

**NORTH CAROLINA DEPARTMENT OF LABOR
DIVISION OF OCCUPATIONAL SAFETY AND HEALTH
RALEIGH, NORTH CAROLINA**

SUBJECT: Subpart R, Logging Operations - Interpretative Guide for use in the application of the Safety and Health Standards prescribed in 29 CFR 1910.266

A. Purpose:

This Interpretative Guide is an effort to provide some clarification to promote a better understanding of the most recently adopted safety and health standards for the logging industry.

B. Reference Documents:

Federal Registers Vol. 59, No. 196; Vol 60, No. 174
13 NCAC 07F.0101

C. Scope:

This Interpretative Guide covers safety practices, means, methods and operations for all types of logging in North Carolina.

D. Application:

This Interpretative Guide applies to all logging operations as defined, regardless of the end use of the wood.

E. Effective date(s)

April 1, 1995
August 9, 1995

a. Table of contents	2
b. Scope and application	3
c. Definitions	3
d. General requirements	3
1. Personal protective equipment	3
2. First-aid kits	5
3. Seat belts	6
4. Fire extinguishers	6
5. Environmental conditions	6
6. Work areas	6
7. Signaling and signal equipment	6
8. Overhead electric lines	7
9. Flammable and combustible liquids	7
10. Explosives and blasting agents	7
e. Hand portable powered tools	8
1. General requirements	8
2. Chain saws	8
f. Machines	9
1. General requirements	9
2. Machine operation	10
3. Protective structures	11
4. Overhead guards	13
5. Machine access	13
6. Exhaust systems	13
7. Brakes	13
8. Guarding	14
g. Vehicles	14
h. Tree harvesting	14
1. General requirements	14
2. Manual felling	15
3. Bucking and limbing	16
4. Chipping	16
5. Yarding	17
6. Loading and unloading	17
7. Transport	18
8. Storage	18
i. Training	18
j. Effective date	21
k. Appendices	21

Appendix A -- Minimum First-aid Supplies
Appendix B -- Minimum First-aid Training
Appendix C -- Corresponding ISO Agreements

Appendix D -- 1910.266 Definitions
Appendix E -- CPL 2-1.19

<p>(b) SCOPE and APPLICATION:</p> <p>(1) Standard establishes safety practices, means, methods, and operations for all types of logging regardless of end use of wood, - pulpwood and timber harvesting, sawlogs, veneer bolts, poles, pilings and other forest products. Standards does not cover the construction or use of cable yarding system-</p>	
<p>(2) Standard applies to all logging operations as defined by this section-</p> <p>(3) Hazards and working conditions not specifically addressed by this section are covered by other applicable sections of Part 1910.</p>	<p>N.C.G.S. 95-129 (1) General Duty Clause- may be applicable to serious conditions not covered by any of the specific standards of Part 1910.</p>
<p>(c) DEFINITIONS:</p>	<p>Definitions adopted with one exception. Logging operations does not include those 'marking operations' that are done independently of or in advance of cutting trees on a particular logging site.</p>
<p>(d) GENERAL REQUIREMENTS:</p> <p>(1) Personal Protective Equipment-</p> <p>(i) The employer shall assure that personal protective equipment, including any such equipment provided by an employee, is maintained in a serviceable condition.</p>	<p>If the PPE are worn/removed from the site by the employee, the employee could be charged with the cost of the equipment. [Ref. 13 NCAC 7F.0101(a)(2)(b)(1)]</p> <p>"Serviceable condition" shall mean the equipment is capable of providing at least the personal protection designed by the manufacturer as determined by visual inspections and user reports.</p>
<p>(ii) The employer shall assure that personal protective equipment is inspected before initial use during each work shift. Defects or damage shall be repaired, or the unserviceable equipment shall be replaced before work is commenced.</p>	<p>"Repaired" shall mean restoring the equipment to such condition that will afford at least it's original protection for the user.</p>
<p>(iii) The employer shall provide, at no cost to the employee, and assure that each employee handling wire rope wears hand protection which provides adequate protection from puncture wounds, cuts and lacerations.</p> <p>[60 FR 47035, Sept. 8, 1995]</p>	<p>Adopted the requirement for hand protection. Leather or heavy duty puncture resistant gloves shall be worn by employees who handle wire rope.</p>

<p>(iv) The employer shall provide at no cost to the employee, and assure that each employee who operates a chain saw wears leg protection constructed with cut resistant material such as ballistic nylon or other leg protection the employer demonstrates provides equivalent protection. The leg protection shall cover the full length of the thigh to the top of the boot on each leg to protect against contact with a moving chain saw. Exception: This requirement does not apply when an employee is working as a climber if the employer demonstrates that a greater hazard is posed by wearing leg protection in the particular situation, or when an employee is working from a vehicular mounted elevating and rotating work platform meeting the requirements of 29CFR 1910.68.</p> <p>[Standard amended at 60 FR 47035, Sept. 8, 1995]</p>	<p>Leg protectors that bear certification by a recognized testing facility are suitable. The equipment must be maintained and used according to the instructions of the manufacturer. Cuts or tears in the <u>protective material</u> shall mean the protector is no longer in serviceable condition. Superficial cuts to the outer fabric shall be repaired before returned to use, to prevent debris from entering the cut.</p>
<p>(v) The employer shall assure that each employee wears foot protection, such as heavy-duty boots that are waterproof or water repellent, cover and provide support to the ankle. The employer shall assure that each employee who operates a chain saw wears foot protection that is constructed with cut-resistant material which will protect the employee against contact with a running chain saw. Sharp, calk-soled boots or other slip resistant type boots may be worn where the employer demonstrates that they are necessary for the employee's job, the terrain, the timber type, and the weather conditions, provided that foot protection otherwise required by this paragraph is met.</p> <p>[Standard amended at 60 FR 47035, Sept. 8, 1995]</p>	<p>Employees other than chain saw operators shall wear heavy-duty safety boots that are water-repellent, cover and provide support at the ankle. All chain saw operators shall wear heavy-duty boots that are water-repellent, cover, and provide support at the ankle, and made with materials that the manufacturer declares to be cut resistant.</p> <p>Reference 1910.136(A) Each affected employee shall wear protective footwear when working in areas where there is a danger of foot injuries due to falling or rolling objects, or objects piercing the sole, and where such employee's feet are exposed.</p> <p>ANSI Z41-1991 - Footwear purchased after July 5, 1994</p> <p style="text-align: center;">or</p> <p>Z41-1-1967 - Footwear purchased before July 4, 1994</p>
<p>(vi) The employer shall provide, at no cost to the employee, and assure that each employee who works in an area where there is potential for head injury from falling or flying objects wears head protection meeting the requirements of subpart I of Part 1910.</p>	<p>Equipment must conform to ANSI 89.1-1986. The ANSI decal will be placed inside the hat.</p>

<p>(vii) The employer shall provide, at no cost to the employee, and assure that each employee wears the following:</p> <p>(A) Eye protection meeting the requirements of subpart I of Part 1910 where there is potential for eye injury due to falling or flying objects; and</p> <p>(B) Face protection meeting the requirements of subpart I of Part 1910 where there is potential for facial injury such as, but not limited to, operating a chipper. Logger-type mesh screens may be worn by employees performing chain saw operations and yarding.</p> <p>(Note to paragraph (d) (l) (vii): The employee does not have to wear a separate eye protection device where face protection covering both the eyes and face is worn.)</p> <p>[Standard amended at 60 FR 47035, Sept. 8, 1995]</p>	<p>The employer shall provide, at no cost to the employee, safety glasses and facial screen for each chain saw operator unless the employer can demonstrate a greater hazard. Safety glasses must meet ANSI Z87.1-1989, or be equally effective. The ANSI number will be found on the inside of one of the stems of the safety glasses.</p>
<p>(2) First-aid kits -</p> <p>(i) The employer shall provide first-aid kits at each worksite where trees are being cut (e.g., felling, bucking, limbing) at each active landing, and on each employee transport vehicle.</p> <p>[Standard amended at 60 FR 47035, Sept. 8, 1995]</p>	<p>Refer to definition of "worksite". Worksite - Where trees are being cut; that includes limbing, bucking, trimming and felling.</p>
<p>(ii) At a minimum, each first-aid kit shall contain the items listed in Appendix A at all times.</p>	<p>Fellers/Stumpers and other chain saw operators, working away from the landing shall be issued and carry a compact first-aid kit that contains supplies to control bleeding and infection. Other first-aid kits must comply with Appendix A.</p>
<p>(iii) The employer also may have the number and content of first-aid kits reviewed and approved annually by a health care provider.</p> <p>[Standard amended at 60 FR 47035, Sept. 8, 1995]</p>	<p>Compact first-aid kits shall include at a minimum: wound compress, latex gloves, assorted band-aids, antiseptic wipes. Items should be packaged to remain clean and dry.</p>
<p>(iv) The employer shall maintain the contents of each first-aid kit in a serviceable manner.</p>	<p>Ensure that kits are adequately supplied and replenished as necessary; assure that contents are clean and sterile.</p>
<p>(3) Seat belts -</p> <p>(i) Through (vi) requires the employer to assure: seat belt be provided for each vehicle or machine operator; each employee uses the seat belt while the equipment is being operated; employee(s) securely and tightly fasten the seat belt; each machine seat belt meets the requirements of the Society of Automotive Engineers Standard SAE J386-June 1995; and seat belts are maintained in serviceable condition.</p>	<p>Commercially available seat belts properly installed according to manufacture recommendations.</p>

<p>(4) - Fire extinguishers -</p> <p>The employer shall provide and maintain portable fire extinguishers on each machine and vehicle in accordance with the requirements of subpart L of Part 1910.</p>	<p>Portable chemical fire extinguishers shall be at least 2A: 10 BC. Operable pressurized water extinguishers are considered optional on equipment.</p>
<p>(5) Environmental conditions -</p> <p>All work shall terminate and each employee shall move to a place of safety when environmental conditions, such as but not limited to, electrical storms, strong winds which may affect the fall of a tree, heavy rain or snow, extreme cold, dense fog, fires, mudslides, and darkness, create a hazard for the employee in the performance of the job. [Standard amended at 60 FR 47035, Sept. 8, 1995]</p>	<p>The employer shall provide flood lighting equipment for the work area during night operations.</p>
<p>(6) Work areas</p> <p>(i) Employees shall be spaced and the duties of each employee organized so the actions of one employee not create a hazard for any other employee.</p>	
<p>(ii) The distance between adjacent occupied work areas shall be at least two tree lengths of the trees being felled; on any slope where rolling or sliding trees or logs is reasonably foreseeable a distance of greater than two tree lengths shall be maintained.</p>	
<p>(iii) Each employee performing a logging operation at a logging work site shall work in a position or location that is within visual or audible contact with another employee . [Standard amended at 60 FR 47035, Sept. 8, 1995]</p>	
<p>(iv) The employer shall account for each employee at the end of each work shift.</p>	
<p>(7) - Signaling and signal equipment -</p> <p>(i) Hand signals or audible contact, such as but not limited to, whistles, horns, or radios shall be utilized whenever noise, distance, restricted visibility, or other factors prevent clear understanding of normal voice communication between employees.</p>	<p>The employer shall assure a means of continuous communication between employee. Each employee shall remain in visual or audible contact at all times.</p>
<p>(ii) Engine noise, such as from a chain saw, is not an acceptable means of signaling. Other locally and regionally recognized signals may be used.</p>	<p>Provided local and regional recognized signals are as effective as</p>
<p>(iii) Only a designated person shall give signals, except in an emergency.</p>	<p>“Designated person” is one who has the necessary knowledge, training, and experience to perform specific job task.</p>

<p>(8) Overhead electric lines -</p> <p>(i) Logging operations near overhead electric lines shall be done in accordance with the requirements of 29CFR1910.333(c)(3)</p>	<p>*Recommend a 50 ft. buffer be maintained during logging operation near power lines. 50 ft. buffer will be measured from furthest reach of implements or felled timber. A safe logging plan shall be provided within the buffer zone.</p> <p>Any vehicle or machine which elevates its parts or materials near energized overhead lines shall be operated so that a clearance of 10 feet (305cm) is maintained. If voltage is more than 50 KV, clearance shall be increased 4 inches (10 cm) for every 10 KV over that voltage.</p>
<p>(ii) The employer shall notify the power company immediately if a felled tree makes contact with any power line. Employees shall remain clear of the area until the power company advises that there are no electrical hazards.</p>	
<p>(9) Flammable and combustible liquids -</p> <p>(i) Flammable and combustible liquids shall be stored, handled, transported and used in accordance with the requirements of subpart H of Part 1910.</p>	<p>Plastic safety containers of up to five gallons capacity may be used if approved by UL, FM, or other recognized testing facility and the container is marked for contents. [Ref. Standards Notice #18 and 60 FR 47031, Sept. 8, 1995]</p>
<p>(ii) Flammable and combustible liquids shall not be transported in the driver compartment or in any passenger occupied area of a machine or vehicle.</p>	
<p>(iii) Each machine, vehicle and portable powered tool shall be shut off during fueling. Diesel powered machines and vehicles may be fueled while they are at idle, provided that continued operation is intended and that the employer follows safe fueling and operating procedures. [Standard amended at 60 FR 47035, Sept. 8, 1995]</p>	
<p>(iv) Flammable and combustible liquids, including chain-saw and diesel fuel may be used to start a fire, provided the employer assures that in the particular situation its use does not create a hazard for an employee. [Standard amended at 60 FR 47035, Sept. 8, 1995]</p>	<p>Combustible liquids as diesel fuel and kerosene may be used to start a fire that will not create a hazard for the employee or an EPA hazard.</p>
<p>(10) Explosives and blasting agents</p> <p>(i) Explosives and blasting agents shall be stored, handled, transported, and used in accordance with the requirements of sub-part H of part 1910.</p> <p>(ii) Only a designated person shall handle or use explosives or blasting agents.</p> <p>(iii) Explosives and blasting agents shall not be transported in the driver compartment or in any passenger occupied area of a machine or vehicle.</p>	

<p>(e) HAND AND PORTABLE POWERED TOOLS</p> <p>(1)General Requirements</p> <p>(i) Employer shall assure that each hand and portable powered tool, including any provided by an employee, is maintained in serviceable condition.</p>	
<p>(ii) Employer shall assure that each tool, including any tool provided by an employee, is inspected prior to initial use during each work shift. At a minimum, the inspection shall include the following:</p> <p>(A) Handles and guards, to assure that they are tight-fitting, properly shaped, free of splinters and sharp edges, and in place;</p> <p>(B) Controls, to assure proper function;</p> <p>(C) Chain-saw chains, to assure proper adjustment;</p> <p>(D) Chain-saw mufflers, to assure that they are in place and operable;</p> <p>(E) Chain brakes and nose shielding devices, to assure that they are in place and function properly;</p> <p>(F) Heads of shock, impact-driven and driving tools, to assure that there is no mushrooming;</p> <p>(G) Cutting edges, to assure that they are sharp and properly shaped; and</p> <p>(H) All other safety devices, to assure that they are in place and function properly.</p>	<p>Nothing in this rule prohibits the employer from allowing the tool user or operator from performing the work shift inspection provided that such inspection and the required content of the inspection are accomplished in the manner and time frame specified.</p>
<p>(2)Chain saws</p> <p>(i) Each chain saw placed into initial service after the effective date of this section shall be equipped with a chain brake and shall otherwise meet the requirements of the ANSI B173.1-1991 "Safety Requirements for Gasoline - Powered Chain Saws." Each chain saw placed into service before the effective date of this section shall be equipped with a protective device that minimizes chain saw kickback. No chain saw kickback device shall be removed or otherwise disabled.</p>	<p>Effective date was April 1, 1995 in North Carolina. Devices that shall be used to reduce kickback action include: Chain brake, reduced kickback bars and chains. Chain saws must meet ANSI standards with chain break, throttle, and chain retainer device.</p>
<p>(ii) Each gasoline powered chain saw shall be equipped with a continuous pressure throttle control system which will stop the chain when pressure on the throttle is released.</p>	
<p>(iii) The chain saw shall be operated and adjusted in accordance with the manufacturer's instructions.</p>	
<p>(iv)The chain saw shall be fueled at least 10 feet (3 m) from any open flame or other source of ignition. [Standard amended at 60 FR 47036, Sept. 8, 1995]</p>	
<p>(v) The chain saw shall be started at least 10 feet (3 m) from the fueling area.</p>	

(vi) The chain saw shall be started on the ground or where otherwise firmly supported. Drop starting a chain saw is prohibited. [Standard amended at 60 FR 47036, Sept. 8, 1995]	
(vii) The chain saw shall be started with the chain brake engaged.	
(viii) The chain saw shall be held with the thumbs and fingers of both hands encircling the handles during operation unless the employer demonstrates that a greater hazard is posed by keeping both hands on the chain saw in that particular situation.	
(ix) Chain saw operators shall be certain of footing before starting to cut. The chain saw shall not be used in a position or at a distance that could cause the operator to become off balance, to have insecure footing, or to relinquish a firm grip on the saw.	
(x) Prior to felling any tree, the chain saw operator shall clear away brush or other potential obstacles which might interfere with cutting the tree or using the retreat path.	
(xi) Chain saw shall not be used to cut directly overhead.	Overhead shall be defined as operation conducted above shoulder height.
(xii) The chain saw shall be carried in a manner that will prevent operator contact with the cutting chain and muffler	
(xiii) The chain saw shall be shut off or the throttle released before the feller starts his retreat.	
(xiv) Chain saw shall be shut down or the chain brake shall be engaged whenever the saw is carried further than 50 feet (15.2m). The chain saw shall be shut down or the chain brake engaged when the chain saw is carried less than 50 feet if conditions such as terrain, underbrush and slippery surfaces, may create a hazard.	
(f) MACHINES	
(1) General Requirements	
(i) Employer shall assure that each machine, including any machine provided by an employee, is maintained in serviceable condition.	Private passenger vehicles which are used principally for highway use and transports primarily people would not be a "machine" as defined in this section. "Machine" means stationary or mobile equipment having a self-contained power plant, that is operated off-road and used in the processing or movement of material.
(ii) Inspected before initial use during each work shift. Defects or damage shall be repaired or the unserviceable machine shall be replaced before work is commenced.	
(iii) Employer shall assure that operating and maintenance instructions are available on the machine or in the area where the machine is being operated. Each machine operator and maintenance employee shall comply with the operating and maintenance instructions.	

(2) Machine operations	
(i) The machine shall be started and operated only by a designated person	
(ii) Stationary logging machines and their components shall be anchored or otherwise stabilized to prevent movement during operation.	
(iii) The rated capacity of machine(s) shall not be exceeded.	
(iv) To maintain stability, the machine must be operated within the limitations imposed by the manufacturer as described in the operating and maintenance instructions for that machine.	
(v) Before starting or moving any machine, the operator shall determine that no employee is in the path of the machine.	
(vi) The machine shall be operated only from the operator's station or as otherwise recommended by the manufacturer.	
(vii) The machine shall be operated at such a distance from employees and other machines such that operation will not create a hazard for an employee.	
(viii) No employee other than the operator shall ride on any mobile machine unless seating, seat belts, and other protection equivalent to that provided for the operator are provided.	
(ix) No employee shall ride on any load.	
(x) Before the operator leaves the operator's station of a machine, it shall be secured as follows: (A) The parking brake or brake locks shall be applied. (B) The transmission shall be placed in the manufacturer's specified park position; and (C) Each moving element such as, but not limited to blades, buckets, saws and shears, shall be lowered to the ground or otherwise secured	Standard also includes grapples which shall be lowered.
(xi) If a hydraulic or pneumatic storage device can move the moving elements such as, but not limited to, blades, buckets, saws and shears, after the machine is shut down, the pressure or stored energy from the element shall be discharged as specified by the manufacturer.	Shut down and bleeding of pressure and stored energy shall be in accordance with manufacturer's recommendations.
(xii) The rated capacity of any vehicle transporting a machine shall not be exceeded.	
(xiii) The machine shall be loaded, secured and unloaded so that it will not create a hazard for any employee.	

<p>(3) Protective structures</p> <p>(i) Each tractor, skidder, swing yarder, log stacker, log loader and mechanical felling device such as tree shears or feller- buncher placed into initial service after February 9, 1995 shall be equipped with falling object protective structure (FOPS) and/or rollover protective structure (ROPS). The employer shall replace FOPS or ROPS which have been removed from any machine. Exception: This requirement does not apply to machines which are capable of 360 degree rotation. [Amended at 60 FR 47036, Sept. 8, 1995]</p>	
<p>(ii) (A) ROPS shall be tested, installed, and maintained in serviceable condition. (B) Each machine manufacture after August 1, 1996 shall have ROPS tested, installed, and maintained in accordance with Society of Automotive Engineers SAEJ1040, April 1988, "Performance Criteria for Rollover Protective Structure (ROPS) for Construction, Earthmoving, Forestry, and Mining Machines." [Amended at 60 FR 47036, Sept. 8, 1995]</p>	
<p>(iii) FOPS shall be installed, tested and maintained in with the Society of Automotive Engineers SAEJ231, January 1981, "Minimum Performance Criteria for Falling Object Protective Structures (FOPS).</p>	
<p>(iv) ROPS and FOPS shall meet the requirements of the Society of Automotive Engineers SAE J397, April 1988, "Deflection Limiting Volume - ROPS/FOPS Laboratory Evaluation."</p>	
<p>(v) Each protective structure shall be of size that does not impede the operator's normal movement.</p>	
<p>(vi) The overhead covering of each cab shall be of solid material and shall extend over the entire canopy.</p>	Solid material does include lexan.
<p>(vii) Each machine manufactured after August 1, 1996 shall have a cab that is fully enclosed with mesh material with openings no greater than 2 inches (5.08cm) at its least dimension. The cab may be enclosed with other material(s) where the employer demonstrates such material provides equivalent protection and visibility. Exception: Equivalent visibility is not required for the lower portion of the cab where there are control panels or similar obstructions in the cab, or where visibility is not necessary for safe operation of the machine. [Amended at 60 FR 47036, Sept. 8, 1995]</p>	

<p>(viii) Each machine manufactured on or before August 1, 1996 shall have a cab which meets the requirements specified in paragraph (f)(3)(vii) or a protective canopy for the operator which meets the following requirements.</p> <p>(A) The protective canopy shall be constructed to protect the operator from injury due to falling trees, limbs, saplings or branches which might enter the compartment side areas and from snapping winch lines or other objects;</p> <p>(B) The lower portion of the cab shall be fully enclosed with solid material, except at entrances, to prevent the operator from being injured from obstacles entering the cab;</p> <p>(C) The upper rear portion of the cab shall be fully enclosed with open mesh material with openings of such size as to reject the entrance of an object larger than 2 inches in diameter. It shall provide maximum rearward visibility; and</p> <p>(D) Open mesh shall be extended forward as possible from the rear corners of the cab sides so as to give the maximum protection against obstacles, branches, etc., entering the cab</p>	<p>Doors of open mesh metal, or equivalent material, shall be installed on the cab of machines to prevent saplings, branches, broken poles, etc. from entering entrances of the cab of mobile machines on the site.</p> <p>Reference OPN 90 2(b) Tractor trailers, trucks, and other vehicles and equipment used in the transportation of logs or similar products will be included in the on-site inspections process. DOT CDL (Commercial Drivers License) mandates a pre-trip inspection, records of these pre-trip inspections will be inspected to ensure operators compliance with load and vehicle pre-trip safety inspection criteria. A referral to DOT may be necessary.</p>
<p>(ix) The enclosure of the upper portion of each cab shall allow maximum visibility</p>	
<p>(x) When transparent material is used to enclose the upper portion of the cab, it shall be made of safety glass or other material that the employer demonstrates provides equivalent protection and visibility</p>	
<p>(xi) Transparent material shall be kept clean to assure operator visibility</p>	
<p>(xii) Transparent material that may create a hazard for the operator, such as but not limited to, cracked, broken or scratched safety glass, shall be replaced.</p>	
<p>(xiii) Deflectors shall be installed in front of each cab to deflect whipping saplings and branches. Deflectors shall be located so as not to impede visibility and access to the cab.</p>	<p>Does not include logging equipment with enclosed canopy.</p>
<p>(xiv) The height of each cab entrance shall be at least 52 inches (1.3 meters) from the floor of the cab.</p>	

(xv) Each machine operated near cable yarding operations shall be equipped with sheds or roofs of sufficient strength to provide protection from breaking lines.	
(4) Overhead guards Each forklift shall be equipped with an overhead guard meeting the requirements of the American Society of Mechanical Engineers, ASME 36.1992 (with addenda) "Safety Standard for Rough Terrain Forklift Trucks."	
(5) Machine access (i) Machine access systems meeting the specifications of the Society of Automotive Engineers, SAEJ185, June 1988, "Recommended Practice for Access Systems for Off-Road Machines.", shall be provided for each machine where the operator must climb onto the machine to enter the cab or to perform maintenance.	
(ii) Each machine cab shall have a second means of egress.	
(iii) Walking and working surfaces of each machine and machine work station shall have a slip-resistant surface to assure safe footing.	
(iv) The walking and working surface of each machine shall be kept free of waste, debris and any other material which might result in fire, slipping, or falling.	
(6) Exhaust Systems- (i) The exhaust pipes on each machine shall be located so exhaust gases are directed away from the operator.	
(ii) Exhaust pipes on each machine shall be mounted or guarded to protect each employee from accidental contact.	
(iii) The exhaust pipes shall be equipped with spark arresters. Engines equipped with turbochargers do not require spark arresters.	
(iv) Each machine muffler provided by the manufacturer, or their equivalent, shall be in place at all times the machine is in operation.	
(7) Brakes (i) Service brakes shall be sufficient to stop and hold each machine and its rated load capacity on the slopes over which it is being operated.	
(ii) Each machine placed into initial service after February 9, 1995, shall also be equipped with: back-up or secondary brakes that are capable of stopping the machine regardless of the direction of travel or whether the engine is running; and parking brakes that are capable of continuously holding a stopped machine stationary.	Applicable to machines placed into initial service after September 8, 1995. Older machines are permitted to remain in service provided the service braking system and, if available, the emergency brake system are inspected and maintained at the designed level of effectiveness.

<p>(8) Guarding</p> <p>(i) Each machine shall be equipped with guarding to protect employees from exposed moving elements, such as but not limited to, shafts, pulleys, belts on conveyors, and gears, in accordance with the requirements of subpart O of Part 1910.</p>	<p>Guarding satisfies the requirements of subpart O when it is in the form of specially constructed barrier or when the structure of the machine itself prevents employee contact with the moving elements of the machine.</p>
<p>(ii) Each machine used for debarking, limbing and chipping shall be equipped with guarding to protect employees from flying wood chunks, logs, chips, bark, limbs and other material in accordance with the requirements of subpart O of Part 1910.</p>	
<p>(iii) The guarding on each machine shall be in place at all times the machine is in operation.</p>	
<p>(g) VEHICLES</p>	
<p>(1) The employer shall assure that each vehicle used to perform any logging operation is maintained in serviceable condition</p>	<p>Applicable only to vehicles that the employer owns, rents, or leases.</p>
<p>(2) The employer shall assure that each vehicle used to perform any logging operation is inspected before initial use during each work shift. Defects or damage shall be repaired or the unserviceable vehicle shall be replaced before work is commenced.</p>	<p>Applicable only to vehicles that the employer owns, rents, or leases.</p>
<p>(3) The employer shall assure that operating and maintenance instructions are available in each vehicle. Each vehicle operator and maintenance employee shall comply with the instructions.</p>	<p>Applicable only to vehicles that the employer owns, rents, or leases.</p>
<p>(4) The employer shall assure that each vehicle operator has a valid operator's license for the class of vehicle being operated.</p>	
<p>(5) Mounting steps and handholds shall be provided for each vehicle wherever it is necessary to prevent an employee from being injured when entering or leaving the vehicle.</p>	
<p>(6) The seats of each vehicle shall be securely fastened.</p>	
<p>(7) The requirements of (f)(2)(iii), (f)(2)(v), (f)(2)(vii), (f)(2)(x), (f)(2)(xiii), and (f)(7) of this section shall also apply to each vehicle used to transport any employee off public roads or to perform any logging operation, including any vehicle provided by an employee.</p>	<p>Applicable to employee provided vehicles only when the use is at the request of the employer and the use is during the usual work shift at a logging site or when the operation is moving to a different location.</p>
<p>(h) TREE HARVESTING</p> <p>(1) General Requirements</p> <p>(i) Trees shall not be felled in a manner that will create a hazard for an employee, such as but not limited to, striking a rope, cable, power line, or machine.</p>	

(ii) The immediate supervisor shall be consulted when unfamiliar or unusual hazardous conditions necessitate the supervisor's approval before cutting is commenced.	
(iii) While manual felling is in progress, no yarding machine shall be operated within two tree lengths of trees being manually felled. Exception: This provision does not apply to yarding machines performing tree pulling operations.	Tree pulling means a coordinated, planned effort involving guide cables, manual feller, and cable tensioning equipment. A safety plan must be in place that all participating employees understand and follow.
(iv) No employee shall approach a feller closer than two tree lengths of the trees being felled until the feller has acknowledged that it is safe to do so, unless the employer demonstrates that a team of employees is necessary to manually fell a particular tree.	
(v) No employee shall approach a mechanical felling operation closer than two tree lengths of the trees being felled until the machine operator has acknowledged that it is safe to do so.	
(vi) Each danger tree shall be felled, removed or avoided. Each danger tree, including lodged trees and snags, shall be felled or removed using mechanical or other techniques that minimize employee exposure before work is commenced in the area of the danger tree. If the danger tree is not felled or removed, it shall be marked and no work shall be conducted within two tree lengths of the danger tree unless the employer demonstrates that a shorter distance will not create a hazard for an employee.	
(vii) Each danger tree shall be carefully checked for signs of loose bark, broken branches and limbs or other damages before they are felled or removed. Accessible loose bark and other damages that may create a hazard for an employee shall be removed or held in place before felling or removing the tree.	
(viii) Felling on any slope where rolling or sliding of trees or logs is reasonably foreseeable shall be done uphill from, or on the same level as, previously felled trees.	
(ix) Domino felling of trees is prohibited.	A single tree with another pusher tree is also prohibited.
(2) Manual felling - (i) Before felling is started, the feller shall plan and clear a retreat path. The retreat path shall extend diagonally away from the expected felling line unless the employer demonstrates that such a retreat path poses a greater hazard than an alternate path. Once the backcut has been made the feller shall immediately move a safe distance away from the tree on the retreat path.	

(ii) Before each tree is felled, conditions such as but not limited to, snow and ice accumulation, the wind, the lean of the tree, dead limbs, and the location of other trees, shall be evaluated by the feller and precautions taken so a hazard is not created for an employee.	
(iii) Each tree shall be checked for accumulation of snow and ice. Accumulations of snow and ice that may create a hazard for an employee shall be removed, before felling is commenced in the area or the area shall be avoided.	
(iv) When a spring pole or other tree under stress is cut, no employee other than the feller shall be closer than two tree lengths when the stress is released.	
(v) An undercut shall be made in each tree being felled unless the employer demonstrates that felling the particular tree without an undercut will not create a hazard for an employee. The undercut shall be of a size so the tree will not split and will fall the intended direction.	
(vi) A backcut shall be made in each tree being felled. The backcut shall sufficient hinge to hold the tree to the stump during most of its fall so that the hinge is able to guide the tree's fall in the intended direction.	
(vii) The backcut shall be above the level of the horizontal face cut in order to provide an adequate platform to prevent kickback. Exception: The backcut may be at or below the horizontal face cut in tree pulling operations.	The exception is not necessary and is deleted from the standard. Placement of backcut, face cut and undercut will be accomplished to guide the direction of the felling tree.
(3) Bucking and limbing	
(i) Bucking and limbing on any slope where rolling or sliding of trees or logs is reasonable foreseeable shall be done on the uphill side of each tree.	
(ii) Before bucking or limbing wind-thrown trees, precautions shall be taken to prevent the root wad, butt or logs from striking an employee. These precautions include, but are not limited to, chocking or moving the tree to a stable position.	
(4) Chipping (in woods locations)	
(i) Chipper access covers or doors shall not be opened until the drum or disc is at a complete stop.	
(ii) Infeed and discharge ports shall be guarded to prevent contact with the discs, knives, or blower blades.	
(iii) The chipper shall be shut down and locked out in accordance with the requirements of 1910.147 when an employee performs any servicing or maintenance.	29 CFR 1910.147 states the specific requirements for shut down and lock out of equipment.
(iv) Detached trailer chippers shall be chocked during usage on any slope where rolling or sliding of the chipper is reasonable foreseeable	

<p>(5) Yarding</p> <p>(i) No log shall be moved until each employee is in the clear</p>	
<p>(ii) Each choker shall be hooked and unhooked from the uphill side or end of the log, unless the employer demonstrates that it is not feasible in the particular situation to hook or unhook the choker from the uphill side. Where the choker is hooked or unhooked from the downhill side or end of the log, the log shall be securely chocked to prevent rolling, sliding or swinging.</p>	
<p>(iii) Each choker shall be positioned near the end of the log or tree length.</p>	
<p>(iv) Each machine shall be positioned during winching so the machine and winch are operated within their designed limits</p>	
<p>(v) No yarding line shall not be moved unless the yarder operator has clearly received and understood the signal to do so. When in doubt, the yarder operator shall repeat the signal as it is and wait for a confirming signal before moving any line.</p>	
<p>(vi) No load shall exceed the rated capacity of the pallet, trailer, or other carrier.</p>	
<p>(vii) Towed equipment, such as but not limited to, skid pans, pallets, arches, and trailers shall be attached to each machine or vehicle in such a manner as to allow a full 90 degree turn; to prevent overrunning of the towing machine or vehicle; and to assure that the operator is always in control of the towed equipment.</p>	
<p>(viii) The yarding machine or vehicle, including its load, shall be operated with safe clearance from all obstructions that may create a hazard for an employee</p>	
<p>(ix) Each yarded tree shall be placed in a location that does not create a hazard for an employee and an orderly manner so that the trees are stable before bucking or limbing is commenced</p>	
<p>(6) Loading and unloading</p> <p>(i) The transport vehicle shall be positioned to provide working clearance between the vehicle and the deck.</p>	
<p>(ii) Only the loading or unloading machine operator and other personnel the employer demonstrates are essential shall be in the loading or unloading work area during this operation</p>	
<p>(iii) No transport vehicle operator shall remain in the cab during loading and unloading if the logs are carried or moved over the truck cab, unless the employer demonstrates that it is necessary for the operator to do so. Where the transport vehicle operator remains in the cab, the employer shall provide operator protection, such as but not limited to, reinforcement of the cab.</p>	

(iv) Each log shall be placed on a transport vehicle in an orderly manner and tightly secured.	
(v) The load shall be positioned to prevent slippage or loss during handling and transport.	
(vi) Each stake and chock which is used to trip loads shall be so constructed that the ripping mechanism is activated on the side opposite the release of the load.	
(vii) Each tie down shall be left in place over the peak log to secure all logs until the unloading lines or other protection the employer demonstrates is equivalent has been put in place. A stake of sufficient strength to with stand the shifting or moving logs shall be considered equivalent protection provided that the logs are not loaded higher than the stake.	
(viii) Each tie down shall be released only from the side on which the unloading machine operates, except as follows: (A) When the tie down is released by a remote control device; and (B) When the employee making the release is protected by racks, stanchions or other protection the employer demonstrates is capable of withstanding the force of the logs.	
(7) Transport The transport vehicle operator shall assure that each tie down is tight before transporting the load. While en route, the operator shall check and tighten the tie downs whenever there is reason to believe that the tie downs have loosened or the load has shifted.	
(8) Storage Each deck shall be constructed and located so that it is stable and provides each employee with enough room to safely move and work in the area.	
(I) TRAINING (1) The employer shall provide training for each employee, including supervisors, at no cost to the employee.	
(2) Frequency of training shall be provided as follows: (i) As soon as possible but not later than the effective date of this section for initial training for each current and new employee. (ii) Prior to initial assignment for each new employee. (iii) Whenever the employee is assigned new work task, tools, equipment, machines or vehicles; and (iv) Whenever an employee demonstrates unsafe job performance.	

<p>(3) Content</p> <p>At a minimum, training shall consist of the following elements:</p> <ul style="list-style-type: none"> (i) Safe performance of assigned work task. (ii) Safe use, operation and maintenance of tools, machines and vehicles the employee uses or operates, including emphasis on understanding and following the manufacturer's operating and maintenance instructions, warnings and precautions. (iii) Recognition of safety and health hazards associated with the employee's specific work task, including the use of measures and work practices to prevent or control those hazards. (iv) Recognition, prevention and control of other safety and health hazards in the logging industry. (v) Procedures, practices and requirements of the employer's work site; and (vi) The requirements of this standard. 	
<p>(4) Training of an employee due to unsafe job performance, or assignment of new work task, tools, equipment, machines, or vehicles; may be limited to those elements in paragraph (I)(3) of this section which are relevant to the circumstances giving rise to the need for training.</p>	
<p>(5) Portability of training</p> <ul style="list-style-type: none"> (i) Each current employee who has received training in the particular elements specified in paragraph (I)(3) of this section shall not be required to be retrained in those elements (ii) Each new employee who has received training in the particular elements specified in paragraph (I)(3) of this section shall not be required to be retrained in those elements prior to initial assignment (iii) The employer shall train each current and new employee in those elements for which the employee has not received training. (iv) The employer is responsible for ensuring that each current and new employee can properly and safely perform the work task and operate the tools, equipment, machines, and vehicles used in their job. 	
<p>(6) Each new employee and each employee who is required to be trained as specified in (I)(2) of this section, shall work under the close supervision of a designated person until the employee demonstrates to the employer the ability to safely perform their new duties independently.</p>	

<p>(7) First-aid training-</p> <p>(i) The employer shall assure that each employee, including supervisors, receives or has received first-aid and CPR training meeting at least the requirements specified in Appendix B.</p>	<p>The employer shall arrange that each logging crew has at least two “designated” employees who are certified in first-aid and CPR to immediately respond and to provide emergency assistance if needed at any work site during logging operations. These individuals are not designated as first responders. The employer shall assure that non-certified employees have/receive first-aid training at a level that the employer determines to be sufficient for the employee to help himself or another employee if needed.</p> <p>Exception: This requirement does not apply when public medical assistance (Rescue squad, County Medical Service, etc.,) has agreed to respond and the service can reach the work site (injured employee) within fifteen (15) minutes.</p>
<p>(ii) The employer shall assure that each employee’s first-aid and CPR training and/or certificate of training remain current.</p>	<p>The employer shall assure that each “designated” employee’s first-aid and CPR training and/or certificate of training remain current.</p>
<p>(8) All training shall be conducted by a designated person.</p>	
<p>(9) The employer shall assure that all training required by this section is presented in a manner that the employee is able to understand. The employer shall assure that all training materials used are appropriate in content and vocabulary to the educational level, literacy, and language skills of the employees being trained.</p>	
<p>(10) Certification of training</p> <p>(i) The employer shall verify compliance with paragraph (i) of this section by preparing a written certification record. The written certification shall contain the name or the identity of the employee trained, the date(s) of the training, and the signature of the person who conducted the training or the signature of the employer. If the employer relies on training conducted prior to the employee’s hiring or completed prior to the effective date of this section, the certification record shall indicate the date the employer determined the prior training was adequate.</p>	
<p>(ii) The most recent training certificate shall be maintained.</p>	
<p>(11) Safety and health meetings</p> <p>The employer shall hold safety and health meetings as necessary and at least each month for each employee. Safety and health meetings may be conducted individually, in crew meetings, in larger groups, or as part of other staff meetings.</p>	

29CFR 1910.266	OSHNC Interpretation
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<p>(J) EFFECTIVE DATE(S)</p> <p>April 1, 1995 August 9, 1995</p>	
<p>(k) APPENDICES.</p> <p>Appendices A and B of this section are mandatory. The information contained in Appendix C of this section is informational and is not intended to create any additional obligations not otherwise imposed or to detract from existing regulations.</p>	

Appendix A to 1910.266 - First-Aid Kits (Mandatory)

The following list sets forth the minimally acceptable number and type of first-aid supplies for first-aid kits required under paragraph (d)(2) of the logging standard. The contents of the first-aid kit listed should be adequate for small work sites, consisting of approximately two to three employees. When larger operations or multiple operations are being conducted at the same location, additional first-aid kits should be provided at the work site or additional quantities of supplies should be included in the first-aid kits:

1. Gauze pads (at least 4x4 inches).
2. Two large gauze pads (at least 8x10 inches).
3. Box adhesive bandages (band-aids).
4. One package gauze roller bandage at least 2 inches wide.
5. Two triangular bandages.
6. Wound cleaning agent such as sealed moistened towelettes.
7. Scissors.
8. At least one blanket.
9. Tweezers.
10. Adhesive tape.
11. Latex gloves.
12. Resuscitation equipment such as resuscitation bag, airway, or pocket mask.
13. Two elastic wraps.
14. Splint.
15. Directions for requesting emergency assistance.

This document was prepared under the direction of Joseph A. Dear, Assistant Secretary of Labor for Occupational Safety and Health, U.S. Department of Labor, 200 Constitution Avenue NW., Washington, DC 20210.

Appendix B to 1910.266 - First-aid and CPR Training (Mandatory)

The following is deemed to be the minimal acceptable first-aid and CPR training program for employees engaged in logging activities.

First-aid and CPR training shall be conducted using the conventional methods of training such as lecture, demonstration, practical exercise and examination (both written and practical). The length of training must be sufficient to assure that trainees understand the concepts of first aid and can demonstrate their ability to perform the various procedures contained in the outline below.

At a minimum, first-aid and CPR training shall consist of the following:

1. The definition of first-aid.
2. Legal issues of applying first aid (Good Samaritan Laws).
3. Basic anatomy.
4. Patient assessment and first aid for the following:
 - a. Respiratory arrest.
 - b. Cardiac arrest.
 - c. Hemorrhage.
 - d. Lacerations/abrasions.
 - e. Amputations.
 - f. Musculoskeletal injuries.
 - g. Shock.
 - h. Eye injuries
 - i. Burns
 - j. Loss of consciousness.
 - k. Extreme temperature exposure (hypothermia/hyperthermia)
 - l. Paralysis
 - m. Poisoning
 - n. Loss of mental functioning (psychosis/hallucinations, etc.). Artificial ventilation
 - o. Drug overdose.
5. CPR

6. Application of dressings and slings.
7. Treatment of strains, sprains, and fractures.
8. Immobilization of injured persons.
9. Handling and transporting injured persons.
10. Treatment of bites, stings, or contact with poisonous plants or animals.

Appendix C to 1910.266 - Comparable ISO Standards (Non-mandatory)

The following International Labor Organization (ISO) standards are comparable to the corresponding Society of Automotive Engineers (Standards that are referenced in this standard.) Utilization of the ISO standards in lieu of the corresponding SAE standards should result in a machine that meets the OSHA standard.

Appendix D - Definitions

(b) 1910.266(c) definitions

- (1) This standard establishes safety practices, means, methods and operations for all types of logging, regardless of the end use of the wood. These types of logging include, but are not limited to, pulpwood and timber harvesting and the logging of sawlogs, veneer bolts, poles, pilings and other forest products. This standard does not cover the construction or use of cable yarding systems.
- (2) This standard applies to all logging operations as defined by this section.
- (3) Hazards and working conditions not specifically addressed by this section are covered by other applicable sections of Part 1910.

(c) Definitions applicable to this section.

Arch - An open-framed trailer or built-up framework used to suspend the leading ends of trees or logs when they are skidded.

Backcut (felling cut) - The final cut in a felling operation.

Ballistic nylon - A nylon fabric of high tensile properties designed to provide protection from lacerations.

Buck - To cut a felled tree into logs.

Butt - The bottom of the felled part of a tree.

Cable yarding - The movement of felled trees or logs from the area where they are felled to the landing on a system composed of a cable suspended from spars and/or towers. The trees or logs may be either dragged across the ground on the cable or carried while suspended from the cable.

Chock - A block, often wedge shaped, which is used to prevent movement; e.g., a log from rolling, a wheel from turning.

Choker - A sling used to encircle the end of a log for yarding. One end is passed around the load, then through a loop eye, end fitting or other device at the other end of the sling. The end that passed through the end fitting or other device is then hooked to the lifting or pulling machine.

Danger tree - A standing tree that presents a hazard to employees due to conditions such as, but not limited to, deterioration or physical damage to the root system, trunk, stem or limbs, and the direction and lean of the tree.

Debark - To remove bark from trees or logs.

Deck - A stack of trees or logs.

Designated person - An employee who has the requisite knowledge, training and experience to perform specific duties.

Domino felling - The partial cutting of multiple trees which are left standing and then pushed over with a pusher tree.

Fell (fall) - To cut down trees.

Feller (faller) - An employee who fells trees.

Grounded - The placement of a component of a machine on the ground or on a device where it is firmly supported.

Guarded - Covered, shielded, fenced, enclosed, or otherwise protected by means of suitable enclosures, covers, casings, shields, troughs, railings, screens, mats, or platforms, or by location, to prevent injury.

Health care provider - A health care practitioner operating within the scope of his/her license, certificate, registration or legally authorized practice.

Landing - Any place where logs are laid after being yarded, and before transport from the work site.

Limbing - To cut branches off felled trees.

Lodged tree (hung tree) - A tree leaning against another tree or object which prevents it from falling to the ground.

Log - A segment sawed or split from a felled tree, such as, but not limited to, a section, bolt, or tree length.

Logging operations - Operations associated with felling and moving trees and logs from the stump to the point of delivery, such as, but not limited to, marking, felling, bucking, limbing, debarking, chipping, yarding, loading, unloading, storing, and transporting machines, equipment and personnel from one site to another.

Machine - A piece of stationary or mobile equipment having a self-contained powerplants, that is operated off-road and used for the movement of material. Machines include but are not limited to tractors, skidders, front-end loaders, scrapers, graders, bulldozers, swing yarders, log sackers and mechanical felling devices, such as tree shears and feller-bunchers.

Rated capacity - The maximum load a system, vehicle, machine or piece of equipment was designed by the manufacturer to handle.

Root wad - The ball of a tree root and dirt that is pulled from the ground when a tree is uprooted.

Serviceable condition - A state or ability of a tool, machine, vehicle or other device to operate as it was intended by the manufacturer.

Skidding - The yarding of trees or logs by pulling or towing them across the ground.

Slope (grade) - The increase or decrease in altitude over a horizontal distance expressed as a percentage. For example, a change of altitude of 20 feet (6 m) over a horizontal distance of 100 feet (30 m) is expressed as a 20 percent slope.

Snag - Any standing dead tree or portion thereof.

Spring pole - A tree, segment of a tree, limb, or sapling which is under stress or tension due to the pressure or weight of another object.

Tie down - Chain, cable, steel strips or fiber webbing and binders attached to a truck, trailer or other conveyance as a means to secure loads and to prevent them from shifting or moving when they are being transported.

Undercut - A notch cut in a tree to guide the direction of the tree fall and to prevent splitting or kickback.

Vehicle - A car, bus, truck, trailer or semi-trailer that is used for transportation of employees or movement of material.

Winching - The winding of cable or rope onto a spool or drum.

Yarding - The movement of logs from the place they are felled to a landing.