | <0.05 |

5 Customer Contacts

Under the Water Industry (Suppliers' Information) Direction 2009, the Company must provide the DWI with annual information on all consumer contacts received related to drinking water quality. For each water supply zone, the consumer contacts are separated into five main categories (with further division into sub-categories). An overall rate of contact per 1000 population is calculated for each zone as well as contact rates for combined categories.

The customer contact data for water supply zones within your Council's area of responsibility is shown in the table below.

| Zone (Pop.) | Zone Rate (Enquiries & Drinking Water Quality Concern per 1000 population) | Zone Rate (Appearance, taste and odour & illness per 1000 pop.) | Overall zone rate (Contacts per 1000 pop.) |
|------------------------|--|---|--|
| Company average | 0.48 | 1.08 | 1.57 |
| Zone 023 (82,332) | 0.55 | 0.87 | 1.42 |
| Zone 049 (80,453) | 0.66 | 1.49 | 2.15 |
| Zone 050 (49,092) | 0.57 | 0.84 | 1.41 |
| Zone 052 (70,859) | 0.51 | 1.34 | 1.85 |
| Zone 072 (3,074) | 0.00 | 0.00 | 0.00 |

6 Section 19 Undertakings, Authorised Departures & Programmes of Work

Within the Council's area of supply there are Undertakings in place for Zones 023 and 050 relating to Metaldehyde & Total Pesticides for the Company's North Mymms and Iver WTWs and for the bulk import of treated water from Anglian Water's Grafham WTW. In all cases the Company has agreed to: implement a monitoring strategy; engage in catchment management activities, including support for voluntary initiatives to influence Metaldehyde use, in order to reduce concentrations in untreated waters; to engage with & provide data to relevant stakeholders; review possible alternative supply arrangements; optimise removal through current treatment processes; investigate new, sustainable treatment processes; and to continually review & appraise the risk from these hazards as part of the Regulatory process.

The Company did not have any Authorised Departures in place in the Council's area during 2013.

In order to meet the standard relating to lead, the Company has continued operating orthophosphate dosing plants at 35 sites across the Company's area. All the zones within the Council's area receive water dosed with orthophosphate.

7 Notifiable events

Under the Water Industry (Suppliers Information) Direction 2009, the DWI must be notified of any situation where water quality is likely to be, or has been, adversely affected. Since 2009 the DWI has been using an event classification system to assess and quantify the significance of a notifiable event, giving each one a number (1 to 5) with an equivalent rating ("not significant" through to "major"). The Company regards any event classified as a 3 Significant or above as being equivalent to the previously designated 'incident'.

During 2013 there were no such notifiable events within your Council's area of responsibility.

8 Further information and advice

For further information and advice on all water quality matters please contact:

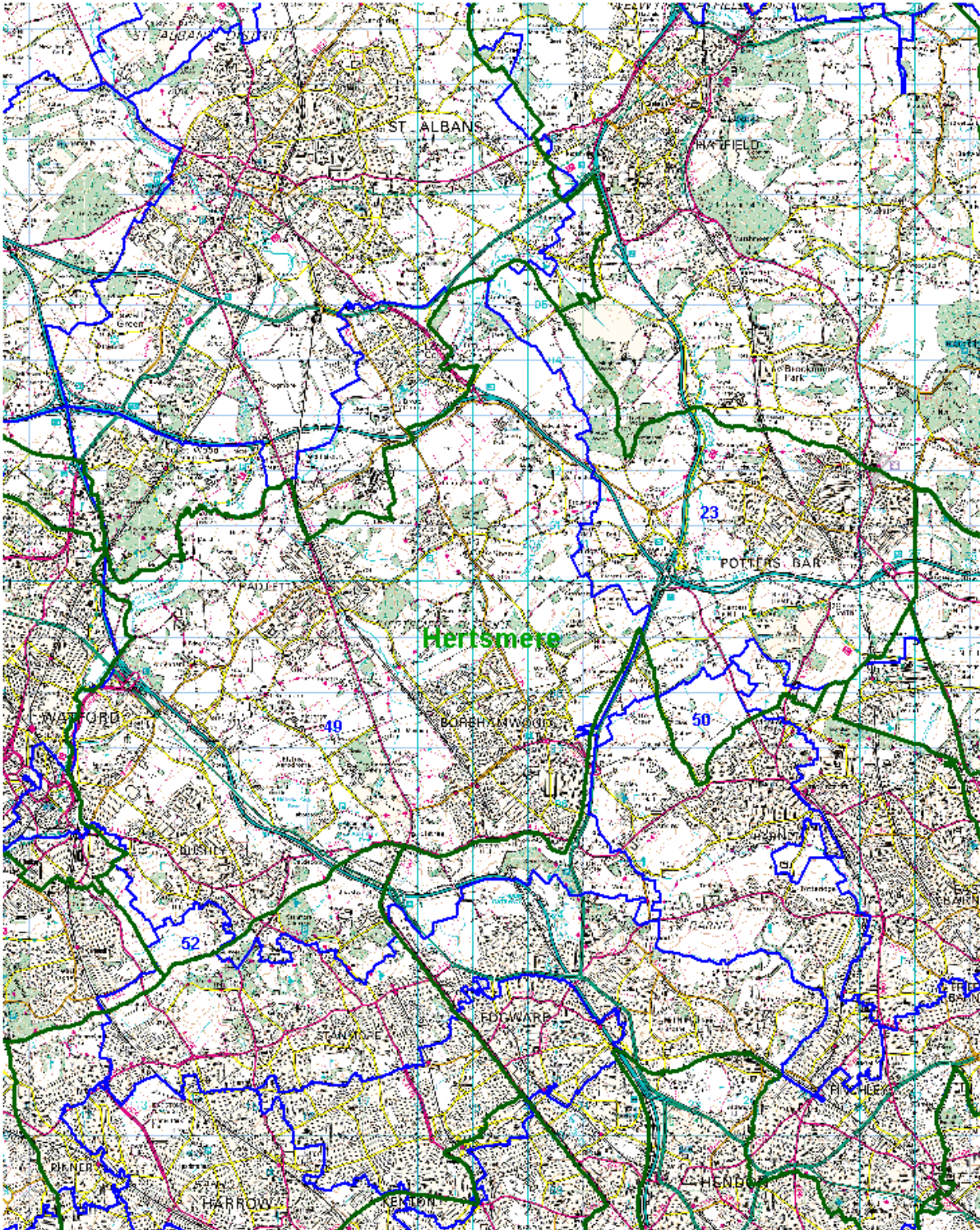
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Appendix one

Map

Hertsmere Borough Council



-  Local Authority Boundary
-  Water Supply Zone Boundary

Appendix two

Water Quality Results

Water Supply Zone: Hatfield/Potters Bar (AF023)
 Period: 01 January 2013 to 31 December 2013
 Population: 77886



| Parameter | Units | No. of Samples | PCV | No. of Samples >PCV | % of Samples >PCV | Min. | Mean | Max. |
|-----------------------------------|------------------------|----------------|----------------------------|---------------------|-------------------|--------|-------|-------|
| Microbiological Parameters | | | | | | | | |
| Coliform bacteria | No./100ml | 204 | 0 | 0 | 0 | 0 | 0 | 0 |
| E coli | No./100ml | 204 | 0 | 0 | 0 | 0 | 0 | 0 |
| Clostridium perfringens | No./100ml | 38 | 0 | 0 | 0 | 0 | 0 | 0 |
| Enterococci | No./100ml | 8 | 0 | 0 | 0 | 0 | 0 | 0 |
| 2 day plate count 37 °C | No./1ml at 37 °C | 76 | No abnormal change | 0 | 0 | 0 | 13 | 490 |
| 3 day plate count 22 °C | No./1ml at 22 °C | 76 | No abnormal change | 0 | 0 | 0 | 16 | 900 |
| Customer Parameters | | | | | | | | |
| Alkalinity | mgHCO ₃ /l | 1 | No PCV | 0 | 0 | 306 | 306 | 306 |
| Calcium | mgCa/l | 1 | No PCV | 0 | 0 | 115 | 115 | 115 |
| Chlorine (Residual) | mgCl ₂ /l | 204 | No PCV | 0 | 0 | 0.04 | 0.18 | 0.44 |
| Colour | mg/l Pt/Co | 38 | 20 | 0 | 0 | <1.0 | <1.0 | <1.0 |
| Fluoride | mgF/l | 8 | 1.5 | 0 | 0 | 0.120 | 0.150 | 0.186 |
| Hardness (Total) | mgCaCO ₃ /l | 1 | No PCV | 0 | 0 | 288 | 288 | 288 |
| Hydrogen Ion (pH) | pH value | 76 | 6.5-9.5 | 0 | 0 | 6.8 | 7.2 | 7.5 |
| Quantitative Odour | Dilution No. | 38 | Abnormal & unacceptable to | 0 | 0 | 0 | 0 | 0 |
| Quantitative Taste | Dilution No. | 38 | consumers | 0 | 0 | 0 | 0 | 0 |
| Temperature | °C | 201 | No PCV | 0 | 0 | 6.3 | 12.3 | 20.4 |
| Turbidity | NTU | 76 | 4 | 0 | 0 | 0.05 | 0.15 | 0.40 |
| Chemicals | | | | | | | | |
| Metals | | | | | | | | |
| Arsenic | µgAs/l | 8 | 10 | 0 | 0 | <1.0 | <1.0 | <1.0 |
| Aluminium | µgAl/l | 76 | 200 | 0 | 0 | <5.0 | <5.0 | 22.6 |
| Antimony | µgSb/l | 8 | 5 | 0 | 0 | <0.20 | <0.20 | <0.20 |
| Cadmium | µgCd/l | 8 | 5 | 0 | 0 | <0.20 | <0.20 | <0.20 |
| Chromium | µgCr/l | 8 | 50 | 0 | 0 | <2.0 | <2.0 | <2.0 |
| Copper | mgCu/l | 8 | 2 | 0 | 0 | <0.010 | 0.035 | 0.072 |
| Iron | µgFe/l | 76 | 200 | 0 | 0 | <15.0 | <15.0 | 64.0 |
| Lead | µgPb/l | 8 | 25 | 0 | 0 | <1.00 | 1.08 | 3.98 |
| Manganese | µgMn/l | 76 | 50 | 0 | 0 | <1.0 | <1.0 | 1.5 |
| Mercury | µgHg/l | 8 | 1 | 0 | 0 | <0.10 | <0.10 | <0.10 |
| Nickel | µgNi/l | 8 | 20 | 0 | 0 | <2.0 | <2.0 | 3.5 |
| Sodium | mgNa/l | 8 | 200 | 0 | 0 | 10.5 | 21.9 | 27.0 |

| Parameter | Units | No. of Samples | PCV | No. of Samples >PCV | % of Samples >PCV | Min. | Mean | Max. |
|------------------------------|----------------------|----------------|------|---------------------|-------------------|--------|--------|--------|
| Pesticides | | | | | | | | |
| Atrazine | µg/l | 8 | 0.1 | 0 | 0 | 0.007 | 0.010 | 0.015 |
| Bentazone | µg/l | 8 | 0.1 | 0 | 0 | <0.008 | <0.008 | <0.008 |
| Carbendazim | µg/l | 8 | 0.1 | 0 | 0 | <0.005 | <0.009 | <0.009 |
| Carbetamide | µg/l | 8 | 0.1 | 0 | 0 | <0.008 | <0.009 | 0.010 |
| Chlorotoluron | µg/l | 8 | 0.1 | 0 | 0 | <0.005 | <0.007 | <0.007 |
| Clopyralid | µg/l | 8 | 0.1 | 0 | 0 | <0.008 | <0.012 | 0.012 |
| Cyanazine | µg/l | 8 | 0.1 | 0 | 0 | <0.007 | <0.007 | <0.007 |
| Dicamba | µg/l | 8 | 0.1 | 0 | 0 | <0.007 | <0.011 | <0.011 |
| Dichlobenil | µg/l | 8 | 0.1 | 0 | 0 | <0.006 | <0.006 | <0.006 |
| Dichlorprop | µg/l | 8 | 0.1 | 0 | 0 | <0.008 | <0.008 | <0.008 |
| Diuron | µg/l | 8 | 0.1 | 0 | 0 | <0.006 | <0.009 | <0.009 |
| Fluroxypyr | µg/l | 8 | 0.1 | 0 | 0 | <0.008 | <0.008 | <0.008 |
| Glyphosate | µg/l | 8 | 0.1 | 0 | 0 | <0.002 | <0.010 | <0.010 |
| Isoproturon | µg/l | 8 | 0.1 | 0 | 0 | <0.004 | <0.006 | <0.006 |
| Linuron | µg/l | 8 | 0.1 | 0 | 0 | <0.008 | <0.009 | <0.009 |
| MCPA | µg/l | 8 | 0.1 | 0 | 0 | <0.008 | <0.008 | <0.008 |
| MCPB | µg/l | 8 | 0.1 | 0 | 0 | <0.008 | <0.010 | <0.010 |
| Mecoprop | µg/l | 8 | 0.1 | 0 | 0 | <0.008 | <0.008 | <0.008 |
| Metaldehyde | µg/l | 8 | 0.1 | 3 | 38 | <0.009 | 0.091 | 0.139 |
| Metazachlor | µg/l | 8 | 0.1 | 0 | 0 | <0.005 | <0.008 | <0.008 |
| Methabenzthiazuron | µg/l | 8 | 0.1 | 0 | 0 | <0.005 | <0.009 | <0.009 |
| Prometryn | µg/l | 8 | 0.1 | 0 | 0 | <0.003 | <0.008 | <0.008 |
| Propyzamide | µg/l | 8 | 0.1 | 0 | 0 | <0.005 | <0.005 | 0.013 |
| Simazine | µg/l | 8 | 0.1 | 0 | 0 | <0.008 | <0.008 | 0.008 |
| Terbutryn | µg/l | 8 | 0.1 | 0 | 0 | <0.005 | <0.009 | <0.009 |
| Total Pesticide | µg/l | 8 | 0.5 | 0 | 0 | 0.023 | 0.112 | 0.155 |
| Tri-allate | µg/l | 8 | 0.1 | 0 | 0 | <0.004 | <0.004 | <0.004 |
| Trietazine | µg/l | 8 | 0.1 | 0 | 0 | <0.006 | <0.008 | <0.008 |
| 2,4-D | µg/l | 8 | 0.1 | 0 | 0 | <0.008 | <0.008 | <0.008 |
| Additional Parameters | | | | | | | | |
| Ammonium | mgNH ₄ /l | 38 | 0.5 | 0 | 0 | <0.04 | <0.04 | <0.04 |
| Benzene | µg/l | 8 | 1 | 0 | 0 | <0.02 | <0.02 | <0.02 |
| Benzo (a) Pyrene | µg/l | 8 | 0.01 | 0 | 0 | <0.001 | <0.001 | 0.001 |
| Boron | mgB/l | 8 | 1 | 0 | 0 | <0.100 | <0.100 | <0.100 |

| Parameter | Units | No. of Samples | PCV | No. of Samples >PCV | % of Samples >PCV | Min. | Mean | Max. |
|--|-----------------------|----------------|--------------------|---------------------|-------------------|--------|--------|-------|
| Additional Parameters (continued) | | | | | | | | |
| Bromate | µgBrO ₃ /l | 8 | 10 | 0 | 0 | <0.5 | 0.6 | 2.3 |
| Chloride | mgCl/l | 8 | 250 | 0 | 0 | 20 | 41 | 49 |
| Electrical Conductivity at 20 °C | µS/cm at 20 °C | 76 | 2500 | 0 | 0 | 518 | 649 | 766 |
| Nitrate | mgNO ₃ /l | 8 | 50 | 0 | 0 | 24.0 | 26.9 | 30.3 |
| Nitrite | mgNO ₂ /l | 8 | 0.5 | 0 | 0 | <0.008 | <0.008 | 0.013 |
| Nitrite Nitrate Formula | | 8 | 1 | 0 | 0 | <0.51 | <0.61 | <0.61 |
| Selenium | µgSe/l | 8 | 10 | 0 | 0 | <1.0 | <1.0 | <1.0 |
| Sulphate | mgSO ₄ /l | 8 | 250 | 0 | 0 | 14 | 50 | 69 |
| Sum of Tri & Tetrachloroethene | µg/l | 8 | 10 | 0 | 0 | 0.0 | 0.0 | 0.0 |
| Tetrachloromethane | µg/l | 8 | 3 | 0 | 0 | <0.1 | <0.1 | <0.1 |
| Total Cyanide | µgCN/l | 8 | 50 | 0 | 0 | <0.5 | <3.0 | <3.0 |
| Total Organic Carbon | mgC/l | 8 | No abnormal change | 0 | 0 | 0.5 | 1.3 | 2.0 |
| Total PAHs | µg/l | 8 | 0.1 | 0 | 0 | 0.000 | 0.000 | 0.001 |
| Total Trihalomethanes | µg/l | 8 | 100 | 0 | 0 | 3.65 | 23.19 | 48.37 |
| 1, 2 dichloroethane | µg/l | 8 | 3 | 0 | 0 | <0.1 | <0.1 | <0.1 |

Notes

PCV = Prescribed Concentration or Value or Specification Concentration or Value

Commentary on Water Quality

Elevated concentrations of the pesticide Metaldehyde were detected three times in 2013, in March, May and October. At these times, this zone was supplied from our North Mymms water treatment works. The raw waters that feed this treatment works have all been found to contain Metaldehyde and at present there are no known practical treatment processes that remove Metaldehyde. An Undertaking is in place for this parameter in this zone which requires Affinity Water to investigate catchment management and possible treatment solutions. The concentration detected was well below that which could affect public health.

Undertakings & Authorised Departures

No Authorised Departures applied to this water supply zone during 2013.

An Undertaking is in place for this zone relating to Metaldehyde & Total Pesticides from North Mymms Water Treatment Works (WTW) & from Anglian Water Services' (AWS) Grafham WTW. The Company has agreed to: implement a monitoring strategy; engage in catchment management activities, including support for voluntary initiatives to influence Metaldehyde use, in order to reduce concentrations in untreated waters; to engage with & provide data to relevant stakeholders; review possible alternative supply arrangements; optimise removal through current treatment processes; investigate new, sustainable treatment processes; and to continually review & appraise the risk from these hazards as part of the Regulatory process. AWS has agreed to: implement a monitoring strategy; to engage with relevant stakeholders & provide regular updates on data; investigate new, sustainable treatment processes, supporting national research programmes where appropriate; and to continually review & appraise the risk from these hazards as part of the Regulatory process.

Water Supply Zone: Borehamwood/Bushey (AF049)
 Period: 01 January 2013 to 31 December 2013
 Population: 83622



| Parameter | Units | No. of Samples | PCV | No. of Samples >PCV | % of Samples >PCV | Min. | Mean | Max. |
|-----------------------------------|------------------------|----------------|--------------------------------------|---------------------|-------------------|--------|-------|-------|
| Microbiological Parameters | | | | | | | | |
| Coliform bacteria | No./100ml | 204 | 0 | 0 | 0 | 0 | 0 | 0 |
| E coli | No./100ml | 204 | 0 | 0 | 0 | 0 | 0 | 0 |
| Clostridium perfringens | No./100ml | 76 | 0 | 0 | 0 | 0 | 0 | 0 |
| Enterococci | No./100ml | 8 | 0 | 0 | 0 | 0 | 0 | 0 |
| 2 day plate count 37 °C | No./1ml at 37 °C | 76 | No abnormal change | 0 | 0 | 0 | 3 | 62 |
| 3 day plate count 22 °C | No./1ml at 22 °C | 76 | No abnormal change | 0 | 0 | 0 | 7 | 154 |
| Customer Parameters | | | | | | | | |
| Alkalinity | mgHCO ₃ /l | 1 | No PCV | 0 | 0 | 321 | 321 | 321 |
| Calcium | mgCa/l | 1 | No PCV | 0 | 0 | 141 | 141 | 141 |
| Chlorine (Residual) | mgCl ₂ /l | 204 | No PCV | 0 | 0 | 0.08 | 0.26 | 0.54 |
| Colour | mg/l Pt/Co | 38 | 20 | 0 | 0 | <1.0 | <1.0 | 2.1 |
| Fluoride | mgF/l | 8 | 1.5 | 0 | 0 | 0.107 | 0.131 | 0.145 |
| Hardness (Total) | mgCaCO ₃ /l | 1 | No PCV | 0 | 0 | 353 | 353 | 353 |
| Hydrogen Ion (pH) | pH value | 76 | 6.5-9.5 | 0 | 0 | 7.0 | 7.1 | 7.3 |
| Quantitative Odour | Dilution No. | 38 | Abnormal & unacceptable to consumers | 0 | 0 | 0 | 0 | 0 |
| Quantitative Taste | Dilution No. | 38 | consumers | 0 | 0 | 0 | 0 | 0 |
| Temperature | °C | 197 | No PCV | 0 | 0 | 6.5 | 13.0 | 22.8 |
| Turbidity | NTU | 76 | 4 | 0 | 0 | 0.04 | 0.12 | 0.29 |
| Chemicals | | | | | | | | |
| Metals | | | | | | | | |
| Arsenic | µgAs/l | 8 | 10 | 0 | 0 | <1.0 | <1.0 | <1.0 |
| Aluminium | µgAl/l | 76 | 200 | 0 | 0 | <5.0 | <5.0 | 12.7 |
| Antimony | µgSb/l | 8 | 5 | 0 | 0 | <0.20 | <0.20 | 0.22 |
| Cadmium | µgCd/l | 8 | 5 | 0 | 0 | <0.20 | <0.20 | <0.20 |
| Chromium | µgCr/l | 8 | 50 | 0 | 0 | <2.0 | <2.0 | <2.0 |
| Copper | mgCu/l | 8 | 2 | 0 | 0 | <0.010 | 0.015 | 0.038 |
| Iron | µgFe/l | 76 | 200 | 0 | 0 | <15.0 | <15.0 | 17.0 |
| Lead | µgPb/l | 8 | 25 | 0 | 0 | <1.00 | 2.54 | 8.00 |
| Manganese | µgMn/l | 76 | 50 | 0 | 0 | <1.0 | <1.0 | <1.0 |
| Mercury | µgHg/l | 8 | 1 | 0 | 0 | <0.10 | <0.10 | <0.10 |
| Nickel | µgNi/l | 8 | 20 | 0 | 0 | 2.6 | 3.2 | 5.4 |
| Sodium | mgNa/l | 8 | 200 | 0 | 0 | 31.9 | 33.9 | 35.3 |

| Parameter | Units | No. of Samples | PCV | No. of Samples >PCV | % of Samples >PCV | Min. | Mean | Max. |
|------------------------------|-----------------------|----------------|------|---------------------|-------------------|--------|--------|--------|
| Pesticides | | | | | | | | |
| Atrazine | µg/l | 8 | 0.1 | 0 | 0 | 0.023 | 0.030 | 0.036 |
| Bentazone | µg/l | 8 | 0.1 | 0 | 0 | <0.008 | <0.008 | <0.008 |
| Bromacil | µg/l | 8 | 0.1 | 0 | 0 | <0.010 | <0.010 | <0.010 |
| Carbetamide | µg/l | 8 | 0.1 | 0 | 0 | <0.008 | 0.011 | 0.047 |
| Chlorotoluron | µg/l | 8 | 0.1 | 0 | 0 | <0.005 | <0.007 | <0.007 |
| Clopyralid | µg/l | 8 | 0.1 | 0 | 0 | <0.008 | <0.012 | <0.012 |
| Cyanazine | µg/l | 8 | 0.1 | 0 | 0 | <0.007 | <0.007 | <0.007 |
| Dicamba | µg/l | 8 | 0.1 | 0 | 0 | <0.007 | <0.011 | <0.011 |
| Dichlobenil | µg/l | 8 | 0.1 | 0 | 0 | <0.006 | <0.006 | <0.006 |
| Dichlorprop | µg/l | 8 | 0.1 | 0 | 0 | <0.008 | <0.008 | <0.008 |
| Diuron | µg/l | 8 | 0.1 | 0 | 0 | <0.006 | <0.009 | <0.009 |
| Fenpropimorph | µg/l | 8 | 0.1 | 0 | 0 | <0.009 | <0.009 | <0.009 |
| Fluroxypyr | µg/l | 8 | 0.1 | 0 | 0 | <0.008 | <0.008 | <0.008 |
| Flutriafol | µg/l | 8 | 0.1 | 0 | 0 | <0.009 | <0.009 | <0.009 |
| Isoproturon | µg/l | 8 | 0.1 | 0 | 0 | <0.004 | <0.006 | <0.006 |
| Linuron | µg/l | 8 | 0.1 | 0 | 0 | <0.008 | <0.009 | <0.009 |
| MCPA | µg/l | 8 | 0.1 | 0 | 0 | <0.008 | <0.008 | <0.008 |
| MCPB | µg/l | 8 | 0.1 | 0 | 0 | <0.008 | <0.010 | <0.010 |
| Mecoprop | µg/l | 8 | 0.1 | 0 | 0 | <0.008 | <0.008 | <0.008 |
| Metalddehyde | µg/l | 8 | 0.1 | 0 | 0 | <0.012 | 0.021 | 0.039 |
| Propyzamide | µg/l | 8 | 0.1 | 0 | 0 | <0.005 | <0.006 | <0.006 |
| Simazine | µg/l | 8 | 0.1 | 0 | 0 | <0.008 | 0.010 | 0.014 |
| Terbutryn | µg/l | 8 | 0.1 | 0 | 0 | <0.005 | <0.009 | <0.009 |
| Total Pesticide | µg/l | 8 | 0.5 | 0 | 0 | 0.053 | 0.085 | 0.113 |
| Tri-allate | µg/l | 8 | 0.1 | 0 | 0 | <0.004 | <0.009 | <0.009 |
| Trietazine | µg/l | 8 | 0.1 | 0 | 0 | <0.006 | <0.008 | <0.008 |
| 2,4-D | µg/l | 8 | 0.1 | 0 | 0 | <0.008 | <0.008 | <0.008 |
| Additional Parameters | | | | | | | | |
| Ammonium | mgNH ₄ /l | 38 | 0.5 | 0 | 0 | <0.04 | <0.04 | <0.04 |
| Benzene | µg/l | 8 | 1 | 0 | 0 | <0.02 | <0.02 | <0.02 |
| Benzo (a) Pyrene | µg/l | 8 | 0.01 | 0 | 0 | <0.001 | <0.001 | <0.001 |
| Boron | mgB/l | 8 | 1 | 0 | 0 | <0.100 | <0.100 | 0.100 |
| Bromate | µgBrO ₃ /l | 8 | 10 | 0 | 0 | <0.5 | <0.5 | 0.9 |
| Chloride | mgCl/l | 8 | 250 | 0 | 0 | 54 | 56 | 59 |

| Parameter | Units | No. of Samples | PCV | No. of Samples >PCV | % of Samples >PCV | Min. | Mean | Max. |
|--|----------------------|----------------|--------------------|---------------------|-------------------|--------|--------|--------|
| Additional Parameters (continued) | | | | | | | | |
| Electrical Conductivity at 20 °C | µS/cm at 20 °C | 76 | 2500 | 0 | 0 | 592 | 742 | 794 |
| Nitrate | mgNO ₃ /l | 8 | 50 | 0 | 0 | 28.2 | 30.0 | 31.4 |
| Nitrite | mgNO ₂ /l | 8 | 0.5 | 0 | 0 | <0.008 | <0.008 | <0.008 |
| Nitrite Nitrate Formula | | 8 | 1 | 0 | 0 | <0.56 | <0.63 | <0.63 |
| Selenium | µgSe/l | 8 | 10 | 0 | 0 | <1.0 | 1.2 | 1.7 |
| Sulphate | mgSO ₄ /l | 8 | 250 | 0 | 0 | 52 | 54 | 58 |
| Sum of Tri & Tetrachloroethene | µg/l | 8 | 10 | 0 | 0 | 1.7 | 2.3 | 3.3 |
| Tetrachloromethane | µg/l | 8 | 3 | 0 | 0 | <0.1 | <0.1 | <0.1 |
| Total Cyanide | µgCN/l | 8 | 50 | 0 | 0 | <3.0 | <3.0 | <3.0 |
| Total Organic Carbon | mgC/l | 8 | No abnormal change | 0 | 0 | 1.2 | 1.4 | 1.7 |
| Total PAHs | µg/l | 8 | 0.1 | 0 | 0 | 0.000 | 0.000 | 0.000 |
| Total Trihalomethanes | µg/l | 8 | 100 | 0 | 0 | 10.14 | 15.71 | 22.98 |
| 1, 2 dichloroethane | µg/l | 8 | 3 | 0 | 0 | <0.1 | <0.1 | <0.1 |

Notes

PCV = Prescribed Concentration or Value or Specification Concentration or Value

Commentary on Water Quality

Water quality was satisfactory in this zone in 2013.

Undertakings & Authorised Departures

No Undertakings or Authorised Departures applied to this water supply zone during 2013.

Water Supply Zone: Barnet (AF050)
 Period: 01 January 2013 to 31 December 2013
 Population: 46214



| Parameter | Units | No. of Samples | PCV | No. of Samples >PCV | % of Samples >PCV | Min. | Mean | Max. |
|-----------------------------------|------------------------|----------------|--------------------------------------|---------------------|-------------------|--------|-------|-------|
| Microbiological Parameters | | | | | | | | |
| Coliform bacteria | No./100ml | 120 | 0 | 0 | 0 | 0 | 0 | 0 |
| E coli | No./100ml | 120 | 0 | 0 | 0 | 0 | 0 | 0 |
| Clostridium perfringens | No./100ml | 18 | 0 | 0 | 0 | 0 | 0 | 0 |
| Enterococci | No./100ml | 8 | 0 | 0 | 0 | 0 | 0 | 0 |
| 2 day plate count 37 °C | No./1ml at 37 °C | 36 | No abnormal change | 0 | 0 | 0 | 7 | 204 |
| 3 day plate count 22 °C | No./1ml at 22 °C | 36 | No abnormal change | 0 | 0 | 0 | 1 | 12 |
| Customer Parameters | | | | | | | | |
| Alkalinity | mgHCO ₃ /l | 1 | No PCV | 0 | 0 | 259 | 259 | 259 |
| Calcium | mgCa/l | 1 | No PCV | 0 | 0 | 111 | 111 | 111 |
| Chlorine (Residual) | mgCl ₂ /l | 120 | No PCV | 0 | 0 | 0.09 | 0.28 | 0.69 |
| Colour | mg/l Pt/Co | 18 | 20 | 0 | 0 | <1.0 | <1.0 | 1.6 |
| Fluoride | mgF/l | 8 | 1.5 | 0 | 0 | 0.104 | 0.130 | 0.143 |
| Hardness (Total) | mgCaCO ₃ /l | 1 | No PCV | 0 | 0 | 278 | 278 | 278 |
| Hydrogen Ion (pH) | pH value | 36 | 6.5-9.5 | 0 | 0 | 7.0 | 7.2 | 7.5 |
| Quantitative Odour | Dilution No. | 18 | Abnormal & unacceptable to consumers | 0 | 0 | 0 | 0 | 0 |
| Quantitative Taste | Dilution No. | 18 | consumers | 0 | 0 | 0 | 0 | 0 |
| Temperature | °C | 116 | No PCV | 0 | 0 | 7.2 | 13.3 | 21.4 |
| Turbidity | NTU | 36 | 4 | 0 | 0 | 0.06 | 0.15 | 0.36 |
| Chemicals | | | | | | | | |
| Metals | | | | | | | | |
| Arsenic | µgAs/l | 8 | 10 | 0 | 0 | <1.0 | <1.0 | <1.0 |
| Aluminium | µgAl/l | 36 | 200 | 0 | 0 | <5.0 | 18.1 | 41.6 |
| Antimony | µgSb/l | 8 | 5 | 0 | 0 | <0.20 | <0.20 | 0.22 |
| Cadmium | µgCd/l | 8 | 5 | 0 | 0 | <0.20 | <0.20 | <0.20 |
| Chromium | µgCr/l | 8 | 50 | 0 | 0 | <2.0 | <2.0 | <2.0 |
| Copper | mgCu/l | 8 | 2 | 0 | 0 | <0.010 | 0.063 | 0.162 |
| Iron | µgFe/l | 36 | 200 | 0 | 0 | <15.0 | <15.0 | 16.3 |
| Lead | µgPb/l | 8 | 25 | 0 | 0 | <1.00 | 1.47 | 5.74 |
| Manganese | µgMn/l | 36 | 50 | 0 | 0 | <1.0 | <1.0 | 3.1 |
| Mercury | µgHg/l | 8 | 1 | 0 | 0 | <0.10 | <0.10 | <0.10 |
| Nickel | µgNi/l | 8 | 20 | 0 | 0 | <2.0 | <2.0 | 2.8 |
| Sodium | mgNa/l | 8 | 200 | 0 | 0 | 21.1 | 27.4 | 34.0 |

| Parameter | Units | No. of Samples | PCV | No. of Samples >PCV | % of Samples >PCV | Min. | Mean | Max. |
|------------------------------|----------------------|----------------|------|---------------------|-------------------|--------|--------|--------|
| Pesticides | | | | | | | | |
| Atrazine | µg/l | 8 | 0.1 | 0 | 0 | 0.005 | 0.011 | 0.031 |
| Bentazone | µg/l | 8 | 0.1 | 0 | 0 | <0.008 | <0.008 | <0.008 |
| Carbendazim | µg/l | 8 | 0.1 | 0 | 0 | <0.005 | <0.009 | <0.009 |
| Carbetamide | µg/l | 8 | 0.1 | 0 | 0 | <0.008 | <0.009 | <0.009 |
| Chlorotoluron | µg/l | 8 | 0.1 | 0 | 0 | <0.005 | <0.007 | <0.007 |
| Clopyralid | µg/l | 8 | 0.1 | 0 | 0 | <0.008 | <0.012 | <0.012 |
| Cyanazine | µg/l | 8 | 0.1 | 0 | 0 | <0.007 | <0.007 | <0.007 |
| Dicamba | µg/l | 8 | 0.1 | 0 | 0 | <0.007 | <0.011 | <0.011 |
| Dichlobenil | µg/l | 8 | 0.1 | 0 | 0 | <0.006 | <0.006 | <0.006 |
| Dichlorprop | µg/l | 8 | 0.1 | 0 | 0 | <0.008 | <0.008 | <0.008 |
| Diuron | µg/l | 8 | 0.1 | 0 | 0 | <0.006 | <0.009 | <0.009 |
| Fluroxypyr | µg/l | 8 | 0.1 | 0 | 0 | <0.008 | <0.008 | <0.008 |
| Glyphosate | µg/l | 8 | 0.1 | 0 | 0 | <0.002 | <0.003 | <0.003 |
| Isoproturon | µg/l | 8 | 0.1 | 0 | 0 | <0.004 | <0.006 | <0.006 |
| Linuron | µg/l | 8 | 0.1 | 0 | 0 | <0.008 | <0.009 | <0.009 |
| MCPA | µg/l | 8 | 0.1 | 0 | 0 | <0.008 | <0.008 | <0.008 |
| MCPB | µg/l | 8 | 0.1 | 0 | 0 | <0.008 | <0.010 | <0.010 |
| Mecoprop | µg/l | 8 | 0.1 | 0 | 0 | <0.008 | <0.008 | 0.011 |
| Metaldehyde | µg/l | 8 | 0.1 | 0 | 0 | 0.011 | 0.031 | 0.058 |
| Metazachlor | µg/l | 8 | 0.1 | 0 | 0 | <0.005 | <0.008 | <0.008 |
| Methabenzthiazuron | µg/l | 8 | 0.1 | 0 | 0 | <0.005 | <0.009 | <0.009 |
| Prometryn | µg/l | 8 | 0.1 | 0 | 0 | <0.003 | <0.008 | <0.008 |
| Propyzamide | µg/l | 8 | 0.1 | 0 | 0 | <0.005 | <0.006 | <0.006 |
| Simazine | µg/l | 8 | 0.1 | 0 | 0 | <0.004 | <0.008 | 0.011 |
| Terbutryn | µg/l | 8 | 0.1 | 0 | 0 | <0.005 | <0.009 | <0.009 |
| Total Pesticide | µg/l | 8 | 0.5 | 0 | 0 | 0.032 | 0.066 | 0.135 |
| Tri-allate | µg/l | 8 | 0.1 | 0 | 0 | <0.004 | <0.009 | <0.009 |
| Trietazine | µg/l | 8 | 0.1 | 0 | 0 | <0.006 | <0.008 | <0.008 |
| 2,4-D | µg/l | 8 | 0.1 | 0 | 0 | <0.008 | <0.008 | 0.011 |
| Additional Parameters | | | | | | | | |
| Ammonium | mgNH ₄ /l | 18 | 0.5 | 0 | 0 | <0.04 | <0.04 | <0.04 |
| Benzene | µg/l | 8 | 1 | 0 | 0 | <0.02 | <0.02 | <0.02 |
| Benzo (a) Pyrene | µg/l | 8 | 0.01 | 0 | 0 | <0.001 | <0.001 | 0.001 |
| Boron | mgB/l | 8 | 1 | 0 | 0 | <0.100 | <0.100 | <0.100 |

| Parameter | Units | No. of Samples | PCV | No. of Samples >PCV | % of Samples >PCV | Min. | Mean | Max. |
|--|-----------------------|----------------|--------------------|---------------------|-------------------|--------|--------|--------|
| Additional Parameters (continued) | | | | | | | | |
| Bromate | µgBrO ₃ /l | 8 | 10 | 0 | 0 | <0.5 | 0.8 | 2.7 |
| Chloride | mgCl/l | 8 | 250 | 0 | 0 | 38 | 46 | 53 |
| Electrical Conductivity at 20 °C | µS/cm at 20 °C | 36 | 2500 | 0 | 0 | 569 | 642 | 736 |
| Nitrate | mgNO ₃ /l | 8 | 50 | 0 | 0 | 22.2 | 25.6 | 28.5 |
| Nitrite | mgNO ₂ /l | 8 | 0.5 | 0 | 0 | <0.008 | <0.008 | <0.008 |
| Nitrite Nitrate Formula | | 8 | 1 | 0 | 0 | <0.44 | <0.57 | <0.57 |
| Selenium | µgSe/l | 8 | 10 | 0 | 0 | <1.0 | <1.0 | <1.0 |
| Sulphate | mgSO ₄ /l | 8 | 250 | 0 | 0 | 41 | 48 | 60 |
| Sum of Tri & Tetrachloroethene | µg/l | 8 | 10 | 0 | 0 | 0.0 | 0.1 | 0.5 |
| Tetrachloromethane | µg/l | 8 | 3 | 0 | 0 | <0.1 | <0.1 | <0.1 |
| Total Cyanide | µgCN/l | 8 | 50 | 0 | 0 | <0.5 | <3.0 | 4.0 |
| Total Organic Carbon | mgC/l | 8 | No abnormal change | 0 | 0 | 1.4 | 1.6 | 1.8 |
| Total PAHs | µg/l | 8 | 0.1 | 0 | 0 | 0.000 | 0.001 | 0.003 |
| Total Trihalomethanes | µg/l | 8 | 100 | 0 | 0 | 19.59 | 28.31 | 39.30 |
| 1, 2 dichloroethane | µg/l | 8 | 3 | 0 | 0 | <0.1 | <0.1 | <0.1 |

Notes

PCV = Prescribed Concentration or Value or Specification Concentration or Value

Commentary on Water Quality

Water quality was satisfactory in this zone in 2013.

Undertakings & Authorised Departures

No Authorised Departures applied to this water supply zone during 2013.

An Undertaking is in place for this zone relating to Metaldehyde & Total Pesticides from North Mymms and Iver Water Treatment Works (WTW). The Company has agreed to: implement a monitoring strategy; engage in catchment management activities, including support for voluntary initiatives to influence Metaldehyde use, in order to reduce concentrations in untreated waters; to engage with & provide data to relevant stakeholders; review possible alternative supply arrangements; optimise removal through current treatment processes; investigate new, sustainable treatment processes; and to continually review & appraise the risk from these hazards as part of the regulatory process.

Water Supply Zone: Mill Hill/Stanmore (AF052)
 Period: 01 January 2013 to 31 December 2013
 Population: 67028



| Parameter | Units | No. of Samples | PCV | No. of Samples >PCV | % of Samples >PCV | Min. | Mean | Max. |
|-----------------------------------|------------------------|----------------|--------------------------------------|---------------------|-------------------|--------|-------|-------|
| Microbiological Parameters | | | | | | | | |
| Coliform bacteria | No./100ml | 180 | 0 | 0 | 0 | 0 | 0 | 0 |
| E coli | No./100ml | 180 | 0 | 0 | 0 | 0 | 0 | 0 |
| Clostridium perfringens | No./100ml | 26 | 0 | 0 | 0 | 0 | 0 | 0 |
| Enterococci | No./100ml | 8 | 0 | 0 | 0 | 0 | 0 | 0 |
| 2 day plate count 37 °C | No./1ml at 37 °C | 52 | No abnormal change | 0 | 0 | 0 | 5 | 117 |
| 3 day plate count 22 °C | No./1ml at 22 °C | 52 | No abnormal change | 0 | 0 | 0 | 8 | 173 |
| Customer Parameters | | | | | | | | |
| Alkalinity | mgHCO ₃ /l | 1 | No PCV | 0 | 0 | 326 | 326 | 326 |
| Calcium | mgCa/l | 1 | No PCV | 0 | 0 | 144 | 144 | 144 |
| Chlorine (Residual) | mgCl ₂ /l | 180 | No PCV | 0 | 0 | 0.11 | 0.27 | 0.64 |
| Colour | mg/l Pt/Co | 26 | 20 | 0 | 0 | <1.0 | <1.0 | 2.6 |
| Fluoride | mgF/l | 8 | 1.5 | 0 | 0 | 0.117 | 0.132 | 0.146 |
| Hardness (Total) | mgCaCO ₃ /l | 1 | No PCV | 0 | 0 | 360 | 360 | 360 |
| Hydrogen Ion (pH) | pH value | 52 | 6.5-9.5 | 0 | 0 | 6.9 | 7.1 | 7.3 |
| Quantitative Odour | Dilution No. | 26 | Abnormal & unacceptable to consumers | 0 | 0 | 0 | 0 | 0 |
| Quantitative Taste | Dilution No. | 26 | consumers | 0 | 0 | 0 | 0 | 0 |
| Temperature | °C | 173 | No PCV | 0 | 0 | 7.3 | 13.1 | 21.0 |
| Turbidity | NTU | 52 | 4 | 0 | 0 | 0.05 | 0.14 | 0.47 |
| Chemicals | | | | | | | | |
| Metals | | | | | | | | |
| Arsenic | µgAs/l | 8 | 10 | 0 | 0 | <1.0 | <1.0 | <1.0 |
| Aluminium | µgAl/l | 52 | 200 | 0 | 0 | <5.0 | <5.0 | 24.4 |
| Antimony | µgSb/l | 8 | 5 | 0 | 0 | <0.20 | <0.20 | 0.23 |
| Cadmium | µgCd/l | 8 | 5 | 0 | 0 | <0.20 | <0.20 | <0.20 |
| Chromium | µgCr/l | 8 | 50 | 0 | 0 | <2.0 | <2.0 | <2.0 |
| Copper | mgCu/l | 8 | 2 | 0 | 0 | <0.010 | 0.032 | 0.130 |
| Iron | µgFe/l | 52 | 200 | 0 | 0 | <15.0 | <15.0 | 90.5 |
| Lead | µgPb/l | 8 | 25 | 0 | 0 | <1.00 | 3.15 | 7.39 |
| Manganese | µgMn/l | 52 | 50 | 0 | 0 | <1.0 | <1.0 | 3.4 |
| Mercury | µgHg/l | 8 | 1 | 0 | 0 | <0.10 | <0.10 | <0.10 |
| Nickel | µgNi/l | 8 | 20 | 0 | 0 | 2.5 | 2.9 | 3.5 |
| Sodium | mgNa/l | 8 | 200 | 0 | 0 | 31.8 | 33.9 | 35.0 |

| Parameter | Units | No. of Samples | PCV | No. of Samples >PCV | % of Samples >PCV | Min. | Mean | Max. |
|------------------------------|-----------------------|----------------|------|---------------------|-------------------|--------|--------|--------|
| Pesticides | | | | | | | | |
| Atrazine | µg/l | 8 | 0.1 | 0 | 0 | 0.023 | 0.029 | 0.038 |
| Bentazone | µg/l | 8 | 0.1 | 0 | 0 | <0.008 | <0.008 | <0.008 |
| Bromacil | µg/l | 8 | 0.1 | 0 | 0 | <0.010 | <0.010 | <0.010 |
| Carbetamide | µg/l | 8 | 0.1 | 0 | 0 | <0.008 | 0.009 | 0.051 |
| Chlorotoluron | µg/l | 8 | 0.1 | 0 | 0 | <0.005 | <0.007 | <0.007 |
| Clopyralid | µg/l | 8 | 0.1 | 0 | 0 | <0.008 | <0.012 | <0.012 |
| Cyanazine | µg/l | 8 | 0.1 | 0 | 0 | <0.007 | <0.007 | <0.007 |
| Dicamba | µg/l | 8 | 0.1 | 0 | 0 | <0.007 | <0.011 | <0.011 |
| Dichlobenil | µg/l | 8 | 0.1 | 0 | 0 | <0.006 | <0.006 | <0.006 |
| Dichlorprop | µg/l | 8 | 0.1 | 0 | 0 | <0.008 | <0.008 | <0.008 |
| Diuron | µg/l | 8 | 0.1 | 0 | 0 | <0.006 | <0.009 | <0.009 |
| Fenpropimorph | µg/l | 8 | 0.1 | 0 | 0 | <0.009 | <0.009 | <0.009 |
| Fluroxypyr | µg/l | 8 | 0.1 | 0 | 0 | <0.008 | <0.008 | <0.008 |
| Flutriafol | µg/l | 8 | 0.1 | 0 | 0 | <0.009 | <0.009 | <0.009 |
| Isoproturon | µg/l | 8 | 0.1 | 0 | 0 | <0.004 | <0.006 | <0.006 |
| Linuron | µg/l | 8 | 0.1 | 0 | 0 | <0.008 | <0.009 | <0.009 |
| MCPA | µg/l | 8 | 0.1 | 0 | 0 | <0.008 | <0.008 | <0.008 |
| MCPB | µg/l | 8 | 0.1 | 0 | 0 | <0.008 | <0.010 | <0.010 |
| Mecoprop | µg/l | 8 | 0.1 | 0 | 0 | <0.008 | <0.008 | <0.008 |
| Metaldehyde | µg/l | 8 | 0.1 | 0 | 0 | 0.016 | 0.022 | 0.036 |
| Propyzamide | µg/l | 8 | 0.1 | 0 | 0 | <0.005 | <0.006 | <0.006 |
| Simazine | µg/l | 8 | 0.1 | 0 | 0 | <0.008 | 0.009 | 0.012 |
| Terbutryn | µg/l | 8 | 0.1 | 0 | 0 | <0.005 | <0.009 | <0.009 |
| Total Pesticide | µg/l | 7 | 0.5 | 0 | 0 | 0.016 | 0.078 | 0.137 |
| Tri-allate | µg/l | 8 | 0.1 | 0 | 0 | <0.004 | <0.009 | <0.009 |
| Trietazine | µg/l | 8 | 0.1 | 0 | 0 | <0.006 | <0.008 | <0.008 |
| 2,4-D | µg/l | 8 | 0.1 | 0 | 0 | <0.008 | <0.008 | <0.008 |
| Additional Parameters | | | | | | | | |
| Ammonium | mgNH ₄ /l | 26 | 0.5 | 0 | 0 | <0.04 | <0.04 | 0.12 |
| Benzene | µg/l | 8 | 1 | 0 | 0 | <0.02 | <0.02 | <0.02 |
| Benzo (a) Pyrene | µg/l | 8 | 0.01 | 0 | 0 | <0.001 | <0.001 | 0.001 |
| Boron | mgB/l | 8 | 1 | 0 | 0 | <0.100 | <0.100 | <0.100 |
| Bromate | µgBrO ₃ /l | 8 | 10 | 0 | 0 | <0.5 | <0.5 | <0.5 |
| Chloride | mgCl/l | 8 | 250 | 0 | 0 | 53 | 56 | 60 |

| Parameter | Units | No. of Samples | PCV | No. of Samples >PCV | % of Samples >PCV | Min. | Mean | Max. |
|--|----------------------|----------------|--------------------|---------------------|-------------------|--------|--------|--------|
| Additional Parameters (continued) | | | | | | | | |
| Electrical Conductivity at 20 °C | µS/cm at 20 °C | 52 | 2500 | 0 | 0 | 605 | 734 | 775 |
| Nitrate | mgNO ₃ /l | 8 | 50 | 0 | 0 | 28.3 | 30.0 | 31.1 |
| Nitrite | mgNO ₂ /l | 8 | 0.5 | 0 | 0 | <0.008 | <0.008 | <0.008 |
| Nitrite Nitrate Formula | | 8 | 1 | 0 | 0 | <0.57 | <0.62 | <0.62 |
| Selenium | µgSe/l | 8 | 10 | 0 | 0 | 1.0 | 1.4 | 2.0 |
| Sulphate | mgSO ₄ /l | 8 | 250 | 0 | 0 | 53 | 54 | 58 |
| Sum of Tri & Tetrachloroethene | µg/l | 8 | 10 | 0 | 0 | 1.8 | 2.3 | 3.3 |
| Tetrachloromethane | µg/l | 8 | 3 | 0 | 0 | <0.1 | <0.1 | <0.1 |
| Total Cyanide | µgCN/l | 8 | 50 | 0 | 0 | <3.0 | <3.0 | 5.1 |
| Total Organic Carbon | mgC/l | 8 | No abnormal change | 0 | 0 | 1.2 | 1.5 | 1.8 |
| Total PAHs | µg/l | 8 | 0.1 | 0 | 0 | 0.000 | 0.001 | 0.005 |
| Total Trihalomethanes | µg/l | 8 | 100 | 0 | 0 | 11.82 | 16.69 | 21.21 |
| 1, 2 dichloroethane | µg/l | 8 | 3 | 0 | 0 | <0.1 | <0.1 | <0.1 |

Notes

PCV = Prescribed Concentration or Value or Specification Concentration or Value

Commentary on Water Quality

Water quality was satisfactory in this zone in 2013.

Undertakings & Authorised Departures

No Undertakings or Authorised Departures applied to this water supply zone during 2013.

Water Supply Zone: Shenley (AF072)
 Period: 01 January 2013 to 31 December 2013
 Population: 3928



| Parameter | Units | No. of Samples | PCV | No. of Samples >PCV | % of Samples >PCV | Min. | Mean | Max. |
|-----------------------------------|------------------------|----------------|--------------------------------------|---------------------|-------------------|--------|-------|-------|
| Microbiological Parameters | | | | | | | | |
| Coliform bacteria | No./100ml | 12 | 0 | 0 | 0 | 0 | 0 | 0 |
| E coli | No./100ml | 12 | 0 | 0 | 0 | 0 | 0 | 0 |
| Clostridium perfringens | No./100ml | 4 | 0 | 0 | 0 | 0 | 0 | 0 |
| Enterococci | No./100ml | 4 | 0 | 0 | 0 | 0 | 0 | 0 |
| 2 day plate count 37 °C | No./1ml at 37 °C | 4 | No abnormal change | 0 | 0 | 0 | 3 | 10 |
| 3 day plate count 22 °C | No./1ml at 22 °C | 4 | No abnormal change | 0 | 0 | 0 | 7 | 28 |
| Customer Parameters | | | | | | | | |
| Alkalinity | mgHCO ₃ /l | 1 | No PCV | 0 | 0 | 275 | 275 | 275 |
| Calcium | mgCa/l | 1 | No PCV | 0 | 0 | 122 | 122 | 122 |
| Chlorine (Residual) | mgCl ₂ /l | 12 | No PCV | 0 | 0 | 0.14 | 0.30 | 0.73 |
| Colour | mg/l Pt/Co | 2 | 20 | 0 | 0 | <1.0 | <1.0 | <1.0 |
| Fluoride | mgF/l | 4 | 1.5 | 0 | 0 | 0.118 | 0.127 | 0.134 |
| Hardness (Total) | mgCaCO ₃ /l | 1 | No PCV | 0 | 0 | 305 | 305 | 305 |
| Hydrogen Ion (pH) | pH value | 4 | 6.5-9.5 | 0 | 0 | 6.9 | 7.0 | 7.1 |
| Quantitative Odour | Dilution No. | 2 | Abnormal & unacceptable to consumers | 0 | 0 | 0 | 0 | 0 |
| Quantitative Taste | Dilution No. | 2 | consumers | 0 | 0 | 0 | 0 | 0 |
| Temperature | °C | 12 | No PCV | 0 | 0 | 8.6 | 13.1 | 20.5 |
| Turbidity | NTU | 4 | 4 | 0 | 0 | 0.06 | 0.14 | 0.19 |
| Chemicals | | | | | | | | |
| Metals | | | | | | | | |
| Arsenic | µgAs/l | 4 | 10 | 0 | 0 | <1.0 | <1.0 | <1.0 |
| Aluminium | µgAl/l | 4 | 200 | 0 | 0 | <5.0 | <5.0 | 10.5 |
| Antimony | µgSb/l | 4 | 5 | 0 | 0 | <0.20 | <0.20 | 0.20 |
| Cadmium | µgCd/l | 4 | 5 | 0 | 0 | <0.20 | <0.20 | <0.20 |
| Chromium | µgCr/l | 4 | 50 | 0 | 0 | <2.0 | <2.0 | <2.0 |
| Copper | mgCu/l | 4 | 2 | 0 | 0 | <0.010 | 0.010 | 0.030 |
| Iron | µgFe/l | 4 | 200 | 0 | 0 | <15.0 | <15.0 | <15.0 |
| Lead | µgPb/l | 4 | 25 | 0 | 0 | <1.00 | <1.00 | <1.00 |
| Manganese | µgMn/l | 4 | 50 | 0 | 0 | <1.0 | <1.0 | <1.0 |
| Mercury | µgHg/l | 4 | 1 | 0 | 0 | <0.10 | <0.10 | <0.10 |
| Nickel | µgNi/l | 4 | 20 | 0 | 0 | <2.0 | 2.2 | 3.1 |
| Sodium | mgNa/l | 4 | 200 | 0 | 0 | 13.5 | 29.0 | 35.4 |

| Parameter | Units | No. of Samples | PCV | No. of Samples >PCV | % of Samples >PCV | Min. | Mean | Max. |
|----------------------------------|-----------------------|----------------|------|---------------------|-------------------|--------|--------|--------|
| Pesticides | | | | | | | | |
| Atrazine | µg/l | 4 | 0.1 | 0 | 0 | <0.007 | 0.023 | 0.032 |
| Bentazone | µg/l | 4 | 0.1 | 0 | 0 | <0.008 | <0.008 | <0.008 |
| Carbetamide | µg/l | 4 | 0.1 | 0 | 0 | <0.008 | 0.012 | 0.037 |
| Chlorotoluron | µg/l | 4 | 0.1 | 0 | 0 | <0.005 | <0.007 | <0.007 |
| Clopyralid | µg/l | 4 | 0.1 | 0 | 0 | <0.008 | <0.008 | <0.008 |
| Cyanazine | µg/l | 4 | 0.1 | 0 | 0 | <0.007 | <0.007 | <0.007 |
| Dicamba | µg/l | 4 | 0.1 | 0 | 0 | <0.007 | <0.007 | <0.007 |
| Dichlorprop | µg/l | 4 | 0.1 | 0 | 0 | <0.008 | <0.008 | <0.008 |
| Diuron | µg/l | 4 | 0.1 | 0 | 0 | <0.006 | <0.009 | <0.009 |
| Fluroxypyr | µg/l | 4 | 0.1 | 0 | 0 | <0.008 | <0.008 | <0.008 |
| Isoproturon | µg/l | 4 | 0.1 | 0 | 0 | <0.004 | <0.006 | <0.006 |
| Linuron | µg/l | 4 | 0.1 | 0 | 0 | <0.008 | <0.009 | <0.009 |
| MCPA | µg/l | 4 | 0.1 | 0 | 0 | <0.008 | <0.008 | <0.008 |
| MCPB | µg/l | 4 | 0.1 | 0 | 0 | <0.008 | <0.008 | <0.008 |
| Mecoprop | µg/l | 4 | 0.1 | 0 | 0 | <0.008 | <0.008 | <0.008 |
| Methabenzthiazuron | µg/l | 4 | 0.1 | 0 | 0 | <0.005 | <0.009 | <0.009 |
| Propazine | µg/l | 4 | 0.1 | 0 | 0 | <0.004 | <0.007 | <0.007 |
| Simazine | µg/l | 4 | 0.1 | 0 | 0 | <0.008 | <0.008 | 0.012 |
| Terbutryn | µg/l | 4 | 0.1 | 0 | 0 | <0.005 | <0.009 | <0.009 |
| Total Pesticide | µg/l | 4 | 0.5 | 0 | 0 | 0.000 | 0.042 | 0.078 |
| Trietazine | µg/l | 4 | 0.1 | 0 | 0 | <0.006 | <0.008 | <0.008 |
| 2,4-D | µg/l | 4 | 0.1 | 0 | 0 | <0.008 | <0.008 | <0.008 |
| Additional Parameters | | | | | | | | |
| Ammonium | mgNH ₄ /l | 2 | 0.5 | 0 | 0 | <0.04 | <0.04 | <0.04 |
| Benzene | µg/l | 4 | 1 | 0 | 0 | <0.02 | <0.02 | <0.02 |
| Benzo (a) Pyrene | µg/l | 4 | 0.01 | 0 | 0 | <0.001 | <0.001 | <0.001 |
| Boron | mgB/l | 4 | 1 | 0 | 0 | <0.100 | <0.100 | 0.120 |
| Bromate | µgBrO ₃ /l | 4 | 10 | 0 | 0 | <0.5 | <0.5 | <0.5 |
| Chloride | mgCl/l | 4 | 250 | 0 | 0 | 27 | 48 | 57 |
| Electrical Conductivity at 20 °C | µS/cm at 20 °C | 4 | 2500 | 0 | 0 | 571 | 709 | 780 |
| Nitrate | mgNO ₃ /l | 4 | 50 | 0 | 0 | 19.6 | 27.2 | 30.1 |
| Nitrite | mgNO ₂ /l | 4 | 0.5 | 0 | 0 | <0.008 | <0.008 | <0.008 |
| Nitrite Nitrate Formula | | 4 | 1 | 0 | 0 | <0.39 | <0.60 | <0.60 |
| Selenium | µgSe/l | 4 | 10 | 0 | 0 | <1.0 | 1.3 | 2.2 |

| Parameter | Units | No. of Samples | PCV | No. of Samples >PCV | % of Samples >PCV | Min. | Mean | Max. |
|--|----------------------|----------------|--------------------|---------------------|-------------------|-------|-------|-------|
| Additional Parameters (continued) | | | | | | | | |
| Sulphate | mgSO ₄ /l | 4 | 250 | 0 | 0 | 51 | 53 | 55 |
| Sum of Tri & Tetrachloroethene | µg/l | 4 | 10 | 0 | 0 | 0.0 | 1.6 | 2.6 |
| Tetrachloromethane | µg/l | 4 | 3 | 0 | 0 | <0.1 | <0.1 | <0.1 |
| Total Cyanide | µgCN/l | 4 | 50 | 0 | 0 | <3.0 | <3.0 | <3.0 |
| Total Organic Carbon | mgC/l | 4 | No abnormal change | 0 | 0 | 0.9 | 1.2 | 1.4 |
| Total PAHs | µg/l | 4 | 0.1 | 0 | 0 | 0.000 | 0.000 | 0.000 |
| Total Trihalomethanes | µg/l | 4 | 100 | 0 | 0 | 3.62 | 14.54 | 19.50 |
| 1, 2 dichloroethane | µg/l | 4 | 3 | 0 | 0 | <0.1 | <0.1 | <0.1 |

Notes

PCV = Prescribed Concentration or Value or Specification Concentration or Value

Commentary on Water Quality

Water quality was satisfactory in this zone in 2013.

Undertakings & Authorised Departures

No Undertakings or Authorised Departures applied to this water supply zone during 2013.