Section 33.0
SCAFFOLDS, LADDERS, WALKING, AND WORKING SURFACES

A. Purpose

The purpose of this procedure is to provide **JAGUAR ENERGY SERVICES, LLC** personnel with guidance on hazard recognition, protective measures, and corrective actions to be taken where potential slip, trip, and fall hazards exist on walking/working surfaces.

This procedure identifies safety rules and guidelines for working on or near wall openings, stairways, platforms, ladders, and scaffolds.

The implementation of this procedure will enable **JAGUAR ENERGY SERVICES, LLC** to comply with OSHA 29 CFR 1910.21 through 32 and OSHA 29 CFR 1926.454.

B. Scope

This procedure applies to all types of walking and working surfaces, including platforms, walkways, runways, stairways, ladders, and scaffolds.

C. Responsibilities

1. The Safety Coordinator or his/her designee is responsible for ensuring that employees have completed the training required by this procedure.
   - (a) Additional responsibilities include:
     - (i) Ensuring that employees have been properly trained.
     - (ii) The implementation of this policy.
     - (iii) Take corrective actions on all violations or suspected violations of this procedure.
     - (iv) Documentation of completion by each employee.
     - (v) Providing appropriate safety equipment to **JAGUAR ENERGY SERVICES, LLC** personnel.

2. The Supervisor is responsible for providing assistance in the implementation of this policy.

(a) Additional responsibilities include:
- (i) Informing the Safety Director of any incidents involving Fall Protection.
- (ii) Making suggestions to management for ways to improve this Policy.

3. **JAGUAR ENERGY SERVICES, LLC** personnel are responsible for evaluating their work areas for slip, trip, and fall hazards and taking appropriate precautions.

(a) Additional responsibilities include:
- (i) Implement proper procedures as required in this Policy.
- (ii) Inspecting ladders and scaffolding before use according to the requirements of this procedure.

D. Procedure

JAGUAR ENERGY SERVICES, LLC personnel may be required to work from scaffolding at client locations.

1. The following safety precautions will be adhered to at all times:
   - (a) **JAGUAR ENERGY SERVICES, LLC** personnel will not be allowed to design, erect, or disassemble scaffolding.
   - (b) All **JAGUAR ENERGY SERVICES, LLC** personnel will be classified as User Scaffolding personnel only.
   - (c) It will be the responsibility of the client to design, erect, inspect, and disassemble all scaffolding.
   - (d) Employees must make sure that scaffolding meets regulatory requirements and is providing a safe work surface.
   - (e) If a **JAGUAR ENERGY SERVICES, LLC** employee suspects that a scaffold is not safe he should contact the Client's Supervisor before starting to work from the scaffold.
   - (f) If the safety issue is not resolved, the employee should contact his/her supervisor or the Safety Director.
   - (g) If access is achieved with a ladder, follow all ladder safety rules and guidelines.
   - (h) Scaffold platforms shall be fully planked with sturdy, level planking and with gaps no larger than 1 inch (2.54 cm).
   - (i) Scaffold platforms and walkways shall be at least 18 inches (46 cm) wide.

(j) Wood platforms must not be painted; however edges may be marked for identification.

(k) Scaffold components may not be mixed unless compatible and integrity is maintained.

(l) Scaffold components may not be of different metals unless approved by a competent person.

(m) Makeshift scaffolds such as boxes, crates and drums must not be used.

(n) All scaffolds must be plumb and reasonably level at all times.

2. Scaffolds shall be erected for work that cannot be done safely from the ground or from solid construction. (Fall protection shall be utilized when personnel are at elevated locations greater than 6 ft when fixed fall protection is not provided.)

3. The footing and anchorage for scaffolds shall be sound, rigid, and capable of carrying the maximum intended load without settling or displacement.

4. Unstable objects shall not be used to support scaffolds or planks.

5. Any scaffold, including accessories, that is damaged or weakened from any cause shall be immediately repaired or replaced.

6. All planking shall be Scaffold Grade as recognized by approved grading rules for the species of wood used.

7. The maximum permissible spans of 2-inch x 9-inch or wider planks are shown in the following table:

	Full Thickness Undressed Lumber			Nominal Thickness Lumber	
	Light Duty	Med. Duty	Heavy Duty		
Working Load (PSF)	25	50	75	25	50
Permissible Span (ft.)	10	8	6	8	6

1. All tube and coupler scaffolds, at a minimum, shall support four times the maximum load, as set fourth in the following table for tube and coupler scaffolds, or as specified by a professional engineer competent in this field.

TUBE AND COUPLER SCAFFOLDS - LIGHT DUTY

Uniformly distributed load	Not to exceed 25 psf
Post spacing (longitudinal)	10 ft. 0 in.
Post spacing (transverse)	6 ft. 0 in.

Working Levels	Additional Planked Levels	Maximum Height
1	8	125 ft.
2	4	125 ft.
3	0	91 ft. 0 in.

TUBE AND COUPLER SCAFFOLDS - MEDIUM DUTY

Uniformly distributed load	Not to exceed 50 psf
Post spacing (longitudinal)	8 ft. 0 in.
Post spacing (transverse)	6 ft. 0 in.

Working Levels	Additional Planked Levels	Maximum Height
1	6	125 ft.
2	0	78 ft.

TUBE AND COUPLER SCAFFOLDS - HEAVY DUTY

Uniformly distributed load	Not to exceed 75 psf
Post spacing (longitudinal)	6 ft. 6 in.
Post spacing (transverse)	6 ft. 0 in.

Working Levels	Additional Planked Levels	Maximum Height
1	6	125 ft.

1. Posts shall be accurately spaced, erected on suitable bases, and maintained plumb.

2. Runners shall be:
   (a) Erected along the length of the scaffold, located on both the inside and the outside posts at even heights.
   (b) Coupled to the inside and the outside posts at even heights.
   (c) Interlocked to form continuous lengths and coupled to each post.
   (d) Each scaffold shall have bottom runners the length of the scaffold at a maximum height of three feet or less.

3. A registered professional engineer must design any scaffolds over 125 feet high.

4. The poles, legs, or uprights of scaffolds shall be plumb and securely and rigidly braced to prevent swaying and displacement.

5. Scaffold floor planks shall be nailed or otherwise secured, as close together as possible, with No. 12 annealed wire to prevent creeping and falling.

6. Single-head nails shall be used on scaffold platforms instead of scaffold nails. Nails shall not be subjected to a straight pull and shall be driven full length.

7. Tools, debris, and materials shall not be allowed to accumulate on scaffold platforms.

8. Scaffold material must not be left in pipe racks or on structures.

9. Special precautions shall be taken to protect scaffold members, wire, or fiber ropes from exposure to heat, acid, or caustic exposure areas.

10. Approval from a competent person must be received before scaffold material can protrude into ladder cages, ladder rungs, or block tower or vessel walkways.

11. Plywood shall not be substituted for scaffold boards.

12. Plywood (3/4-inch minimum) may be used to fill in irregularly shaped gaps between scaffold boards and structural members if the gaps are less than 12 inches.

13. The plywood must overlap its supports at least 6 inches and must be adequately secured.

14. Plywood is not allowed as a load-bearing, structure member.

15. Any planking or platforms that require overlapping must be overlapped at least 12 inches and secured from movement.

16. Scaffold planks shall extend over their end supports not less than 6 inches nor more than 18 inches, on each end.

17. Scaffold platforms more than ten feet in height shall be provided with toeboards at least four inches high, a top guardrail 36 inches to 42 inches high, with a midrail, and all properly braced above the scaffold floor on all open sides and ends.

18. Scaffolds 6 to 10 feet in height shall be provided with 4-inch toeboards and a properly braced single handrail unless adequately protected by walls, conduit, pipe, etc., above the floor board.

19. Scaffolds 4 feet to 10 feet in height that are 45 inches or less in any direction horizontally, shall have guardrails on all open sides and ends of the platform.

20. Where persons are required to work or pass under the scaffold, scaffolds shall have a screen between the toeboard and the guardrail, extending along the entire opening, consisting of No. 18 gauge U.S. standard wire 1 /2-inch mesh or the equivalent.

21. Overhead protection shall be provided for personnel on a scaffold exposed to overhead hazards.

22. Personnel shall not work on scaffolds during storms and high winds.

23. Slippery conditions, including ice and snow, on scaffolds shall be eliminated as soon as possible after they occur, or discontinue work from scaffolds.

24. Any materials being hoisted onto a scaffold shall have a tag line.

25. Scaffolds shall not be altered or moved horizontally while they are in use or occupied.

26. Wheeled scaffolds shall have wheels locked when in use.

27. The use of shore or lean-to scaffolds is prohibited.

28. Any piping less than 2-inch OD will not be used to support scaffolds.

29. Screwed piping or electrical conduit will not be used to support scaffolding.

30. No scaffold shall be erected, moved, dismantled, modified or altered except by or under the supervision of a competent person.
    (a) Unqualified personnel performing these tasks may create more hazards.
    (b) Unqualified persons found or proven to have modified a scaffold will be subject to disciplinary action.

31. The competent person building the scaffold must sign the scaffold tag assuring the scaffold is built to specifications and approved for use.

32. Scaffold tagging systems must be in place at the work location.
    (a) All scaffolds being built must have an approved scaffold tag that is easily accessible.
    (b) A new scaffold tag must be completed and installed on any scaffold that is moved or altered.

33. Approved scaffolds are good for 60 days.
    (a) To use scaffold past original 60 days, it must be designated as recertified and with the date on the tag.
    (b) Scaffold is then good for an additional 60 days.

34. A competent person must insure scaffolds are safe prior to and during use.
    (a) This can be accomplished by conducting pre-use and periodic inspections.
    (b) Unsafe equipment or conditions must be tagged out by a competent person and all personnel instructed not to use them.

35. Personnel using the scaffold are responsible to inspect the scaffold tag for pertinent comments, special precautions, etc., as well as the scaffold, before using the scaffold.

36. Scaffold Tag Attachment
    (a) Appendix A of this section is a copy of the front and back of a scaffold tag to be used for tagging of plant scaffolds.
    (b) Also, the tag instructions that are to be followed are listed on the attachment.

37. **Slips, Trips, and Falls**
    Slips, trips, and falls constitute the majority of general industry accidents and cause 15% of all industry related deaths.
    (a) To avoid these types of accidents, Field Service Personnel must be able to evaluate a work site for slip, trip, and fall hazards and take appropriate precautions and corrective actions to minimize potential hazards.

38. **General Requirements**
    JAGUAR ENERGY SERVICES, LLC personnel must be extremely cautious when working near and around floor and wall openings, stairways, platforms, ladders, scaffolds, and all elevated work areas.
    (a) The following general safety rules must be followed to minimize slip, trip, and fall hazards:
        (i) Keep aisles, ladder bases, landings, scaffolding, handrails, and stairways free of all hazards, including grease, oil and other slippery material.
        (ii) Leaving tools and materials temporarily near any edge or opening is hazardous and should be avoided.
        (iii) Barricade tape and other flagging materials should only be used as warnings that fall protection has been temporarily removed while

work is being performed, or to **mark** wire rope rails to warn employees of their presence.

(i) Barricade tape and other flagging materials are not a replacement for fall protection.

(iv) Assess all walking/working areas surfaces for:

(i) Wet surfaces.

(ii) Slippery surfaces.

(iii) Watch for and evaluate the condition of slip resistant coatings applied to stairs and surfaces.

(iv) Slipping and tripping hazards from cords, hoses, planks, poles and other equipment.

(v) Protruding nails or objects, splinters, holes, trenches, loose boards, grating, manholes, and other openings in floors and walls.

(v) Keep aisles and passageways clear, in good repair, and free from obstructions across, or in, aisles that could create a hazard.

(vi) Establish evacuation procedures when working in or on multi-tier structures, within enclosures, where exits are limited, and scaffolding.

(vii) Always use handrails.

(viii) Avoid ascending and descending climbing devices with awkward loads or without handrails.

(ix) Do not carry loads and materials in your hands while climbing up ladders.

(x) Do not route extension cords, hoses, or ropes on stairs, ladders or other climbing surfaces.

(xi) Always provide adequate lighting for stairs and other climbing devices.

(xii) Do not use barricade tape or flagging as a temporary railing or fall restraint.

(i) These are warning devices only.

(xiii) Never leave a floor opening unprotected.

(xiv) Always secure removable railings, midrails, and toeboards upon completion of a task.

(xv) Always wear adequate fall protection and a lifeline attached to an appropriate anchor point when working at heights above 6 feet (2 meters). (x-ref fall protection procedure)

(xvi) Always be alert when working above or below someone when the potential for falling material and objects exists.

(xvii) Never run up or down stairs, ramps, scaffolding, or other climbing devices.

(xviii) Never apply a greater load to a climbing surface than it was intended to bear, such as introducing a heavy load of material or a vehicle to a pedestrian ramp or scaffold work surface.

(xix) Never store materials or allow debris to accumulate under stairs.

(xx) Never store flammable or other hazardous chemicals under or near stairways.

(xxi) Never attempt to use a stairway as a foundation for a ladder.

(xxii) Never use incomplete stairways or other climbing devices or scaffolding.

39. **Guarding Openings and Holes**

(a) Floor openings and holes, wall openings and holes, and the open sides of platforms can create hazards.

(b) People can fall through the openings or over the sides to the level below.

(c) Objects such as tools or parts can fall through the holes and strike people or damage machinery on lower levels.

(d) Covers and/or guardrails must be provided to protect personnel from the hazards of open pits, trenches, tanks, vats, and ditches.

(e) Every floor hole into which persons can accidentally walk shall be guarded by either a standard railing with toeboard or floor hole cover of standard strength and construction.

(f) While the cover is not in place, the floor hole shall be constantly attended by someone or shall be protected by a removable standard railing.

40. **Protection of Open-Sided Floors, Platforms, and Runways**

Railings protect personnel from inadvertently falling over the edge of a platform or through an opening in a floor or wall, or from contact with dangerous equipment.

(a) Railings can be made of wood, fiberglass, or metal.

(b) Regardless of height, open sided floors, walkways, ramps and platforms that are above, or adjacent to, dangerous

equipment shall be guarded by standard railing and toeboards.

41. **Manufacturing and Customer Sites**

Every open-sided floor or platform 4 feet (1.3 meters) or more above the adjacent floor or ground level shall be guarded by a standard railing on all open sides, except where there is an entrance to a ramp, stairway, or fixed ladder.

(a) Toeboards shall be provided on open sides if people can pass underneath the work area.
    (i) Toeboards are also required when moving machinery or equipment can create a hazard if struck by falling objects.

(b) Every runway shall be guarded by a standard railing, or the equivalent, on all sides 4 feet (1.3 meters) or more above floor or ground level.

(c) Wherever tools, machine parts, or materials are likely to be used on the runway, a toeboard shall also be provided on each exposed side.

(d) Regardless of height, open-sided floors, walkways, platforms, runways above or adjacent to dangerous equipment, pickling or galvanizing tanks, degreasing units, and similar hazards shall be guarded with a standard railing and toeboards.

42. **Construction Sites**

At a construction site, platforms and other non-permanent work surfaces that are greater than 6 feet (1.8 meters) must have a guard railing system.

(a) Other requirements include:
    (i) Removable sections must be placed at hoisting areas when not in use.
    (ii) Guard rails used at holes that are points of access to a platform must be offset or provided with a gate.
    (iii) Guard rails must be erected on each unprotected side or edge of a ramp or runway.

(b) Toeboards shall be provided on open sides if people can pass underneath the work area.
    (i) Toeboards are also required when moving machinery or equipment can create a hazard if struck by falling objects.

(c) If guardrails are not present, another means of fall protection such as full body harness with properly anchored lanyards or safety nets must be used.

43. **Ladders**

The main hazard when using a ladder is falling.

(a) A poorly designed, maintained, or improperly used ladder can collapse under the load placed upon it and cause the employee to fall.

(b) **JAGUAR ENERGY SERVICES, LLC** personnel must inspect ladders before each use.

(i) Any ladder that has developed defects should be removed for repair or destruction and tagged or marked as "Dangerous, Do Not Use."

44. **Types of portable ladders include:**

(a) Step ladder. A self-supporting portable ladder, non-adjustable in length, having flat steps, and a hinged back.

(b) Single ladder. A non self-supporting portable ladder, nonadjustable in length, consisting of one section. Size is designated by the overall length of the side rail.

(c) Extension ladder. A non self-supporting portable ladder adjustable in length.

(d) A second type of ladder is a fixed ladder.

(e) A fixed ladder is usually non-adjustable and permanently fixed to a structure such as the side of a tank.

45. **General Ladder Safety Rules**

The following rules and specifications apply to all ladders:

(a) Maintain ladders in good condition at all times.

(b) ALL ladders shall meet OSHA/ANSI requirements.

(c) Ladders used to gain access to a roof or other area shall extend at least 3 feet (1 meter) above the point of support.

(d) Place portable ladders so that they have a secure footing.

(e) Always face a ladder when climbing up or down.

(f) Never use a ladder in the horizontal position as scaffolds or work platforms.

(g) Place ladders away from unlocked or unguarded doors that can open toward the ladder.

(h) Do not use ladders in areas with vehicles or traffic unless barricades are put in place and all affected personnel are informed.

(i) Do not place ladders on boxes, barrels, or other unstable bases to obtain additional height.

(j) Use both hands when climbing or descending ladders.

(k) Carry tools on a tool belt.

(l) Where possible, haul materials up on a line rather than carrying them.
(m) Do not use metal ladders near electrical equipment.
(n) Only one person should stand on a ladder.
(o) Do not leave placed ladders unattended.
(p) Keep ladders clean and free from grease.
(q) Use extra caution while climbing in windy weather.
(r) Never use a defective ladder.
(s) Do not drop or throw ladders.
(t) Do not use make-shift ladders.
(u) Make sure portable ladders have non-slip feet.

46. **Step Ladders**

The following rules and specifications apply to all step ladders:

(a) Do not use a portable step ladder longer than 20 feet (6.1 meters).
(b) Step ladders should be fully open and locked before use.
(c) Do not use the top of a regular stepladder as a step. The ladder shall be equipped with a metal spreader or locking device of sufficient size and strength to securely hold the front and back sections in open position.

47. **Single Ladders**

The following rules and specifications apply to single ladders:

(a) Do not use a single ladder that is longer than 30 feet (9.1 meters).
(b) Where possible, lash, or have someone hold, the ladder in place.
(c) Do not splice short ladders together to make a longer ladder.
(d) Pitch a ladder such that the horizontal distance from the top support to the foot of the ladder is one-quarter of the working length of the ladder (the length along the ladder between the foot and the support). (x-ref diagram)

48. **Extension Ladders**

The following rules and specifications apply to extension ladders:

(a) Do not use an extension ladder that is longer than 60 feet (18.2 meters).
(b) Where possible, lash or have someone hold the ladder in place.
(c) Pitch a ladder such that the horizontal distance from the top support to the foot of the ladder is one-quarter of the

working length of the ladder (the length along the ladder between the foot and the support). (x-ref diagram)

(d) Extension ladders must be raised so that the upper section overlaps and rests on the bottom section.

(i) The upper section must overlap the lower ladder by at least 3 feet (1 meter) for 36 feet (11 meters) of ladder; this overlap should increase with the length of the ladder.

49. **Fixed Ladders**

The following rules and specifications apply to fixed ladders:

(a) Make sure fixed ladders are regularly inspected and in good condition before use.

(b) Do not carry heavy loads, which can cause fatigue on longer ladders. Make additional trips if necessary, also guarding against fatigue.

(c) Take extra caution during windy weather or when rungs may be slippery.

50. **Offshore Guidelines**

JAGUAR ENERGY SERVICES, LLC personnel who work at offshore locations can be required to ascend and descend from helicopter platforms to working decks. (x-ref Offshore Safety)

(a) Sometimes the access staircases are referred to as “ladders” and can be as long as 60 feet (18 meters) or more.

(b) Care should be taken to avoid fatigue that can develop due to long or repeated climbs.

(c) In addition, the following rules and guidelines apply to offshore climbing:

(i) Make sure ladders are regularly inspected and in good condition before use.

(ii) Do not carry heavy loads, which can cause fatigue on longer ladders.

(iii) Make additional trips if necessary, also guarding against fatigue.

(iv) Always face a ladder when climbing up or down.

(v) Carry tools on a tool belt.

(vi) Where possible, haul materials up on a line rather than carrying them.

(vii) Take extra caution during windy weather or when rungs may be slippery.

(viii) Do not leave tools or other materials on a ladder.

B. Scaffolding Training Requirements

1. All **JAGUAR ENERGY SERVICES, LLC** personnel and any other personnel required to work on scaffolds will be trained in the contents of this procedure by a qualified person prior to use.

2. Training will cover:
   - (a) Recognition of hazards relating to the use of scaffolding.
   - (b) Fall Protection
   - (c) Falling objects
   - (d) Electrical precautions
   - (e) Load capacity
   - (f) Scaffolding inspection.
   - (g) Proper use of scaffolding.
   - (h) Safety precautions in scaffolding use.

C. Training Frequency

1. All Personnel will be trained according to the following schedule:
   - (a) Initially upon hire.
   - (b) Retraining will be done if:
     - (i) Inadequacies are observed in work performance.
     - (ii) Operational conditions change.

D. Ladder and Working Surfaces Training Requirements

1. **JAGUAR ENERGY SERVICES, LLC** personnel will be trained on the following topics:
   - (a) Proper procedures and precautions for working with portable ladders.
   - (b) Inspection requirements for portable ladders.
   - (c) Evaluation of working surfaces for proper railings.
   - (d) Evaluation of work surfaces and areas for fall hazards.
   - (e) Housekeeping.
   - (f) The contents of this procedure.

E. Ladder and Working Surfaces Training Frequency

1. **JAGUAR ENERGY SERVICES, LLC** personnel will be trained according to the following schedule:

(a) Initially upon hire.
(b) As necessary thereafter.

F. Definitions

1. **Floor hole** is an opening that is less than 12 inches (30.5 cm) but more than 1 inch (2.54 cm) in any platform, floor pavement or other work surface through which tools or materials, but not a person, can fall.

2. **Floor opening** is an opening larger than 12 inches (30.5 cm) in any platform, floor, pavement, or other work surface, through which a person might fall.

3. **Platform** is a working space that is elevated above the surrounding floor or ground level.

4. **Qualified Person** is a person who by reason of training, education, and experience is knowledgeable about the construction and operation of scaffolding and the hazards involved.

5. **Runway** is a passageway that is elevated above the surrounding floor or ground level.

6. **Standard railing is** a railing that consists of a top rail that is 42 inches (1.1 meters) high with a middle rail.
   (a) Mesh or netting may be required to prevent tools or equipment falling through to a lower level.
   (b) The rail must be capable of withstanding 200 pounds (91 kg) of pressure in any outward or downward direction.
   (c) The top rail and middle rail must be thick enough to prevent cuts.
   (d) If a wire rope or cable is used as the top rail at a construction site, it must be flagged at not more than six-foot intervals with high-visibility materials.
   (e) The cable must be one half inch (1.2 cm) nominal diameter.

7. **Standard stair railing** is a railing (stair rail) that shall be of construction similar to a standard railing, but the vertical height shall be not more than 34 inches (86 cm) nor less than 30 inches (76 cm)

from the upper surface of the top rail to the surface of the tread in line, with the face of the riser at the forward edge of the tread.

8. **Standard handrail** is a handrail that consists of a lengthwise member mounted directly on a wall or partition by means of brackets attached to the lower side of the handrail in order to keep a smooth, unobstructed, surface along the top and both sides of the handrail.
   (a) The brackets shall hold the rail three inches (8 cm) from the wall and be no more than 8 feet (2.3 meters) apart.
   (b) The height of handrails shall be no more than 34 inches (86 cm) nor less than 30 inches (76 cm) from the upper surface of the handrail to the surface of the tread in line with the face of the riser or to the surface of the ramp.
   (c) **Wall hole** is an opening that is less than 30 inches (76 cm) high with unlimited width, but more than one inch in any wall or partition, such as a ventilation hole.
   (d) **Wall opening** is an opening at least 30 inches (76 cm) high by 18 inches (21 cm) wide in any wall or partition through which a person might fall.

APPENDIX A