



# Floating Roof Tank Access

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OPS	Safety	SSP 0012-Floating Roof Tank Access	Jeff Warmann/Wade Gauthreaux	3	08/30/2011	1 of 2

<b>Purpose</b>	To outline the approval process and preparation steps required to for accessing floating roof tanks. Under certain conditions, the atmosphere above the roof of a floating roof tank may be hazardous.
<b>Safety</b>	This procedure outlines the steps required to protect personnel during entry or access upon a floating roof.
<b>References</b>	American Petroleum Institute Publication 2026
<b>Authorization</b>	Authorization for access to the roof of a floating roof tank must be obtained from the Area Chief/Shift Supervisor and the Pumper Gauger. This authorization will be in the form of a Confined Space Entry Permit in accordance with SSP-0015.

PPE	Use
Standard ( <a href="#">SSP-0000</a> )	<input checked="" type="checkbox"/>
Eyes-Safety Glasses/Face Shield	<input checked="" type="checkbox"/>
Clothing-FRC	<input checked="" type="checkbox"/>
Clothing-Nomex	<input checked="" type="checkbox"/>
Gloves-Cotton/Rubber	<input checked="" type="checkbox"/>
Boots-Steel Toe/Chemical	
Fall Protection (Not Required)	
Respirator-Per MSDS	
SCBA-Per MSDS/Stand By	
Review applicable MSDS	

**WARNING** Under certain conditions, the atmosphere above the roof of a floating roof tank may be hazardous.

<b>GENERAL</b>
1. Access to the roof of a floating roof tank is prohibited while the tank is receiving or discharging its contents.
2. Access to any part of a tank structure is prohibited during electrical storms or when the potential for electrical storms exist.
3. Always gain access to any component of the tank using the provided safe access routes. Use handrails when ascending or descending stairs or ramps.
4. Safety gates or safety chains must be in place at all times when roof tops are unoccupied.
<b>PROCEDURE</b>
<b>1. Access to Floating Roofs on Open-Top Tanks</b>
A. Prior to entry onto any floating roof, all connected valves (except roof drains) and mixers must be locked out and tagged out in the closed position by all involved departments in accordance with SSP-0001-"Control of Hazardous Energy" (Lockout/Tagout).
B. Due to the potential hazardous atmospheres Confined Space Entry is required for all tanks with floating roofs.
C. Prior to entry onto any floating roof tank the following items must be completed. <ul style="list-style-type: none"> <li>a. A competent person dons a self contained breathing apparatus and conducts atmospheric testing for oxygen, combustible gas, H<sub>2</sub>S levels at various locations around the roof. Benzene sampling must also be conducted and recorded on the permit in parts per million. The self contained breathing apparatus will be worn until all testing is complete.</li> <li>b. A backup person with SCBA is required to standby while gas testing is being performed. The backup person should be equipped with a radio to summon rescue help if necessary.</li> <li>c. Written authorization (Confined Space Entry Permit) from the Area/Shift Supervisor and the Pumper Gauger has been obtained.</li> <li>d. Entrants must wear the appropriate respiratory protection equipment as indicated by the test results (such as full face respirators with organic vapor cartridges). Even if the test indicates no dangerous concentration of H<sub>2</sub>S or concentrated aromatics, all personnel entering onto the floating roof must wear a five (5) minute escape pack and full body harness.</li> <li>e. Entrants upon the roof shall use a calibrated O<sub>2</sub>/LEL/H<sub>2</sub>S monitor for continuous monitoring. The analyzer will be stationed with at least one person on the roof in the "ON" position to notify personnel of changing conditions.</li> <li>f. A Confined Space Attendant must remain at the landing platform, equipped with a two-way radio.</li> </ul>
<b>2. Internal Floating Roofs in Cone Roof and Similar Tanks</b>
A. Hazards: <ul style="list-style-type: none"> <li>1. Entry onto internal floating roofs poses greater hazards than entry onto external floating roofs for a number of reasons. The construction normally used on internal floating roofs and the presence of product makes the hazards of falls, slips, etc., greater. Also, access requires vertical entry, making entry and egress more difficult than a horizontal entry. The degree of isolation possible is not as great since there is product still in the tank.</li> </ul>
B. Conditions: <ul style="list-style-type: none"> <li>1. Prior to entry onto a floating roof, all connected valves (except roof drains) and mixers must be locked out and tagged out in the closed position by all involved departments in accordance with SSP-0001 "Control of Hazardous Energy".</li> <li>2. Access to the internal floating roof of a cone-roof tank shall be considered as a "Confined Space Entry" which requires a permit in accordance with SSP-0015. Safety Department personnel shall be notified of entry onto all internal floating roof tanks.</li> </ul>



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3. To minimize fall hazards and atmospheric hazards, the roof must be floating and should be raised as near as is practical to 7 feet below the fixed roof. All entrants shall wear a safety harness with attached life lines.
4. Since refloating or movement of the roof can greatly increase the level of vapors in the space above the internal roof and the dissipation of the vapors can take considerable time, the roof should be held at the height mentioned in Section B.3 for 24 hours prior to entry if possible.
5. Emergency rescue of personnel from the roof shall be accomplished by winch and tripod or other means of mechanically assisted retrieval system, positioned on the fixed roof with a line attached to the entrant.
6. An attendant must be stationed at the entry point with a two-way radio, horn for summoning help and an operating atmospheric monitor for the duration of the entry.

C. Procedure:

1. The atmosphere above the floating roof shall be checked with atmospheric monitoring devices from the exterior of the tank for oxygen, LEL, and toxic gases in addition to the use of low range benzene detector tubes before any entry is made.
2. The competent person performing interior sampling shall don a SCBA while conducting sampling for O<sub>2</sub>/LEL/H<sub>2</sub>S and benzene. Safety shall be notified to ensure rescue coverage is available and a competent hole watch with radio communications will be present before interior testing can occur. The first readings shall be conducted from the top of the catwalk with sample line hanging into the tank. Benzene sampling shall be drawn at various levels throughout the tank.
3. Before entry has been made, and continually during entry, the entrant shall evaluate the ladder, stairs, and landing platform. If any deficiencies are noted, sufficient measures shall be immediately taken to ensure the safety of the entrant, such as planks and/or mats to distribute loads.
4. While descending the roof stairs, the sample line shall hang 6-8 feet below the sampler.
5. After landing on roof, the competent gas tester shall walk the surface area in all directions continuing to sample the area.
6. If the results of the atmospheric testing meet all criteria specified in SSP-0015 (Confined Space Entry), then a permit should be issued.
7. The results of this atmospheric survey should be used along with the entry permit criteria to determine what respiratory protection will be required to perform the work. General guidelines for respiratory protection are as follows:
  - a. If the oxygen is between 20.0% and 23.5%, the LEL is 0% and no toxic gases are present; the entry can be made using an air purifying respirator and five (5) minute escape pack.
  - b. If the oxygen is below 20.0%, LEL is between 0% and 10%, and/or any toxic gases are present above their respective limits; entry shall be made using supplied air with a five (5) minute egress air bottle. Entry will **NOT** be allowed if LEL is above 10%.
  - c. If the benzene is 0, no respirator is required, if it is between .5 and 10 ppm, half face air purifying respirator, 10-50 ppm full face air purifying respirator, above 50 ppm supplied air with a five minute egress bottle.
8. Atmospheric evaluations shall be repeated in accordance with SSP-0015.
9. If the conditions require the use of supplied air then the number of entrants should be kept to the minimum number required for the task.

Issued by: \_\_\_\_\_  
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