

fuel gas system as specified in § 65.142(a)(3). Whenever the owner or operator bypasses the fuel gas system or process, the owner or operator shall comply with the recordkeeping requirement in § 65.163(b)(3). Bypassing is permitted if the owner or operator complies with one or more of the following conditions:

- (i) The liquid level in the storage vessel is not increased;
- (ii) The emissions are routed through a closed vent system to a control device complying with paragraph (b)(4) or (5) of this section; or
- (iii) The total aggregate amount of time during which the emissions bypass the fuel gas system or process during the calendar year without being routed to a control device, for all reasons (except startups/shutdowns/malfunctions or product changeovers of flexible operation units and periods when the storage vessel has been emptied and degassed), does not exceed 240 hours.

(7) *Equivalent requirements.* Comply with an equivalent to the requirements in any one of the paragraphs (b)(1) through (6) of this section, as provided in § 65.46.

(c) For each storage vessel storing a liquid for which the maximum true vapor pressure of the total regulated material in the liquid is greater than or equal to 76.6 kilopascals (10.9 pounds per square inch), the owner or operator shall meet the requirements in paragraph (b)(4), (5), or (6) of this section, or equivalent as provided in § 65.46.

§ 65.43 Fixed roof with an internal floating roof (IFR).

(a) *IFR design requirements.* The owner or operator who elects to control storage vessel regulated material emissions by using a fixed roof and an internal floating roof shall comply with the design requirements in paragraphs (a)(1) through (4) of this section.

(1) The internal floating roof shall be designed to float on the stored liquid surface except when the floating roof must be supported by the leg supports.

(2) Except as provided in paragraph (a)(3) of this section, the internal floating roof shall be equipped with a closure device between the wall of the storage vessel and the floating roof

edge and shall consist of one of the following devices:

- (i) A liquid-mounted seal.
 - (ii) A metallic shoe seal.
 - (iii) Two continuous seals mounted one above the other. The lower seal may be vapor-mounted.
- (3) If the internal floating roof is equipped with a vapor-mounted seal as of December 31, 1992, paragraph (a)(2) of this section does not apply until the next time the storage vessel is emptied and degassed, or by April 22, 2004, whichever occurs first.

(4) Except as provided in paragraph (a)(4)(viii) of this section, each internal floating roof shall meet the following specifications:

(i) Each opening in a noncontact internal floating roof except for automatic bleeder vents (vacuum breaker vents) and rim space vents is to provide a projection below the stored liquid surface.

(ii) Except for leg sleeves, automatic bleeder vents, rim space vents, column wells, ladder wells, sample wells, and stub drains, each opening shall be equipped with a gasketed cover or gasketed lid.

(iii) Each penetration of the internal floating roof shall be a sample well. Each sample well shall have a slit fabric cover that covers at least 90 percent of the opening.

(iv) Each automatic bleeder vent and rim space vent shall be gasketed.

(v) Each penetration of the internal floating roof that allows for passage of a ladder shall have a gasketed sliding cover.

(vi) Each penetration of the internal floating roof that allows for passage of a column supporting the fixed roof shall have a flexible fabric sleeve seal or a gasketed sliding cover.

(vii) Covers on each access hatch and each gauge float well shall be designed to be bolted or fastened when they are closed.

(viii) If the internal floating roof does not meet any one of the specifications listed in paragraphs (a)(4)(i) through (vii) of this section as of December 31, 1992, the requirement for meeting those specifications does not apply until the next time the storage vessel is emptied and degassed, or by April 22, 2004, whichever occurs first.

(b) *IFR operational requirements.* The owner or operator using a fixed roof and an internal floating roof shall comply with the following operational requirements:

(1) The internal floating roof shall float on the stored liquid surface at all times except when the floating roof must be supported by the leg supports.

(2) When the floating roof is resting on the leg supports, the process of filling or refilling shall be continuous and shall be accomplished as soon as practical and the owner or operator shall maintain the record specified in §65.47(e).

(3) Automatic bleeder vents are to be set to be closed at all times when the roof is floating except when the roof is being floated off or is being landed on the roof leg supports.

(4) Each cover, access hatch, gauge float well, or lid on any opening in the internal floating roof shall be maintained in a closed position at all times (*i.e.*, no visible gaps) except when the device is in actual use. Prior to filling the storage vessel, rim space vents are to be set to open only when the internal floating roof is not floating, or when the pressure beneath the rim seal exceeds the manufacturer's recommended setting.

(c) *IFR inspection requirements.* To demonstrate compliance, the owner or operator shall visually inspect the internal floating roof, the primary seal, and the secondary seal (if one is in service) according to paragraphs (c)(1) through (4) of this section and maintain records of the IFR inspection results as specified in §65.47(c)(1).

(1) *Single seal.* For vessels equipped with a single-seal system, the owner or operator shall perform the following inspections:

(i) Visually inspect for IFR type A failures, the internal floating roof, and the seal through manholes and roof hatches on the fixed roof no less frequently than once every 12 months.

(ii) Visually inspect for IFR type B failures, the internal floating roof, the seal, gaskets, slotted membranes, and sleeve seals (if any) each time the storage vessel is emptied, but no less frequently than once every 10 years.

(2) *Double seal.* For vessels equipped with two continuous seals mounted one

above the other, the owner or operator shall perform either the inspection required in paragraph (c)(2)(i) of this section or the inspections required in paragraph (c)(2)(ii) of this section:

(i) Visually inspect for IFR type B failures, the internal floating roof, the primary seal, the secondary seal, gaskets, slotted membranes, and sleeve seals (if any) each time the storage vessel is emptied, but no less frequently than once every 5 years; or

(ii) Visually inspect the internal floating roof and the other components as specified in the following:

(A) For IFR type A failures, inspect the secondary seal through manholes and roof hatches on the fixed roof no less frequently than once every 12 months; and

(B) For IFR type B failures, inspect the primary seal, the secondary seal, gaskets, slotted membranes, and sleeve seals (if any) each time the vessel is emptied, but no less frequently than once every 10 years.

(3) For inspections to determine if any IFR type B failures are present as required by paragraphs (c)(1)(ii), (c)(2)(i), and (c)(2)(ii)(B) of this section, the owner or operator shall comply with the refilling notification requirements specified in §65.48(c)(1).

(4) After installing the control equipment required to comply with §65.42(b)(1) or (3), visually inspect the internal floating roof, the primary seal, and the secondary seal (if one is in service) prior to filling the storage vessel with regulated material. If there are holes, tears, or other openings in the primary seal, the secondary seal, or the seal fabric, or defects in the internal floating roof, the owner or operator shall repair the items before filling the storage vessel.

(d) *IFR repair requirements.* The owner or operator shall repair any observed or determined failures according to paragraphs (d)(1) and (2) of this section:

(1) If an IFR type A failure is observed, the owner or operator shall repair the items or empty and remove the storage vessel from service within 45 calendar days. If the failure cannot be repaired within 45 calendar days or if the vessel cannot be emptied within 45 calendar days, the owner or operator may utilize up to two extensions of up

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to 30 additional calendar days each and keep the records specified in § 65.47(d).

(2) If an IFR type B failure is determined, the owner or operator shall repair the items and comply with the refilling notification requirements of § 65.48(c)(1) before refilling the storage vessel with regulated material.

§ 65.44 External floating roof (EFR).

(a) *EFR design requirements.* The owner or operator who elects to control storage vessel regulated material emissions by using an external floating roof shall comply with the design requirements listed in paragraphs (a)(1) through (3) of this section.

(1) The external floating roof shall be designed to float on the stored liquid surface except when the floating roof must be supported by the leg supports.

(2) The external floating roof shall be equipped with a closure device between the wall of the storage vessel and the roof edge.

(i) Except as provided in paragraph (a)(2)(iii) of this section, the closure device is to consist of two continuous seals, one above the other. The lower seal is referred to as the primary seal and the upper seal is referred to as the secondary seal.

(ii) Except as provided in paragraph (a)(2)(iv) of this section, the primary seal shall be either a metallic shoe seal or a liquid-mounted seal.

(iii) If the external floating roof is equipped with a liquid-mounted or metallic shoe primary seal as of December 31, 1992, the requirement for a secondary seal in paragraph (a)(2)(i) of this section does not apply until the next time the storage vessel is emptied and degassed, or by April 22, 2004, whichever occurs first.

(iv) If the external floating roof is equipped with a vapor-mounted primary seal and a secondary seal as of December 31, 1992, the requirement for a liquid-mounted or metallic shoe primary seal in paragraph (a)(2)(ii) of this section does not apply until the next time the storage vessel is emptied and degassed, or by April 22, 2004, whichever occurs first.

(3) The external floating roof shall meet the following specifications:

(i) Except for automatic bleeder vents (vacuum breaker vents) and rim

space vents, each opening in the non-contact external floating roof shall provide a projection below the stored liquid surface except as provided in paragraph (a)(3)(xiii) of this section.

(ii) Covers on each access hatch and each gauge float well shall be designed to be bolted or fastened when they are closed.

(iii) Except for automatic bleeder vents, rim space vents, roof drains, and leg sleeves, each opening shall be equipped with a gasketed cover, seal, or lid.

(iv) Automatic bleeder vents and rim space vents shall be equipped with a gasket.

(v) Each roof drain that empties into the stored liquid shall be equipped with a slotted membrane fabric cover that covers at least 90 percent of the area of the opening.

(vi) Each unslotted and slotted guide pole well shall be equipped with a gasketed sliding cover or a flexible fabric sleeve seal.

(vii) Except for antirotational devices equipped with a welded cap, each unslotted guide pole shall be equipped with a gasketed cap on the end of the pole.

(viii) Each slotted guide pole shall be equipped with a gasketed float or other device that closes off the stored liquid surface from the atmosphere.

(ix) Each gauge hatch/sample well shall be equipped with a gasketed cover.

(x) Where a metallic shoe seal is in use as the primary seal, one end of the metallic shoe shall be designed to extend into the stored liquid and the other end shall extend a minimum vertical distance of 61 centimeters (24 inches) above the stored liquid surface.

(xi) The secondary seal shall be designed to be installed above the primary seal so that it completely covers the space between the roof edge and the vessel wall.

(xii) For the primary and secondary seals, there shall be no holes, tears, or other openings in the shoe, seal fabric, or seal envelope.

(xiii) If each opening in a noncontact external floating roof except for automatic bleeder vents (vacuum breaker vents) and rim space vents does not provide a projection below the liquid