



New Mains Disinfection and Clearance

A. PURPOSE AND SCOPE

To define the processes for the disinfection and introduction to service of new water mains to ensure that the requirements of Technical Guidance Note No2 and the relevant sections of the Principals of Water Supply Hygiene are met.

B. CONTENTS

- A. PURPOSE AND SCOPE1
- B. CONTENTS.....1
- C. CHANGES IN THIS DOCUMENT.....1
- D. RECORDS / FORMS / LOGS.....1
- E. REFERENCES.....1
- F. PROCEDURE2
 - 1. Application2
 - 2. Prerequisite.....2
 - 3. Preparation2
 - 4. Disinfection2
 - 5. Sampling3

C. CHANGES IN THIS DOCUMENT

| DESCRIPTION OF CHANGE |
|--|
| No change to document but v2.1 becomes v3.0 on Sharepoint General update following BJKS review. Corrected typing errors |

D. RECORDS / FORMS / LOGS

| REFERENCE | TITLE | LOCATION |
|-----------------------------|-----------------------------|----------|
| FM-QSC-0005 | New Mains Disinfection Log. | Intranet |

E. REFERENCES

| REFERENCE | TITLE | LOCATION |
|-------------------------|--|----------|
| BP 543 | Schedule Work | Intranet |
| QCS-200 | Water Requisitions | Intranet |
| QSC-002 | Preparation and Disposal of Chlorine Solutions | Intranet |
| QSC-006 | Repair of Burst Mains | Intranet |
| QSC-024 | Collection of Samples for Laboratory Analysis | Intranet |
| QSC-011 | On-Site Determination Chlorine | Intranet |
| QSC-013 | On-Site Determination of pH | Intranet |
| QSC-014 | On-Site Determination of Taste and Odour | Intranet |
| QSC-015 | On-Site Determination of Conductivity | Intranet |
| QSC-016 | On-Site Determination of Appearance | Intranet |
| QSM-008 | Method Statement | Intranet |
| QWD-160 | Common Systems | Intranet |



New Mains Disinfection and Clearance

F. PROCEDURE**1. Application**

Any deviations from this procedure must be authorised by **Scientist (Potable Water)** and recorded on appropriate work order [BP 543](#) Schedule Work or covered by an authorised Method Statement using [QSM-008](#).

2. Prerequisite

The main is isolated from the live network and has been subject to a satisfactory pressure test.

Sufficient sample points have been made available in accordance with the table in section 4.1 of this Procedure.

3. Preparation

The main is swabbed and flushed using [QWD-160](#).

4. Disinfection

- The main is refilled, adding sodium hypochlorite to achieve a minimum chlorine level of 20 mg/l along the length of the main.
- The concentration of chlorine is checked with a high level chlorine comparator test kit using [QSC-011](#) and recorded on either [FM-QSC-0005](#) New Mains Disinfection Log or entered on work order [BP 543](#) Schedule Work.
- If the measured chlorine at any point along the main is less than 20 mg/l the procedure is repeated, ensuring that chlorinated waste water is fully dechlorinated prior to disposal according to [QSC-002](#) *Preparation and Disposal of Chlorine Solutions*.
- Arrangements are made for samples to be taken from the new main. A work order is work flowed to the appropriate Scientist using [BP 543](#) Schedule Work.
- The main is allowed to stand for a minimum of 16 hours.
- Determine HR Chlorine as described in [QSC-011](#).
- Report Chlorine levels less than 10 mg/l to the appropriate **Scientist (Potable Water)**.
- The main is flushed ensuring that chlorinated waste water is de-chlorinated prior to disposal according to [QSC-002](#).
- Continue to flush until the chlorine level measured ([QSC-011](#)) at the outlet of the new main is comparable with the level of the feed water.
- The main is sampled the next working day.



New Mains Disinfection and Clearance

5. Sampling

- Samples are collected from the end of each leg of new main. The number of samples per leg is determined in accordance with the following table:

| | |
|---------------------|--|
| <50m length | 1 sample |
| 51m to 1000m length | 3 samples |
| >1000m length | 3 samples plus 1 sample per 500m thereafter. |
- Sample points are located evenly along the length of the main.
- Any additional sample points installed to allow collection of samples are for use only during this commissioning period.
- Samples are collected for Coliforms; *E. coli*; 2 & 3 day TVC and turbidity (group QC1WT) following [QSC-024](#).
- Samples are tested on site for:

pH [QSC-013](#)

free and total chlorine [QSC-011](#)

conductivity [QSC-015](#)

taste and odour [QSC-014](#)

visual appearance [QSC-016](#)

- or a laboratory sample for pH and conductivity (group CC51) is submitted and the following on site tests carried out.

free and total chlorine [QSC-011](#)

taste and odour [QSC-014](#)

visual appearance [QSC-016](#)

- Results of on-site or laboratory tests must be within the following limits:

| | |
|-------------------|--------------------------------------|
| pH | 6.5 to < 9.5 |
| chlorine | comparable with the feed water |
| conductivity | <100uS/cm difference from feed water |
| turbidity | <4NTU |
| taste and odour | no unusual taste or odour |
| visual appearance | clear and bright |

- On-site tests are recorded on the sample label or relevant work order [BP 543](#).
- If there is any doubt concerning the quality of water, or if any of the on site tests are not satisfactory, then advice is sought from the appropriate **Scientist (Potable Water)**.
- Results are assessed by the appropriate **Scientist (Potable Water)** and an entry made on the appropriate work order, which is work flowed back to the originator.
- If sample results are satisfactory, then clearance will be issued by the appropriate **Scientist (Potable Water)** on the work order.



New Mains Disinfection and Clearance

- If the results of microbiological analysis are not satisfactory at any stage of analysis then the appropriate **Scientist (Potable Water)** will determine the remedial action required which will be entered onto the work order.
- The new main is flushed with mains water prior to being brought into service.
- A new main must be brought into service within a period of 10 days from the date of sampling.
- If a period of more than 10 days elapses from the time the main was sampled and the new main has not been brought into service, then the appropriate **Scientist (Potable Water)** must be advised for reassessment of the situation, prior to further commissioning of the main.