

Portsmouth Water Ltd
Public Record - Water Quality Summary

01/01/2016 to 31/12/2016



Lovedean Supply Zone

| Parameter (Units) | Ann. Sampling Frequency | | Comment | PCV | Samples Contravening PCV | | Concentration or Value (all samples) | | |
|---|-------------------------|-------|---------|-----------|--------------------------|------|--------------------------------------|--------|--------|
| | Required | Taken | | | No. | % | Min | Mean | Max |
| Colony Count 72h at 22C(No/ml) | 24 | 27 | | N/A | 0 | 0.00 | 0 | 1.8 | 19 |
| Colony Count 48h at 37C(No/ml) | 24 | 27 | | N/A | 0 | 0.00 | 0 | 4.8 | 81 |
| Coliform Bacteria (Indicator)(No/100ml) | 60 | 65 | | 0 | 0 | 0.00 | 0 | 0 | 0 |
| E-Coli (Faecal Coliforms - Confirmed)(No/100ml) | 60 | 65 | | 0 | 0 | 0.00 | 0 | 0 | 0 |
| Clostridium Perfringens (Confirmed)(No/100ml) | 12 | 12 | R | 0 | 0 | 0.00 | 0 | 0 | 0 |
| Enterococci (Confirmed)(No/100ml) | 8 | 9 | | 0 | 0 | 0.00 | 0 | 0 | 0 |
| Residual Disinfectant - Total(mg/l) | 60 | 65 | | N/A | 0 | 0.00 | 0.2 | 0.34 | 0.56 |
| Residual Disinfectant - Free(mg/l) | 60 | 65 | | N/A | 0 | 0.00 | 0.09 | 0.27 | 0.46 |
| Nitrate(mg/l NO3) | 8 | 11 | | 50 | 0 | 0.00 | 33.6 | 40.8 | 45.4 |
| Ammonium (Total)(mg/l NH4) | 12 | 12 | R | 0.5 | 0 | 0.00 | <0.02 | 0.02 | 0.02 |
| Bromate(ug/l BrO3) | 8 | 8 | | 10 | 0 | 0.00 | <0.4 | 0.6 | 1.6 |
| Chloride(mg/l Cl) | 8 | 9 | | 250 | 0 | 0.00 | 20.4 | 23.8 | 29.1 |
| Colour(mg/l Pt/Co) | 12 | 12 | R | 20 | 0 | 0.00 | <1 | <1 | <1 |
| Cyanide - Total(ug/l CN) | 8 | 8 | | 50 | 0 | 0.00 | <2 | <2 | <2 |
| Hardness, Total(mg/l Ca) | 8 | 8 | | N/A | 0 | 0.00 | 115.3 | 123.1 | 133 |
| Alkalinity (CaCO3)(mg/l) | 8 | 8 | | N/A | 0 | 0.00 | 281.6 | 290.2 | 297.2 |
| Conductivity(uS/cm @20C) | 12 | 12 | R | 2500 | 0 | 0.00 | 540 | 556.6 | 573 |
| Fluoride (Total)(mg/l F) | 8 | 8 | | 1.5 | 0 | 0.00 | 0.05 | 0.077 | 0.099 |
| Hydrogen Ion (pH) - Indicator(pH Value) | 12 | 12 | R | 6.5 - 9.5 | 0 | 0.00 | 7.31 | 7.51 | 7.69 |
| Nitrite (Consumers Taps)(mg/l NO2) | 8 | 11 | | 0.5 | 0 | 0.00 | <0.002 | <0.002 | <0.002 |
| Nitrate/Nitrite Formula(mg/l) | 8 | 11 | | 1 | 0 | 0.00 | 0.672 | 0.817 | 0.909 |
| Sulphate(mg/l SO4) | 8 | 9 | | 250 | 0 | 0.00 | 15.3 | 19.2 | 20.6 |
| Odour (Quantitative)(Dil Num) | 12 | 12 | R | 0 | 0 | 0.00 | 0 | 0 | 0 |
| Taste (Quantitative)(Dil Num) | 12 | 12 | R | 0 | 0 | 0.00 | 0 | 0 | 0 |
| Turbidity(NTU) | 24 | 26 | | 4 | 0 | 0.00 | 0.06 | 0.09 | 0.26 |
| Total Organic Carbon(mg/l C) | 8 | 8 | | N/A | 0 | 0.00 | 0.5 | 1.1 | 3.4 |
| Aluminium (Total)(ug/l Al) | 12 | 12 | R | 200 | 0 | 0.00 | <0.5 | 9.4 | 22.8 |
| Antimony(ug/l Sb) | 8 | 8 | | 5 | 0 | 0.00 | <0.05 | 0.1 | 0.2 |

PCV = Minimum or Maximum Permitted Value.

Comments: R = Reduced Frequency, U = Undertaking for Improvement

Portsmouth Water Ltd
Public Record - Water Quality Summary

01/01/2016 to 31/12/2016



Lovedean Supply Zone

| Parameter (Units) | Ann. Sampling Frequency | | Comment | PCV | Samples Contravening PCV | | Concentration or Value (all samples) | | |
|--|-------------------------|-------|---------|------|--------------------------|------|--------------------------------------|--------|--------|
| | Required | Taken | | | No. | % | Min | Mean | Max |
| Arsenic (Total)(ug/l As) | 8 | 8 | | 10 | 0 | 0.00 | <0.5 | <0.5 | <0.5 |
| Boron (Total)(ug/l B) | 8 | 9 | | 1 | 0 | 0.00 | <0.008 | <0.027 | <0.1 |
| Cadmium (Total)(ug/l Cd) | 8 | 9 | | 5 | 0 | 0.00 | <0.1 | <0.1 | <0.1 |
| Chromium (Total)(ug/l Cr) | 8 | 9 | | 50 | 0 | 0.00 | <0.1 | 0.1 | 0.1 |
| Copper (Total)(mg/l Cu) | 8 | 8 | | 2 | 0 | 0.00 | <0.1 | 0.102 | 0.118 |
| Iron (Total)(ug/l Fe) | 12 | 13 | R | 200 | 0 | 0.00 | <0.5 | 2.3 | 5.6 |
| Lead (10 ug/l)(ug/l Pb) | 8 | 8 | | 10 | 0 | 0.00 | <0.1 | 0.3 | 1 |
| Manganese (Total)(ug/l Mn) | 12 | 13 | R | 50 | 0 | 0.00 | <0.1 | 0.1 | 0.4 |
| Mercury(ug/l Hg) | 8 | 9 | | 1 | 0 | 0.00 | <0.02 | <0.02 | <0.02 |
| Nickel(ug/l Ni) | 8 | 8 | | 20 | 0 | 0.00 | 0.8 | 1.2 | 3.2 |
| Selenium(ug/l Se) | 8 | 8 | | 10 | 0 | 0.00 | 0.522 | 1.02 | 1.46 |
| Sodium (Total)(mg/l Na) | 8 | 9 | | 200 | 0 | 0.00 | 8.8 | 10.5 | 12.4 |
| Benzo[a]Pyrene(ug/l) | 8 | 9 | | 0.01 | 0 | 0.00 | <0.002 | <0.002 | <0.002 |
| Polycyclic Aromatic Hydrocarbons (4)(ug/l) | 8 | 9 | | 0.1 | 0 | 0.00 | 0 | 0 | 0 |
| 1,2 Dichloroethane(ug/l) | 8 | 8 | | 3 | 0 | 0.00 | <0.03 | <0.04 | <0.04 |
| Tetrachloromethane(ug/l) | 8 | 8 | | 3 | 0 | 0.00 | <0.04 | <0.05 | <0.06 |
| Tetra+Trich(ug/l) | 8 | 8 | | 10 | 0 | 0.00 | 0 | 0 | 0 |
| Trihalomethanes(ug/l) | 8 | 8 | | 100 | 0 | 0.00 | 6.1 | 18.3 | 39.6 |
| 2,4 - D(ug/l) | 8 | 8 | | 0.1 | 0 | 0.00 | <0.005 | <0.005 | <0.005 |
| Atrazine(ug/l) | 8 | 8 | | 0.1 | 0 | 0.00 | <0.005 | 0.007 | 0.011 |
| Bentazone(ug/l) | 8 | 8 | | 0.1 | 0 | 0.00 | <0.005 | <0.005 | <0.005 |
| Benzene(ug/l) | 8 | 8 | | 1 | 0 | 0.00 | <0.01 | <0.01 | <0.02 |
| Chlortoluron(ug/l) | 8 | 8 | | 0.1 | 0 | 0.00 | <0.005 | <0.005 | <0.005 |
| Cyproconazole(ug/l) | 8 | 8 | | 0.1 | 0 | 0.00 | <0.005 | <0.005 | <0.005 |
| Dicamba(ug/l) | 8 | 8 | | 0.1 | 0 | 0.00 | <0.005 | <0.007 | <0.01 |
| Diuron(ug/l) | 8 | 8 | | 0.1 | 0 | 0.00 | <0.005 | <0.005 | <0.005 |
| Epoxyconazole(ug/l) | 8 | 8 | | 0.1 | 0 | 0.00 | <0.005 | <0.005 | <0.005 |
| Fenpropimorph(ug/l) | 8 | 8 | | 0.1 | 0 | 0.00 | <0.008 | <0.008 | <0.008 |

PCV = Minimum or Maximum Permitted Value.

Comments: R = Reduced Frequency, U = Undertaking for Improvement

Portsmouth Water Ltd
Public Record - Water Quality Summary

01/01/2016 to 31/12/2016



Lovedean Supply Zone

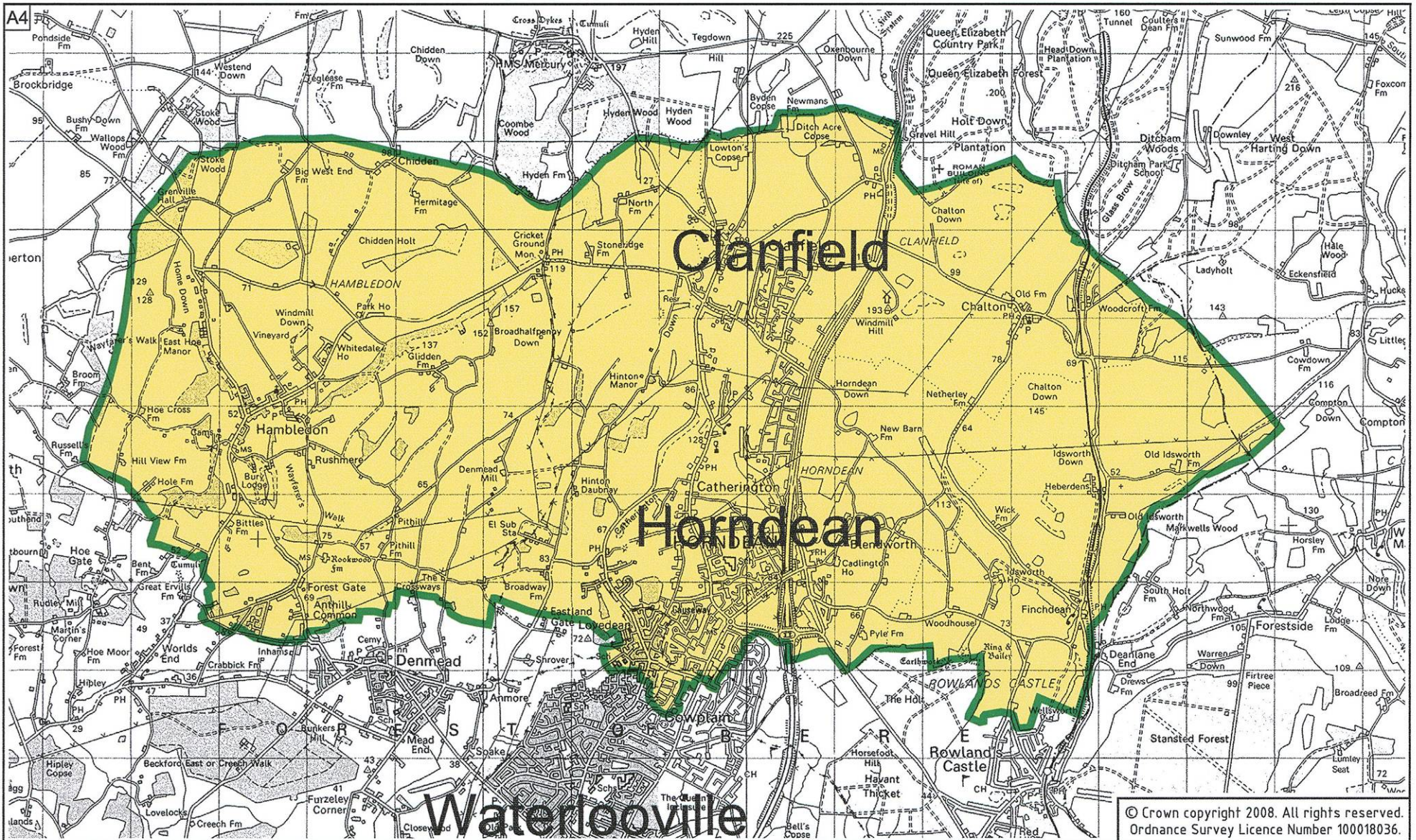
| Parameter (Units) | Ann. Sampling Frequency | | Comment | PCV | Samples Contravening PCV | | Concentration or Value (all samples) | | |
|------------------------|-------------------------|-------|---------|-----|--------------------------|------|--------------------------------------|--------|--------|
| | Required | Taken | | | No. | % | Min | Mean | Max |
| Fluroxypyr(ug/l) | 8 | 8 | | 0.1 | 0 | 0.00 | <0.005 | <0.005 | <0.005 |
| loxynil(ug/l) | 8 | 8 | | 0.1 | 0 | 0.00 | <0.006 | <0.006 | <0.006 |
| MCPA(ug/l) | 8 | 8 | | 0.1 | 0 | 0.00 | <0.005 | <0.005 | <0.005 |
| MCPB(ug/l) | 8 | 8 | | 0.1 | 0 | 0.00 | <0.005 | <0.005 | <0.005 |
| Mecoprop (MCP)(ug/l) | 8 | 8 | | 0.1 | 0 | 0.00 | <0.005 | <0.005 | <0.005 |
| Metaldehyde(ug/l) | 8 | 8 | | 0.1 | 0 | 0.00 | <0.006 | 0.007 | 0.01 |
| Prometryne(ug/l) | 8 | 8 | | 0.1 | 0 | 0.00 | <0.005 | <0.005 | <0.005 |
| Propazine(ug/l) | 8 | 8 | | 0.1 | 0 | 0.00 | <0.005 | <0.005 | <0.005 |
| Propazamide(ug/l) | 8 | 8 | | 0.1 | 0 | 0.00 | <0.009 | <0.009 | <0.009 |
| Simazine(ug/l) | 8 | 8 | | 0.1 | 0 | 0.00 | <0.005 | 0.006 | 0.007 |
| Triclopyr(ug/l) | 8 | 8 | | 0.1 | 0 | 0.00 | <0.005 | <0.006 | <0.007 |
| Total Pesticides(ug/l) | 8 | 8 | | 0.5 | 0 | 0.00 | 0 | 0.012 | 0.027 |

68 **Total No.Tests** **889** **Failures = 0 = 0.000 %** **Pass Rate = 100.00 %**

Lovedean Zone Population 2016 = 22474

PORTSMOUTH WATER LTD

| General Information | ZONE – LOVEDEAN | 2016 |
|--|------------------------|-------------|
| <p>Comments on Water Quality:</p> <p>Based on all the samples taken in 2016, this water meets the chemical and microbiological requirements of the Water Supply (Water Quality) Regulations 2016.</p> | | |
| <p>Action taken to comply with Section 19 undertakings</p> <p>Phosphate is dosed in the water to reduce pick-up of lead from lead pipework.</p> | | |



LOVEDEAN SAMPLING ZONE

Drawing No.
80/302

Determinands Analysed

| METALS | | |
|-------------------------|---|----------------------------|
| SUBSTANCE TESTED | WHAT IT MEANS | REGULATORY STANDARD |
| Antimony | These metals can occur naturally in source water at low levels. Some may also come from plumbing systems and industrial processes. The standards provide wide safety margins on known levels of toxicity. | 5.0 µg /l |
| Cadmium | | 5.0 µg/l |
| Chromium | | 50 µg /l |
| Nickel | | 20 µg/l |
| Mercury | | 1.0 µg /l |
| Selenium | | 10 µg /l |
| Aluminium | Aluminium occurs naturally and is also used during treatment to remove impurities. Concerns have been expressed about a link between aluminium and Alzheimer's disease, but there is no proven connection, although research on this is ongoing. | 200 µg/l |
| Arsenic | This occurs naturally in water at low levels. | 10 µg /l |
| Boron | Low levels of boron can be found in some waters due to its use in detergents. | 1.0 mg/l |
| Copper | Traces of copper can sometimes be found in water, usually as a result of old, corroding plumbing or new plastic pipes. This can cause a metallic taste. | 2.0 mg/l |
| Lead | Lead is rarely present in water sources but many properties built before the mid-1960's have a lead supply pipe or some lead plumbing. Portsmouth Water adds phosphate to most of the water supplied to reduce the amount of lead dissolved from pipes. | 10 µg /l |
| Iron | Iron can naturally occur in some water sources and is removed during treatment. Iron in the water supplies may also be derived from old iron mains or domestic pipe work. This is not a health hazard, but can cause the water to become discoloured. | 200 µg/l |
| Manganese | This can naturally occur in some water sources and is removed during treatment. Disruption to water mains can stir up sediment, containing manganese. | 50 µg/l |
| Sodium | Sodium is a naturally occurring substance that can increase as an effect of softening the water. If you use a water softener you should retain an un-softened supply for drinking. | 200 mg/l |

| NON-METALS | | |
|-------------------------|--|--|
| SUBSTANCE TESTED | WHAT IT MEANS | REGULATORY STANDARD |
| Ammonium | Ammonia occurs naturally in many water sources. It is not harmful and is normally removed by treatment. | 0.5 mg/l |
| Bromate | Bromate can potentially form when hypochlorite or ozone are used in water treatment. We control the treatment process tightly to minimize this. | 10 µg/l |
| Chloride | Chloride occurs naturally in water but may give a salty taste to the water and contribute to corrosion. | 250 mg/l |
| Cyanide | Cyanide is rarely found in water. When it is detected it is normally in areas of heavy industry. | 50 µg/l |
| Fluoride | Fluoride occurs naturally at low levels in some of Portsmouth Water's supplies. None of our supplies are artificially fluoridated. | 1.5 mg/l |
| Nitrate | Nitrate arises from the use of fertilizer on agricultural land. | 50 mg/l |
| Nitrite | Nitrite occurs at much lower levels than nitrate and conversion from one form to another occurs readily. The regulations also require that the Nitrate:Nitrite ratio $[\text{nitrate}]/50 + [\text{nitrite}]/3 \leq 1.0$. | 0.5 mg/l at Customers tap 0.1 mg/l at Water Treatment Works |
| Sulphate | Sulphate occurs naturally in water and comes from mineral deposits. | 250 mg/l |

| BACTERIA | | |
|----------------------------------|--|--|
| SUBSTANCE TESTED | WHAT IT MEANS | REGULATORY STANDARD |
| Faecal Coliforms (E.coli) | These bacteria are specific inhabitants of the digestive systems of warm blooded animals. They are an indication of possible contamination (with other harmful bacteria possibly being present). Any detection in treated waters is investigated as a matter of urgency. | 0 per 100ml |
| Total Coliforms | These are bacteria that provide a general and very sensitive measure of microbiological quality. They are removed by water treatment processes, but where they are detected it is often because they can grow within taps in the home. Any detection in treated waters is investigated as a matter of urgency. | 0 per 100ml |
| Enterococci | As with coliforms, the presence of these organisms can indicate possible contamination in the water supply so they are investigated as a matter of urgency. | 0 per 100ml |
| Colony Count at 37°C | Small numbers of bacteria can be present in treated water. The information obtained from these tests is used to maintain the efficiency of the water treatment processes and the cleanliness of water mains. Any unusually high levels are investigated. | No abnormal change from a long term average. Number per 1ml |
| Colony Count at 22°C | | |
| Clostridium Perfringens | As with coliforms, the presence of these organisms can indicate contamination in the water supply so they are investigated as a matter of urgency. | 0 per 100ml |

| ORGANIC CHEMICALS: PESTICIDES | | |
|--------------------------------------|---|----------------------------|
| SUBSTANCE TESTED | WHAT IT MEANS | REGULATORY STANDARD |
| Aldrin | Pesticides consist of chemicals used by farmers, local authorities and gardeners. The traces of these found in untreated water are typically far less than the maximum advised to protect public health. The pesticides tested for will vary from area to area, depending on the usage of pesticides in the surrounding area of each water source. | 0.03 µg/l |
| Dieldrin | | 0.03 µg/l |
| Heptachlor | | 0.03 µg/l |
| Heptachlor epoxide | | 0.03 µg/l |
| Other individual Pesticides | | 0.1 µg/l |
| Total Pesticides | This is the total amount of each pesticide detected in the water sample tested. | 0.5 µg/l |

| ORGANIC CHEMICALS: OTHERS | | |
|--|---|---|
| SUBSTANCE TESTED | WHAT IT MEANS | REGULATORY STANDARD |
| Benzene | Benzene is rarely found in water but is removed in treatment processes. It arises from petroleum products and industries. | 1.0 µg/l |
| Trichloromethane ^ | These compounds are known as trihalomethanes (THM's). They are formed when chlorine comes into contact with organic compounds in untreated water. | 100 ug/l (^For the total amount of these four compounds) |
| Dichlorobromomethane ^ | | |
| Dibromochloromethane ^ | | |
| Tribromomethane ^ | | |
| Tetrachloromethane | These substances are known as solvents. They arise from industrial processes and are removed from the water during the treatment stage. | 3.0 µg/l |
| 1,2 Dichloroethane | | 3.0 µg/l |
| Trichloroethene * and Tetrachloroethene * | | 10 µg/l (*For the total amount of these two compounds) |
| Benzo-a-pyrene | These compounds are known as polycyclic aromatic hydrocarbons (PAH's). They are rare substances and are seldom found in water. Where they do occur, the cause is usually coal tar pitch lining from iron mains. | 0.01 µg/l |
| Benzo-b-fluoranthene * | | 0.1 µg/l (*For the total amount of these four compounds) |
| Benzo-k-fluoranthene * | | |
| Benzo-ghi-perylene * | | |
| Indeno-123-cd-pyrene * | | |



| OTHER PARAMETERS | | |
|------------------------------|---|--|
| SUBSTANCE TESTED | WHAT IT MEANS | REGULATORY STANDARD |
| Colour | Chemical changes in the water source or pressure changes in the distribution main can give the water a tinge of colour. | 20 mg/l Pt/Co |
| Conductivity | This is a measure of the level of natural mineral salts contained in the water. This is measured by passing an electrical current through the water. | 2500 μ S per cm at 20°C |
| pH (Hydrogen Ion) | This is a measure of the acidity or alkalinity of the water. A pH of 7 is neutral. | Between 6.5 and 9.5 |
| Taste Dilution Number | This is to check if the water has any unpleasant taste or smell. It is measured using panellists to taste and smell the water in strictly controlled conditions. | Dilution Number 0 at 25°C |
| Odour Dilution Number | | |
| Temperature | Temperature is checked to monitor changes in the water system. | No legal limit |
| Total Chlorine | Sufficient chlorine is added to all our supplies to ensure the absence of harmful bacteria. Portsmouth Water also aims to keep the levels at customer's taps low to minimize associated taste and odour issues. | No legal limit |
| Free Chlorine | | |
| Total Organic Carbon | TOC is a measure of the organic material present in the water. It varies naturally depending on the source of the water and is monitored for any unusual changes (which could be caused by oil spills or other pollutants). | No abnormal change |
| Turbidity | This is a measure of suspended material in the water. | 4.0 NTU at Customers tap 1.0 NTU at Water Treatment Works |