FALL PROTECTION	**Procedure Number** **SAF-1.10** **Issue Date** December 1, 2014
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ISSUED BY:	**APPROVED BY:**
Safety Manager Coosa Pines Mill 10-31-22 DATE	General Manager Coosa Pines Mill 10-31-22 DATE
INTERPRETATION AND PERIODIC REVIEW OF THIS PROCEDURE IS THE RESPONSIBILITY OF:	**SAFETY MANAGER**
DISTRIBUTION ALL MANAGERS ALL TEAM LEADERS	

1.0 Purpose

The purpose of this document is to provide information and guidance necessary to recognize, and minimize the risk of fall hazards.

2.0 Scope

This procedure applies to Coosa Pines employees and contractor employees who in the performance of work require the use of fall protection equipment or systems.

3.0 General

3.1 This procedure provides an overview of fall protection equipment or systems that must be used to perform work safely at heights above 4 feet. It assigns departmental responsibilities for training, equipment acquisition, inspection and issue.

3.2 At wind speeds of 25 mph or higher, work on scaffolding, and work at unprotected heights will be suspended in areas unprotected from wind forces.

4.0 Terms and Definitions

4.1 **Anchor Point** – A secure point of attachment of lifelines, lanyards or deceleration devices. Anchor points must be capable of supporting a static load of 5,000 pounds per person attached.

4.2 **Body Harness** – Straps which may be secured about the employee in a manner that will distribute the forces of a fall over the thighs, pelvis, waist, chest, and shoulders with means for attachment to other components of a personal fall arrest system.

4.3 **Competent Person –** A person who, because of training and experience, is capable of identifying hazardous or dangerous fall-related conditions and capable of training employees to identify such conditions.

4.4 **Continuous Fall Protection (100% Fall Protection/Tie-Off) –** The design and use of a fall protection system such that no unrestrained exposure to an elevated fall hazard exists. This includes when accessing mobile equipment, loaders, frontend loader, lift-trucks, rough terrain lifts, cranes, flat bed trailers, tanker trailers, bulldozer, dump trucks & etc. **Per Sac-2018-03_Keno_FA_2018-06-19.** This may require more than one fall protection system or a combination of preventive or protective measures. 100% fall protection with lanyards requires two Self-Retracting Lanyards (SRLs). One of the SRLs has to be tied off at all times. Example: When moving on a horizontal lifeline the person would come to an obstruction on the line. They would have to use the second lanyard to tie off past the obstruction before they would disconnect the first lanyard.

4.5 **Deceleration Device –** Any mechanism such as a rope grab and self-retracting lifeline that serves to dissipate the force of the fall that would otherwise be imposed on the employee.

4.6 **Deceleration Distance** – The vertical distance between the harness attachment point at the

activation of the fall arrest equipment and that attachment point once the individual comes to a complete stop.

4.7 **Failure –** Load refusal, breakage, or separation of component parts. Load refusal is the point where the ultimate strength is exceeded.

4.8 **Free Fall –** The act of falling before a personal fall arrest system begins to apply force to arrest the fall.

4.9 **Guardrail System –** A barrier erected to prevent employees, tools or material from falling to lower levels.

4.10 **Horizontal Lifeline –** An engineered system of a rail, rope, wire, or synthetic cable that is installed in a horizontal plane between two or more anchor points. It is used for attachment of the worker's lanyard or lifeline device while moving horizontally or to control dangerous pendulum-like falls.

4.11 **Lanyard –** A flexible line of synthetic fibers having connectors at each end for connecting the full-body harness to a deceleration device, lifeline, or anchorage. The lanyard must not be attached by means of knots or loops. The lanyard must have a double latch, self-locking snap hook at each end for connecting the full-body harness to a lifeline or anchor point. Some lanyards may have a built-in deceleration device. A self-retracting lanyard is required because it imposes the minimum force to the body in the event of a fall. Only commercially manufactured lanyards, designed for fall arresting purposes may be used. Lanyards must be designed to support a 5000-pound static load.

4.12 **Lifeline –** A vertical line from a fixed anchorage, or a horizontal line between two anchorage points, independent of walking or working surfaces, to which a lanyard or fall arresting device is secured.

4.13 **Low-slope Roof** – A roof having a slope less than or equal to 4 in 12 (vertical to horizontal) pitch

4.14 **Lower levels** – Those areas or surfaces to which an employee can fall. Such areas or surfaces include, but are not limited to, ground levels, floors, platforms, ramps, runways, excavations, pits, tanks, material, water, equipment, working on/accessing areas on mobile equipment, structures, or portions thereof.

4.15 **Opening –** A gap or void at least 30 inches high and at least 18 inches wide in a wall or partition, through which employees can fall to a lower level.

4.16 **Personal Fall Arrest System –** A system used to arrest an employee in a fall from a working level. It consists of an anchorage, connectors, and a full-body harness. It may include a lanyard, deceleration device, lifeline, or suitable combinations of these.

4.17 **Positioning Device System –** A body harness system rigged to allow an employee to be supported on an elevated vertical surface, such as a wall, and work with both hands free while leaning.

4.18 **Safety-Monitoring System** – A fall protection system in which a competent person is responsible for recognizing and warning employees of fall hazards. See 8.3 for more information.

4.19 **Self-Retracting Lifeline (Required at Coosa Pines)** – A deceleration device containing a drum-wound line that can be slowly extracted from, or retracted onto, the drum under slight tension during normal employee movement, and which after onset of a fall, automatically locks the drum and arrests the fall. Impact loads are greatly reduced due to the very short distances these devices activate in. This fall system improves the rescue time and many cases the employee can rescue him/herself. This type system in most cases prevents the person from falling; the sudden movement causes the self-retracting device to lock allowing the employee to gain balance.

4.20 **Toe-board** – A low protective barrier at least 3.5" in height that will prevent the fall of materials and equipment to lower levels and provide protection from falls for personnel. A toe-board is a component of a guardrail system.

4.21 **Unprotected Sides and Edges** – Any side or edge (except at entrances to points of access) of a walking/working surface, e.g., floor, roof, ramp, or runway where there is no wall or guardrail system at least 39 inches high. This includes accessing mobile equipment where ladder and guardrails/handrails are not provided.

4.22 **Warning Line System** – A barrier erected on a roof to warn employees that they are approaching an unprotected roof side or edge, and which designates an area in which work may take place without the use of guardrail, or safety net systems to protect employees in the area. See 8.2 for more information.

4.23 **Working Height** – The distance from the worker's footing to the next lower working level or surface to which an employee can fall.

4.24 **Shock Absorbing Lanyards** – As of 4/1/2017, Shock-absorbing lanyards are no longer allowed at Coosa Pines.

5.0 Responsibilities

5.1 Supervisors

Ensure that the appropriate fall protection system and/or equipment is used, and that employees are properly trained in its use.

5.2 Contract Managers/Planners/Representatives

Shall explain/communicate this policy to all contractors that are performing work on Coosa Pines site that could be exposed to a fall hazard during the scope of the contracted work. This includes when working on or accessing mobile equipment when not protected by handrails or guardrails. 100% tie-off is required on all Coosa Pines Operations sites (includes Chip Mills).

5.3 **Employees**

5.3.1 Familiarize themselves with and implement the requirements of this procedure.

5.3.2 Perform pre-use inspections of equipment as required.

5.3.3 Each individual who uses fall protection equipment and/or systems is responsible for recognizing fall hazards and for taking necessary measures to prevent a fall.

5.3.4 Immediately report any unsafe conditions identified in the implementation of this procedure.

5.4 **Safety Department**

5.4.1 Provide technical assistance, as needed, to facilitate the implementation of this procedure.

5.4.2 Monitor compliance with the requirements of this procedure through field inspections, review of documentation, and employee discussions.

5.4.3 Provide and/or coordinate fall protection training.

5.4.4 Facilitate the annual inspection of personal fall arrest equipment.

6.0 Procedure

6.1 **Application of Fall Protection Systems**

6.1.1 **General**

Employees will be allowed to work only on those surfaces having the requisite strength and structural integrity to support employees safely.

6.1.2 **Unprotected Sides and Edges**

Each employee on a walking or working surface other than a roof (horizontal and vertical surface) with an unprotected side or edge that is 4 feet or more above a lower level shall be protected from falling by the use of guardrail systems, personal fall arrest, or restraint systems. This includes accessing mobile equipment where ladder and guardrails/handrails are not provided. On horizontal surfaces above 4 feet, individuals will be protected if working within 15 feet of the edge.

6.1.3 **Catwalks**

Handrails on catwalks or other elevated walkways are designed to provide fall protection for individuals on the walking surface of the walkway. If a ladder or any other device is used which places the individual above the walking surface of the walkway and therefore above the fall protection provided by the handrails, an

additional form of fall protection is required.

6.1.4 **Hoist Areas**

Each employee in a hoist area shall be protected from falling 4 feet or more to lower levels by guardrail systems, personal fall arrest, or restraint systems. If guardrail systems, [or chain, gate, or guardrail] or portions thereof, are removed to facilitate the hoisting operation (e.g., during landing of materials), and the employee must work in close proximity to the access opening, that employee shall be protected from fall hazards by a personal fall arrest system.

6.1.5 **Holes**

Each employee on walking or working surfaces must be protected from falling through holes more than 4 feet above lower levels, by personal fall arrest or restraint systems, covers, or guardrail systems erected around such holes. Each employee on a walking or working surface will be protected from tripping in or stepping into or through holes by covers.

6.1.6 **Excavations**

Each employee at the edge of an excavation 4 feet or more in depth will be protected from falling by guardrail systems, fences, or barricades when the excavations are not readily seen because of any visual barrier.

6.1.7 **Dangerous Equipment**

Each employee less than 4 feet above dangerous equipment will be protected from falling into or onto the dangerous equipment by guardrail systems or by equipment guards.

Each employee 4 feet or more above dangerous equipment shall be protected from fall hazards by guardrail systems or personal fall arrest systems.

6.1.8 **Work On Low-Slope Roofs**

Each employee engaged in work on low-slope roofs, with unprotected sides and edges 4 feet or more above lower levels must be protected from falling by guardrail systems, personal fall arrest or restraint systems, or a combination of warning line system and guardrail system, or warning line system and personal fall arrest system, or warning line system and safety monitoring system. On roofs 50-feet or less in width, the use of a safety monitoring system alone (i.e. without the warning line system) is permitted.

6.1.9 **Work On Steep Roofs**

Each employee on a steep roof with unprotected sides and edges 4 feet or more above lower levels must be protected from falling by guardrail systems with toe-boards, or personal fall arrest systems.

6.1.10 Powered Platforms, Man-Lifts, Scissor Lifts, and Vehicle-Mounted Work Platforms

Employees on working platforms will be protected by a personal fall arrest system. They must tie off to the manufacturer provided tie-off point as soon as they enter the platform.

6.1.11 Work On Scaffolding/General Scaffold Requirements

Each employee on a scaffold more than 4 feet above a lower level must be protected from falling to that lower level.

A scaffold that is ready for use shall be tagged with either a green or a yellow tag.

A green scaffold tag designates a complete scaffold, as defined by the manufacturer.

A yellow scaffold tag designates a scaffold that is not complete but which is altered to suit a specific job and may be used safely. A yellow scaffold tag shall detail the reason or reasons the scaffold is incomplete and safety measures needed.

If scaffold is in the process of being erected, changed, or dismantled, it shall have a red tag. A scaffold that contains a red scaffold tag shall be considered unsafe and shall not be used.

If a scaffold has been damaged or is defective, a Red Tag must be attached.

The yellow, red, and green scaffold tags are approximately 4 in. (10.16 cm) wide by 8 in. (20.32 cm) long with a hole centered at the top of the tag.

6.1.12 Erecting or Dismantling Scaffolding

A competent person will determine the feasibility and safety of providing fall protection for employees erecting or dismantling scaffolds. Employers are required to provide fall protection for employees erecting or dismantling scaffolds where the installation and use of such protection is feasible and does not create a greater hazard.

A qualified person shall determine whether a useable scaffold receives a yellow or a green tag. He/she shall be responsible for completing all pertinent information on the tag and affixing the tag to any scaffold erected under his/her supervision.

The scaffold tag shall be affixed to each scaffold access ladder approximately 5 ft., 6 in., (1.68 m) from its base, where it will not interfere with normal access.

The qualified person may remove a scaffold tag from a scaffold that has been damaged, has been improperly modified, is missing components or is deficient in any safety aspect. A red tag may be used in these circumstances.

After a scaffold has been repaired, the qualified person shall inspect it to determine whether it is ready to be re-tagged and shall do so accordingly.

Periodic inspections shall be performed to ensure that all tags are legible and in good condition.

Inspection, attention, and stability are three keys to scaffold safety. No tag on scaffold shall be considered the same as a red tag.

Scaffolds shall meet the following requirements:

1. Must be of sufficient strength and rigidity to safely support the weight of employees and materials to which they may be subjected.
2. Must not be used unless there is a standard guardrail with midrail and toe board.
3. Scaffold planking (when used) shall extend over their end supports by not less than 6 inches (15 cm) nor more than 12 inches (30 cm).
4. Must not be moved without first removing all loose materials and equipment resting on the scaffold deck.
5. All scaffolds must rest on suitable footing and shall stand level.
6. Moveable scaffolds shall have casters or wheels locked to prevent movement when in use.

If the scaffold does not meet all of the requirements, but is safe to use with fall protection, then a yellow tag shall be placed on the ladder with instructions to use fall protection and the reason for the deviation.

If the scaffold does not meet all of the requirements and is unsafe without further repair, then a red tag shall be placed on the ladder indicating that the scaffold is unsafe to use.

6.1.13 Other Examples

Other examples of work requiring fall protection include, but are not limited to the following:

- Ladders when used as working platforms;
- Incomplete structural steel;

- Elevated piping or pipe racks (a horizontal lifeline system is recommended for elevated pipe racks);
- Confined spaces or other enclosures where a fall hazard exists;
- Tank roof without OSHA guardrail system (regardless of work location).
- Accessing mobile equipment where ladder and guardrails/handrails are not provided.

Exception 1: When a brief visual inspection (from the ladder) is required on the top of a trailer before transport or to verify conditions, workers are not required to wear fall protection equipment. Must maintain 3 points of contact at all times and complete a ladder inspection form. Also must follow Ladder Safety Policy SAF-1.12.

7.0 Conventional Fall Protection Systems

7.1 Guardrail Systems

7.1.1 Top edge height of top rails, or equivalent guardrail system members, shall be 42 inches plus or minus 3 inches above the walking or working level.

7.1.2 Mid-rails, screens, mesh, intermediate vertical members, or equivalent intermediate structural members shall be installed between the top edge of the guardrail system and the walking or working surface when there is no wall or parapet wall at least 21 inches high.

7.1.3 Mid-rails, when used, shall be installed at a height midway between the top edge of the guardrail system and the walking or working level.

7.1.4 Screens and mesh, when used, shall extend from the top rail to the walking or working level and along the entire opening between top rail supports.

7.1.5 Guardrail systems shall be capable of withstanding, without failure, a force of at least 200 pounds applied within 2 inches of the top edge, in any outward or downward direction, at any point along the top edge.

7.1.6 Guardrail systems shall be so surfaced as to prevent injury to an employee from punctures or lacerations, and to prevent snagging of clothing.

7.1.7 Gates at the top of elevated platforms shall have pass through bars equivalent to handrails. A platform will be located between the ladder and gate, when possible, to allow the gate to be opened/closed without standing on the ladder. All platforms that are used for purposes other than pass through (i.e. perform a designated task such as maintenance or operating a valve) shall have a double arm gate.

7.2 Personal Fall Arrest Systems (PFAS)

7.2.1 All full-body safety harnesses, self-retracting lanyards (SRLs), snap hooks and other

PFAS equipment must meet the material and assembly specifications, and testing requirements set forth in ANSI A-10.14 and OSHA 29 CFR 1926.502.

7.2.2 Only approved fall protection devices may be used by personnel and must be worn as designed and as intended by the manufacturer. The key provisions are:

- Connectors (Dee-rings and snap-hooks) shall have been proof-tested to 3600 pounds, and have a minimum tensile strength of 5000 pounds.
- Only locking type snap-hooks shall be used.
- Lanyards must have a minimum breaking strength of 5000 pounds, and be constructed only from synthetic fibers.
- The attachment point on the full-body harness (Dee-ring) shall be located in the center of the wearer's back near shoulder level.

7.2.3 Lifelines shall be protected against being cut or abraded.

7.2.4 When a PFAS is used, these systems must be tied-off properly to anchorage points that are capable of supporting a static load of 5000 pounds per person attached. This procedure contains engineering guidance for anchor points on loaded and unloaded Wide Flange (WF) beams and pipe with or without pressure, and a summary of guidelines for allowable fall protection anchor points (see Attachment A). If other configurations or points for anchorage are used, the adequacy of those points must be confirmed by the Engineering Department.

7.2.5 Personal fall arrest systems shall be rigged to limit free fall distance to 6 feet or less. The deceleration distance must be limited to 3.5 feet and the personal fall protection system must allow for an unobstructed fall (ex., lanyard length=6ft. + deceleration=3.5ft. + person height=6ft. for total unobstructed fall distance of 15.5ft.). In addition, the system shall be rigged to limit a swing fall hazard.

7.2.6 Anchorage points used for attachment of personal fall arrest equipment shall be independent of any anchorage being used to support or suspend platforms and capable of supporting at least 5,000 pounds per employee attached.

7.2.7 Personal fall arrest systems, when stopping a fall, shall:

- Limit maximum arresting force on an employee to 1,800 pounds when used with a body harness;
- Be rigged such that an employee can neither free fall more than 6 feet, nor contact any lower level;
- Bring an employee to a complete stop and limit maximum deceleration distance an employee travels to 3.5 feet.

7.2.8 Personal fall arrest systems and components that have been subjected to impact from arresting of an employee's fall shall be immediately removed from service.

7.2.9 Self-retracting lifelines which automatically limit free fall distance to 2 feet or less shall be capable of sustaining a minimum tensile load of 3,000 pounds applied to the device with the lifeline or lanyard in the fully extended position.

7.2.10 Self-retracting lifelines and lanyards which do not limit free fall distance to 3 feet or less, shall be taken out of service and not be used at Coosa Pines.

7.3 Handrail Systems on Stairways

7.3.1 Handrails shall provide an adequate handhold for individuals to grasp to prevent falls.

7.3.1.1 Always use two railings when available and within arms' reach so as to maintain three-point contact at all times when climbing up/down staircases, and proceed without haste.

7.3.1.2 If just one railing is available (only two-point contact), make sure to hold on to available railing at all times while continually looking down at the stair you are about to step on so as to reduce the risk of suddenly losing your balance due to incorrect foot positions, and proceed without haste.

8.0 Fall Protection Plan

8.1 This option is available only when it is unfeasible to use conventional fall protection equipment, or the use of conventional fall protection equipment creates a greater hazard. The fall protection plan must conform to the following provisions:

8.1.1 The fall protection plan shall be prepared by a qualified person and developed specifically for the site where the work is being performed and the plan must be maintained up to date;

8.1.2 The completed fall protection plan AND any subsequent changes to the plan must be approved by the Safety Department;

8.1.3 A copy of the fall protection plan with all approved changes will be maintained at the job site;

8.1.4 The implementation of the fall protection plan will be under the supervision of a competent person;

8.1.5 The fall protection plan must document the reasons why the use of conventional fall protection systems (guardrail systems or personal fall arrest systems) are unfeasible or why their use would create a greater hazard;

8.1.6 The fall protection plan shall include a written discussion of other measures that will be taken to reduce or eliminate the fall hazard for workers who cannot be provided

with protection from the conventional fall protection systems. For example, the competent person shall discuss the extent to which scaffolds, ladders, or vehicle mounted work platforms can be used to provide a safer working surface and thereby reduce the hazard of falling;

8.1.7 Where no other alternative measure has been implemented, the Safety Department may authorize a safety monitoring system;

8.1.8 The fall protection plan must include a statement that provides the name or other method of identification for each employee who is designated to work in controlled access zones. No other employees may enter controlled access zones;

8.1.9 In the event an employee falls, or some other related, serious incident occurs, (e.g., a near miss) the circumstances of the fall or other incident will be investigated to determine if the fall protection plan needs to be changed (e.g. new practices, procedures, or training) and necessary changes shall be implemented to prevent similar types of falls or incidents.

8.2 Warning Line Systems

8.2.1 The warning line shall be erected around all sides of the roof work area.

8.2.2 The warning line shall be erected not less than 6 feet from the roof edge.

8.2.3 Warning lines shall consist of ropes, wires, or chains and supporting stanchions erected as follows;

- The rope, wire, or chain shall be flagged at not more than 6-foot intervals with high-visibility material;
- The rope, wire, or chain shall be rigged and supported in such a way that its lowest point (including sag) is no less than 34 inches from the walking or working surface and its highest point is no more than 39 inches from the walking or working surface.

8.2.4 After being erected, with the rope, wire, or chain attached, stanchions shall be capable of resisting, without tipping over, a force of at least 16 pounds applied horizontally against the stanchion, 30 inches above the walking or working surface, perpendicular to the warning line, and in the direction of the floor, roof, or platform edge.

8.2.5 No employee shall be allowed in the area between a roof edge and a warning line.

8.3 Safety Monitoring Systems

8.3.1 When a safety monitoring system is used, a competent person will be designated to monitor the safety of other employees (maximum ratio of one monitor per three workers) and will comply with the following requirements:

- The safety monitor shall be competent to recognize fall hazards;
- The safety monitor shall warn the employee when it appears that the employee is unaware of a fall hazard or is acting in an unsafe manner;
- The safety monitor shall be on the same walking or working surface and within visual sighting distance of the employee being monitored;
- The safety monitor shall be close enough to communicate orally with the employee;
- The safety monitor shall not have other responsibilities that could take the monitor's attention from the monitoring function.

8.3.2 No employee, other than an employee engaged in roofing work (on low-sloped roofs) or an employee covered by a fall protection plan, shall be allowed in an area where an employee is being protected by a safety monitoring system.

9.0 Rescue Consideration

9.1 Rescue of fallen employees, who are incapable of self-rescue, shall be done using established rescue plans and procedures (ERT).

9.2 In areas where a personal fall protection system is required, workers will not work alone.

10.0 Fall Protection Equipment Inspections, Storage and Cleaning

10.1 Before Use Inspection

10.1.1 The equipment user is responsible for inspecting the equipment before and while using it.

10.1.2 A documented pre-use check of any equipment shall include the following:

- Cuts or tears
- Mold and mildew
- Abrasion
- Burned fibers
- Acid or other chemical damage
- Dryness
- Punctures
- Hardware damage (bent, burnt, etc.)

- Broken or worn sewing
- Loose, bent, or missing rivets
- Dirt or sand in webbing or ropes
- Internal fraying (open the rope and webbing as much as possible to check for internal fraying which could seriously weaken the item but not be too evident on the outside surface)
- External fraying from normal wear
- Loose splices (position and condition of protecting thimbles)
- Deformation indicating heavy loading
- Loss of flexibility/stiff
- Corrosion
- Tongue buckle for bending or binding of tongue on roller
- Snaps for easy action of the latch and proper spring tension
- Latch should seat in nose of snap properly

10.1.3 Any defective equipment will be immediately taken out of service.

11.0 Annual Inspection of Personal Fall Arrest Equipment

11.1 A complete inspection, in accordance with regulatory requirements and manufacturer's instructions, shall be completed annually.

11.2 The annual inspection shall be completed and documented by a competent person.

11.3 Manufacturer's authorized representative must perform any repairs.

12.0 Storage

12.1 Store fall protection equipment in a cool, dry and clean place out of direct sunlight. Avoid areas where heat, moisture, light, oil, chemicals (or their vapors) or other degrading elements may be present.

12.2 Heavily soiled, wet, or otherwise contaminated equipment must be properly maintained prior to storage (see paragraph 13.0).

13.0 Cleaning

13.1 Do not use industrial solvents on synthetic materials. These chemicals can degrade the product by leaching oils used in the manufacturing process to give greater strength to the final product.

13.2 Fall protection equipment must be cleaned regularly to ensure that it remains in good condition and in top working order.

13.3 Synthetic ropes, straps, and harnesses are cleaned by:

13.3.1 Washing this equipment in warm mild soapy water is the best way to remove loose debris.

13.3.2 Rinse with fresh water and dry in a cool dry area away from UV light (sunlight or welders arc).

13.3.3 Always make sure that labels are legible after cleaning.

13.4 Wash fall protection devices in warm mild soapy water. Additionally, the following applies to fall protection devices:

13.4.1 The manufacturer shall be consulted for advice on the removal of paint overspray and other materials that soap and water will not remove.

13.4.2 Any lubrication used on fall protection equipment must have the manufacturer's approval.

13.4.3 Do not oil moving parts unless instructed by the manufacturer.

13.4.4 Many manufacturers offer reconditioning programs and re-testing documentation to help owners maintain fall protection devices in good working order.

14.0 Training

14.1 Training as a minimum shall include the following topics:

14.1.1 Nature of Hazards

14.1.2 History

14.1.3 Fall physics and forces involved (distances, loads)

14.1.4 Impact loads on the body and fall protection systems

14.1.5 Guardrail systems

14.1.6 Personal fall arrest systems

14.1.7 Fitness for duty

14.1.8 Previous injuries

14.1.9 Age and fitness

14.1.10 Pregnancy

14.1.11 Back injury

14.1.12 Vascular problems

14.1.13 Safety nets

14.1.14 Safety monitoring systems

14.1.15 Warning Line System

14.1.16 Other protection to be used

14.1.17 Maintenance

14.1.18 Inspections

14.1.19 Lifting tools and equipment

14.1.20 Overhead protection of other employees in area

14.1.21 Hard-hats

14.1.22 Barricades

14.1.23 Technical terms

14.1.24 Rescue procedures

14.1.25 Fall protection equipment and hardware use including hands-on activities

14.1.26 Proper equipment storage

14.2 Training shall be completed prior to the use of fall protection equipment and/or work at unprotected heights.

14.3 Retraining shall be conducted annually or when management has reason to believe that any affected employee who has already been trained does not have the understanding and skill required to do the assigned work. Circumstances where retraining is required include, but are not limited to, situations where:

14.3.1 Changes in the workplace or the types of fall protection systems or equipment to be used render previous training obsolete;

14.3.2 Inadequacies in an affected employee's knowledge or use of fall protection systems

or equipment indicate that the employee has not retained the requisite understanding or skill.

15.0 Fitness for Duty

15.1 Age, fitness, and obesity seriously affect a workers ability to withstand fall arrest forces.

15.2 Persons that have previous injuries that may place them at risk of further injury or who have health concerns must consult with the Safety Department before using fall protection equipment.

15.3 Pregnant women will not use fall protection equipment due to increased risk of injury in the event they take a fall.

16.0 Records

The annual inspections of personal fall arrest system equipment will be maintained by the Safety Department for 5 years.

17.0 References

17.1 Accident Prevention Manual for Business and Industry, National Safety Council

17.2 ANSI A10.14 Series – Portable Ladder Safety Requirements

17.3 ANSI Z359.1 – Safety Requirements for Personal Fall Arrest Systems, Subsystems, and Components

17.4 29CFR Part 1910 – Occupational Safety and Health Act

17.5 29CFR Part 1926 Sub Part M – Safety and Health Regulations for Construction

18.0 Attachments

Attachment A – GUIDELINES FOR ALLOWABLE FALL PROTECTION ANCHOR POINTS

Attachment B – RECORD OF REVISIONS

Attachment A

GUIDELINES FOR ALLOWABLE FALL PROTECTION ANCHOR POINTS

Unloaded WF Beam

# of Workers		BEAM SPAN				
		10'	15'	20'	25'	30'
1	Beam Depth	4 1/8"	4 1/8"	4 1/8"	4 1/8"	4 1/8"
	Beam Width	4"	4"	4"	4"	4"
1 or 2	Beam Depth	4 1/8"	4 1/8"	4 1/8"	4 1/8"	5 7/8"
	Beam Width	4"	4"	4"	4"	4"
1, 2, or 3	Beam Depth	4 1/8"	4 1/8"	4 1/8"	4 1/8"	6"
	Beam Width	4"	4"	4"	4"	4"

Notes:

1. Beams used must meet minimums listed for beam depth and width.
2. Beams must be in good condition.
3. If beams are fireproofed, user must verify that beams are in good condition and meet minimums listed.
4. See attached "Guidelines for Allowable Fall Protection Anchor Points," dated 1/9/95 for additional information.

Attachment A (continued)

GUIDELINES FOR ALLOWABLE FALL PROTECTION ANCHOR POINTS

Loaded WF Beam

# of Workers		BEAM SPAN				
		10'	15'	20'	25'	30'
1	Beam Depth	6"	6"	6 ¼"	11 7/8"	12"
	Beam Width	4"	6"	6"	4"	4"
1 or 2	Beam Depth	7 7/8"	6 ¼"	6 ¼"	11 7/8"	8 ¼"
	Beam Width	4"	6"	6"	4"	5 ¼"
1, 2, or 3	Beam Depth	5"	9 7/8"	6 ¼"	6 3/8"	8 ¼"
	Beam Width	5"	4"	6"	6 1/8"	5 ¼"

Notes:

1. Beams used must meet minimums listed for beam depth and width.
2. Beams must be in good condition.
3. If beams are fireproofed, user must verify that beams are in good condition and meet minimums listed.
4. See attached "Guidelines for Allowable Fall Protection Anchor Points," dated 1/9/95 for additional information.

Attachment A (continued)

GUIDELINES FOR ALLOWABLE FALL PROTECTION ANCHOR POINTS

Steel Pipe With or Without Pressure

# of Workers	PIPE SPAN				
	10'	15'	20'	25'	30'
1	6"	6"	6"	8"	8"
1 or 2	6"	6"	8"	8"	8"
1, 2, or 3	6"	6"	8"	8"	10"

Notes:

1. Pipe used must meet minimum diameter shown. (Minimum NPS diameter)
2. Pipe must be in good condition.
3. Pipe temperature is $\leq$ 400° F.
4. See attached "Guidelines for Allowable Fall Protection Anchor Points," dated 1/9/95 for additional information.

Attachment A (continued)

GUIDELINES FOR ALLOWABLE FALL PROTECTION ANCHOR POINTS

These notes apply to the preceding documents (3) entitled "Guidelines for Allowable Fall Protection Anchor Points - Unloaded WF Beams, Loaded WF Beams, and Pipe."

1. Table values must meet or exceed field anchor span length and dimensions.
2. I-Beams and process or utility piping (and their support structures) which are used as anchor points must be in good condition.
3. Table values are based on a maximum of 6 feet employee free-fall, using a maximum of 6 foot long lanyard with a stitched decelerator and a full body harness.
4. Piping flanges should not be in the pipe section where the anchorage point occurs, and up to and including the first pipe stanchion on either side of the anchor point.
5. Piping process temperature should be equal to or no greater than 400 degrees Fahrenheit, but not less than minus 20 degrees Fahrenheit.
6. Branch piping may be used as an anchor as long as both ends of the main piping run and piping branch are supported. Branch piping diameter must meet table requirements using a span measurement from the main piping branch to the branch pipe support.
7. If any of the above (items 1-6) conditions are not met, an engineer and/or other knowledgeable persons should be contacted for further evaluation and potential approval for use as an anchor point.
8. Anchorage piping is assumed to be at the minimum allowable thickness and to have the tie-off point at mid-span; anchorage beams (for the "LOADED" case) are assumed to be a full loaded pipe support.
9. The use of adequate structural steel members is always preferred over process or utility piping as anchorage points. The use of process or utility piping as anchorage points may be considered when the use of a structural member as an anchor could result in a greater hazard (e.g., swing falls).
10. If a fall arrest has occurred, Engineering will be contacted to inspect the anchorage pipe or beam to assess condition and determine corrective action.
11. Whenever possible, use anchor points and tie-off methods that minimize the free fall distance to less than 6 feet while still performing the work safely. The shorter free fall distances significantly reduce the fall arrest force applied to the body and the anchor.
12. Never use guard or hand rails; "C" clamps; electrical equipment or conduits; cable trays; cast iron, riveted, plastic, or screwed piping; bolt, pipe, pipe support, or I-beam ends; welded pipe hangars; or a piping section supported by pipe hangers.

ATTACHMENT B
RECORD OF REVISIONS

Section	Revision Number	Effective Date	Description Of Changes
		12-1-14	New document
		3-17-15	Revised with minor changes and updates.
Title Page		3-10-2016	Changed title page for current management signatures.
Title Page		06-24-16	Changed title page for current management signatures.
ALL	4	02-06-17	Addition of 100% tie-off requirement; update requirement for SRLs (as of 4/1/17, SALs are no longer allowed at Coosa; Addition of Attachment C (Fall Arrest Equipment Inspection form).
Section 7.3	5	04-06-17	Addition of 7.3 Handrail Systems on Stairways to ensure compliance with corrective measures on Corporate incident IR-2016-53.
Updated sections 4.4, 4.14,4.21, added Contractor Manager 5.2, 6.1.2, 6.1.13,	6	09-05-18	Update Per SAC-2018-03_Keno_FA_2018-06-19 stating fall protection is required when accessing mobile equipment when EE is not protected by handrails/guardrails.
All	7	10/31/22	General review and update of management signatures.

ATTACHMENT C
FALL ARREST EQUIPMENT PRE-USE INSPECTION FORM

Fall Arrest Equipment
Pre-Use Inspection Form (Front)

Week of: _____

Note: If any items are marked "Fail", tag out of service, and report for replacement.

	Mon		Tue		Wed		Thur		Fri		Sat		Sun	
SRL 1: S/N _____	Pass	Fail	Pass	Fail	Pass	Fail	Pass	Fail	Pass	Fail	Pass	Fail	Pass	Fail
Impact Indicator: Inspect for activation (rupture of red stitching, elongated indicator, etc.)														
Screws / Fasteners: Inspect for damage and make certain all screws and fasteners are tight.														
Housing: Inspect for distortion, cracks, and other damage. Inspect anchoring loop for distortion and damage.														
Lifeline: Inspect for cuts, burns, tears, abrasion, frays, excessive soiling and discoloration, broken wires (see impact indicator section).														
Locking Action: Inspect for proper lock-up of brake mechanism.														
Refraction / Extension: Inspect spring tension by pulling lifeline outfully and allowing it to retract fully (no slack).														
Hooks / Carabiners: Inspect for physical damage, corrosion, proper operation and markings.														
Reserve Lifeline: Inspect reserve lifeline retention systems for deployment.														
Labels: Inspect, make certain all labels are securely held in place and legible.														
Overall disposition.														
SRL 2: S/N _____	Pass	Fail	Pass	Fail	Pass	Fail	Pass	Fail	Pass	Fail	Pass	Fail	Pass	Fail
Impact Indicator: Inspect for activation (rupture of red stitching, elongated indicator, etc.)														
Screws / Fasteners: Inspect for damage and make certain all screws and fasteners are tight.														
Housing: Inspect for distortion, cracks, and other damage. Inspect anchoring loop for distortion and damage.														
Lifeline: Inspect for cuts, burns, tears, abrasion, frays, excessive soiling and discoloration, broken wires (see impact indicator section).														
Locking Action: Inspect for proper lock-up of brake mechanism.														
Refraction / Extension: Inspect spring tension by pulling lifeline outfully and allowing it to retract fully (no slack).														
Hooks / Carabiners: Inspect for physical damage, corrosion, proper operation and markings.														
Reserve Lifeline: Inspect reserve lifeline retention systems for deployment.														
Labels: Inspect, make certain all labels are securely held in place and legible.														
Overall disposition.														

I certify that I have conducted an inspection of the above referenced self retracting lanyards and that the conditions of the inspection items are accurately reported.

(Print Name) _____ (Date) _____

Original: Safety Department

(Inspection Form, Fall Arrest Equip) 2017 02 06

ATTACHMENT C
FALL ARREST EQUIPMENT PRE-USE INSPECTION FORM

Fall Arrest Equipment
Pre-Use Inspection Form (Back)

Week of: _____

Note: If any items are marked "Fail", tag out of service, and report for replacement.

Full Body Harness: S/N _____	Mon		Tue		Wed		Thur		Fri		Sat		Sun	
	Pass	Fail	Pass	Fail	Pass	Fail	Pass	Fail	Pass	Fail	Pass	Fail	Pass	Fail
Hardware: Includes D-rings, buckles, keepers, and back pads). Inspect for damage, distortion, sharp edges, burrs, cracks and corrosion.														
Webbing: Inspect for cuts, burns, tears, abrasion, frays, excessive soiling and discoloration.														
Stitching: Inspect for pulled or cut stitches.														
Labels: Inspect, make certain all labels are securely held in place and legible.														
Overall disposition.														

I certify that I have conducted an inspection of the above referenced full body harness and that the conditions of the inspection items are accurately reported.

_____ (Print Name) _____ (Date)

Cross Arm Strap: S/N _____	Mon		Tue		Wed		Thur		Fri		Sat		Sun	
	Pass	Fail	Pass	Fail	Pass	Fail	Pass	Fail	Pass	Fail	Pass	Fail	Pass	Fail
Hardware: Includes D-rings, buckles, keepers, and back pads). Inspect for damage, distortion, sharp edges, burrs, cracks and corrosion.														
Webbing: Inspect for cuts, burns, tears, abrasion, frays, excessive soiling and discoloration.														
Stitching: Inspect for pulled or cut stitches.														
Labels: Inspect, make certain all labels are securely held in place and														
Overall disposition.														

I certify that I have conducted an inspection of the above referenced cross arm straps and that the conditions of the inspection items are accurately reported.

_____ (Print Name) _____ (Date)

Anchorages (examples: D-ring, beam clamp, etc.):	Mon		Tue		Wed		Thur		Fri		Sat		Sun	
	Pass	Fail	Pass	Fail	Pass	Fail	Pass	Fail	Pass	Fail	Pass	Fail	Pass	Fail
Physical Damage: Inspect for cracks, sharp edges, burrs and deformities.														
Excessive Corrosion: Inspect for corrosion which effects the operation and/or strength.														
Fasteners: Inspect for corrosion, tightness, damage and distortion. If welded, inspect weld for corrosion, cracks & damage.														
Markings: Inspect, make sure certain markings are legible.														
Overall disposition.														

I certify that I have conducted an inspection of all anchorages I will use and that the conditions of the inspection items are accurately reported.

_____ (Print Name) _____ (Date)

Comments:

_____

Original: Safety Department (Inspection Form, Fall Arrest Equip) 2017 02 06