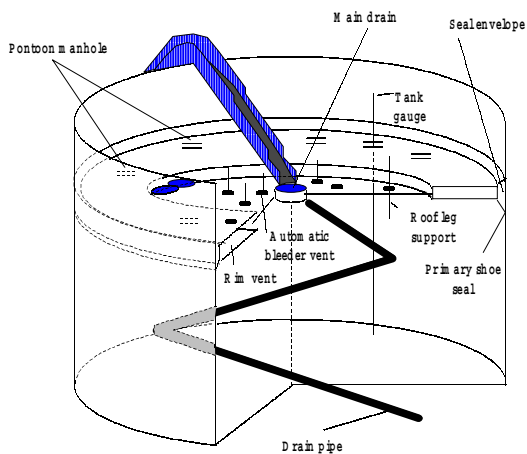
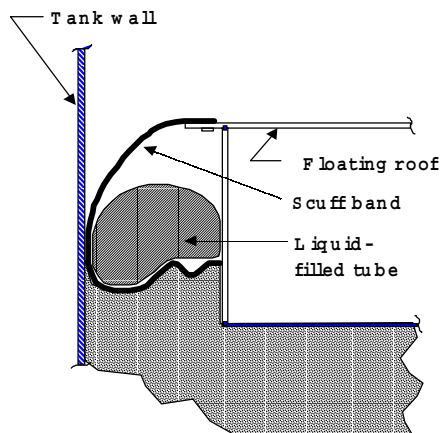


5.3.3.2 External Floating Roof



External Floating Roof Tank



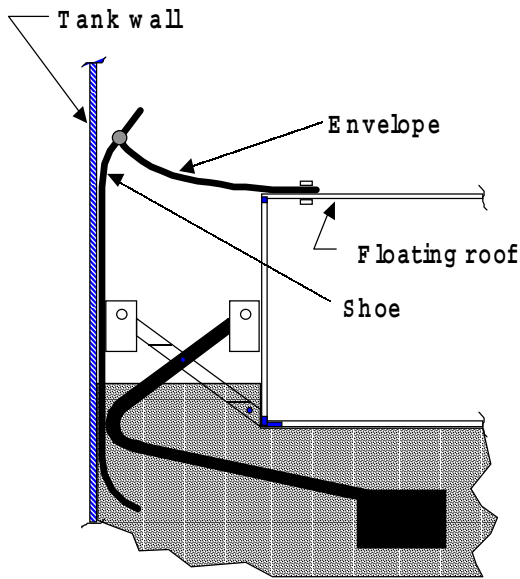
EFR Liquid-Mounted Seal

An external floating roof must be designed to float on the liquid surface except when the floating roof must be supported by the leg supports. The external floating roof must be equipped with two continuous seals, one above the other, between the tank wall of the tank and the roof edge. The lower seal is referred to as the primary seal, and the upper seal is referred to as the secondary seal.

The primary must be either a liquid-mounted or metallic shoe seal. A liquid-mounted seal is a foam or liquid filled primary seal mounted in contact with hazardous waste between the tanks wall and the floating roof continuously around the circumference of the tank. A metallic shoe seal is a continuous seal constructed of metal sheets which are held vertically against the wall of the tank by spring weighted levels or other mechanisms and is connected to the floating roof by braces or other means. The total area of the gaps between the tank wall and the primary seal must not exceed 212 square centimeters (cm^2) per meter of tank diameter, and the width of any portion of these gaps must not exceed 3.8 centimeters (cm). If a metallic shoe seal is used, it must be designed so that one end extends into the liquid in the tank and the other end extends a vertical distance of at least 61 cm above the liquid surface.

The secondary seal must be mounted above the primary seal and cover the annular space between the floating roof and the wall of the tank. The total area of the gaps between the tank wall and the secondary seal must not exceed 21.2 cm^2 per meter of tank diameter, and the width of any portion of these gaps must not exceed 1.3 cm.

In order to minimize emissions of volatile organics from the tank the following operating conditions must be met: All openings in the noncontact external floating roof, with the exception of automatic bleeder vents and rim space vents, must project below the liquid surface. Except for automatic bleeder vents, rim space vents, roof drains, and leg sleeves, each opening in the roof must be equipped with a gasketed cover, seal or lid. Each access hatch and each gauge float well must be equipped with a cover designed to be bolted or fastened when the cover is secured in the closed position. Each automatic bleeder vent and each rim space vent must be equipped with a gasket. Each roof drain that empties into the liquid managed in the tank must be equipped with a slotted membrane fabric cover that covers at least 90 percent of the area of the opening. Each unslotted and slotted guide pole must be equipped with a gasketed sliding cover or a flexible fabric sleeve seal. Each unslotted guide pole

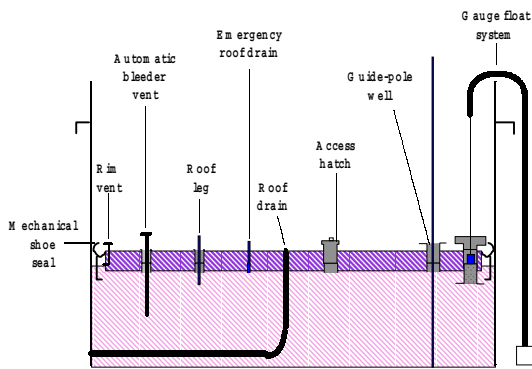


EFR Mechanical Shoe Seal

must be equipped with a gasketed cap on the end of the pole. Each slotted guide pole must be equipped with a gasketed cover.

The process of filling, emptying, or refilling must be continuous and completed as soon as possible. With the exception of automatic bleeder vents, rim space vents, roof drains and leg sleeves, each opening in the roof must be secured and maintained in a closed position at all times except when the closure device must be open for access. Covers on each access hatch and each gauge float well must be bolted or fastened when secured in the closed position. Automatic bleeder vents must be set closed at all times when the roof is floating, except when the roof is being floated off or is being landed on the leg supports. Rim space vents must be set to open only at those times that the roof is being floated off the roof leg supports or when the pressure beneath the rim seal exceeds the manufacturer's recommended setting.

The cap on the end of each unslotted guide pole must be secured in the closed position at all times except when the measuring the level or collecting samples of the liquid in the tank. The cover on each gauge hatch sample well must be secured in the closed position at all times except when the hatch or well must be opened for access. Both the primary seal and the secondary seal must completely cover the annular space between the external floating roof and the wall of the tank in a continuous fashion except during inspections.



External Floating Roof Tank

The owner or operator must perform measurements of gaps between the tank wall and the primary seal within 60 calendar days after initial operation (the time the tank first accepts waste) of the tank following installation of the floating roof and, thereafter, at least once every five days. The owner or operator must perform measurements of gaps between the tank wall and the secondary seal within 60 calendar days after initial operation of the tank following installation of the floating roof and, thereafter, at least once every year. If a tank ceases to hold hazardous waste for a period of one year or more, subsequent introduction of hazardous waste into the tank must be considered an initial operation.

The owner or operator must determine the total surface area of gaps in the primary seal and in the secondary seal individually. The seal gap measurements must be performed at one or more floating roof levels when the roof is floating on the roof supports. Seal gaps, if any, must be measured around the entire

perimeter of the floating roof in each place where a 0.32 cm diameter uniform probe passes freely (without forcing or binding against the seal) between the seal and the wall of the tank and measure the circumferential distance of each such location. For a seal gap measured, the gap surface area will be determined using probes of various widths to measure accurately the actual distance from the tank wall to the seal and multiplying each such width by its respective circumferential distance.

The total gap area must be calculated by adding the gap surface areas determined for each identified gap location for the primary seal and the secondary seal individually, and then dividing the sum for each seal type by the nominal perimeter of the tank. These total gap areas for the primary seal and secondary seal are then compared to the respective standards for the seal type. If the seal gap exceed 212 cm² per meter of tank diameter for the primary seal or 21.2 cm² per meter of tank diameter for the secondary seal, the owner or operator must repair the defect within 45 calendar days of its detection. A first attempt at repair must occur within five days of its detection.

The owner or operator must visually inspect the floating roof and its closure devices for defects that could result in air pollutant emissions. A partial listing of defects include: holes, tears, or other openings in the rim seal detached from the floating roof; all or a portion of the floating roof deck being submerged below the surface of the liquid in the tank; broken, cracked or otherwise damaged seals or gaskets on closure devices; and broken or missing hatches, access covers, caps or other closure devices. These visual inspections must be performed on an annual basis.

Any defects noted during a visual inspection must be repaired as soon as possible but no later than 45 calendar days from the day of their detection. A first attempt at repair must occur within five calendar days from the day of its detection.

The owner or operator must notify the Regional Administrator of the date and location of the inspection 30 calendar days before refilling the tank. When a visual inspection is unplanned, the owner or operator must notify the Regional Administrator as soon as possible, but no later than seven calendar days before refilling the tank. This notification may be made by telephone and immediately followed by a written explanation for why the inspection is unplanned. Alternatively, written notification, including the explanation for the unplanned inspection, may be

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sent so that it is received by the Regional Administrator at least seven calendar days before refilling the tank.