Thames Water Utilities Limited
Water Quality Report - 2016

Water Supply Zone: 19	Leytonstone	Population: 43721
Time Period: 1 Jan 2015 to 31 Dec 2015		

Commentary on water quality:

Excellent quality water with no infringements to report for the Water Supply Zone.

Notes:

Home bought chlorine / nitrate / hardness detection kits are not as accurate as the UKAS accredited laboratories where the majority of our samples are analysed.

For some parameters, e.g. metaldehyde, monitoring occurs at the supplying Water Treatment Works rather than the Water Supply Zone.

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Understanding the water quality report for your area:

Report identification

The heading of the report tells you :

- the Water Supply Zone or area covered by the report
- the estimated population of the zone
- the period of time over which data was collected

Parameter

This column lists all the parameters we test for. A parameter can be :

- an organism (such as Coliforms or Colony Count)
- a substance (such as Lead or Nitrate)
- a physical property (such as pH or Colour)

Units

The unit of measurement each parameter is recorded in. Most are measured in mg/l (milligrammes per litre) or as µg/l (microgrammes per litre). One mg/l is one part in every million parts of water;
one µg/l is one part in every billion parts of water.

Regulatory Limit

This column shows the maximum amount of each parameter permitted in drinking water under UK regulations.

Concentration or value

For each parameter results are shown in three ways:

- Min(imum), the lowest result during the period
- Mean, the average of the results
- Max(imum), the highest result during the period.

A '<' symbol means a result was less than the value at which a parameter can be detected.

A '>' symbol means a result was greater than the range within which a parameter is normally detected.

Number of samples

Total taken – is the number of samples tested for each parameter

Failing – shows the number of samples that exceeded the Regulatory Limit.

% of samples failing

The number of samples that contravened the Regulatory Limit compared to the total number of samples taken, expressed as a percentage.

Commentary

On the first page of the report is some Commentary on actions taken to investigate breaches of drinking water standards, and/or schemes of work we are carrying out to ensure compliance with standards in the future.

Please note: This report is based on the entire supply zone and is not specific to your property.

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Time Period: 1 Jan 2015 to 31 Dec 2015			Concentration or Value (all samples)			No. of Samples		% of Samples
Parameter	Units	Regulatory Limit	Min.	Mean	Max.	Total	Failing	Failing
Clostridium perfringens	no./100ml	0	0	0	0	402	0	0
Coliform bacteria	no./100ml	0	0	0	0	108	0	0
Colony count 22°C	cfu/ml	n/a	0	1.028	12	36	0	0
Colony count 37°C	cfu/ml	n/a	0	1.278	10	36	0	0
E. coli	no./100ml	0	0	0	0	108	0	0
Enterococci	no./100ml	0	0	0	0	8	0	0
Colour (Pt/Co scale)	mg/l	20	<0.5	0.892	1.9	36	0	0
Conductivity at 20°C	µS/cm	2500	579	636.25	694	36	0	0
Hydrogen Ion	pH	6.50-9.50	7.4	7.619	7.9	36	0	0
Turbidity	FTU	4	<0.06	0.066	0.13	36	0	0
Odour (quantatative)	dilution no.	0	0	0	0	18	0	0
Taste (quantatative)	dilution no.	0	0	0	0	18	0	0
Ammonium as NH4	mg/l	0.5	0.1	0.178	0.23	36	0	0
Chloride as Cl	mg/l	250	44.9	55.968	59.65	8	0	0
Chlorine (Residual)	mg/l	n/a	0.27	0.65	0.83	108	0	0
Cyanide as CN	µg/l	50	<0.7	0.703	0.8	36	0	0
Fluoride as F	mg/l	1.5	0.135	0.16	0.197	8	0	0
Nitrate as NO3	mg/l	50	18.2	27.436	35.8	36	0	0
Nitrate/Nitrite calculation	mg/l	1	0.37	0.557	0.73	36	0	0
Nitrite as NO2	mg/l	0.5	<0.01	0.031	0.15	36	0	0
Sulphate as SO4	mg/l	250	52.3	54.888	59.4	8	0	0
Hardness (Total) as CaCO3	mg/l	n/a	249	276	303	2	0	0
Aluminium as Al	µg/l	200	<1.4	4.67	8.5	37	0	0
Antimony as Sb	µg/l	5	0.4	0.6	<0.80	9	0	0
Arsenic as As	µg/l	10	0.7	1.1	1.4	9	0	0
Boron as B	mg/l	1	0.059	0.069	0.076	9	0	0
Cadmium as Cd	µg/l	5	<0.1	<0.1	<0.1	9	0	0
Chromium as Cr	µg/l	50	<0.90	0.911	1	9	0	0
Copper as Cu	mg/l	2	<0.004	0.073	0.494	8	0	0
Iron as Fe	µg/l	200	<2.0	2.435	6	37	0	0
Lead as Pb	µg/l	10	<0.2	1.313	3.1	8	0	0
Manganese as Mn	µg/l	50	<0.8	0.811	1.2	37	0	0
Mercury as Hg	µg/l	1	<0.09	<0.09	<0.09	36	0	0

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Parameter	Units	Regulatory Limit	Min.	Mean	Max.	Total	Failing	Failing
Nickel as Ni	µg/l	20	<1.3	1.713	2.9	8	0	0
Selenium as Se	µg/l	10	0.8	0.833	1	9	0	0
Sodium as Na	mg/l	200	28	36.811	44.8	9	0	0
Benzo (a) pyrene	µg/l	0.01	<0.001	<0.001	<0.001	9	0	0
PAHs (Sum of 4 substances)	µg/l	0.1	0	0	0.001	8	0	0
1,2 dichloroethane	µg/l	3	<0.2	<0.2	<0.2	8	0	0
Benzene	µg/l	1	<0.1	<0.1	<0.1	8	0	0
Tetra- & Trichloroethene calc	µg/l	10	0	0	0	8	0	0
Tetrachloromethane	µg/l	3	<0.20	<0.20	<0.20	8	0	0
Trihalomethanes	µg/l	100	14.6	18.05	24.6	8	0	0
Bromate as BrO3	µg/l	10	<0.70	1.367	2.5	36	0	0
Total Organic Carbon as C	mg/l	n/a	1.5	2.036	3	36	0	0
2,4,5-T	µg/l	0.1	<0.005	<0.005	<0.01	36	0	0
2,4-D	µg/l	0.1	<0.004	<0.004	<0.008	36	0	0
2,4-DB	µg/l	0.1	<0.005	<0.005	<0.01	36	0	0
Ametryne	µg/l	0.1	<0.002	<0.002	<0.002	36	0	0
Atrazine	µg/l	0.1	<0.005	<0.005	<0.005	36	0	0
Bentazone	µg/l	0.1	<0.005	<0.005	<0.010	36	0	0
Bromoxynil	µg/l	0.1	<0.005	<0.005	<0.010	36	0	0
Carbendazim	µg/l	0.1	<0.002	<0.002	<0.002	36	0	0
Carbetamide	µg/l	0.1	<0.003	0.003	0.004	36	0	0
Chlortoluron	µg/l	0.1	<0.003	<0.003	<0.003	36	0	0
Clopyralid	µg/l	0.1	<0.010	<0.010	<0.020	36	0	0
Dicamba	µg/l	0.1	<0.007	<0.007	<0.014	36	0	0
Dichlorprop	µg/l	0.1	<0.004	<0.004	<0.008	36	0	0
Diuron	µg/l	0.1	<0.003	<0.003	<0.003	36	0	0
Fenoprop	µg/l	0.1	<0.004	<0.004	<0.008	36	0	0
Fluroxypyr	µg/l	0.1	<0.006	<0.006	<0.012	36	0	0
Ioxynil	µg/l	0.1	<0.005	<0.005	<0.010	36	0	0
Isoproturon	µg/l	0.1	<0.004	<0.004	<0.004	36	0	0
Linuron	µg/l	0.1	<0.004	<0.004	<0.004	36	0	0
MCPA	µg/l	0.1	<0.006	<0.006	<0.012	36	0	0
MCPB	µg/l	0.1	<0.004	<0.004	<0.008	36	0	0

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Mecoprop	µg/l	0.1	<0.008	<0.008	<0.016	36	0	0
Metaldehyde	µg/l	0.1	0.026	0.041	0.093	36	0	0
Metazachlor	µg/l	0.1	<0.002	0.002	0.003	36	0	0
Monuron	µg/l	0.1	<0.003	<0.003	<0.003	36	0	0
Pentachlorophenol	µg/l	0.1	<0.004	0.005	0.028	36	0	0
Picloram	µg/l	0.1	<0.008	<0.008	<0.016	36	0	0
Prometryn	µg/l	0.1	<0.002	<0.002	<0.002	36	0	0
Propazine	µg/l	0.1	<0.002	<0.002	<0.002	36	0	0
Propyzamide	µg/l	0.1	0.004	0.006	0.012	36	0	0
Quinmerac	µg/l	0.1	<0.004	0.005	0.007	36	0	0
Simazine	µg/l	0.1	<0.005	<0.005	<0.005	36	0	0
Tebuthiuron	µg/l	0.1	<0.002	<0.002	<0.002	36	0	0
Terbutryn	µg/l	0.1	<0.003	<0.003	<0.003	36	0	0
Triclopyr	µg/l	0.1	<0.005	<0.005	<0.010	36	0	0
Total Pesticides	µg/l	0.5	0.005	0.046	0.093	39	0	0

Key to table above:

cfu/ml	Colony forming units per millilitre
µg/l	Micrograms per litre or parts per billion
mg/l	Milligrams per litre or parts per million
FTU	Formazin Turbidity Unit
Bq/l	Becquerel per litre
µS/cm	Micro Siemens per centimetre
pH	potential Hydrogen (pH is the acid/alkaline balance)
n/a	Not applicable - There is no legal limit set in the Regulations
<	Below the limit of detection of our analysis

Glossary:

Chemical parameters/ Micro - organisms/ Non regulatory parameters/ Pesticides		
Parameter	**Water Quality Standard**	**Explanation**
1,2-Dichloroethane	3 micrograms per litre	1,2-Dichloroethane is found in industrial solvents and can be detected in trace amounts in some source waters. They are removed by water treatment.
Acrylamide	0.10 micrograms per litre	Acrylamide monomer is found in polyacrylamide which can be used in the treatment of water to remove impurities. Use of polyacrylamide is tightly controlled.
Alkalinity as calcium carbonate	No limits. Results are displayed as milligrams per litre.	Alkalinity is naturally present in water and is known as 'temporary hardness' as it is removed by boiling.
Aluminium	200 micrograms per litre	Aluminium occurs as a natural constituent of many waters. At some treatment works aluminium salts are used to remove impurities.
Ammonium	0.5 milligrams per litre	Ammonia is a component of fertilizers and can be washed into rivers by rain. Ammonia is converted to nitrate and nitrite during the treatment process. In London, ammonia is added to the chlorine in a specific ratio to form chloramines. Chloramines are persistent and used to maintain disinfection in the water distribution system. Ammonia at levels greater than 1.0 milligrams per litre are associated with faecal contamination.
Antimony	5 micrograms per litre	Antimony is rarely found in water and when this does occur it is likely to be due to the water being in contact with brass fittings or lead free solder.
Arsenic	10 micrograms per litre	Arsenic occurs naturally in a small number of ground water sources. Specific treatments can be used but it is not normally found in the Thames Water area.
Benzene	1 microgram per litre	Benzene is used in the petrochemical and plastics industry. Occasionally it is found in source water but is removed by treatment.
Benzo (a) pyrene	0.010 micrograms per litre	Benzo (a) pyrene is one of several compounds known as polycyclic aromatic hydrocarbons. Trace levels can be found in drinking water where coal tar lining of mains was historically practiced to prevent corrosion.
Boron	1 milligram per litre	Boron occurs naturally at low levels in all water. Some industrial discharge and detergents can increase the concentrations in river water.
Bromate	10 micrograms per litre	Bromate is formed during the disinfection of drinking water through the reaction with natural bromide. It can also occasionally be detected in water through industrial pollution.
Cadmium	5 micrograms per litre	Cadmium occurs in a small number of ground water sources. Specific treatments can be used but it is not normally found in the Thames Water area.
Calcium	No limits. Results are displayed as milligrams per litre.	Calcium occurs naturally in most water sources and is the principle cause of hardness. Calcium is derived when water comes into contact with rocks, particularly chalk and limestone.

Chemical parameters/ Micro - organisms/ Non regulatory parameters/ Pesticides		
Parameter	**Water Quality Standard**	**Explanation**
Chloride	250 milligrams per litre	Occurs naturally in water sources and is derived through contact with rocks.
Chlorine (free and total)	No limits. Results are displayed as milligrams per litre.	Chlorine is used as a disinfectant to ensure that the water is free from harmful bacteria. The remaining 'free chlorine' ensures the water stays safe as it passes through our distribution system to your home. Actions to avoid high levels in supply are taken in order to minimize associated taste and odours.
Chromium	50 micrograms per litre	Chromium is very rarely found in drinking water.
Clostridium perfringens	0 per 100 millilitres	*Clostridium perfringens* is a bacterium that can produce spores which can persist in the environment for long periods of time. Their presence in water can indicate historic contamination.
Coliforms ***E. coli*** **Enterococci**	0 per 100 millilitres	*E. coli* and enterococci are associated with the presence of faeces. Coliforms are common environmental bacteria. Disinfection during treatment removes these bacteria from water supplies. These bacteria have the ability to flourish in the household environment through contact with the tap and your hands, food or dishcloths. Many instances of coliforms in samples taken from customers' taps are due to contamination of the tap, particularly from the kitchen sink. The kitchen tap should be cleaned regularly with a household disinfectant to maintain cleanliness.
Cobalt	No limits - Results are displayed as micrograms per litre.	Cobalt occurs as a hard brittle metallic. It is used in alloys, metal electroplating, glass, porcelain and enamel industries.
Colony Counts	No abnormal change. Results are displayed per millilitre.	Low levels of harmless bacteria may be present in the water supply since water supplies are disinfected and not sterilized. They are monitored over time to give an indication as to the hygienic state of an internal plumbing system and the drinking water supply.
Colour	20 Hazen units	Drinking water should be clear and bright. Disturbances to chalk and iron deposits from iron mains can cause brown and yellow discolouration. Allow sediment to settle by not drawing water for half an hour.
Conductivity	2500 micro siemens per centimetre	A measure of the amount of dissolved minerals naturally present in the water.
Copper	2 milligrams per litre	Copper is not found in water at source but may be dissolved from customers internal pipework. Copper can cause black or green staining to limescale, for example, in the kettle or around the tap. Excess copper can cause a metallic taste to the water.
Cryptosporidium	Less than 1 oocyst per 10 litres	*Cryptosporidium* is a microscopic parasite that can cause gastroenteritis. It produces oocysts that can find their way into water. Careful control of treatment processes are required to protect public health. Continuous monitoring is undertaken at treatment works that have been identified as being at risk.
Cyanide	50 micrograms per litre	Cyanide is very rarely found in drinking water.

Chemical parameters/ Micro - organisms/ Non regulatory parameters/ Pesticides		
Parameter	**Water Quality Standard**	**Explanation**
Dissolved hydrocarbons total (DHCs)	No limits. Results are displayed as micrograms per litre.	DHCs can indicate the presence of certain petrochemical products (petrol, whitespirit, oil, solvents etc). Some DHCs are linked to the coal tar lining of mains which was historically practiced to prevent corrosion. Spilt petrochemical products in a domestic property can enter the internal plumbing system. The result is a measure of benzene, cumene, decane, ethylbenzene, heptane, naphthalene, octane, phenanthrene, tetradecane and toluene.
Epichlorohydrin	0.10 micrograms per litre	Epichlorohydrin is found in polyamines which can be used in the treatment of water to remove impurities. The use of polyamines is tightly controlled.
Fluoranthene	No limits. Results are displayed as micrograms per litre.	Fluoranthene is one of several compounds known as polycyclic aromatic hydrocarbons. Trace levels can be found in drinking water where coal tar lining of mains was historically practiced to prevent corrosion.
Fluoride	1.5 milligrams per litre	Fluoride occurs naturally in many water sources. Some water companies add fluoride to the water supply at the request of health authorities to protect against tooth decay. This is not undertaken in Thames Water.
Giardia	0 in any volume	*Giardia* is a microscopic parasite that can cause gastroenterit. Once a person has been infected with *Giardia* , the parasite lives in the intestines and is passed in faeces. Because of its large size and relative susceptibility to water treatment processes *Giardia* is not recognised as a significant risk within drinking water.
Hardness as calcium carbonate	No limits. Results are displayed as milligrams per litre. Hardness in the Thames Water area varies between 80 - 365 milligrams per litre.	Hardness is caused by compounds of calcium and magnesium which occur naturally in the water. The minerals that dissolve into the water as it passes through chalk limestone rocks causes the water in the Thames region to be naturally hard. Total hardness comprises permanent and temporary hardness.
Iron	200 micrograms per litre	Iron occurs naturally in some water. High levels are treated to reduce the iron content. A number of our mains are made of iron. Brown discolouration complaints are associated with corroding iron mains. Iron is not harmful to health.
Lead	25 micrograms per litre	Lead is rarely found in source waters but can be found in drinking water due to pick up from lead pipes and fittings. Where required Thames Water treats supplies to minimise concentrations.
Manganese	50 micrograms per litre	Manganese occurs naturally in water. It can form black tealeaf like particles in the drinking water supply.
Mercury	1 microgram per litre	Mercury is very rarely found in drinking water.
Nickel	20 micrograms per litre	Nickel is rarely found in source water. In the Thames Water area, nickel in drinking water is normally associated with nickel coatings used on some domestic taps and fittings.

Chemical parameters/ Micro - organisms/ Non regulatory parameters/ Pesticides		
Parameter	**Water Quality Standard**	**Explanation**
Nitrate	50 milligrams per litre	Nitrate occurs naturally in most source waters but concentrations can be increased as a result of fertiliser use. Where necessary concentrations in drinking water can be reduced by diluting with sources where nitrate levels are low or through specific treatment.
Nitrate/Nitrite calculation	<=1	Nitrate/nitrite is a measure of the combined concentrations of these two compounds in drinking water
Nitrite	0.50 milligrams per litre	Nitrite occurs naturally at low levels in some waters but is removed by treatment. It is sometime produced as a by-product when chloramine is used as a disinfectant.
Pesticides	0.03 micrograms per litre for aldrin, dieldrin, heptachlor and heptachlor epoxide. 0.1 micrograms per litre for other individual pesticides. 0.5 micrograms per litre for the total of all pesticides detected.	Pesticides are a diverse group of organic compounds that include herbicides, insecticides and fungicides. Thames Water is actively working with users and manufacturers to reduce pesticides in water sources. Where required, treatment is in place to remove pesticides from drinking water.
pH value	6.5 – 9.5	A measure of the acidity or alkalinity of the water. Drinking water in the Thames region is between 6.5 - 8.5.
Phenols	No limits. Results are displayed as micrograms per litre.	Phenols are a group of chemical compounds which can cause a TCP-like taste in water. This taste can be caused by chlorine in tap water reacting with particular substances/materials used in internal plumbing systems (for example tap washers, plastic kettles, washing machines, dishwashers, connection hoses and plastic pipework).
Polycyclic aromatic hydrocarbons (PAHs)	0.1 micrograms per litre	PAHs can be found in drinking water where coal tar lining of mains was historically practiced to prevent corrosion. The standard is a measure of benzo(b)fluoranthene, benzo(k)fluoranthene, benzo(ghi)perylene and indeno(1,2,3-cd)pyrene.
Pseudomonas	No limits. Results are displayed per 100 millilitres.	Opportunistic bacteria which more commonly affect the young, infirm and immuno-suppressed. There presence is undesirable and can impart a taste to the drinking water. Bacteria can multiply when nutrients are available, usually derived from unsuitable materials within the internal plumbing system.
Radioactivity - Tritium	100 Becquerels per litre	Tritium is found naturally in water at very low concentrations. Elevated levels may indicate the presence of other artificial radionuclides.
Radioactivity – Total indicative dose (TID)	0.10 millisieverts per year	TID is a measure of radiation exposure through drinking water. Radioactivity is naturally present in all water sources. Levels of radioactivity are normally monitored by measuring gross alpha or beta activities.
Selenium	10 micrograms per litre	Selenium is very rarely found in drinking water

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Chemical parameters/ Micro - organisms/ Non regulatory parameters/ Pesticides		
Parameter	**Water Quality Standard**	**Explanation**
Sodium	200 milligrams per litre	Sodium is naturally present in many water sources. Concentrations in Thames Water's supplies are well below the standard. Domestic water softeners can increase the sodium concentration.
Sulphate	250 milligrams per litre	Sulphate is naturally present in many water sources. Concentrations in Thames Water's supplies are well below the standard.
Swab from tap for coliforms and *E. coli* bacteria	No limits – either POSITIVE (meaning bacteria is present) or NEGATIVE (meaning bacteria is not present)	A type of cotton bud is wiped around the inside of the tap to collect coliform and *E. coli* bacteria. A positive swab requires bacteria to be removed by disinfecting the inside of the tap with a chlorine-based disinfectant and then flushing thoroughly before use.
Taste and odour	-	Taste and odour is a measure of the aesthetic quality of drinking water.
Temperature (before flush and after flush)	No limits. Results are displayed as degrees centigrade.	Internal warming of the cold water supply, for example: if the hot pipes are in close proximity to the cold, warming of the cold supply can affect the water quality by creating earthy and musty tastes. Fitting adequate insulation to the hot water pipes prevents this.
Tetrachloroethane & trichloroethane	10 micrograms per litre	These are solvents which are very occasionally found in water sources. The standard is a measure of the combined concentrations.
Tetrachloromethane	3 micrograms per litre	Tetrachloromethane is a solvent which is very occasionally found in water sources.
Total organic carbon (TOC)	No abnormal change. Results are displayed as milligrams per litre	TOC is a measure of the amount of organic material in the water, most of which comes from natural sources.
Trihalomethanes total (THMs)	100 micrograms per litre	THMs are formed by the reaction of chlorine with natural organic substances in water. The standard is a measure of chloroform, bromoform, dibromochloromethane and bromodichloromethane.
Turbidity	4 FTU	Turbidity is caused by fine particles suspended in the water causing cloudiness. Turbid appearances are usually short lived and there are no health implications.
Vinyl chloride	0.50 micrograms per litre	Vinyl chloride can be found in water pipes containing polyvinyl chloride (PVC). Concentrations are strictly controlled by product specification.
Results from Analytical scan for Organic Chemicals	No limits. Results are displayed as micrograms per litre.	Organic Chemicals may come from a number of sources. Results are examined by Water Research Centre UK toxicologist to ascertain possible sources and health implications.
Zinc	No limits. Results are displayed as micrograms per litre.	Zinc is not found in water at source but may be dissolved from customer's internal plumbing. Occasionally produces sandy deposits and excess can cause a metallic taste.