

BP OIL -- TOLEDO REFINERY

	Refinery Wide	Procedure No.: SAF 036
Effective Date: August 29, 2011	Fall Protection Procedure	Revision No.: 5 MOC#: M20114384-001
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SCOPE	This procedure contains the rules and guidelines for the fall protection policy at BP Toledo Refinery.
HEALTH Special PPE & Special Hazards	N/A
SAFETY	N/A
REFERENCE DOCUMENTS	Refer to last page of this procedure
SPECIAL MATERIALS & EQUIPMENT	Personal Fall Arrest System Full Body Harness and Lanyard
QUALITY	Inspect personal fall arrest devices before and after each use.
ENVIRONMENTAL	N/A

OVERVIEW

This procedure was developed in accordance with the fall protection requirements contained in 29 CFR 1926 Subpart M Fall Protection and 29 CFR 1910 Subpart D Walking and Working Surfaces. This procedure does not address every situation that fall hazards may exist or the type of fall protection that is appropriate. This procedure applies to BP as well as contractor personnel.

Definitions

- **Anchorage** - a secure point of attachment for lifelines, lanyards, or deceleration device.
- **Approved** - Manufactured according to specifications provided by the American National Standards Institute (ANSI) and/or Occupational Safety and Health Administration (OSHA).
- **Articulating Boom Platform** - a vehicle mounted platform with hinged boom sections.
- **Body Harness** - a design of straps which may be secured about an employee in a manner to distribute the fall arrest forces over the pelvis, thighs, waist, chest and shoulders with means to attach to other components of a personal fall arrest system.
- **Dangerous Equipment** - equipment which, as a result of form or function, may be hazardous to employees who fall onto or into such equipment (such as electrical equipment, open chemical tanks, sharp object, etc.)
- **Deceleration device** - any mechanism, such as a rope gram, rip-stitch lanyard, specially-woven lanyard, tearing or deforming lanyards, automatic self-retracting lifelines/lanyards, etc., which serves to dissipate a substantial amount of energy during a fall arrest, or otherwise limit the energy imposed on an employee during fall arrest.
- **Extensible Boom Platform** - a vehicle mounted platform with a telescopic boom.
- **Fall Protection System** - personal or general equipment designed to prevent, minimize or safely break a fall from an elevated work area. For example, a full body harness and lanyard.
- **Guardrail system** - a barrier erected to prevent employees from falling to lower levels.
- **Lanyard** - a flexible line, rope, wire rope, or strap which generally has a connector at each end for connecting the body harness to a deceleration device, lifeline, or anchorage.
- **Lifeline** - a component consisting of a flexible line for connection to an anchorage at one end to hang vertically (vertical lifeline), or for connection to anchorages at both ends to stretch horizontally (horizontal lifeline), and which serves as a means for connecting other components of a personal fall arrest system to the anchorage.

- **Low Slope Roof** - a roof having a slope less than or equal to four in twelve (vertical to horizontal).
- **Mobile Ladder Stand** - a portable platform that has stairs and a deck that can be cranked up and down and can be rolled from site to site.
- **Personal Fall Arrest** - a system used to stop an employee in a fall from a working level. It consists of anchorage, connectors, a body harness and may include a lanyard, deceleration device, lifeline, or suitable combination of these. Properly worn body harness with lanyard attached to the back D-ring of the body harness and attached to an anchorage point.
- **Proper Working Platform** - a powered device or working surface constructed according to the best available practice that does not require the use of fall protection systems when used properly.
- **Safety Monitor System** - a safety system in which a competent person is responsible for recognizing and warning employees of fall hazards.
- **Steep Roof** - a roof having a slope of greater than four in twelve (vertical to horizontal).
- **Unprotected Walking/Working Surface** - a walking or working location where no fall protection systems are in place.
- **Warning Line system** - a rope, wire or chain with stanchions and flags at intervals to keep employees from an edge where a fall may occur.
- **Working Platform** - suspended, supported, powered scaffolding or ladder that is acceptable to provide access to an elevated work location.

NOTE: Some working platforms may still require fall protection devices.

General

- All walking/working surfaces shall be kept free of unnecessary debris, moisture and oil to prevent slips, trips and falls.
- Personnel using ramps, runways and walkways 6 feet **or greater** from a lower level must be protected by guardrail systems.
- Where personnel can fall through holes in a walking/working surface 6 feet **or greater** above a lower level, personal fall arrest, covers or guardrail systems shall be provided.
- Covers shall be provided where personnel can trip or step through holes in a walking/working surface.
- Excavations shall be protected by guardrails, fences, barricades or covers **if** they cannot be readily seen by personnel in the area.

- Where hoist areas extend through walking/working surfaces personnel must be protected by guardrails or personal fall arrest systems.
- If guardrails are removed to facilitate hoisting, personnel reaching through or over the hoist area must wear personal fall arrest systems.

Proper Working Platforms

- Permanent platforms with appropriate guardrails and toeboards are recommended where work is performed on walking/working surfaces 6 feet **or greater** from a lower level on a routine basis.
- A proper work platform (i.e., scaffolding) must be provided when possible for personnel working at heights 6 feet **or greater** from a lower level.

NOTE: A proper work platform should be considered during the risk assessment even if working at heights less than 6 feet.

- Proper working platforms may be any of the following and do not normally require fall protection systems:
 - a) permanent walkways and platforms with guardrails
 - b) temporary scaffolding
 - c) powered manlifts (scissors)
 - d) mobile ladder stands
 - e) ladders (properly tied off)
- Scaffolding must be erected per the Scaffold Procedure SAF 076.
- Personnel using powered manlifts and self-propelled platforms must be trained in the proper operations, safe use and inspection of the equipment.
- Ladders must be approved and be tied off or attended while work is being performed. The section of an extension ladder must be bound together by 9 wire or equivalent when extended.
- Three points of contact with the ladder are required when ascending or descending a ladder.

NOTE: Three points of contact means at least one hand must be used to grasp the ladder and both feet must be on a ladder rung (or two hands and one foot must be on the ladder).

- Three points of contact with the ladder or a personal fall arrest system are required when working from a ladder and your feet are 6 feet **or greater** from the lower level. If three points of contact cannot be maintained,

personal fall arrest must be used.

- Working from a ladder with 2 points of contact is acceptable at heights lower than 6 feet.

NOTE: Overextending from the ladder may lead to a fall. Recommended practice is to face the ladder when working from it and keep your body position within the plane of the ladder's rails or beams.

- Ladders must be used for the purpose for which they were designed.

WARNING

Ladders can be dangerous and must be used properly and be in good condition.

- When proper working platforms are not possible or feasible, other working platforms may be used and will require fall protection systems. These include but are not limited to:
 - a) extensible and/or articulating boom platforms (such as JLG's and electrical bucket truck)
 - b) suspended platforms ("painters" scaffold, etc.)
- Powered suspended, and specialty platforms must comply with OSHA 1910.66 and OSHA 1910.28.

Personal Fall Protection Guidelines

- Employees working on unprotected walking/working surfaces 6 feet **or greater** from a lower level shall be protected from falling by the use of guardrail system, safety net systems or personal fall arrest systems.
- Warning lines and/or safety monitoring systems may be utilized as a fall protection system.

WARNING

Moving in a unprotected elevated area should be avoided. Movement must be minimized by accessing the area as near the work location as possible and moving where the risk of falling is minimal.

- Personal fall arrest is required when working from scaffolding if the scaffolding is used in a manner that reduces the protection provided (such as reaching under or over or standing on guardrails) of the scaffold is altered and poses a falling hazard.
- Personal fall arrest is required when riding or working from a manbasket.
- Fall protection systems are required at all times for personnel on unprotected walking/working surfaces above dangerous equipment.
- Persons using fall arrest devices in isolated areas must inform their supervisor of the location and task to be completed and must carry a two-way radio.

Fall Protection for Working on Roofs

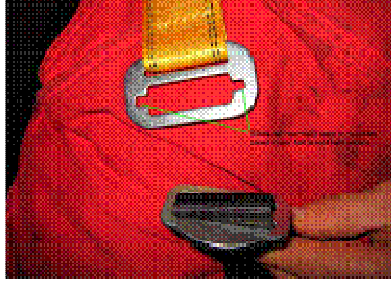
- For work on low pitched roofs, personnel shall be protected from falls by use of personal fall arrest, guardrails, safety nets or a combination of warning lines and a safety monitoring system.
- Warning lines must be 6 feet from the edge of the roof.
- A safety monitoring system alone may be used on roofs that are less than 50 feet wide.
- Work on steep roofs requires personal fall arrest, guardrails with toeboards, or safety nets.

Protection from Falling Objects

- Where personnel are exposed to falling objects, approved hard hats must be worn at all times.
- Where personnel are exposed to falling objects, one of the following is required:
 - a) erect toeboards, screens, or guardrails on elevated platforms
 - b) erect a protective canopy (cover or roof)
 - c) barricade the area to prevent personnel from entering

Proper Use of Personal Fall Arrest Devices

- Only approved full-body harnesses and lanyards are acceptable personal fall arrest devices. Harnesses must have upper, middle back "D" rings for proper body suspension during a fall. Lanyards must be fitted with a double locking snap hook attachment. Webbing, straps and ropes must be a synthetic fiber or wire rope. Lanyards shall be rigged to minimize the free fall distance but in no case to exceed 6 feet. Lanyards can be either self retracting lanyards/lifelines or a maximum of a 6 foot lanyard.
- Inline harness buckles shall not be used because the slots are inline and can become unhooked. Following is a photo of the retaining buckle with inline slots.



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- Prior to each use, carefully inspect harnesses and lanyards for signs of wear, cuts, burns, abrasion, loose threads and evidence of chemical exposure. Inspect hardware for proper operation, breakage, corrossions and distortion.

NOTE: Replace defective equipment - Do not attempt to Repair.

- Body belts are not to be used as a personal fall arrest system.
- Harnesses must be worn snugly but not too tight. It is important to don the proper size harness.
- All buckles must be securely fastened.
- Never alter the body harness or lanyard.
- Use of a double lanyard (2) to increase length is not permitted.
- Do not tie knots in the lanyard to reduce the length. This can reduce the strength by 50%.
- Lanyards must support only one person. When vertical life lines are used, each employee shall have separate lines.
- Fall protection devices are not to be used to suspend personnel to a work location.
- While moving or climbing, the lanyard must be wrapped around the body or carried in a manner that prevents snagging.

Anchorage

- The following are examples of approved anchor points:
 - a) Pipe with a minimum diameter of 4"
 - b) I-Beams
 - c) Structural steel
 - d) Stanchions
 - e) Valve yoke (4" valve minimum)
 - f) For fall prevention, personnel may tie-off to a vertical scaffold support member. In addition, the horizontal components of a modular system scaffold may also be used as an anchor point.

NOTE: Minimize movement through unprotected areas such as pipe alleys that are 6' or greater from a lower level. Use an acceptable ladder to access the anchor point to reduce movement.

WARNING

Guardrails, handrails, midrails on permanent platforms; electrical conduit; light fixtures; and pipe less than 4" in diameter are **NOT** approved anchor points and should not be used as tie off point.

- Personal fall arrest systems must be anchored such that the strength of the fall arrest system is not reduced.
- Personnel using articulating or extensible boom platforms must anchor to the boom or basket.
- Personnel in manbaskets must be anchored to the ball, the block or to a structural member within the manbasket capable of supporting a fall impact.
- Personal fall arrest devices must be anchored waist high or higher and in such a way to minimize a free fall.
- Visually check the engagement of the lanyard snap hook. Do not rely on the feel or sound only.
- Tug on the lanyard to test the stability of the snap hook.

WARNING

Select anchor points carefully since they must withstand the force of a free fall. Do not anchor to a hot pipe which could melt the lanyard fabric.

- Personal fall arrest devices subjected to a free fall and full body load must be removed from service and discarded.
- Wet harnesses, lanyards and lifelines must be allowed to dry thoroughly before storing to prevent growth of mold or mildew.
- Equipment exposed to oils, chemicals or other contaminants must be decontaminated to prevent degradation.
- Use mild soap and warm water to clean. Do not use solvents or harsh chemicals.
- Fall arrest equipment should be hung or stored flat to maintain proper shape.

Training

- No person shall wear or use fall arrest devices without completing training prior to use of this equipment
- All persons who may at some time be required to wear personal fall protection must be trained on the following:
 - a) Fall hazards in the work place and how to recognize them
 - b) The purpose of fall protection systems and their limitations
 - c) Review of the requirements of the Fall Protection Program
 - d) Use, care, operation and inspection of applicable fall protection systems
 - e) The role of personnel
- Training shall be completed by a competent person qualified in the following areas:
 - a) Types of fall hazards in the work area
 - b) Correct procedures for erecting, using, maintaining and inspecting fall protection systems
 - c) Limitations of the use of mechanical equipment and materials
 - d) Correct procedure for handling and storage of equipment and materials
 - e) Roles of employees in fall protection plans
 - f) Requirements contained in the standard
- A written certification record shall be maintained verifying training.
- All applicable personnel will be retrained if there is a change in the procedure or fall protection equipment or if the employee demonstrates a lack of understanding.

Auditing and Inspection

- All contract personnel shall audit their Fall Protection Program per the Contractor Safety Program
- Elements of the Fall Protection Program will be audited by management as necessary and the results distributed to each area.

Deviations

- Deviation from this procedure requires supervisor approval and a Management of Change to be filed.

References

- SAF-076 Scaffold Procedure
- 29 CFR OSHA 1910.66 Powered Platforms, Manlifts
- 29 CFR OSHA 1910 Subpart D Walking/Working Surfaces
- 29 CFR OSHA 1926.501 Duty to Have Fall Protection
- 29 CFR OSHA 1926.502 Fall Protection Systems
- 29 CFR OSHA 1926.503 Training Requirement
- 29 CFR OSHA 1910.30 Scaffolds

Revision history

The following information documents at least the last 3 changes to this document, with all the changes listed for the last 6 months.

Date	Revised By	Changes
8/12/11	Melinda Hasbrouck	Revise the wording from fall protection is required "over 6 feet" to "required when 6 feet or greater." MOC# M20114384-001.

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