

## **PROCEDURES**

### **PRESSURE GAUGES**

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#### **7.0 PURPOSE**

To provide standardized intervals and the required maintenance for the inspection and calibration of pressure devices used for pressure stand up tests on distribution facilities.

#### **7.1 APPLICATIONS**

- A. Gauges should be selected for their specific application
- B. The desired pressure to be gauged should fall within the mid range of the selected gauge. (i.e. operating pressure at 50 psig, appropriate gauge should be 0 to 100)

#### **7.2 APPROVED STANDARDS AND ACCURACY**

- A. Field Operating Standards shall have a minimum accuracy of  $\pm 1.0$  percent full scale or full range for standards, including:

#### **7.3 CALIBRATION SCHEDULES**

- A. Field Operating Standards shall be inspected and calibrated every six (6) months or replaced as necessary.
- B. Gauges should be sent the manufacturer or an independent agency for calibration.

#### **7.4 OPERATING REQUIREMENTS**

- A. Do not transport Field gauges in vehicle cabs or bins unless stored in an approved carrying case, such as:
- B. Check and adjust zeros before using at each location.
- C. Install vertically all bourdon or spring-type pressure gauges.
- D. Tap bourdon or spring-type pressure gauges at each pressure setting to overcome minor binds. Replace gauges when heavy tapping is required to obtain desired setting, or jumping of the pointer is observed during pressure setting changes.
- E. Have all Field Operating Standards inspected and calibrated against a Primary Standard when it has received damage, suspected to have received damage, or does

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not operate properly.

- F. Do not disassemble or attempt field repairs of standards.
- G. For the most accurate reads, use pressure standards which correspond to stand up test pressures below.
  - 1. Bourdon or spring-type gauges:

<u>Test Pressure (PSIG)</u>	<u>Maximum Gauge Range (PSIG)</u>
1-24	0-30 or 0-60
25-50	0-60 or 0-100
50-90	0-100 or 0-200
90-180	0-200 or 0-400

#### 7.5 CALIBRATION REQUIREMENTS AND TOLERANCE

- A. Pressure standards shall be calibrated using the following number of pressure settings during the calibration process. Pressure settings established for the calibration will ensure that the full range for the gauges is covered.

**NOTE:** The standard being used for calibrating a device has to have a higher accuracy than the accuracy to which the device is being calibrated to. For example, a Field Operating Standard with a manufacturer's stated accuracy of  $\pm 1.0$  percent of full scale cannot be calibrated to that accuracy with a Primary Standard having the same  $\pm 1.0$  percent of full scale accuracy.

- 1. Gauges ranging from 0 to 15 psig shall be calibrated at four (4) different pressure settings.
- 2. Gauges ranging from 0 to 60 psig shall be calibrated at six (6) different pressure settings.
- 3. Gauges ranging from 0 to 200 psig shall be calibrated at seven (7) different pressure settings.

**NOTE:** Gauges that measure both inches of water column and psig shall require separate calibration in both modes.

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- B. Repair or replace standards that are found outside the manufacturer's stated accuracy for the specific device and cannot be calibrated to tolerances.

#### **7.6 RECORD KEEPING REQUIREMENTS**

The Operator shall maintain a record of the calibration and maintenance performed on standards. The serial number and/or utility number with the vehicle number and/or technician assigned to the standard shall be recorded. Maintain a record of calibration and maintenance history for each device on appropriate form.

#### **7.7 PRESSURE RECORDING CHARTS**

- A. When using a pressure recording chart, a pressure test gauge shall also be used to verify the test pressure.
- B. The ink pen must show a clear line on the chart.