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## Standard Practice for Field Leak Testing of Large Diameter Profile Wall High Density Polyethylene Pipe

### 1. GENERAL

#### 1.1. Scope

1.1.1. This practice covers procedures for testing installed Large Diameter Profile Wall High Density Polyethylene Pipe meeting the requirements of ASTM F894, using water infiltration or exfiltration acceptance limits or joint acceptance testing to demonstrate the integrity of the installed materials and construction procedures. The joint types included in this standard practice are extrusion welding joints and joints connected with mechanical couplings. The pipe to be tested shall have been installed in accordance with the requirements of ASTM D2321.

1.1.2. This standard practice does not purport to address all of the safety concerns, if any, associated with its use. It is the responsibility of the user of this standard practice to establish appropriate safety and health practices and to determine the applicability of regulatory limitations prior to use.

#### 1.2. References

1.2.1. Unless otherwise specified, references to documents shall mean the latest published edition of the referenced document in effect at the bid date of the project.

Reference		Title
ASTM	D2321	<i>Standard Practice for Underground Installation of Thermoplastic Pipe for Sewers and Other Gravity-Flow Applications</i>
	F894	<i>Standard Practice for Underground Installation of Thermoplastics Pipe for Sewers and Other Gravity Flow Applications.</i>
	F2487	<i>Standard Practice for Infiltration and Exfiltration Acceptance Testing of Installed Corrugated High Density Polyethylene and Polypropylene Pipelines</i>

## 2. SUMMARY OF PRACTICE

### 2.1.General

- 2.1.1. For the infiltration and exfiltration testing, follow standard practice ASTM F2487.
- 2.1.2. For testing conducted with a 'joint leak tester', a testing apparatus with inflatable bladders is used to isolate the joint and create a circumferential cavity at the joint. The cavity is placed under low air pressure. If the rate at which pressure is reduced is equal to or less than the allowable limit, the joint is acceptable.

## 3. PROCEDURES

### 3.1.Infiltration Testing

- 3.1.1. The requirements of ASTM F2487 may be applied to Large Diameter Profile Wall High Density Polyethylene Pipe.

### 3.2.Exfiltration Testing

- 3.2.1. The requirements of ASTM F2487 may be applied to Large Diameter Profile Wall High Density Polyethylene Pipe.

### 3.3.Joint Testing

- 3.3.1. Determine the width of the bladders used to seal / isolate the joint to be tested. Grind, using a smooth grinding disk, the spiral production weld to either side of the joint that will be in contact with the bladders, to reduce the 'unevenness' of the weld.
- 3.3.1. Place mastic material<sup>1</sup> along the surfaces that have been ground.
- 3.3.2. Position the joint tester and center over the joint. Inflate the bladder in accordance with the manufacturer's instructions, being careful not exceed the maximum inflation pressure of the bladder.
- 3.3.3. Pressurize the center cavity with air to [\_\_\_\_\_]. [*Specify the required pressure .. usually 3.5 or 4 psi ( 24 or 27.5 kPa)*]. Allow pressure in the cavity to stabilize for two (2) minutes before turning off the power source. If pressure has dropped, re-pressurize to the specified level.
- 3.3.4. Observe pressure drop that occurs during an interval of [\_\_\_\_\_] minutes [*Specify air pressure dwell time .. usually 8 minutes*].
- 3.3.5. If the measured loss of pressure is less than or equal to the allowable pressure loss, the section is acceptable.

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<sup>1</sup> Silly Putty' or 'Nutty Putty' appears to work well in this application.

3.3.6. If the joint fails, repair the joint and retest.

#### **4. Leakage Allowance<sup>2</sup>**

- 4.1.1. The allowable leakage<sup>3</sup> rate for infiltration or exfiltration shall be [\_\_\_\_\_]  
*[Specify the allowable leakage.....usually 15 US Gallons per inch of pipe diameter per mile of pipe per day ( 1.39 Litres per millimetre of pipe diameter per kilometer of pipe per day)].*
- 4.1.2. The allowable pressure drop shall be [\_\_\_\_\_]. *[Specify the allowable loss of pressure .. usually 0.5 psi (3.45 kPa)].*

END SECTION

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<sup>2</sup> There is no intent to imply an equivalence between water infiltration / exfiltration testing, and air pressure testing at individual joints.

<sup>3</sup> The same allowable leakage rate should be applied to all pipe materials approved for project.