

#### § 230.49

and all steam outlets closed. Additional safety relief valve capacity shall be provided if the safety relief valves allow an excess pressure of more than 6 percent above the MAWP during this test.

#### § 230.49 Setting of safety relief valves.

(a) *Qualifications of individual who adjusts.* Safety relief valves shall be set and adjusted by a competent person who is thoroughly familiar with the construction and operation of the valve being set.

(b) *Opening pressures.* At least one safety relief valve shall be set to open at a pressure not exceeding the MAWP. Safety relief valves shall be set to open at pressures not exceeding 6 psi above the MAWP.

(c) *Setting procedures.* When setting safety relief valves, two steam gauges shall be used, one of which must be so located that it will be in full view of the persons engaged in setting such valves; and if the pressure indicated by the gauges varies more than 3 psi they shall be removed from the boiler, tested, and corrected before the safety relief valves are set. Gauges shall in all cases be tested immediately before the safety relief valves are set or any change made in the setting. When setting safety relief valves, the water level shall not be higher than  $\frac{3}{4}$  of the length of the visible water glass, as measured from the bottom of the glass.

(d) *Labeling of lowest set pressure.* The set pressure of the lowest safety relief valve shall be indicated on a tag or label attached to the steam gauge so that it may be clearly read while observing the steam gauge.

#### § 230.50 Time of testing.

All safety relief valves shall be tested, and adjusted if necessary, under steam at every 92 service day inspection, and also whenever any irregularity is reported.

#### WATER GLASSES AND GAUGE COCKS

#### § 230.51 Number and location.

Every boiler shall be equipped with at least two water glasses. The lowest reading of the water glasses shall not be less than 3 inches above the highest part of the crown sheet. If gauge cocks

#### 49 CFR Ch. II (10-1-06 Edition)

are used, the reading of the lowest gauge cock shall not be less than 3 inches above the highest part of the crown sheet.

#### § 230.52 Water glass valves.

All water glasses shall be equipped with no more than two valves capable of isolating the water glass from the boiler. They shall also be equipped with a drain valve capable of evacuating the glass when it is so isolated.

#### § 230.53 Time of cleaning.

The spindles of all water glass valves and of all gauge cocks shall be removed and valves and cocks thoroughly cleaned of scale and sediment at every 31 service day inspection, and when testing indicates that the apparatus may be malfunctioning. In addition, the top and bottom passages of the water column shall be cleaned and inspected at each annual inspection.

#### § 230.54 Testing and maintenance.

(a) *Testing.* All water glasses must be blown out, all gauge cocks must be tested, and all passages verified to be open at the beginning of each day the locomotive is used, and as often as necessary to ensure proper functioning.

(b) *Maintenance.* Gauge cocks, water column drain valves, and water glass valves must be maintained in such condition that they can easily be opened and closed by hand, without the aid of a wrench or other tool.

#### § 230.55 Tubular type water and lubricator glasses and shields.

(a) *Water glasses.* Tubular type water glasses shall be renewed at each 92 service day inspection.

(b) *Shields.* All tubular water glasses and lubricator glasses must be equipped with a safe and suitable shield which will prevent the glass from flying in case of breakage. This shield shall be properly maintained.

(c) *Location and maintenance.* Water glasses and water glass shields shall be so located, constructed, and maintained that the engine crew can at all times have an unobstructed view of the water in the glass from their proper positions in the cab.