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**How and  when to
pressure test,
disinfect and
commission
your main**

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Introduction

In order to safeguard water quality and public health, it's a requirement that all private mains, including Fire Mains, NAV networks, SLPs and Non Standard connections are disinfected and tested as detailed below, before it is connected to the existing public water supply, and where applicable, Regulation 5 approval is obtained.



Definitions

Fire Mains	NAVs (New Appointments and Variations)	SLPs (Self-lay Providers)	Non-standards
Pipework providing water for the sole use of fire fighting purposes. Please refer to the ' Installation Requirements of Fire Mains '.	NAVs are limited companies which provide a water and/or sewerage service to customers in an area which was previously provided by the incumbent monopoly provider.	SLPs are companies who can install water networks on behalf of a third party, which are then adopted by the incumbent monopoly provider for that area or the NAV for the local system.	Pipework which does not reflect as standard length and diameter.

Procedures required before a connection can take place

Type	Procedure
Fire Mains	1. Gain Regulation 5 approval from Anglian Water's Regulations team
	2. Flush/swab
	3. Pressure test
	4. Disinfect
	5. Bacteriological and Chemical tests
NAVs (New Appointments and Variations)	1. Flush/swab
	2. Pressure test
	3. Disinfect
	4. Bacteriological and Chemical tests
SLPs (Self-lay Providers)	1. Flush/swab
	2. Pressure test
	3. Disinfect
	4. Bacteriological and Chemical tests
	5. Provide Materials in Contact (MiC) Regulation 31 Click here for Regulation 31
Non-standards	1. Gain Regulation 5 approval from Anglian Water's Regulations team
	2. Flush/swab
	3. Pressure test
	4. Disinfect
	5. Bacteriological and Chemical tests

Procedure descriptions

Flush/swab

All debris and dirt must be removed from the pipe. This can be achieved by 1. Flushing at least two pipe volumes to waste at a pre-determined flow, so not to disrupt the existing water network. 2. Chlorinated swabs (when necessary) passed through the pipe to remove heavy sediment/dirt before any flushing takes place.

Disinfect

The pipe should be dosed using potable water and 50ppm (Parts Per Million) mix of chlorine solution, and held for a contact time of one hour. The residual at the end of this period should be at least 45ppm. The pipe should then be flushed clear of all highly chlorinated water as above. All highly chlorinated water must be de-chlorinated before discharge. The main must be flushed until the chlorine residual represents the incoming supply. The flushing point must be left for subsequent Anglian Water use during connection. The chlorinated pipe must be capped (fusion or compression) at both ends after testing.

Pressure test

PE Pipe

The test pressure should always be a maximum of 1.5 times the rated pressure of the lowest rated component on the new network, or 20bar maximum if any mechanical fittings are present.

With these provisos, the test pressure should be 1.5 times the pipe rated pressure, when this is up to 10bar, and 1.5 times the mean working pressure of the system, for pipes rated at 12.5bar and above.

Where SDR11 pipe is installed for pipe wall thickness to utilise no dig techniques, the pipe should be tested to a minimum 12bar. The pressure test shall be carried out using a pressure logger with printout facilities.

A record of the pressure record during each pressure test carried out shall be attached to the mains completion certificate together with the results of the test. The pressure test printout shall clearly define the section of mains that has been tested.

Barrier Pipe

This can only be pressure tested against a newly installed valve, not an existing valve.

- i. **SDR26** The test pressure should be 1.5 times the pipe rated pressure = 9bar.
- ii. **SDR21** The test pressure should be 1.5 times the pipe rated pressure = 12bar.
- iii. **SDR17** The test pressure should be 1.5 times the pipe rated pressure = 12bar.
- iv. **SDR11**
 - A. The test pressure should be 1.5 times the mean working pressure of the existing system it will become part of.
 - B. Where the pipe is installed via no dig techniques, the pipe should be tested to a minimum 12bar.

Procedure descriptions continued

Bacteriological and chemical tests

This is a sample of water taken from a clean sample tap at the end of the pipe, **the diameter and length of which must be recorded**. A pre-prepared sample bottle, specifically designed for this purpose must be used. **Dated chlorine residuals (free and total) must be recorded** at the time of sampling and should be numeric mg/l values, to at least one decimal place (0.1). The use of 'greater than' or 'less than' approximations will not be accepted. The sample tap must be left for subsequent Anglian Water use during connection. **The bacteriological sample should be analysed and reported for total coliforms per 100ml, total E. coli per 100ml at 37°C**. The chemical sample should be reported for clarity, quantity of particulates, turbidity and taste and odour.

The analysis of both should be carried out at a laboratory accredited for these tests. UKAS certificate mark to be provided on all testing results. Unsatisfactory results for any of these tests will need the installation to be flushed, re-disinfected and further samples taken.

It is important to be aware of the restrictions faced when undergoing disinfecting and testing procedures. **Once a pipe has had a bacteriological sample taken (which subsequently passed and is approved by Anglian Water) it must be either connected to the mains system or flushed within seven days**. If only flushing is carried out, the pipe must then be connected in a further seven days or it must be flushed, left to stand for 16 hours and then relevant tests retaken. After this, the above process will start again.

For this reason it is essential that Developers liaise with Anglian Water to plan these processes, otherwise the connection may not be available before the sample results expire. Anglian Water **will not complete the connection** until all test results have been approved.

Ductile and Steel Pipe

Speak directly with Anglian Water for pressure test guidance.



Information required by Anglian Water

The following table shows the minimum information Anglian Water requires in order to progress your connection. It's important that laboratory reports and test certificates are sent to Anglian Water and not a 'Certificate of Conformation'.

Disinfect	Chemical test	Pressure test
<ul style="list-style-type: none"> • Pipe length (m) • Pipe diameter (mm) • Flushing time (mins) • Flushing Rate (l/m) • Disinfection dose (mg/l) • Standing time (hr/mins) • Residual at end of disinfection time (mg/l) • Flushing time to clear chlorinated water (hr/mins) • Residual after flushing (mg/l) • Date of disinfection • Disinfectant used • Confirmation that pipe was capped after disinfection (dated photo) • Company who carried out disinfection 	<ul style="list-style-type: none"> • Clarity • Quantity of particulates • Turbidity • Taste and odour • UKAS certificate mark 	<ul style="list-style-type: none"> • Rating of pipe (bar) • Test pressure (bar) • Length of test (hr/mins) • Pressure lost during test (bar) • Company who carried out test
	Bacteriological test	
	<ul style="list-style-type: none"> • Total Chlorine residual (mg/l) recorded at time of sampling • Free Chlorine residual (mg/l) recorded at time of sampling • Total coliforms per 100ml • Total E.coli per 100ml • UKAS certificate mark 	

Commissioning timeline

The detail listed in 'Day 7' is essential to ensure your connection can take place.

Pre-Commission	1-2 weeks prior to testing	Seek Reg 5 approval from Anglian Water before testing if required
	Day -5	Notify Anglian Water with your intention to start testing the new main (5 days prior to testing)
	Day -4	
	Day -3	
	Day -2	
Testing	Day -1	Flush/Swab, Pressure Test and Disinfect
	Day 1	14 days to planned connection date starts now 16 hours after disinfect – Complete bacteriological and chemical tests
	Day 2	This is the timeframe for your samples to be analysed and for all other information to be collated ready to be sent for approval to Anglian Water
	Day 3	
	Day 4	
	Day 5	
	Day 6	
Approvals	Day 7	Provide commissioning detail to Anglian Water including test results, pressure test results, chlorination certificate, MIC (Materials in Contact) information and As Laid drawing with a plot list requiring connection (when applicable) Reflush the main(s) 2 x turnover of volume of main(s)
	Day 8	
	Day 9	
	Day 10	Anglian Water internal approvals and information vetting
	Day 11	Construction planning and material orders
	Day 12	
	Day 13	
	Day 14	Planned connection date

The tests referred to should be in accordance with this letter, BS 6700:2006 and the Water Supply (Water Fittings) Regulations 1999. Should you need any assistance in fulfilling these requirements, Anglian Water can arrange for this work to be carried out on your behalf at the cost appertaining at the time. If you feel that you do require this service you should provide at least four weeks notice so that the necessary arrangements can be made.

Anglian Water reserves the right to ask for additional samples and testing prior to a connection being completed. If circumstances relating to a connection are identified that could impact future water quality and public health.

For further information please contact us



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