(1) The sealed source’s prototype has been tested and found to maintain its integrity after each of the following tests:

(i) *Temperature.* The test source must be held at \(-40^\circ C\) for 20 minutes, \(600^\circ C\) for 1 hour, and then be subject to a thermal shock test with a temperature drop from \(600^\circ C\) to \(20^\circ C\) within 15 seconds.

(ii) *Impact test.* A 5 kg steel hammer, 2.5 cm in diameter, must be dropped from a height of 1 m onto the test source.

(iii) *Vibration test.* The test source must be subject to a vibration from 25 Hz to 500 Hz at 5 g amplitude for 30 minutes.

(iv) *Puncture test.* A 1 gram hammer and pin, 0.3 cm pin diameter, must be dropped from a height of 1 m onto the test source.

(v) *Pressure test.* The test source must be subject to an external pressure of \(1.695 \times 10^7\) pascals \([24,600\text{ pounds per square inch absolute}]\).

(e) The requirements in paragraphs (a), (b), (c), and (d) of this section do not apply to sealed sources that contain licensed material in gaseous form.

(f) The requirements in paragraphs (a), (b), (c), and (d) of this section do not apply to energy compensation sources (ECS). ECSs must be registered with the Commission under §32.210 of this chapter or with an Agreement State.

[65 FR 20345, Apr. 17, 2000]

§ 39.45 Subsurface tracer studies.

(a) The licensee shall require all personnel handling radioactive tracer material to use protective gloves and, if required by the license, other protective clothing and equipment. The licensee shall take precautions to avoid ingestion or inhalation of radioactive tracer material and to avoid contamination of field stations and temporary job sites.

(b) A licensee may not knowingly inject licensed material into fresh water aquifers unless specifically authorized to do so by the Commission.

§ 39.47 Radioactive markers.

The licensee may use radioactive markers in wells only if the individual markers contain quantities of licensed...