



Unit title	Disinfect Water Mains
SQA code	HC3Y 04
SCQF level	6
SCQF credit points	8
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History of changes

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Title	Disinfect Water Mains	
Learning Outcomes		Assessment Criteria
The learner will:		The learner can:
1	Prepare the system for disinfection.	<p>1.1 Confirm the section of the system to be disinfected and the fittings and disinfection methods to be used, from instructions and information received.</p> <p>1.2 Check valve configuration to ensure the section to be disinfected is isolated in accordance with organisational requirements.</p> <p>1.3 Resolve any anomalies found where the instructions do not meet the conditions either by resolving on site or by forwarding for resolution by others.</p> <p>1.4 Follow guidance to ascertain the disinfectant to be used, the quantity, strength and exposure time and select the appropriate equipment for the task.</p> <p>1.5 Confirm that the equipment condition and installation meets the manufacturer's and company specifications.</p> <p>1.6 Take samples at appropriate intervals in the preparation process to measure current system operating conditions.</p> <p>1.7 Confirm that the required amounts of disinfectant have been added to produce the specified concentration at all necessary points on the system.</p> <p>1.8 Identify problems with the preparation work and can take the relevant action.</p> <p>1.9 Follow safe working and hygiene practices when preparing the system for disinfection, in line with relevant specifications and procedures.</p> <p>1.10 Ensure that all relevant people (including affected customers, colleagues and control centres) are informed of disinfection details according to organisational procedures.</p>

Learning Outcomes	Assessment Criteria
<p>The learner will:</p>	<p>The learner can:</p>
<p>2 Carry out the disinfection operation.</p>	<p>2.1 Carry out disinfection procedures in line with organisational requirements.</p> <p>2.2 Take samples at appropriate intervals to measure the effectiveness of the disinfection process.</p> <p>2.3 Follow the appropriate procedure where samples indicate that the method of disinfection used has not been successful.</p> <p>2.4 Record all stages in the disinfection process.</p> <p>2.5 Keep customers, colleagues and control centres informed as necessary at all stages.</p> <p>2.6 Dispose safely of all water to minimise flooding, freezing and the effect on the environment, according to regulatory and organisational requirements.</p> <p>2.7 Dismantle, clean and store the equipment in accordance with organisational requirements.</p> <p>2.8 Confirm the effectiveness of the disinfection procedures on water quality.</p> <p>2.9 Take relevant action where problems are identified with the disinfection operation.</p> <p>2.10 Follow safe working and hygiene practices for disinfecting water mains in line with relevant procedures, regulatory and statutory requirements.</p>

Learning Outcomes	Assessment Criteria
<p>The learner will:</p> <p>3 Know and understand water mains disinfection.</p>	<p>The learner can:</p> <p>3.1 explain the importance of disinfecting water mains, including:</p> <ul style="list-style-type: none"> (a) the reasons for disinfecting mains (b) how contamination can occur (c) how to use methods that avoid contamination. <p>3.2 outline disinfection methods, including the different forms of disinfectants and when to use them for specified tasks.</p> <p>3.3 list the equipment required for mains disinfection and how to test, install and use it.</p> <p>3.4 outline what is covered by the manufacturer's specification for equipment condition and installation.</p> <p>3.5 describe the company specifications for disinfection procedures.</p> <p>3.6 explain how to calculate volumes of water and appropriate disinfection dosages.</p> <p>3.7 describe how to check that the main is correctly isolated in accordance with the plan, and the implications of ineffective isolation.</p> <p>3.8 explain how to measure flow rates to ensure water flow carries the disinfectant through the pipe.</p> <p>3.9 describe how to calculate volumes to ensure adequate flushing takes place.</p> <p>3.10 list the typical and unusual problems that could arise when disinfecting water mains, and confirm the limits of their responsibility for dealing with them.</p>

Learning Outcomes	Assessment Criteria
<p>The learner will:</p>	<p>The learner can:</p> <p>3.11 Outline the safe working and hygiene procedures to follow while disinfecting water mains, covering:</p> <ul style="list-style-type: none"> (a) the handling, storage and use of disinfectants (b) personal hygiene (c) de-pressurising part of the system (d) use of personal protective equipment (e) use of hand tools and equipment (f) national water hygiene requirements for cleaning and disinfecting tools and equipment. <p>3.12 Describe the organisational procedures for informing people of disinfection operations.</p> <p>3.13 Describe how to dispose of flushed water to minimise risk of flooding and freezing.</p> <p>3.14 Describe how to dispose of chlorinated water, including:</p> <ul style="list-style-type: none"> (a) the damage that can be caused by incorrect disposal of chlorinated water (b) how to safely dispose of chlorinated water, including de-chlorination techniques. <p>3.15 State how to use and store equipment for mains disinfection correctly and safely.</p> <p>3.16 Describe the sampling procedures to be used in mains disinfection operations.</p> <p>3.17 Outline the acceptable water quality parameters that should be confirmed following disinfection.</p>

Additional information about the Unit
Unit purpose and aim(s)
<p>This Unit is designed to allow learners working on the water distribution network to demonstrate their competence in disinfecting new and existing water mains and pipework, for both precautionary and reactionary purposes.</p> <p>Learners must check which part of the system requires disinfection, and which network fittings are included, and must confirm the disinfection methods to be used. The section to be disinfected must be properly isolated, and learners must use specified disinfectants and methods. They must dispose of disinfected water safely. Relevant records of disinfection activities must be maintained, and learners must follow safe working and hygiene practices at all times.</p>
Details of the relationship between the Unit and relevant national occupational standards (if appropriate)
EUSDC06 — Disinfect water mains
Details of the relationship between the Unit and other standards or curricula (if appropriate)
N/A
Assessment requirements specified by a sector or regulatory body (if appropriate)
<p>Some terms, used in the Assessment Criteria, cover a range of situations, as follows:</p> <ol style="list-style-type: none"> 1 Disinfection is carried out: <ol style="list-style-type: none"> (a) as a precautionary measure (b) for reactionary purposes. 2 Types of disinfection and their suitability for the task include: <ol style="list-style-type: none"> (a) Full contact disinfection for new or repaired mains (b) Surface/spray disinfection for repaired mains/fittings 3 Problems include: <ol style="list-style-type: none"> (a) problems with equipment (b) problems with the system (c) problems with disinfectant. 4 Relevant action taken to resolve problems includes: <ol style="list-style-type: none"> (a) rectification of problems within your responsibility (b) reporting of problems outside your responsibility <p>Assessor observation in a realistic working environment (RWE), agreed in advance with the EV, may contribute to the Unit evidence. Networks replicated in the RWE must be pressurised to a level consistent with, and must contain a substance which replicates, the workplace network. A real disinfectant must be used, of the type available for use in the learner's workplace.</p>

Assessment (evidence) Requirements**Workplace evidence**

The majority of the evidence used for this Unit must come from the learner's own work activities, both in their own 'reporting base' and working on the water distribution network.

Knowledge and Understanding

The Knowledge and Understanding requirements for this Unit must be covered in full. The learner may demonstrate considerable knowledge through their workplace performance and during observed assessments, but it is likely that some assessor questioning will be needed to confirm that all knowledge requirements are met. The centre may use oral and/or written questioning to cover the knowledge requirements.

Guidance on Instruments of Assessment

The evidence for this Unit is likely to be generated through a mixture of observation reports, assessor-guided discussions and questioning, and workplace records, reports or documentation.