

# Pr9085 - Pressure Testing of Sewer Rising and Gravity Mains Work Instruction

|                |  |
|----------------|--|
| Document Owner | Manager Field Services   |
| References     | <p>WSAA Sewerage Code of Australia, WSA 02 – 2002 V 2.3</p> <p>WSAA Pressure Sewerage Code of Australia, WSA07-2007, V1.1</p> <p>Dechlorination of Drinking Water to Discharged Waterways - National Guidance for the Urban Water Industry 2019</p> <p><a href="#">Pr10855</a> - Field Services - Sewer Mains - Work Instructions Manual</p> |

## 1. Purpose

This work instruction details the process of pressure testing of:

- Sewer rising mains (Section 4.1) – Pressure testing of rising mains must be carried out to:
  - Reveal any occurrence of faults in the laying and assembly procedures.
  - Test the installed structural integrity of the pipeline.
  - Determine that the pipeline will sustain a pressure greater than its design pressure without leakage.
- Sewer gravity mains (Section 4.2) – Pressure testing of gravity mains must be carried out to identify points of leakage and potential pipeline infiltration and exfiltration due to inadequate pipe seals and joints.

## 2. Scope

This work instruction applies to newly constructed sewer rising and gravity mains forming part of the Unitywater sewer network. It applies to all pipe materials, diameters, pipe classes and lengths. In respect to gravity mains it applies to pipe diameters of <DN 1500. The process detailed in this instruction must be followed by all persons undertaking pressure testing of Unitywater sewer rising or gravity mains.

The definitions used in this instruction are:

| Term                | Meaning  |
|---------------------|--|
| Hydrostatic testing | Pressure testing with water as the test medium             |
| NATA                | National Association of Testing Authorities, Australia     |
| PE                  | Polyethylene   |
| Vacuum Testing      | Pressure testing with negative air pressure as test medium |
| WSA                 | Water Services Association                                 |

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### 3. Responsibilities and Authorities

| Position title         | Roles and responsibilities  |
|------------------------|---|
| Manager Field Services | <p>As Document Owner responsible for:</p> <ul style="list-style-type: none"> <li>Conducting and/or delegating regular reviews to ensure this instruction and related resources (e.g. forms, website content) remain fit for purpose, consistent and current.</li> <li>Approving this work instruction for publication.</li> <li>Ensuring all relevant stakeholders and team members have been consulted and feedback is captured and actioned (where applicable).</li> <li>Ensuring appropriate communication and/or training is provided to relevant team members when implementing a new, amended or obsolete document (where applicable).</li> <li>Monitoring compliance with internal/external requirements (e.g. monitor legislation changes and assess/update this instruction when required).</li> </ul> |
| Team members           | <ul style="list-style-type: none"> <li>Working in accordance with this work instruction.</li> <li>Advising the Document Owner if this work instruction is not consistent with current practices.</li> <li>Where possible, minimise printing and/or avoid creating duplicate copies of this work instruction. Ensure current versions are sourced from the <a href="#">Document Centre</a>.</li> </ul>   |

### 4. Instruction

#### 4.1 Pressure testing sewer rising mains

Once the Constructor has completed construction of the main or the section of main to be pressure tested, the following steps must be undertaken:

| Step | Activity description   |
|------|--|
| 1    | Ensure all permanent and temporary thrust blocks are adequately cured.   |
| 2    | Assemble pressure testing plant on site (ensure appropriate pump sizing).  |
| 3    | Confirm test gauge certification is current and gauge is undamaged.  |
| 4    | Connect test equipment to pipeline via air valve tee or purpose-designed tapping (preferably at lowest point).   |
| 5    | Slowly fill the pipeline with potable or recycled water ensuring all air is bled from the pipeline at high points (fill from lowest point where possible).   |
| 6    | <p>Test the pipeline or pipeline segment in accordance with WSA 07, Section 21.5 for PE or Section 21.6 for other pipe materials and record:</p> <ul style="list-style-type: none"> <li>test section pipe information (length, diameter, material, class)</li> <li>test pressure</li> <li>maximum allowable leakage rate</li> <li>test log information (time, pressure, required make up water).</li> </ul> <p>The test pressure shall be 900KPa unless specified otherwise.</p> |
| 7    | Slowly depressurise pipeline upon successful completion of pressure test.  |

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| Step | Activity description   |
|------|--|
| 8    | Drain pipeline to remove testing equipment and to prepare for final connections if necessary (discharge shall be in accordance with Dechlorination of Drinking Water to Discharged Waterways - National Guidance for the Urban Water Industry 2019). |
| 9    | Disconnect testing equipment and reinstate any equipment removed for testing purposes.   |

Pressure testing against valves should be avoided where possible. Where pressure testing against a valve cannot be avoided, suitability of the valve for pressure testing purposes is to be investigated and must be approved by the Unitywater Project Manager prior to testing.

A Hydrostatic Test Certificate must be produced on completion of the pressure test and submitted to the Unitywater Project Manager for approval. Unless otherwise permitted by the superintendent, testing must be arranged to be undertaken by a NATA accredited organisation that holds current listing for the relevant test.

### 4.2 Pressure testing sewer gravity mains

Once the Constructor has completed construction of the sewer gravity main or the section of sewer gravity main to be pressure tested and Unitywater has been notified, the sewer must be tested in accordance with WSA 02, Section 22.4.

Vacuum testing must be undertaken unless another test method is specified and approved by the Unitywater Project Manager.

Risks associated with other test methods must be identified and managed appropriately.

The following must be recorded during the test:

- test section pipe information (length, diameter, material, class)
- maximum negative pressure (or positive pressure for low pressure air testing)
- drop in vacuum over test period (or drop in positive pressure for low pressure air testing).

A Pressure Test Certificate must be produced on completion of the pressure test and submitted to the Unitywater Project Manager for approval.

Unless otherwise permitted by the superintendent, testing must be arranged to be undertaken by a NATA accredited organisation that holds current listing for the relevant test.

## 5. Recordkeeping

The table below identifies the types of records relating to this documented process and their storage location:

| Type of Record            | Storage Location   |
|---------------------------|--|
| Hazard / Incident reports | Intelex  |
| Risk assessments          | Within relevant EzMax mobile/Maximo work order (if paper based then scanned version attached to work order). If no work order, save in relevant project/activity/event folder in Objective |
| Training records          | Recorded in Learning & Development Objective folder and/or recorded in uLearn.   |
| Tickets / licences        | Recorded in both TechnologyOne and Learning & Development Objective folder, and/or in uLearn.  |