

Energy Compensation Sources for Well Logging and Other Regulatory Clarifications – Part 39

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Change to NRC Section	Title	State Section	Compatibility Category	Summary of Change to CFR	Difference Yes/No	Significant Yes/No	If Difference, Why or Why Not Was a Comment Generated
§39.2	Definitions		B	<p>Added Definition: Energy compensation source (ECS) means a small sealed source, with an activity not exceeding 3.7 MBq [100 microcuries], used within a logging tool, or other tool components, to provide a reference standard to maintain the tool's calibration when in use.</p>			
§39.2	Definitions		B	<p>Added Definition: Tritium neutron generator target source means a tritium source used within a neutron generator tube to produce neutrons</p>			
§39.15	Agreement with well owner or operator		C	<p>Revised Paragraphs (a)(5)(ii)& intro(iii): (a)(5) (ii) A means to prevent inadvertent intrusion on the source, unless the source is not accessible to any subsequent drilling operations; and (iii) A permanent identification plaque, constructed of long lasting material such as stainless steel, brass, bronze, or monel, must be mounted at the surface of the well, unless the mounting of the plaque is not practical. The size of the plaque must be at least 17 cm [7 inches] square and 3 mm [1/8-inch] thick. The plaque must contain--</p>			

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§39.35	Leak testing of sealed sources		C	<p>Amended paragraphs (b), (c), (d)(1), (e)(1), (e)(4) and (e)(5):</p> <p>(b) Method of testing. The wipe of a sealed source must be performed using a leak test kit or method approved by the Commission or an Agreement State. The wipe sample must be taken from the nearest accessible point to the sealed source where contamination might accumulate. The wipe sample must be analyzed for radioactive contamination. The analysis must be capable of detecting the presence -of 185 Bq [0.005 microcuries] of radioactive material on the test sample and must be performed by a person approved by the Commission or an Agreement State to perform the analysis.</p> <p>(c) Test frequency. (1) Each sealed source (except an energy compensation source (ECS)) must be tested at intervals not to exceed 6 months. In the absence of a certificate from a transferor that a test has been made within the 6 months before the transfer, the sealed source may not be used until tested.</p> <p>(2) Each ECS that is not exempt from testing in accordance with paragraph (e) of this section must be tested at intervals not to exceed 3 years. In the absence of a certificate from a transferor that a test has been made within the 3 years before the transfer, the ECS may not be used until tested.</p>			

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				<p>(d) Removal of leaking source from service. (1) If the test conducted pursuant to paragraphs (a) and (b) of this section reveals the presence of 185 Bq [0.005 microcuries] or more of removable radioactive material, the licensee shall remove the sealed source from service immediately and have it decontaminated, repaired, or disposed of by an NRC or Agreement State licensee that is authorized to perform these functions. The licensee shall check the equipment associated with the leaking source for radioactive contamination and, if contaminated, have it decontaminated or disposed of by an NRC or Agreement State licensee that is authorized to perform these functions.</p> <p>(e)(1) Hydrogen-3 (tritium) sources;</p> <p>(4) Sources of beta- or gamma-emitting radioactive material with an activity of 3.7 MBq [100 microcuries] or less; and</p> <p>(5) Sources of alpha- or neutron-emitting radioactive material with an activity of 0.37 MBq [10 microcuries] or less.</p>			
§39.41	Design and performance criteria for sources		B	<p>Amended Section:</p> <p>(a) A licensee may use a sealed source for use in well logging applications if --</p> <p>(1) The sealed source is doubly encapsulated;</p>			

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				<p>(2) The sealed source contains licensed material whose chemical and physical forms are as insoluble and nondispersible as practical; and</p> <p>(3) Meets the requirements of paragraph (b), (c), or (d) of this section.</p> <p>(b) For a sealed source manufactured on or before July 14, 1989, a licensee may use the sealed source, for use in well logging applications if it meets the requirements of USASI N5.10-1968, ``Classification of Sealed Radioactive Sources," or the requirements in paragraph (c) or (d) of this section.</p> <p>(c) For a sealed source manufactured after July 14, 1989, a licensee may use the sealed source, for use in well logging applications if it meets the oil-well logging requirements of ANSI/HPS N43.6-1997, ``Sealed Radioactive Sources--Classification."</p> <p>(d) For a sealed source manufactured after July 14, 1989, a licensee may use the sealed source, for use in well logging applications, if--</p> <p>(1) The sealed source's prototype has been tested and found to maintain its integrity after each of the following tests:</p> <p>(i) Temperature. The test source must be held at -40 deg. C for 20 minutes, 600 deg. C for 1 hour,</p>			

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				<p>and then be subject to a thermal shock test with a temperature drop from 600 deg. C to 20 deg. C within 15 seconds.</p> <p>(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.</p> <p>(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.</p> <p>(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.</p> <p>(v) Pressure test. The test source must be subject to an external pressure of 1.695×10^7 pascals [24,600 pounds per square inch absolute].</p> <p>(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.</p> <p>(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 Sec. 32.210 of this chapter or with an Agreement State.</p>			
§39.49	Uranium sinker bars		C	<p>Revised Section: The licensee may use a uranium sinker bar in well logging applications only if it is legibly</p>			

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				impressed with the words ``CAUTION--RADIOACTIVE-DEPLETED URANIUM" and ``NOTIFY CIVIL AUTHORITIES (or COMPANY NAME) IF FOUND."			
§39.53	Energy compensation source		C	<p>Revised Section: The licensee may use an energy compensation source (ECS) which is contained within a logging tool, or other tool components, only if the ECS contains quantities of licensed material not exceeding 3.7 MBq [100 microcuries].</p> <p>(a) For well logging applications with a surface casing for protecting fresh water aquifers, use of the ECS is only subject to the requirements of Secs. 39.35, 39.37 and 39.39.</p> <p>(b) For well logging applications without a surface casing for protecting fresh water aquifers, use of the ECS is only subject to the requirements of Secs. 39.15, 39.35, 39.37, 39.39, 39.51, and 39.77.</p>			
§39.55	Tritium neutron generator target source		C	<p>Revised Section: (a) Use of a tritium neutron generator target source, containing quantities not exceeding 1,110 MBq [30 curies] and in a well with a surface casing to protect fresh water aquifers, is subject to the requirements of this part except Secs. 39.15, 39.41, and 39.77. (b) Use of a tritium neutron generator target source, containing</p>			

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				quantities exceeding 1,110 MBq [30 curies] or in a well without a surface casing to protect fresh water aquifers, is subject to the requirements of this part except Sec. 39.41.			
§39.77	Notification of incidents and lost sources; abandonment procedures for irretrievable sources		C	<p>Revised Paragraph (c)(1) and added paragraph (d)(9): (c)(1) Notify the appropriate NRC Regional Office by telephone of the circumstances that resulted in the inability to retrieve the source and-- (i) Obtain NRC approval to implement abandonment procedures; or (ii) That the licensee implemented abandonment before receiving NRC approval because the licensee believed there was an immediate threat to public health and safety; and</p> <p>(d)(9) The immediate threat to public health and safety justification for implementing abandonment if prior NRC approval was not obtained in accordance with paragraph (c)(1)(ii) of this section;</p>			