COMMONWEALTH of VIRGINIA

DEPARTMENT OF LABOR AND INDUSTRY

C. RAY DAVENPORT
COMMISSIONER

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AGENDA

SAFETY AND HEALTH CODES BOARD

PUBLIC HEARING

State Corporation Commission
1300 East Main Street, Court Room A, Second Floor
Richmond, Virginia

Thursday, August 13, 2009
10:00 a.m.

I. Call to Order

II. Items for Discussion:

1) 16 VAC 25-50, Proposed Rule for Boiler and Pressure Vessel Rules and Regulations

III. Opportunity for Public Comment on the Proposed Amendments

IV. Adjournment

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AGENDA

SAFETY AND HEALTH CODES BOARD

State Corporation Commission
1300 East Main Street, Court Room A
Second Floor
Richmond, Virginia

Thursday, August 13, 2009

10:00 a.m.

Immediately Following Public Hearing which begins at 10:00 a.m.

1. Call to Order

2. Approval of Agenda

3. Approval of Minutes for Public Hearing and for Board Meeting of November 20, 2008

4. Election of Officers

5. Opportunity for the Public to Address the Board on this issues pending before the Board today or on any other topic that may be of concern to the Board or within the scope of authority of the Board.

   This will be the only opportunity for public comment at this meeting. Please limit remarks to 5 minutes in consideration of others wishing to address the Board.

6. **Old Business**

Virginia Unique Regulation:

a) 16 VAC 25-60, Final Regulation for Administrative Regulation for the Virginia Occupational Safety and Health (VOSH) Program;

Presenter – Jay Withrow

b) 16 VAC 25-73, Final Regulation for Tree Trimming Operations

Presenter – Jay Withrow

7. **New Business**

a) Federal-Identical Regulations:

1) Various Corrections and Technical Amendments to: Part 1910 – General Industry and to Part 1915 – Shipyard Employment

Presenter – John Crisanti

8. Items of Interest from the Department of Labor and Industry

9. Items of Interest from Members of the Board

10. Meeting Adjournment

COMMONWEALTH of VIRGINIA

DEPARTMENT OF LABOR AND INDUSTRY

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PUBLIC HEARING
VIRGINIA SAFETY AND HEALTH CODES BOARD
BRIEFING PACKAGE
AUGUST 13, 2009

Proposed Regulatory Action to Amend
16 VAC 25-50, Boiler and Pressure Vessel Rules and Regulations

I. Action Requested.

The Boiler Safety Compliance Program of the Virginia Department of Labor and Industry requests that the Safety and Health Codes Board consider for adoption as a proposed regulation of the Board, amendments to 16 VAC 25-50, Boiler and Pressure Vessel Rules and Regulations.

II. Summary of the Proposed Regulation.

The Boiler Safety Compliance Program seeks to amend the Boiler and Pressure Vessel Rules and Regulations. The proposal addresses the following suggested amendments:

1. In Paragraph A of 16 VAC 25-50-150, add a fee of $10.00 for the reprinting of a certificate to cover direct administrative costs, i.e., printing, mailing and employee's work-related time.

2. In Paragraph D of 16 VAC 25-50-150, Inspection Certificate and Inspection Fees, revise fees from "$800" to "$1000" to reflect cost of living adjustment;

3. In 16 VAC 25-50-360, Paragraph C.5.a., the Factors of safety are modified for vessels and a dual standard is established. Prior to January 1, 1999, the Factor of Safety remains

4.5. Vessels built on or after this date would have a lower factor of safety of 4.0. This revision is necessary to conform to current International Boiler and Pressure Vessel Code.

4. In 16 VAC 25-50-380, paragraph B.3., Factors of safety are modified for vessels and a dual standard is established. Prior to January 1, 1999, the Factor of Safety remains 4.0. Vessels built on or after this date have a lower factor of safety of 3.5. This revision is necessary to conform to current International Boiler and Pressure Vessel Code.

5. In Paragraph A of 16 VAC 25-50-430, change "1.5" to "1.25" for the maximum allowable working pressure for a hydrostatic pressure test, when applied to boilers or pressure vessels. The revision is necessary to conform to current International Boiler and Pressure Vessel Code;

6. Delete last two sentences of Paragraph D of 16 VAC 25-50-480, which reads as follows: "A seal weld is a tube-to-tubesheet weld used to supplement an expanded tube joint to ensure leak tightness. Seal welds on carbon steel (P-1) tube joints made by qualified welders will not require an inspection nor a Form R-1."

7. Delete the term "welded" from Form R-1, Report of Repairs to conform to current forms;

8. Incorporation by reference of the most recent edition (2006) of B31.1, ASME Code for Pressure Piping, American National Standards Institute;

9. Incorporation by reference of the most recent edition (2006) of API510 as listed in the National Board Inspection Code;

10. Incorporation by reference of the most recent edition (~~2006~~ 2009) of CSD-1 and related section on maintenance that includes revised inspector's checklist;

11. Incorporation by reference of the most recent edition (2007) of the National Board Inspection Code (NBIC); and

12. Incorporation by reference of the most recent edition (2007) of the International Boiler and Pressure Vessel Code, including sections XII and VIII, Div 2.

III. Basis and Purpose of Intended Regulatory Action.

A. Basis.

The Safety and Health Codes Board is authorized by Title 40.1-51.6.A. of the *Code of Virginia* to:

> "…formulate definitions, rules, regulations and standards which shall be designed for the protection of human life and property from the unsafe or dangerous construction, installation, inspection, operation, maintenance and repair of boilers and pressure vessels in this Commonwealth."

B. Purpose.

The purpose of the proposed regulatory action is to conform to the most current editions of ASME and National Board safety and inspection codes, as noted in Section II of this briefing package, as well as in-house administrative fee adjustments to cover increased costs of doing business.

IV. Impact on Employers, Employees and the Department.

A. Impact on Employers.

The non-fee related changes are necessary to update the regulations to the current editions of ASME and National Board safety and inspection codes which are incorporated by reference.

The increase in fees will affect a number of the approximately 50 "R" Stamp holders in the Commonwealth that have their reviews performed by the Department. During calendar years 2006 and 2007, the Department performed 15 and 14 such inspections, respectively. For the current year, 13 inspectors have been performed so far with an additional two anticipated by year end for a total of 15.

The increased cost to these employers who request a review is $200 once in a three-year period (reviews are performed every three years). This will increase the total cost for the review to $1,000. The last time the review fee was increased to address the additional costs of doing business was in the 1999 Edition of the Boiler Rules and Regulations. The other alternative employers would have is have the review performed by the National Board which charges $3,000 for the review.

B. Impact on Employees.

The proposed regulation will provide both increased protection of human life (both employee safety and public safety) as well as property from the unsafe or dangerous construction, installation, inspection, operation, and repair of boilers and pressure vessels in the Commonwealth of Virginia.

C. Impact on the Department of Labor and Industry.

The Department anticipates no additional fiscal impact beyond the cost to promulgate the revisions to the regulation. All revenue from boiler fees is deposited directly into the state general fund. None of the funding stays with the Department.

V. Technological Feasibility.

The proposed amendments are technologically feasible for implementation by both the

Department and the regulated community.

Contact Person:

Mr. Ed Hilton
Director, Boiler Safety Compliance
(804) 786-3262
Ed.Hilton@doli.virginia.gov

RECOMMENDED ACTION

The Boiler Safety Compliance Program recommends that the Safety and Health Codes Board adopt the attached draft proposed language for the amendment to 16 VAC 25-50, Boiler and Pressure Rules and Regulation as a proposed regulation of the Board, as authorized by §40.1-51.6.

The Department also recommends that the Board state in any motion it may make to amend this regulation that it will receive, consider and respond to petitions by any interested person at any time with respect to reconsideration or revision of this or any other regulation which has been adopted in accordance with the Administrative Process Act.

16 VAC 25-50, Proposed Regulation to Amend the Boiler and Pressure Vessel Rules and Regulations

As Adopted by the

Safety and Health Codes Board

Date: _____

VIRGINIA DEPARTMENT OF LABOR AND INDUSTRY

16VAC25-50-150. Inspection certificate and inspection fees.

A. Upon the inspection and determination that a boiler or pressure vessel is suitable and conforms to this chapter, the owner or user shall remit the payment for an inspection certificate in one of the following forms and amounts for each item required to be inspected under the Act.

1. Payment of $20 may be sent from the owner or user to the chief inspector by check, credit card or money order. Payment of inspection certificate fees should be made payable to the Treasurer of Virginia; or

2. Payment may be presented to a special inspector, where the inspector is authorized to collect and forward such fees on the department's behalf. The commissioner may authorize special inspectors to collect and forward to the chief inspector $16 for each inspection certificate. Pursuant to §40.1-51.10:1 of the Code of Virginia, special inspectors may charge owners or users a fee not exceeding $4.00 for collecting and forwarding inspection certificate fees.

An inspection certificate will not be issued to the owner or user until payment is received by either the department or, if previously authorized, by a special inspector. A fee of $10.00 will be charged for each reprint of an inspection certificate.

B. The chief inspector may extend an inspection certificate for up to three additional months beyond a two month grace period following the expiration of a certificate. Such extension is subject to a satisfactory external inspection of the boiler or pressure vessel and receipt of a fee of $20 for each month of extension.

C. When the chief inspector determines that no contract fee inspectors are available to inspect a regulated uninsured boiler or pressure vessel in a timely manner, a commonwealth inspector may be directed to conduct a certification inspection. Contract fee inspection service shall be determined

unavailable where (i) at least two contract fee inspectors contacted will not agree to provide inspection services to the owner or user within at least 21 days from the request and (ii) the owner's or user's inspection certificate will expire within that same period.

The following rates per inspected object, in addition to inspection certificate fees, shall apply for certification inspections conducted by a commonwealth inspector:

1. Power boilers and high pressure, high temperature water boilers	$135
2. Heating boilers	$70
3. Pressure vessels	$50

D. The review of a manufacturer's or repair organization's facility for the purpose of national accreditation will be performed by the chief inspector or his qualified designee for an additional fee of ~~$800~~ $1000 per review or survey.

E. The owner or user who causes a boiler or pressure vessel to be operated without a valid certificate shall be subject to the penalty as provided for in §40.1-51.12 of the Act.

F. Inspection certificates are not required for unfired pressure vessels inspected by an authorized owner-user inspection agency. However, the agency shall keep on file in its office in the establishment where the equipment is located a true record or copy of the report of the latest of each inspection signed by the inspector who made the inspection.

Part III
Existing Installations

16VAC25-50-360. Power and high-pressure, high-temperature water boilers.

A. Age limit of existing boilers.

1. The age limit of any boiler of nonstandard construction, installed before July 1, 1974, other than one having a riveted, longitudinal lap joint, shall be 30 years; however, any boiler passing a thorough internal and external inspection, and not displaying any leakage or distress under a hydrostatic pressure test of 1-1/2 times the allowable working pressure held for at least 30 minutes, may be continued in operation without reduction in working pressure. The age limit of any boiler having riveted, longitudinal, lap joints and operating at a pressure in excess of 50 psig shall be 20 years. This type of boiler, when removed from an existing setting, shall not be reinstalled for a pressure in excess of 15 psig. A reasonable time for replacement, not to exceed one year, may be given at the discretion of the chief inspector.

2. The shell or drum of a boiler in which a typical lap seam crack is discovered along a longitudinal riveted joint for either butt or lap joints shall be permanently removed from service.

3. The age limit of boilers of standard construction, installed before July 1, 1974, shall be determined from the results of a thorough internal and external inspection by an authorized inspector and the application of an appropriate pressure test. Hydrostatic test pressure shall be 1-1/2 times the allowable working pressure provided there is no evidence of leakage or distress under these test conditions.

4. The minimum temperature of the water used for the hydrostatic test of low-pressure boilers and pressure vessels shall be 60°F. The minimum temperature of the water used for the hydrostatic test of power boilers shall be 70°F or ambient whichever is greater.

B. The maximum allowable working pressure for standard boilers shall be determined in accordance with the applicable provisions of the edition of the ASME Code under which they were constructed and stamped.

C. 1. The maximum allowable working pressure on the shell of a nonstandard boiler shall be determined by the strength of the weakest section of the structure, computed from the thickness of the plate, the tensile strength of the plate, the efficiency of the longitudinal joint or tube ligaments, the inside diameter of the weakest course and the factor of safety allowed by this chapter.

$$\frac{TStE}{RFS} = \text{Maximum allowable working pressure, psi}$$

where:

TS = ultimate tensile strength of shell plates, psi

t = minimum thickness of shell plate, in weakest course, inches

E = efficiency of longitudinal joint:

For tube ligaments, E shall be determined by the rules in Section I of the ASME Code for Power Boilers. For riveted joints, E shall be determined by the rules in the applicable edition of the ASME Code. For seamless construction, E shall be considered 100%.

R = inside radius of the weakest course of the shell, in inches

FS = factor of safety permitted.

2. Tensile strength. When the tensile strength of steel or wrought iron shell plates is not known, it shall be taken as 55,000 psi.

3. Crushing strength of mild steel. The resistance to crushing of mild steel shall be taken at 95,000 psi of cross-sectional area.

4. Strength of rivets in shear. When computing the ultimate strength of rivets in shear, the following values, in pounds per square inch, of the cross-sectional area of the rivet shank shall be used.

	PSI
Iron rivets in single shear	38,000
iron rivets in double shear	76,000
Steel rivets in single shear	44,000
Steel rivets in double shear	88,000

When the diameter of the rivet holes in the longitudinal joints of a boiler is not known, the diameter and cross-sectional area of rivets, after driving, may be selected from Table 1, or as ascertained by cutting out one rivet in the body of the joint.

TABLE 1

SIZES OF RIVETS BASED ON PLATE THICKNESS

(in inches)

Plate of Thickness	Rivet Diameter after Driving
¼	11/16
9/32	11/16
5/16	3/4
11/32	3/4
3/8	13/16
13/32	13/16
7/16	15/16
15/32	15/16
½	15/16
9/16	1-1/16
5/8	1-1/16

5. Factors of safety. The following factors of safety shall be increased by the inspector if the condition and safety of the boiler demand it:

a. The lowest factor of safety permissible on existing installations shall be 4.5 for vessels built prior to January 1, 1999. For vessels built on or after January 1, 1999, the factor of safety may be 4.0. Horizontal-return-tubular boilers having continuous longitudinal lap seams more than 12 feet in length, shall have a factor of safety of eight. When this type of boiler is removed from its existing setting, it shall not be reinstalled for pressures in excess of 15 psig.

b. Reinstalled or secondhand boilers shall have a minimum factor of safety of six when the longitudinal seams are of lap-riveted construction, and a minimum factor of safety of five when the longitudinal seams are of butt-strap and double-strap construction.

D. Cast-iron headers and mud drums. The maximum allowable working pressure on a water tube boiler, the tubes of which are secured to cast iron or malleable-iron headers, or which have cast iron mud drums, shall not exceed 160 psig.

E. Pressure on cast iron boilers. The maximum allowable working pressure for any cast iron boiler, except hot water boilers, shall be 15 psig.

F. Safety valves.

1. The use of weighted-lever safety valves, or safety valves having either the seat or disk of cast iron, shall be prohibited. Valves of this type shall be replaced by direct, spring-loaded, pop-type valves that conform to the requirements of the ASME Code, Section I.

2. Each boiler shall have at least one safety valve and, if it has more than 500 square feet of water-heating surface or an electric power input of more than 500 kilowatts, it shall have two or more safety valves.

3. The valve or valves shall be connected to the boiler, independent of any other steam connection, and attached as close as possible to the boiler without unnecessary intervening pipe or fittings. Where alteration is required to conform to this requirement, the chief inspector shall allow the owner or user reasonable time in which to complete the work.

4. No valves of any description shall be placed between the safety valve and the boiler nor on the escape pipe, if used, between the safety valve and the atmosphere, except as provided by applicable sections of the ASME Code. When an escape pipe is used, it shall be at least full size of the safety-valve discharge and fitted with an open drain to prevent water lodging in the upper part of the safety valve or escape pipe. When an elbow is placed on a safety valve escape pipe, it shall be located close to the safety-valve outlet or the escape pipe shall be anchored and supported securely. All safety valve discharges shall be located or piped as not to endanger persons working in the area.

5. The safety-valve capacity of each boiler shall be so that the safety valve or valves will discharge all the steam that can be generated by the boiler without allowing the pressure to rise more than 6.0% above the highest pressure to which any valve is set, and in no case to more than 6.0% above the maximum allowable working pressure.

6. One or more safety valves on every boiler shall be set at or below the maximum allowable working pressure. The remaining valves may be set within a range of 3.0% above the maximum

allowable working pressure, but the range of setting of all the safety valves on a boiler shall not exceed 10% of the highest pressure to which any valve is set.

7. When two or more boilers, operating at different pressures and safety valve settings, are interconnected, the lower pressure boilers or interconnected piping shall be equipped with safety valves of sufficient capacity to prevent overpressure, considering the maximum generating capacity of all boilers.

8. In those cases where the boiler is supplied with feedwater directly from water mains without the use of feeding apparatus (not to include return traps), no safety valve shall be set at a pressure higher than 94% of the lowest pressure obtained in the supply main feeding the boiler.

9. The relieving capacity of the safety valves on any boiler shall be checked by one of the three following methods and, if found to be insufficient, additional valves shall be provided:

a. By making an accumulation test, which consists of shutting off all other steam-discharge outlets from the boiler and forcing the fires to the maximum. The safety-valve capacity shall be sufficient to prevent a rise of pressure in excess of 6.0% of the maximum allowable working pressure. This method shall not be used on a boiler with a superheater or reheater.

b. By measuring the maximum amount of fuel that can be burned and computing the corresponding evaporative capacity (steam-generating capacity) upon the basis of the heating value of fuel. These computations shall be made as outlined in the appendix of the ASME Code, Section I;

c. By measuring the maximum amount of feedwater that can be evaporated.

When either of the methods (b or c) outlined in this subdivision is employed, the sum of the safety-valve capacities shall be equal to or greater than the maximum evaporative capacity (maximum steam-

generating capacity) of the boiler.

10. The relieving capacity of safety valves for forced-flow steam generators shall be in accordance with the requirements of Section I of the ASME Boiler Code.

11. Safety valves and safety relief valves requiring repair shall be replaced with a new valve or repaired by the original manufacturer, its authorized representative or the holder of a "VR" Stamp.

G. Boiler feeding.

1. Each boiler shall have a feed supply which will permit it to be fed at any time while under pressure.

2. A boiler having more than 500 square feet of water-heating surface shall have at least two means of feeding, one of which shall be an approved feed pump or injector. A source of feed directly from water mains at a pressure 6.0% greater than the set pressure of the safety valve with the highest setting may be considered one of the means. As provided in the ASME Power Boiler Code, Section I, boilers fired by gaseous, liquid or solid fuel in suspension may be equipped with a single means of feeding water provided means are furnished for the immediate shutoff of heat input if the water feed is interrupted.

3. The feedwater shall be introduced into the boiler in a manner so that it will not be discharged close to riveted joints of shell or furnace sheets, or directly against surfaces exposed to products of combustion, or to direct radiation from the fire.

4. The feed piping to the boiler shall be provided with a check valve near the boiler and a valve or cock between the check valve and the boiler. When two or more boilers are fed from a common source, there shall also be a valve on the branch to each boiler between the check valve and source of supply. Whenever a globe valve is used on feed piping, the inlet shall be under the disk of the valve.

5. In all cases where returns are fed back to the boiler by gravity, there shall be a check valve and stop valve in each return line, the stop valve to be placed between the boiler and the check valve, and both shall be located as close to the boiler as is practicable. No stop valves shall be placed in the supply and return pipe connections of a single boiler installation.

6. Where deaerating heaters are not employed, the temperature of the feedwater shall not be less than 120°F to avoid the possibility of setting up localized stress. Where deaerating heaters are employed, the minimum feedwater temperature shall not be less than 215°F so that dissolved gases may be thoroughly released.

H. Water level indicators.

1. Each boiler shall have at least one water gauge glass installed and located so that the lowest visible part of the water glass shall be at least two inches above the lowest permissible water level, at which level there will be no danger of overheating any part of the boiler when in operation at that level; except as provided by the ASME Code.

2. No outlet connections (except for damper regulator, feedwater regulator, low-water fuel cutout, drain, steam gauges, or such apparatus that does not permit the escape of an appreciable amount of steam or water from it) shall be placed on the piping that connects the water column to the boiler. The water column shall be provided with a valved drain of at least 3/4 inch pipe size; the drain is to be piped to a safe location.

3. When the direct reading of gauge glass water level is not readily visible to the operator in his working area dependable indirect indications shall be provided utilizing remote level indicators or equipment to

transmit the gauge glass image. When remote level indication is provided for the operator instead of the gauge glass, the minimum level reference shall be clearly marked.

I. Steam gauges.

1. Each steam boiler shall have a steam gauge, with dial range not less than 1-1/2 times the maximum allowable working pressure, connected to the steam space or to the steam connection to the water column. The steam gauge shall be connected to a siphon or equivalent device of

sufficient capacity to keep the gauge tube filled with water and arranged so that the gauge cannot be shut off from the boiler except by a cock with a tee or lever handle placed in the pipe near the gauge. The handle of the cock shall be parallel to the pipe in which it is located when the cock is open.

2. When a steam gauge connection longer than eight feet becomes necessary, a shutoff valve may be used near the boiler provided the valve is of the outside-screw-and-yoke type and is locked open. The line shall be of ample size with provision for free blowing.

3. Each boiler shall be provided with a test gauge connection and suitable valving for the exclusive purpose of attaching a test gauge so that the accuracy of the boiler steam gauge may be ascertained while the boiler is in operation.

J. Stop valves.

1. Except for a single-boiler, prime-mover installation, each steam outlet from a boiler (except safety valve and water column connections) shall be fitted with a stop valve located as close as practicable to the boiler.

2. In a single-boiler, prime-mover installation the steam stop valve may be omitted provided the prime-mover throttle valve is equipped with an indicator to show whether the valve is open or closed and is designed to withstand the required hydrostatic pressure test of the boiler.

3. When a stop valve is so located that water can accumulate, ample drains shall be provided. The drainage shall be piped to a safe location and shall not be discharged on the top of the boiler or its setting.

4. When boilers provided with manholes are connected to a common steam main, the steam connection from each boiler shall be fitted with two stop valves having an ample free-blow drain between them. The discharge of the drain shall be visible to the operator and shall be piped clear of the boiler setting. The stop valves shall consist preferably of one automatic nonreturn valve (set next to the boiler) and a second valve of the outside-screw-and-yoke type.

K. Blowoff connection.

1. The construction of the setting around each blowoff pipe shall permit free expansion and contraction. Careful attention shall be given to the problem of sealing these setting openings without restricting the movement of the blowoff piping.

2. All blowoff piping, when exposed to furnace heat, shall be protected by firebrick or other heat-resisting material constructed so that the piping may be inspected.

3. Each boiler shall have a blowoff pipe, fitted with a valve or cock, in direct connection with the lowest water space. Cocks shall be of the gland or guard type and suitable for the pressure allowed. The use of globe valves shall not be permitted. Where the maximum allowable working pressure exceeds 100 psig,

each blowoff pipe shall be provided with two valves or a valve and cock; however only one valve need be provided for forced-flow steam generators with no fixed steam and waterline; high-temperature water boilers and those used for traction or portable purposes with less than 100 gallons normal water content.

4. Blowoff piping shall comply with the requirements of the ASME Code, Section I, and ANSI B31.1, from the boiler to the valve or valves, and shall be run full size without use of reducers or bushings. All piping shall be steel. Galvanized steel pipe and fittings shall not be used for blowoff piping.

5. All fittings between the boiler and blowoff valve shall be of steel. In case of renewal of blowoff pipe or fittings, they shall be installed in accordance with this chapter for new installations.

L. Repairs and renewals of boiler fittings and appliances. Whenever repairs are made to fittings or appliances or it becomes necessary to replace them, such repairs or replacements shall comply with the requirements for new installations.

M. Each automatically fired steam boiler or system of commonly connected steam boilers shall have at least one steam pressure control device that will shut off the fuel supply to each boiler or system of commonly connected boilers when the steam pressure reaches a preset maximum operating pressure. In addition, each individual automatically fired steam boiler shall have a high steam pressure limit control that will prevent generation of steam pressure in excess of the maximum allowable working pressure.

N. Conditions not covered by this chapter. All cases not specifically covered by this chapter shall be treated as new installations pursuant to16VAC25-50-280 or may be referred to the chief inspector for instructions concerning the requirements.

16VAC25-50-380. Pressure vessels.

A. Maximum allowable working pressure for standard pressure vessels. The maximum allowable working pressure for standard pressure vessels shall be determined in accordance with the applicable provisions of the edition of the ASME or API-ASME code under which they were constructed and stamped. The maximum allowable working pressure shall not be increased to a greater pressure than shown on the manufacturers nameplate stamping and data report.

B. Maximum allowable working pressure for nonstandard pressure vessels

1. For internal pressure. The maximum allowable working pressure on the shell of a nonstandard pressure vessel shall be determined by the strength of the weakest course computed from the thickness of the plate, the tensile strength of the plate, the efficiency of the longitudinal joint, the inside diameter of the weakest course and the factor set by this chapter.

$$\frac{TStE}{RFS} = \text{maximum allowable working pressure, psi}$$

where:

TS = ultimate tensile strength of shell plate, psi. When the tensile strength of the steel plate is not known, it shall be taken as 55,000 psi for temperatures not exceeding 700°F.

t = minimum thickness of shell plate of weakest course, inches,

E = efficiency of longitudinal joint depending upon construction. Use the following values:

For riveted joints -- calculated riveted efficiency;

For fusion-welded joints:

Single lap weld	40%
Double lap weld	50%
Single butt weld	60%
Double butt weld	70%
Forge weld	70%
Brazed steel	80%

R = inside radius of weakest course of shell, inches, provided the thickness does not exceed 10% of the radius. If the thickness is over 10% of the radius, the outer radius shall be used.

FS = factor of safety allowed by this chapter.

2. For external pressure. The maximum allowable working pressure for cylindrical nonstandard pressure vessels subjected to external or collapsing pressure shall be determined by the rules in Section VIII, Division 1, of the ASME Code.

3. Factors of safety. The minimum factor of safety shall in no case be less than ~~four~~ 3.5 for ~~existing installations~~ vessels built on or after January 1, 1999. For vessels built prior to January 1, 1999, the minimum factor of safety shall in no case be less than 4.0. The factor of safety may be increased when deemed necessary by the inspector to insure the operation of the vessel within safe limits. The condition of the vessel and the particular service of which it is subject will be the determining factors.

4. The maximum allowable working pressure permitted for formed heads under pressure shall be determined by using the appropriate formulas from Section VIII, Division 1, ASME Code and the tensile strength and factors of safety given in subdivisions 1 and 3 of this subsection.

C. Inspection of inaccessible parts. Where in the opinion of the inspector, as the result of conditions disclosed at the time of inspection, it is advisable to remove the interior or exterior lining, covering, or brickwork to expose certain parts of the vessel not normally visible, the owner or user shall remove the materials to permit proper inspection and to establish construction details. Metal thickness shall be determined utilizing appropriate equipment including drilling if necessary.

D. Pressure relief devices. Pressure relief devices for each pressure vessel installation, not exempt by the Act, shall comply with the requirements of ASME Pressure Vessel Code, Section VIII.

E. Safety appliances.

1. Each pressure vessel shall be protected by safety and relief valves and indicating and controlling devices which will insure its safe operation. These valves and devices shall be constructed, located and installed so that they cannot readily be rendered inoperative. The relieving capacity of the safety valves shall prevent a rise of pressure in the vessel of more than

10% above the maximum allowable working pressure, taking into account the effect of static head. Safety valve discharges shall be located or piped so as not to endanger persons working in the area.

2. Safety valves and safety relief valves requiring repair shall be replaced with a new valve or repairs shall be performed by the original manufacturer, its authorized representative, or the holder of a "VR" stamp.

F. Repairs and renewals of fittings and appliances. Whenever repairs are made to fittings or appliances, or it becomes necessary to replace them, the repairs or replacements shall comply with requirements for new installations.

G. Conditions not covered by this chapter. All cases not specifically covered by this chapter shall be treated as new installations or may be referred to the chief inspector for instructions concerning the requirements.

16VAC25-50-430. Hydrostatic pressure tests.

A. A hydrostatic pressure test, when applied to boilers or pressure vessels, shall not exceed ~~1½~~ 1.25 times the maximum allowable working pressure, except as provided by the ASME Code.

The pressure shall be under proper control so that in no case shall the required test pressure be exceeded by more than 2.0%.

B. See 16 VAC25-50-360 A 4 for temperature limitations on particular power boiler installations.

C. When a hydrostatic test is to be applied to existing installations, the pressure shall be as follows:

1. For all cases involving the question of tightness, the pressure shall be equal to the working pressure.

2. For all cases involving the question of safety, the test pressure shall ~~be equal to 1½~~ not exceed 1.25 times the maximum allowable working pressure for temperature. During such test the safety valve or valves shall be removed or each valve disk shall be held to its seat by means of a testing clamp and not by screwing down the compression screw upon the spring.

16VAC25-50-480. Repairs and alterations.

A. Prior to any repair, the owner or user shall notify a special inspector with the appropriate endorsement for direction or advice, or both, regarding the method and extent of repair.

B. Repairs to boilers and pressure vessels shall be done in accordance with the National Board Inspection Code by holders of an "R" Certificate of Authorization. The completed repairs shall be reviewed by and found acceptable to the inspector or the same inspection agency who authorized the repair.

C. Alterations to boilers and pressure vessels shall be performed by an organization holding an appropriate ASME or "R" Certificate of Authorization and shall be in accordance with the National Board Inspection Code.

D. All repairs and alterations, except seal welds as defined in this subsection, shall be reported on the applicable Report of Welded Repair or Alteration form. The completed form including proper certification shall be forwarded to the chief inspector by the organization performing the repair or alteration. ~~A seal weld is a tube-to-tubesheet weld used to supplement an expanded tube joint to ensure leak tightness. Seal welds on carbon steel (P-1) tube joints made by qualified welders will not require an inspection nor a Form R-1.~~

E. The completed forms for routine repairs, as the term is defined in the National Board Inspection Code, need not be forwarded to the chief inspector.

FORMS

R 1 Form, Report of Welded _____ Repair or _____ Alteration, CVR1 Rev 1.0.

Form R-1, Report of ~~Welded~~ Repair, National Board Inspection Code (eff.1/1/99).

Form R-2, Report of Alteration, National Board Inspection Code (eff. 1/1/99).

Form R-3, Report of Parts Fabricated By Welding, National Board Inspection Code (eff. 1/1/99).

Form R-4, Report Supplementary Sheet, National Board Inspection Code (eff. 1/1/99).

BPV-5, Boiler or Pressure Vessel Data Report – First Internal Inspection (eff. 1/1/99).

BPV-6, Boiler – Fired Pressure Vessel – Report of Inspection (eff. 1/1/99).

Documents Incorporated by Reference

~~2001~~ 2007 Boiler and Pressure Vessel Code, ASME Code, American Society of Mechanical Engineers.

National Board Bylaws, National Board of Boiler and Pressure Vessel Inspectors, August 8, 1996.

ANSI/NB 23, ~~2001~~ 2007 National Board Inspection Code, National Board of Boiler and Pressure Vessel Inspectors.

ASME B 31.1, ASME Code for Pressure Piping, American National Standards Institute, ~~1998~~ 2006.

NFPA 85 Boiler and Combustion Systems Hazards, 2001 Edition, National Fire Protection Association.

Part CG (General), Part CW (Steam and Waterside Control) and Part CF (Combustion Side Control) Flame Safeguard of ANSI/ASME CSD-1, Controls and Safety Devices for Automatically fired Boilers, ~~1998~~ ~~2006~~ 2009, American Society of Mechanical Engineers.

"Boiler Blowoff Equipment," National Board of Boiler and Pressure Vessel Inspectors, Rules and Recommendations for the Design and Construction of Boiler Blowoff Systems, 1991.

API510, Pressure Vessel Inspection Code, Maintenance Inspection, Rating, Repair and Alteration, ~~Sixth Edition, June 1989~~ Seventh Edition, June 2006, American Petroleum Institute.

COMMONWEALTH of VIRGINIA

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VIRGINIA SAFETY AND HEALTH CODES BOARD

BRIEFING PACKAGE FOR

AUGUST 13, 2009

**Final Regulation to Amend 16 VAC 25-60,
Administrative Regulation for the Virginia Occupational Safety and Health (VOSH) Program,
16 VAC 25-60-240 and 16 VAC 25-60-245, Take and Preserve Testimony, Examine Witnesses and Administer Oaths**

I. Action Requested.

The Virginia Occupational Safety and Health (VOSH) Program requests the Safety and Health Codes Board to consider for adoption as a final regulation of the Board the following VOSH proposal to amend the Administrative Regulation for the VOSH Program, by amending 16 VAC 25-60-240, and adding a new section 16 VAC 25-60-245 to establish procedures for the Commissioner or his appointed representatives under Va. Code §40.1-6(5) to take and preserve testimony, examine witnesses and administer oaths under Va. Code §§40.1-6(4) and 40.1-10, pursuant to Va. Code §40.1-22(5).

II. Summary of Rulemaking Process

A Notice of Intended Regulatory Action (NOIRA) was adopted by the Board on October 18, 2007. The NOIRA was published on February 4, 2008, with a 30-day comment period ending on March 6, 2008. No comments were received.

The Board adopted proposed regulatory language on July 10, 2008. The proposed regulation was published on March 16, 2009, with a 60-day comment period ending on May 15, 2009. A public hearing was held by the Board on April 16, 2009. No comments were received.

III. Summary of Final Regulation.

The VOSH Program seeks the amendment of the Administrative Regulation for the VOSH Program to establish procedures for the Commissioner or his appointed representatives under VA. Code §40.1-6(5) to take and preserve testimony, examine witnesses and administer oaths under Va. Code §§40.1-6(4) and 40.1-10.

Following are the requirements of Va. Code §§40.1-6(4) and 40.1-10:

Va. Code §40.1-6(4), Powers and duties of the Commissioner.

"The Commissioner shall:
….

(4) In the discharge of his duties, have power to take and preserve testimony, examine witnesses and administer oaths and to file a written or printed list of relevant interrogatories and require full and complete answers to the same to be returned under oath within thirty days of the receipt of such list of questions. " (Emphasis added).

Va. Code §40.1-10, Offenses in regard to examinations, inspections, etc.

"**If any person who may be sworn to give testimony shall willfully fail or refuse to answer any legal and proper question propounded to him concerning the subject of such examination as indicated in §§ 40.1-6**, or if any person to whom a written or printed list of such interrogatories has been furnished by the Commissioner shall neglect or refuse to answer fully and return the same under oath, or if any person in charge of any business establishment shall refuse admission to, or obstruct in any manner the inspection or investigation of such establishment or the proper performance of the authorized duties of the Commissioner or any of his representatives, he shall be guilty of a misdemeanor. **Such person, upon conviction thereof, shall be fined not exceeding $100 nor less than $25 or imprisoned in jail not exceeding 90 days, or both."** (Emphasis added).

The final regulation:

* Specifies the wording of the oath to be administered and the manner in which it would be administered;

* Explains the manner in which the Commissioner would appoint in writing Department personnel as his representatives having the authority to administer such oaths and having the authority to examine witnesses in accordance with the procedures outlined in the regulation;

* Specifies that testimony preserved under the regulation would be recorded by a court reporter;

* Specifies the level of confidentiality that would attach to any testimony preserved under the statute;

* Establishes a procedure for the Commissioner or his authorized representatives to follow in the event that any employer refuses to make an employee or supervisor available to provide testimony in accordance with Va. Code 40.1-6(4). The final regulation provides that an application for an inspection warrant under Va. Code §§40.1-49.8 through 40.1-49.12 for VOSH investigations/inspections will be submitted to the local General District or Circuit Court with jurisdiction over the employer.

* Establishes a procedure for the Commissioner or his authorized representatives to follow in the event that any person who has sworn to give testimony willfully refuses or fails to answer any legal and proper question in accordance with Va. Code §§40.1-10 and 40.1-6(4), up to and including referring such refusal to the appropriate Commonwealth's Attorney for prosecution of the individual involved.

- Recommended housekeeping changes to the proposed regulation are primarily in response to a request from the Registrar of Regulations to correct sections which do not comply with Virginia Administrative Code (VAC) formatting requirements:

  - Section 10, Definitions, definitions are put in alphabetical order.

  - Section 20, Jurisdiction, sections are renumbered, and cross-references to other sections in the regulation are put in proper VAC format.

  - Section 90, Release of information and disclosure pursuant to requests under the Virginia Freedom of Information Act and subpoenas, the following language was amended:

    B. Interview statements of employers, owners, operators, agents, or employees given to the commissioner in confidence pursuant to § 40.1-49.8 of the Code of Virginia shall not be disclosed **[~~for any purpose, except to the individual giving the statement~~]**.

    The Department recommends the above language change in Section 90 as a result of

several enforcement cases over the last two years where attorneys for employers have independently identified employees that were interviewed during the VOSH inspection and begun having the employees request copies of their confidential interview statements so the employer could then review the statements. The recommended change is related to clarifying the original regulatory intent because current practice could compromise an employee's willingness in future accident investigations to provide a statement to VOSH, or to be completely forthcoming with regards to safe working conditions on the job site, if they know their employer can gain access to the interview statement.

- Section 100, Complaints, cross-references to other sections in the regulation were put in proper VAC format.

- Section 130, Construction industry standards, sections renumbered.

- Cross-references to other sections in the regulation were put in proper Virginia Administrative Code format for the following sections:

  - 140, Agricultural standards
  - 190, General provisions
  - 210, Permanent variances
  - 220, Interim order
  - 260, Issuance of citation and proposed penalty
  - 270, Contest of citation or proposed penalty
  - 280, General contest proceedings applicable to the public sector
  - 310, Contest of abatement period
  - 320, Extension of abatement time
  - 330, Informal Conference
  - 340, Settlement

IV. Basis, Purpose and Impact of the Final Rulemaking.

A. Basis for Final Action.

The Safety and Health Codes Board is authorized by Title 40.1-22(5) to:

> "... adopt, alter, amend, or repeal rules and regulations to further, protect and promote the safety and health of employees in places of employment over which it has jurisdiction and to effect compliance with the federal OSH Act of 1970...as may be necessary to carry out its functions established under this title.
> ….
> In making such rules and regulations to protect the occupational safety and health of employees, the Board shall adopt the standard which most adequately assures, to the extent feasible, on the basis of the best available

> evidence that no employee will suffer material impairment of health or functional capacity. However, such standards shall be at least as stringent as the standards promulgated by the federal OSH Act of 1970 (P.L.91-596). In addition to the attainment of the highest degree of health and safety protection for the employee, other considerations shall be the latest available scientific data in the field, the feasibility of the standards, and experiences gained under this and other health and safety laws."

In fatal and non-fatal accident investigations particularly and more routine inspections as well, VOSH inspectors are required to interview one or more employees and supervisors. VOSH personnel sometimes encounter witnesses/employees/supervisors who refuse to talk with our inspectors or avoid answering specific questions for a variety of reasons. Some employees and supervisors have refused to talk with our inspectors after talking with either the company attorney or a private attorney hired by the individual. Although such refusals are rare, they can have a significant impact on the promptness, thoroughness and quality of the investigation.

It is a generally accepted investigative principle that the closer in time to an event that information about the event is obtained from witnesses, the better the chance is that the information will be accurate. Refusals can result in delays in obtaining witness statements immediately after the accident occurs, potentially resulting in altered memories and less accurate information concerning the cause of the accident.

In addition, the investigative process is often a very fluid one, where statements made by one witness can lead to additional questions being asked of other witnesses, or previously undisclosed documents being obtained from the employer. Such refusals can not only result in the loss of the individuals' testimony, but can also result in the loss of other potential leads in the investigation. Early access to such information will result in higher quality investigations, and better and more accurate outcomes.

When such refusals do occur, the inability to gather crucial information from eyewitnesses and sometimes the testimony of the injured employee greatly hampers the VOSH program's ability to complete a full and fair investigation of the accident in a timely manner - Va. Code §40.1-49.4.A.3 requires VOSH to issue citations within six months following the occurrence of any alleged violation. The Commissioner's statutory authority to take and preserve testimony, examine witnesses and administer oaths, if implemented through regulation, could be used to obtain necessary testimony very early in the investigative process, avoiding delays and potentially altered memories.

B. <u>Purpose</u>.

The purpose of the final regulation is to provide VOSH personnel with procedures on how to exercise the Commissioner's statutory authority to take and preserve testimony, examine witnesses and administer oaths, in instances where witnesses/employees/supervisors refuse requests for interviews or refuse to answer specific questions posed by a VOSH inspector.

C. Impact on Employers.

Employers would have to make employees available for private interview as identified by the Commissioner or his representative in accordance with procedures in the final regulation implementing the statutory requirements in Va. Code §§40.1-6(4) and 40.1-10. The Commissioner currently has the statutory authority to "question privately any such employer, owner, operator, agent or employee" during a VOSH inspection in accordance with Va. Code §40.1-49.8(2). As noted previously, VOSH investigation procedures provide for employee interviews on all inspections, and employers, as a regular course of business, make their employees available for such interviews without limitation. VOSH does not believe the final regulation will have a significant cost impact on employers for the following reasons:

- VOSH estimates that it will seek to use the new procedures in the final regulation to require an employer to make an employee available for an interview on an average of five or fewer cases per year.
- The average length of a VOSH interview is normally 15 minutes or less; however, in accident cases an interview may last up to 60-90 minutes. Significant down time for employers or employees is not anticipated.
- Interview locations would normally be at the employer's worksite, an agreed to alternate site, or at the local VOSH Office. Significant travel costs are not anticipated.
- VOSH will assume the cost of transcription services.

D. Impact on Employees.

Employees would have to provide testimony in accordance with any procedures implementing the statutory requirements in Va. Code §§40.1-6(4) and 40.1-10. As noted previously, VOSH investigation procedures provide for employee interviews on all inspections, and employees and supervisory personnel regularly agree, without limitation, to be interviewed. VOSH does not believe the final regulation will have a significant cost impact on employees for the reasons listed in C. above.

E. Impact on the Department of Labor and Industry.

The Department would have to designate and train personnel on the procedures implementing the statutory requirements in Va. Code §§40.1-6(4) and 40.1-10. The average cost of transcription services for a one hour interview is approximately $200. The VOSH Program estimates that annual costs for interviews under the final regulations would be $1,000 or less.

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RECOMMENDED ACTION

Staff of the Department of Labor and Industry recommends that the Safety and Health Codes Board consider for adoption as a final regulation of the Board, multiple amendments to 16 VAC 25-60, the Administrative Regulation for the Virginia Occupational Safety and Health (VOSH) Program, which include the revision of 16 VAC 25-240 and the addition of 16 VAC 25-60-245, to establish procedures for the Commissioner or his appointed representatives under 40.1-6(5) to take and preserve testimony, examine witnesses and administer oaths under Va. Code §§40.1-6(4) and 40.1-10.

The Department also recommends that the Board state in any motion it may make to amend this regulation that it will receive, consider and respond to petitions by any interested person at any time with respect to reconsideration or revision of this or any other regulation.

Final Regulation to Amend 16 VAC 25-60,
Administrative Regulation for the Virginia Occupational Safety and Health (VOSH) Program,
16 VAC 25-60-240 and 245, Take and Preserve Testimony, Examine Witnesses
and Administer Oaths

As Adopted by the

Safety and Health Codes Board

Date: _____

VIRGINIA OCCUPATIONAL SAFETY AND HEALTH PROGRAM

VIRGINIA DEPARTMENT OF LABOR AND INDUSTRY

Effective Date: _____

16 VAC 25-60-240, Walkthrough

16 VAC 25-60-245, Take and Preserve Testimony, Examine Witnesses and Administer Oath

Part I

Definitions

16VAC25-60-10. Definitions.

The following words and terms when used in this chapter shall have the following meanings unless the context clearly indicates otherwise:

"Abatement period" means the period of time defined or set out in the citation for correction of a violation.

["Board" means the Safety and Health Codes Board.]

"Bureau of Labor Statistics" means the Bureau of Labor Statistics of the United States Department of Labor.

"Citation" means the notice to an employer that the commissioner has found a condition or conditions that violate Title 40.1 of the Code of Virginia or the standards, rules or regulations established by the commissioner or the board.

~~**["Board" means the Safety and Health Codes Board.]**~~

"Commissioner" means the Commissioner of Labor and Industry. Except where the context clearly indicates the contrary, any such reference shall include his authorized representatives.

….

Part II

General Provisions

16VAC25-60-20. Jurisdiction.

All Virginia statutes, standards, and regulations pertaining to occupational safety and health shall apply to every employer, employee and place of employment in the Commonwealth of Virginia except where:

[~~A.~~ 1.] The United States is the employer or exercises exclusive jurisdiction;

[~~B.~~ 2.] The federal Occupational Safety and Health Act of 1970 does not apply by virtue of § 4(b)(1) of that Act. The commissioner shall consider **[~~F~~ f]**ederal OSHA case law in determining where jurisdiction over specific working conditions has been preempted by the regulations of a federal agency; or

[~~C.~~ 3.] The employer is a public employer, as that term is defined in this chapter. In such cases, the Virginia laws, standards and regulations governing occupational safety and health are applicable as stated including **[~~§§ 10, 30, 280, 290 and 300 of these regulations~~ 16VAC25-60-10, 16VAC25-60-30, 16VAC25-60-280, 16VAC25-60-290, and 16VAC25-60-300.]**

….

16VAC25-60-90. Release of information and disclosure pursuant to requests under the Virginia Freedom of Information Act and subpoenas.

….

B. Interview statements of employers, owners, operators, agents, or employees given to the commissioner in confidence pursuant to § 40.1-49.8 of the Code of Virginia shall not be disclosed **[~~for any purpose, except to the individual giving the statement~~]**.

….

16VAC25-60-100. Complaints.

….

F.

…

2. A complaint investigation, which does not involve onsite activity, shall normally be conducted for all complaints that do not meet the criteria listed in **[~~§100.F.1 above~~ subdivision 1 of this subsection.]**

3. The commissioner reserves the right, for good cause shown, to initiate an inspection with regard to certain complaints that do not meet the criteria listed in **[~~§100.F.1 above;~~ subdivision 1 of this subsection;]** as well as to decline to conduct an inspection and instead conduct an investigation, for good cause shown, when certain complaints are found to otherwise meet the criteria listed in subdivision 1 of this subsection.

....

Part III

Occupational Safety and Health Standards

….

16VAC25-60-130. Construction industry standards.

….

[~~A.~~ 1.] For the purposes of the applicability of such Part 1926 standards, the key criteria utilized to make such a decision shall be the activities taking place at the worksite, not the primary business of the employer. Construction work shall generally include any building, altering, repairing, improving, demolishing, painting or decorating any structure, building, highway, or roadway; and any draining, dredging, excavation, grading or similar work upon real property. Construction also generally includes work performed in traditional construction trades such as carpentry, roofing, masonry work, plumbing, trenching and excavating, tunneling, and electrical work. Construction does not include maintenance, alteration or repair of mechanical devices, machinery, or equipment, even when the mechanical device, machinery or equipment is part of a pre-existing structure.

[~~B.~~ 2.] Certain standards of 29 CFR Part 1910 have been determined by federal OSHA to be applicable to construction and have been adopted for this application by the board.

[~~C.~~ 3.] The standards adopted from 29 CFR Part 1910.19 and 29 CFR Part 1910.20 containing respectively, special provisions regarding air contaminants and requirements concerning access to employee exposure and medical records shall apply to construction work as well as general industry.

….

16VAC25-60-140. Agriculture standards.

….

For the purposes of applicability of such Part 1910 and Part 1928 standards, the key criteria utilized to make a decision shall be the activities taking place at the worksite, not the primary business of the employer. Agricultural operations shall generally include any operation involved in the growing or harvesting of crops or the raising of livestock or poultry, or activities integrally related to agriculture, conducted by a farmer or agricultural employer on sites such as farms, ranches, orchards, dairy farms or similar establishments. Agricultural operations do not include construction work as described in **[~~§130.1 of this regulation~~ subdivision 1 of 16VAC25-60-130]**, nor does it include operations or activities substantially similar to those that

occur in a general industry setting and are therefore not unique and integrally related to agriculture.

….

Part IV

Variances

16VAC25-60-190. General provisions.

….

B. In addition to the information specified in **[~~§§200.A and 210.A of this regulation~~ 16VAC25-60-200 A and 16VAC25-60-210 A]**, every variance application shall contain the following:

1. A statement that the applicant has informed affected employees of the application by delivering a copy of the application to their authorized representative, if there is one, as well as having posted, in accordance with **[~~§40 of these regulations~~ 16VAC25-60-40]**, a summary of the application which indicates where a full copy of the application may be examined;

….

F. The commissioner will grant a variance request only if it is found that the employer has met by a preponderance of the evidence, the requirements of either **[~~§200.B.4. or §210.B.4. of these regulations~~ 16VAC25-60-200 B 4 or 16VAC25-60-210 B 4]**.

….

2. The employer shall post a copy of the commissioner's decision in accordance with **[~~§40 of these regulations~~ 16VAC25-60-40]**.

….

G. Any party may within 15 days of the commissioner's decision file a notice of appeal to the board. Such appeal shall be in writing, addressed to the board, and include a statement of how other affected parties have been notified of the appeal. Upon notice of a proper appeal, the commissioner shall advise the board of the appeal and arrange a date for the board to consider the appeal. The commissioner shall advise the employer and employee representative of the time and place that the board will consider the appeal. Any party that submitted written or oral views or participated in the hearing concerning the original application for the variance shall be invited

to attend the appeal hearing. If there is no employee representative, a copy of the commissioner's letter to the employer shall be posted by the employer in accordance with the requirements of **[~~§40 of these regulations~~ 16VAC25-60-40]**.

….

16VAC25-60-210. Permanent variances.

A. Applications filed with the commissioner for a permanent variance from a standard or regulation shall be subject to the requirements of **[~~§190 of these regulations~~ 16VAC25-60-190]** and the following additional requirements.

….

16VAC25-60-220. Interim order.

….

B. A letter of application for an interim order shall include statements as to why the interim order should be granted and shall include a statement that it has been posted in accordance with **[~~§40 of these regulations~~ 16VAC25-60-40]**. The provisions contained in **[~~§§190.A, 190.B.1. and 190.B.3. of these regulations~~ 16VAC25-60-190 A, B 1 and B 3]** shall apply to applications for interim orders in the same manner as they do to variances.

….

16 VAC 25-60-240

Walkthrough

Walkthrough by the commissioner for the inspection of any workplace includes the following privileges.

1. The commissioner shall be in charge of the inspection and, as part of an inspection, may question privately any employer, owner, operator, agent, or employee. The commissioner shall conduct the interviews of persons during the inspection or at other convenient times. **[The commissioner may take and preserve testimony, examine witnesses and administer oaths as provided for in §245 of these regulations.]**

[16 VAC 25-60-245

Take and Preserve Testimony, Examine Witnesses and Administer Oaths

1. Section 40.1-6(4) of the *Code of Virginia* authorizes the commissioner, in the discharge of his duties, to take and preserve testimony, examine witnesses and administer oaths. In accordance with §40.1-6(5) of the *Code of Virginia*, the Commissioner of Labor and Industry may appoint such representatives as are necessary to carry out the functions outlined in §40.1-6(4) of the *Code of Virginia*. Such appointments shall be made in writing, identify the individual being appointed, the length of appointment, the method of withdrawal of such appointment, and specify what duties are being prescribed.

2. The oath shall be administered by the commissioner's appointed representative to the witness as follows: "Do you swear or affirm to tell the truth".

3. Testimony given under oath shall be recorded by a court reporter.

4. Questioning of employers, owners, operators, agents or employees under oath shall be in private in accordance with §40.1-49.8(2) of the *Code of Virginia*.

5. An employer's refusal to make an owner, operator, agent or employee available to the commissioner for examination under this section shall be considered a refusal to consent to the commissioner's inspection authority under §40.1-49.8 of the *Code of Virginia*. Upon such refusal the commissioner may seek an administrative search warrant in accordance with the provisions contained in §§40.1-49.9 to -49.12 of the *Code of Virginia*, and obtain an order from the appropriate judge commanding the employer to make the subject owner, operator, agent or employee available for examination at a specified location by a date and time certain.

6. In accordance with §40.1-10 of the *Code of Virginia*, if any person who may be sworn to give testimony shall willfully fail or refuse to answer any legal and proper question propounded to him concerning the subject of the examination under §40.1-6 of the *Code of Virginia*, he shall be guilty of a misdemeanor. Such person, upon conviction thereof, shall be fined not exceeding $100 nor less than $25 or imprisoned in jail not exceeding 90 days or both. Any such refusal on the part of any person to comply with this section may be referred by the Commissioner of Labor and Industry to the appropriate Commonwealth's Attorney for prosecution.]

….

Part VI

Citation and Penalty

16VAC25-60-260. Issuance of citation and proposed penalty.

….

A.

….

1.

….

e. Notwithstanding subdivision 1 b of this subsection, if the commissioner is first notified of a work-related hazard, or incident resulting in an injury or illness to an employee(s), through receipt of a complaint in accordance with **[~~§100 of these regulations,~~ 16VAC25-60-100]** or referral, the six-month time frame shall not be deemed to commence until the commissioner actually receives the complaint or referral.

….

16VAC25-60-270. Contest of citation or proposed penalty; general proceedings.

….

C. The employer's contest of a citation or proposed penalty shall not affect the citation posting requirements of **[~~§40 of these regulations~~ 16VAC25-60-40]** unless and until the court ruling on the contest vacates the citation.

D. When the commissioner has received written notification of a contest of citation or proposed penalty, he will attempt to resolve the matter by settlement, using the procedures of **[~~§§330 and 340 of these regulations~~ 16VAC25-60-330 and 16VAC25-60-340]**.

….

16VAC25-60-280. General contest proceedings applicable to the public sector.

….

E. The commissioner shall seek to resolve any controversies or issues rising from a citation issued to any public employer in an informal conference as described in **[~~§330 of these regulations~~ 16VAC25-60-330]**.

F. The contest by a public employer shall not affect the requirements to post the citation as required at **[~~§40 of these regulations~~ 16VAC25-60-40]** unless and until the commissioner's or the court ruling on the contest vacates the citation. A contest of a citation may stay the time permitted for abatement pursuant to § 40.1-49.4 C of the Code of Virginia.

….

Part VII

Abatement

16VAC25-60-310. Contest of abatement period.

….

C. The same procedures and requirements used for contest of citation and penalty, set forth at **[~~§§270, 280, 290, and 300, of these regulations~~ 16VAC25-60-270, 16VAC25-60-280, 16VAC25-60-290, and 16VAC25-60-300],** shall apply to contests of abatement period.

….

16VAC25-60-320. Extension of abatement time.

….

C.

….

5. A certification that a copy of the petition has been posted and served on the authorized representative of affected employees, if there is one, in accordance with **[~~§40 of these regulations~~ 16VAC25-60-40]**, and a certification of the date upon which such posting and service was made.

….

G. When affected employees, or their representatives object to the petition, the commissioner will attempt to resolve the issue in accordance with **[~~§330 of these regulations~~ 16VAC25-60-330]**. If the matter is not settled or settlement does not appear probable, objections will be heard in the manner set forth in subsection I of this section.

….

Part VIII

Review and Settlement

16VAC25-60-330. Informal conference.

….

E. An employee representative shall be given the opportunity to participate in a conference requested by the employer. This same right will be extended to the employer when an informal conference is requested by employees. It is the duty of the employer, if he has requested a conference, to notify the employees by the means described in **[~~§40 of these regulations~~ 16VAC25-60-40]** as soon as the time and place of the conference have been established. Upon granting an employee request for a conference, the commissioner is responsible for notifying the employer. The commissioner, at his discretion, may conduct separate portions of the conference with the employer and employee representative.

F. During or following the conference the commissioner may affirm or amend the citations, penalties, or abatement period if the order has not become final. The commissioner shall notify the employer in writing of his decision. The employer shall notify employees of this decision in the manner set forth in **[~~§40 of these regulations~~ 16VAC25-60-40]**.

….

16VAC25-60-340. Settlement.

….

B. Settlement negotiations will ordinarily take place in the medium of an informal conference. Employees shall be given notice of scheduled settlement discussions and shall be given opportunity to participate in the manner provided for in **~~[§330.E. of these regulations~~** **16VAC25-60-330 E]**.

COMMONWEALTH of VIRGINIA

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VIRGINIA SAFETY AND HEALTH CODES BOARD

BRIEFING PACKAGE FOR

AUGUST 13, 2009

Final Regulation on Tree Trimming Operations, 16 VAC 25-73

I. Action Requested.

The Virginia Occupational Safety and Health (VOSH) Program requests the Safety and Health Codes Board to consider for adoption a final regulation applicable to Tree Trimming Operations pursuant to Va. Code §40.1-22(5).

II. Summary of Rulemaking Process.

A Notice of Intended Regulatory Action (NOIRA) was adopted by Board on October 18, 2007. The NOIRA was published on February 4, 2008, with 30-day comment period ending March 4, 2008. The results of the 30 day comment period are summarized in section V. below.

The Department held a meeting with interested parties on June 10, 2008. The results of the meeting are summarized in section VI. below.

The Board adopted proposed regulatory language on July 10, 2008. The proposed regulation was published on March 16, 2009, with a 60-day comment period ending on May 15, 2009. A public hearing was held by the Board on April 16, 2009. The results of the 60 day comment period and public hearing are summarized in section VII. below.

III. Summary of Final Regulation.

The VOSH Program seeks to adopt a final regulation applicable to Tree Trimming Operations. The final regulation is based on the American National Standard's Institute (ANSI) Z133.1-2006, Safety Requirements for Arboricultural Operations (With Modifications), for Application to Tree Trimming Operations. The regulation addresses non-logging, tree-trimming and cutting operations on residential and commercial work sites.

A. The final regulation contains the following components:

- General safety requirements (traffic control around the jobsite, emergency procedures and readiness, personal protective equipment, fire protection);
- Electrical hazards (working in proximity to electrical hazards, storm work and emergency conditions, line-clearance);
- Safe use of vehicles and mobile equipment used in arboriculture (aerial devices, brush chippers, sprayers and related equipment, stump cutters, vehicles, log loaders, knuckleebooms, cranes and related hoists, specialized units, equipment-mounted winches);
- Portable power hand tools (portable electric power tools, chain saws, powered pole tools and backpack power units);
- Hand tools and ladders (cant hooks, cant dogs, peaveys and tongs, wedges, chisels, gouges, chopping tools, ladders);
- Work procedures (ropes and arborist climbing equipment, pruning and trimming, cabling, rigging, tree removal, bush removal and chipping, limbing and bucking, pesticide application); and
- Training.

B. **The following issues have been addressed in recommended changes to the original text for ANSI Z133.1-2006:**

- Clarification is provided with regard to the following areas:

  Line-clearance tree-trimming (see 1910.269), and the Overhead High Voltage Line Safety Act, Va. Code §§59.1-406 to -414
  Logging operations (see 1910.266)
  Lot clearing activities involving felling of trees (see 1910.266)

- The original text contained "should" or "may" language in some provisions, which are unenforceable from a compliance standpoint. Prescriptive language such as "shall" or "will" was added, as appropriate.

- VOSH currently enforces ARM §120 (16VAC25-60-120) requiring that employers comply with manufacturer's specifications and limitations applicable to the operation, training, use, installation, inspection, testing, repair and maintenance of machinery, vehicles, tools, materials and equipment. ANSI Z133.1-2006 contains provisions that address the use and operation of machinery, vehicles, tools, etc., so any conflicts with ARM §120 (16VAC25-60-120) have been corrected (e.g., ANSI Z133.1-2006 contains provisions allowing the use of a crane to lift an individual in an arborist's saddle, but the ability to make such a lift would be contingent on the crane manufacturer's operating instructions).

- The original text contains provisions addressing traffic safety and references the U. S. Department of Transportation (DOT) Manual on Uniform Traffic Control Devices (MUTCD) and applicable state and local laws and regulations. Although the MUTCD has been adopted by OSHA and VOSH, it has been found to contain a great deal of "should" or "may" language, which means those provisions are not enforceable in a compliance setting. In its stead, the Virginia Department of Transportation (VDOT) Manual on Uniform Traffic Control Devices has been substituted as it contains fewer "shoulds" and "mays".

- The original text contains provisions addressing first aid and cardiopulmonary resuscitation (CPR). The Board's current rulemaking which proposes a change in the general industry requirements for first aid/CPR is incorporated by reference.

- The original text addresses the issue of exposure to noise hazards. Reference is made in the final regulation to requirements contained in the VOSH Noise Standard, 1910.95.

- The original text addresses the use of personal protective equipment (PPE). Reference is made in the final regulation to requirements contained in the VOSH PPE Standards, 1910.132 through 138.

- The original text contains provisions addressing reverse signal operation of vehicles. The Board's current rulemaking which proposes a change in the general industry requirements for reverse signal operation of vehicles is incorporated by reference.

- The original text contains provisions addressing proper use of personal fall arrest systems while working from an aerial lift (permits use of either a full body harness and lanyard or a body belt and lanyard). In light of advances in PPE and current manufacturer's requirements for use of PPE in aerial lifts (full body harness and energy absorbing lanyard are normally required while working from aerial lifts), the option to allow an employee to use a body belt and lanyard in an aerial lift has been removed.

- The original text addresses the use of cranes. In light of certain requirements contained in VOSH Standards 1910.180, Crawler, Locomotive and Truck Cranes, and 1910.184, Slings, certain additions have been made (e.g. the prohibition against employees working under a suspended load of a crane).

- Certain arborist-related terms used in the original text were not defined in (e.g., "split-tail system" and "split tails"). Definitions have been added.

C. <u>Major changes to the</u> <u>original proposed regulation are as follows:</u>

1. The Department recommends amending the Scope, purpose and applicability section to make it clear that:

    - line-clearance tree trimming activities as defined in the final regulation are covered by 16VAC25-90-1910.269
    - the final regulation will not apply to non-arboricultural landscaping operations
    - for certain tree trimming/removal operations such as right-of-ways for new utility installations, the employer must either comply with the Logging Standard, 16VAC25-90-1910.266, or with the final regulation under the direct supervision of a qualified arborist or qualified line-clearance arborist

2. The Department recommends adding/revising definitions as follows:

- a definition for “Climbing system” is added
- the definition of “Job briefing” is revised to make it clear that a job briefing is conducted “before work begins”
- the definition for ‘Line clearance” is revised to a definition of “Line-clearance tree trimming” to make the definition identical to the same definition contained in 16VAC25-90-1910.269. However, wording in the original definition is retained to make it clear that such activities are “performed by the employees of the owner or operator of the electrical or communications systems, or independent contractors engaged on behalf of the owner or operator of the system to perform the work”, which is derived from the Overhead High Voltage Line Safety Act, Va. Code §59.1-406.
- the definition of “Qualified arborist” is revised by removing the phrase “by possession of a recognized degree, certification or professional standing, or,” to remove any confusion that such a degree or certification is a prerequisite for working in the industry

3. The Department recommends revising the first aid requirement as follows:

> “An employer is exempted from complying with 16VAC25-95.E.1 if it can document in writing that it initiated first aid/CPR training for all new crew personnel within two months (60 days) of hire, or whenever a previously employed person has accumulated forty-five (45) work days for the same employer during the previous year.”

4. The Department recommends revising the Electrical hazards section as follows:

- line-clearance tree trimming activities as defined in the final regulation are covered by 16VAC25-90-1910.269
- non-line-clearance tree trimming work around overhead high voltage lines (voltage in excess of 600 volts) is covered by the Overhead High Voltage Line Safety Act, Va. Code §§59.1-406 through 59.1-414.
- non-line-clearance tree trimming work around overhead electrical lines of 600 volts or less is covered by 16VAC25-90-1910.333(c)(1)
- Table 1, Minimum approach distances, is deleted
- Storm work and emergency conditions: line-clearance, section is deleted

5. The Department recommends revising the vehicles and mobile equipment section as follows:

- Section 16VAC25-73-60.A.7 is revised: **[If previously installed by the manufacturer, skid resistant ~~S~~ s]** tep surfaces and platforms on mobile equipment shall be **[~~skid resistent~~ properly maintained.]**
- Section 16VAC25-73-60.A.9 is revised to clarify that fall protection is not required when employees are performing inspections on top of vehicles/mobile equipment when the fall would be six feet or more above a lower level.

6. The Department recommends revising the work procedures section as follows:

> **[~~All components of a climbing system (e.g., ropes, pulleys, etc.) shall meet the manufacturer's design, specifications and limitations. Components from different climbing systems shall not be combined without prior approval of the manufacturers.~~ The qualified arborist shall assure that each component of the climbing system is approved by the manufacturer for its intended use as well as its compatibility with other components of the climbing system.]**

IV. Basis, Purpose and Impact of the Final Regulation.

A. Basis.

The Safety and Health Codes Board is authorized by Title 40.1-22(5) to:

> "... adopt, alter, amend, or repeal rules and regulations to further, protect and promote the safety and health of employees in places of employment over which it has jurisdiction and to effect compliance with the federal OSH Act of 1970...as may be necessary to carry out its functions established under this title.
> ….
> In making such rules and regulations to protect the occupational safety and health of employees, the Board shall adopt the standard which most adequately assures, to the extent feasible, on the basis of the best available evidence that no employee will suffer material impairment of health or functional capacity. However, such standards shall be at least as stringent as the standards promulgated by the federal OSH Act of 1970 (P.L.91-596). In addition to the attainment of the highest degree of health and safety protection for the employee, other considerations shall be the latest available scientific data in the field, the feasibility of the standards, and experiences gained under this and other health and

safety laws."

VOSH currently applies the Logging Standard, 1910.266, to arborists/tree trimming operations anytime a tree is "felled," or cut down. The Logging Standard does not apply to tree trimming activities where the tree is not felled or cut down, so there is no specific regulation to address hazards associated with just trimming trees.

In instances where the Logging Standard does not apply, VOSH has had to use regulations of general application to address some hazards (e.g., 1910.95, Occupational Noise Exposure; 1910.132, Personal protective equipment; 1910.133, Eye and face protection; 1910.135, Head Protection; 1910.136, Foot protection; 1910.151, Medical services and first aid; 1910.67, Vehicle-mounted elevating and rotating work platforms; etc.), and the "general duty clause," Va. Code §40.1-51.1(a), which provides that:

> "It shall be the duty of every employer to furnish to each of his employees safe employment and a place of employment which is free from recognized hazards that are causing or are likely to cause death or serious physical harm to his employees...."

As is evident from the wording of the statute, it does not address in anyway the issue of hazards associated with tree trimming operations. Instead VOSH procedures and court case law would allow the VOSH Program to issue a general duty violation and base it on a national consensus standard addressing tree trimming hazards (such as the ANSI Z133.1-2006 standard), or some other reliable industry standard the tree trimmer knew of or should have known about. While preferable to no enforcement tool at all, the general duty clause does not provide either the regulated community, employees or the VOSH Program with substantive and consistent procedures and guidance on how to reduce or eliminate tree trimming hazards. Other problems with the use of the general duty clause include the inability to use it to enforce and consensus standard provisions which use "should" or "may" language, and the inability to cite other-than-serious violations.

The arborist industry has complained locally and nationally about application of the Logging Standard to their industry because they work in residential neighborhoods and commercial areas, not in a forest; and because they often use teams of workers in directional felling of trees (with the use of ropes) and "piecing out" of trees or cutting down trees in sections (loggers usually do not operate in teams or piece out trees). They consider their work and the hazards they face to be fundamentally different from hazards faced by loggers.

The need for the regulation is very evident when fatality statistics are reviewed. As the chart below demonstrates, since 1993 Virginia has had 46 non-logging, tree trimming/cutting/felling fatalities (7% of all fatalities since 1993), with 34 of those occurring since 2000 (9% of all fatalities since 2000). For an industry of the relatively small size of the tree care industry, this is a very high number of fatal accidents.

Virginia Occupational Safety and Health
Tree-Related Fatality Statistics (Non-Logging) as of September 28, 2007

Year	Chipper	Tree Trimming	Aerial Lift	Power Line	Struck-by Vehicle	Site Clearance	Total	Total VOSH Fatalities	Percentage of Tree Fatalities
2007		2					2	30	7%
2006		4		3	1		8	56	14%
2005		1			1		2	59	3%
2004		2		1		1	4	51	8%
2003		4		1			5	47	11%
2002		4					4	48	8%
2001		4			2		6	54	11%
2000		1		2			3	59	5%
subtotal		**22**	**0**	**7**	**4**	**1**	**34**	**404**	8%
1999		2					2	45	4%
1998				2			2	40	5%
1997	1	1	1			1	4	56	7%
1996		2					2	49	4%
1995							0	32	0%
1994						1		50	0%
1993				1			1	26	4%
subtotal	**1**	**5**	**1**	**3**	**0**	**2**	**12**	**298**	4%
total	**1**	**27**	**1**	**10**	**4**	**3**	**46**	**702**	7%

SIC Codes: 0782, 0783, 0191, 1623, 1629 and 2411

NOTE: Logging fatalities are not included in the above table.

B. Purpose.

The purpose of the final regulation is to reduce/eliminate employee injuries and fatalities by adoption of a comprehensive regulation to address non-logging, arborist/tree trimming and cutting operations on residential and commercial work sites.

C. Impact on Employers.

Employers with employees in the affected industry would have to familiarize themselves with the requirements of any new regulation and train employees on the requirements of the regulation. As the proposed regulation is based on a national consensus standard (ANSI Z-133.1-2006) originally developed by industry representatives and currently followed by many affected employers, the cost impact of the proposed regulation on affected employers should be significantly less than would be imposed by a completely new regulation.

Tree trimming employers are categorized under NAICS (North American Industry Classification System) code 561730, Landscaping Services. Total employment in that industry, according to Third Quarter, 2007, Virginia Employment Commission (VEC) statistics, was 2,615 establishments employing 23,673 employees. NAICS code 561730, Landscaping Services, also includes numerous other industries which do not trim or remove trees and would not be covered by the proposed regulation, so the actual number of employers to be impacted by the proposed regulation is presumed to be considerably less that 2,615 employers:

Arborist services
Cemetery plot care services
Fertilizing lawns
Garden maintenance services
Hydroseeding services (e.g., decorative, erosion control purposes)

Landscape care and maintenance services
Landscape contractors (except construction)
Landscape installation services
Landscaping services (except planning)
Lawn care services (e.g., fertilizing, mowing, seeding, spraying)
Lawn fertilizing services
Lawn maintenance services
Lawn mowing services
Lawn seeding services
Lawn spraying services
Line slash (i.e., rights of way) maintenance services

Maintenance of plants and shrubs in buildings
Mowing services (e.g., highway, lawn, road strip)
Ornamental tree and shrub services
Plant and shrub maintenance in buildings
Plant maintenance services
Pruning services, ornamental tree and shrub
Seasonal property maintenance services (i.e., snow plowing in winter, landscaping during other seasons)
Seeding lawns
Shrub services (e.g., bracing, planting, pruning, removal, spraying, surgery, trimming)

Snow plowing services combined with landscaping services (i.e., seasonal property maintenance services)
Sod laying services
Spraying lawns
Tree and brush trimming, overhead utility line
Tree pruning services
Tree removal services
Tree services (e.g., bracing, planting, pruning, removal, spraying, surgery, trimming)

Tree surgery services
Tree trimming services
Tropical plant maintenance services
Turf (except artificial) installation services
Weed control and fertilizing services (except crop)

The Tree Care Industry Association (TCIA) has provided the following information on the potential impact of a regulation for tree trimming based on the ANSI Z133.1-2006:

> "First, let me take the opportunity to enthusiastically reaffirm our support of the above-captioned regulation. Information contained in this correspondence is intended to help the Department assess the cost impact of this regulation to affected parties.
>
> The Tree Care Industry Association (TCIA) is an employer-based organization of commercial tree service companies that typically fall into SIC 0783 and therefore under the broader umbrella of firms in NAICS 561730. As of today, TCIA has 67 member companies in the Commonwealth of Virginia as well as at least 10 companies that have crews operating within its borders.
>
> When any new regulation is promulgated, affected employers must familiarize themselves with its requirements and provide appropriate training to employees. With this *particular* proposed regulation the

industry has a significant head start in this process, due to the fact that it is based on a widely recognized and accepted industry consensus standard, ANSI Z133.1-2006.

Size of the Tree Care Industry in Virginia

We know that according to the Virginia Employment Commission, there were 2,615 employers and 23,673 employees in NAICS 561730 in the Third Quarter of 2007. However, the actual number of employers affected by the proposed regulation should be considered to be significantly smaller.

The audited circulation of Tree Care Industry (TCI) Magazine provides a reliable if more conservative number. As the publisher, we go to great lengths to see that as many tree service employers as possible receive our magazine. Its circulation is audited, ensuring that our readers are legitimate business owners with fixed addresses.

The December 2007 TCI Magazine audited circulation information is a follows:

TCI's Total "Qualified" Circulation	27,502
Tree Service Companies	16,600 (60.6% of total)
TCI's Virginia "Qualified" Circulation	1,400
Estimated VA Tree Svc. Companies	840

Another method for estimating the size of this population is to look at data from a reliable list provider. For instance, InfoUSA is a 35-year old company and the leading provider of business and consumer information products, database marketing services, data processing services and sales and marketing solutions. Their database shows 570 tree care (SIC 0783) companies in Virginia and provides further information on company size:

Table 1: Number of Employees per Company, SIC 0783

Number of Employees	Total Companies
1-4	473
5-9	56
10-19	25
20-49	8
50-99	4

100-249	3
250-499	1
Total	570

Based upon these two sources of data, we estimate the size of the affected industry in Virginia to be between 570 and 840 employers, and between 1,700 and 3,400 employees. The top end of this size range would be consistent with the VEC data and other findings that show the breakdown of NAICS 561730 nationally to be about one-third tree business, two-thirds landscaping business.

Wages Paid to Employees in Tree Care

TCIA conducts an annual wage and benefit survey of its members, with the most recent having been conducted in October 2007. The following are the results from the Southeast Region:

Table 2: Hourly Wages Paid, SIC 0783

Southeast Region, 2007*	Hourly Wage Range
Full-time tree care foreman	$17.06 to $21.45
Full-time landscape foreman	$12.88 to $16.00
Full-time PHC/spray foreman	$14.38 to $18.67
Full-time climber	$14.82 to $20.21
Full-time PHC/spray technician	$10.92 to $16.71
Full-time ground person/laborer	$10.52 to $14.32

* Includes AL, AR, LA, DC, DE, FL, GA, KY, MD, MS, SC, NC, TN, VA & WV

What it will Cost to Train/Retrain an Employee on this Standard

Depending on the position, the Table 2 indicates that a trainee's pay can range from $10.50/hr to $21.50/hr. A median hourly wage is about $17/hr. One must consider that the "statutory cost" – the hourly cost of an employee once all taxes and benefits are considered – is about 1.7 times the hourly wage.

The orientation of new hires is estimated to take from six to eight hours, and training on standard compliance would be incorporated into this training. **However, since new employee orientation would be carried**

out regardless, the *additional* cost of training in *this* standard should be very minor. It is worth noting that neither of these costs is substantially higher than what a company should be spending prior to this proposed law, if the company was already training according to the Z133 Standard.

The most significant cost associated with compliance is the "practical" or "field" training, typically a series of training events and corrections until employees are able to transfer new knowledge to safe, compliant behaviors. Our members' experience is that new employees trained properly from the beginning require much less oversight (for compliance) than seasoned employees who have been using older techniques and are more resistant to change.

With all forms of training considered, our estimation for compliance is roughly *10 hours for a trained worker* and *40 hours for an untrained worker*.

We assume that the cost of providing the training materials in any case would be negligible, since the standard and other training materials can be found in the public domain. Using the median pay rate of $17.00 per hour and a statutory cost of 1.7, the cost of compliance for this standard is about *$289.00 per trained worker* and *$1,156.00 per untrained worker*. These are direct costs. The "opportunity cost" of missed billing would range between $1,000.00 and $3,000.00 per person, respectively."

The Department plans to develop a standardized training program for employers that can be placed on the Department's website for easy access by employers, which should reduce the implementation and training costs for employers. Employers should benefit from reductions in injuries and fatalities associated with current unsafe tree trimming practices which would be addressed by any comprehensive regulation (over the last 15 years, an average of 3 trimmers are killed each year).

D. <u>Impact on Employees</u>.

Employees would benefit from increased safety protections provided by a comprehensive regulation to address hazards of arborist/tree trimming and cutting operations on residential and commercial work sites. Employees in the affected industry would have to be trained on the requirements of any new regulation.

E. Impact on the Department of Labor and Industry.

Department personnel will have to be trained in the requirements of any new regulation. The Department plans to develop a standardized training program for employers that can be placed on the Department's website for easy access by employers. No significant financial impact is anticipated for the Department.

V. Summary of Comments: Notice of Intended Regulatory Action (NOIRA)

A NOIRA was adopted by Board on October 18, 2007. The NOIRA was published on February 4, 2008, with 30-day comment period ending March 4, 2008. No comments were received through the Virginia Regulatory Town Hall. One comment was received directly by the Department:

Commenter: Cynthia Mills, CAE, CMC;
President and CEO of the Tree Care Industry Association (TCIA)

"The Tree Care Industry Association (TCIA) enthusiastically supports the above-captioned proposal. We believe that substantive and consistent procedures and guidance on how to reduce or eliminate tree trimming hazards are long overdue.

TCIA, formerly the National Arborist Association, is a 70-year-old trade association whose members are companies engaged in arboriculture (tree care), tree trimming and removal, utility vegetation management, landscape maintenance and related activities. We presently represent 69 companies headquartered in the Commonwealth, and at least one dozen other companies doing business there.

As you may know, TCIA has repeatedly petitioned federal OSHA, and even obtained a bipartisan, bi-cameral letter of support from Congress, to adopt a separate "arborist standard" based upon ANSI Z133. We have done so because we believe that the existing patchwork of OSHA standards used to regulate our industry is insufficient and confusing to understand. We have also expressed our concerns directly to you regarding VOSH's application of "Logging Standard" to tree care operations. While this standard may appear at first to be on point, the reality is that logging and tree care are two separate professions, and while some of the equipment and methods are similar, most equipment and methods used are quite different. Therefore, we feel that an "Arborist Standard" is in the best interest for our industry.

….

To begin this process, we would like to point out three main areas requiring clarification:

1. We believe that ANSI Z133 provides more effective, more appropriate guidance on arborist tree felling activities than the Logging Standard. We have complained on behalf of the arborist industry about OSHA's application of the Logging Standard to our members because it is a perfect example of a poorly-fitted standard, never intended for our industry, that provides less than effective protections for our workers. As we have asserted in the past, the scope of our work, the hazards we face and the measures we use to mitigate those hazards are fundamentally different from logging. Here are some key issues:

• 1910.266(d)(1)(v) requires the employer to assure that each employee who operates a chain saw wears foot protection that is constructed with cut-resistant material. In contrast, the Z-133 requires footwear appropriate for the job. The biggest conflict here is in the fact that the type of footwear designed for tree climbing is a more flexible shoe with different safety features. Conversely, boots designed for logging are heavier and balanced differently, and often lead to foot and ankle injuries while climbing.

• Note to 1910.266(d)(1)(vii) says that the employee does not have to wear separate eye protection where face protection covering both the eyes and face is worn. By contrast, the Z133 Standard requires separate eye protection for all arborist activities, and full face protection only if warranted. It is rare for arborists to encounter a hazard mitigated by a face shield but common to face hazards requiring eye protection. The Logging Standard affords less protection to the arborist.

• The Logging Standard's first aid kit stocking requirements ((d)(2)(i) as well as Appendix A are inappropriate for the typical arborist applications. It is our belief that the first aid kit should be equipped to handle the types of injuries that are most common in tree care.

• The two-tree-length separation between adjacent work areas required by 1910.266(6)(ii) is infeasible in many arborist situations, and in the dismantling process of a tree, it is often safer for workers to be within the distance prescribed by the Logging Standard to conduct rigging operations correctly.

2. We believe that ANSI Z133 provides more effective, more realistic guidance on arborist operations employing cranes than do all other extant regulations and standards. As you are aware, ANSI Z133.1-2006 contains provisions allowing the use of a crane to lift (hoist) a qualified arborist, using an arborist climbing line and arborist saddle, and secured to a designated anchor point on the boom line or crane. The standard goes on to lay out two pages of requirements that must be met by the overall crane operation before the climber can be hoisted.
….

However, our industry has attempted to use man-cages to enter trees under certain conditions, but at times the man-cage can actually place the tree worker in an extremely

hazardous situation. Often, the lack of balance as well as the interference from the cables and metal structure while attempting to use a chain saw creates a situation that increases risk, even jeopardizing the lives of the workers. It is, in part, for these reasons that our industry's safety professionals developed procedures for tying into a crane above the headache ball or on a clevis near the jib or boom tip with an arborist saddle and climbing line meeting ANSI Z133 requirements. As an industry we have been using cranes this way for almost 40 years.

This issue has most notably been recognized by California OSHA in 2004 when it adopted an emergency amendment that subsequently became a permanent regulation, in their tree access standard, Title 8, Section 3427. Their original justification was: "[f]or the preservation of the public safety and the safety of the affected workforce, it is necessary to immediately adopt standards that would prescribe a safe alternative means and method to access trees." Amendments to were proposed and accepted to permit a qualified tree worker to enter a tree suspended by the closed safety type hook of a crane when a tree cannot be safely accessed by conventional methods permitted in existing standards.
….

3. We believe that ANSI Z133 provides necessary latitude in which fall protection to use in an aerial lift, in consideration of all hazards faced by the operator.

ANSI Z133.1-2006 contains provisions addressing proper use of personal fall arrest systems while working from an aerial lift, permitting the use of either a body belt and lanyard or full body harness/fall arrest lanyard at the employer's/employee's discretion. As the NOIRA points out, a full body harness and energy absorbing lanyard are normally required (or at least preferred in a general industry application) while working from aerial lifts.

As an industry, we have struggled with this issue. On the one hand, a significant number of our membership believes that the full body harness and shock absorbing lanyard should be worn when working from an aerial lift. On the other hand, a significant number of our membership believes that there are circumstances where a body belt and lanyard provides greater overall protection, such as working directly over power lines. Both sides present valid points of view, and these viewpoints should be heard by VOSH before a decision is made.

In our experience, the only quantifiable fall protection issue arising in aerial lifts is failure to use any form of fall protection – which should be prosecuted. Between 1984 and 2002, there were 34 OSHA-recorded fatalities in Tree Trimming (SIC 0783) involving aerial lift operators and falls. The details of these accidents illustrate where the greatest problems lie:

• **23 of 34** fatalities were caused by catastrophic mechanical failures of some part of the aerial lift that slammed the victim to the ground from considerable height. Fall protection, or lack of it, was not a factor in these fatalities.

• **5 of 34** fatalities were caused by a tree or limb striking the aerial lift boom, again causing failure of the aerial lift. Again, fall protection was not a factor.

• **6 of 34** fatalities were caused by *unsecured* falls from the aerial lift, and probably would have been prevented by the use of *any* means of fall protection. To further complicate this issue, the existing OSHA and VOSH standards seem to refer to outdated information with regards to the load ratings and distances for which fall arrest equipment should be rated. We recommend further discussions with manufacturers and industry professionals before any regulation is promulgated.

….

On behalf of our members and the thousands of workers this proposal potentially affects, we thank you for the opportunity to comment and look forward to working with VOSH for the adoption of an effective arborist standard."

Agency Response: The VOSH Program welcomes the support and involvement of the TCIA in the promulgation of a regulation to address the unique work practices and hazards found in the tree trimming industry. While the VOSH Program has applied the Logging Standard to tree trimming activities any time a tree was "felled" as that term is defined in the Logging Standard, it agrees with the TCIA that the operations of the two industries are significantly different in certain areas and warrant separate regulatory approaches.

VOSH is aware of the specific concerns raised about the Logging Standard (foot protection, eye protection, first aid kits, two tree length separation), use of a crane to lift employees into a tree (as a last resort), and fall protection in aerial lifts and these issues are addressed in the proposed regulatory text.

VI. Meeting With Interested Parties

The Department held a meeting on June 10, 2008, with interested parties from the tree trimming industry. The following individuals attended:

Peter Gerstenberger, Senior Advisor for Safety, Compliance & Standards
Tree Care Industry Association (TCIA)
Bryan Giere, CTSP, Northern Virginia Tree Experts, Inc.
Andrew T. Ross, CTSP, President, RTEC Treecare
Sten Compe, Big "O" Tree & Lawn Service Inc.
M. Scott Turner, CTSP, President, TrueTimber Tree Service, Inc.

David G. Marren, Vice President of Regulatory Affairs, F. A. Bartlett Tree Expert Co.
Peter Girardi, TrueTimber Tree Service, Inc.
Thomas R. Scallorn, CSP, Virginia Department of Transportation
Kristina Villaire, City of Virginia Beach
Bill Burge, Assistant Commissioner, Department of Labor and Industry
Glenn Cox, VOSH Director, Department of Labor and Industry
Danny Burnett, Senior Safety Engineer, VOSH Richmond Regional Office
John Crisanti, Planning and Policy Manager, Department of Labor and Industry
Jay Withrow, Director, Office of Legal Support, Department of Labor and Industry

Summary of Meeting

Department staff opened the meeting with introductions and reviewed the purpose of the meeting, which was to focus on the draft proposed regulation text based on ANSI Z-133.1-2006, and other issues identified during the meeting. Representatives of TCIA related their support for the regulatory effort and Department staff related that this issue goes back to a 2000 meeting between Department staff and the TCIA's predecessor organization, the National Arborist's Association, where the possibility of a unique tree trimming regulation based on ANSI Z-133 was discussed. At that time the ANSI standard had a great deal of advisory language, such as "should" and "may", which is not enforceable under OSHA case law. In several subsequent revisions, the TCIA and ANSI committee worked diligently to eliminate much of the advisory language, resulting in the 2006 version, which is serving as the basis for the proposed regulation.

The group then proceeded to review text under consideration by the Department. The main issues discussed during the meeting are listed below:

* 1.3., Application – discussed issue of "site clearing" and how the regulation would apply/not apply, depending on whether a certified or qualified arborist was directly supervising activities on site.
* 1.4., Responsibilities of the Employee – discussed issue of employee rights and responsibilities being currently listed in Va. Code §40.1-51.2. Also discussed changing this section to address a general orientation/training/retraining requirement for employees.
* 3.2., Traffic Control Around the Jobsite – discussed substitution of the Virginia Department of Transportation's (VDOT) "Work Area Protection Manual" for the U.S. Department of Transportation's (DOT) Manual on Uniform Traffic Control Devices (MUTCD). The MUTCD has a great deal of advisory language which makes it unenforceable much of the time. The group agreed that part of an eventual training program for the final regulation should provide information on the main differences between the VDOT manual and the MUTCD.

* 3.3.2 and 3.3.5, Emergency Procedures and Readiness – discussed issue of first aid/CPR and that the tree trimming industry would have to comply with the Board's proposed regulation on Medical Services and First Aid, 16 VAC 25-95 if that regulation becomes final, and if it does not the current regulation in 1910.151 would apply.
* 4.2., Working in Proximity to Electrical Hazards – discussed issue of line-clearance tree trimming and application of the Overhead High Voltage Line Safety Act, Va. Code §§59.1-406 to -414. Participants commented on difficulties they have had with Dominion Virginia Power's timeliness and responsiveness to requests from tree trimmers for temporary safety arrangements. Department staff said they would consider contacting power company representatives and look at the possibly of partnering in some way with the power companies on this issue. There was a concern expressed that some tree trimming companies would attempt to comply with the statute, experience significant delay or receive outright refusals to sleeve lines, and then the homeowner/property owner would contract with someone else who would trim the trees without making the proper safety arrangements or with untrained people, resulting in accidents.
* 5.1.9., Safe Use of Vehicles and Mobile Equipment Use in Arboriculture – discussed issue of fall protection for employees when "riding or working outside or on top of units." The Department inserted language requiring fall protection for employees performing maintenance or inspection on top of units 6 feet or more above a lower level, which is the requirement in construction.
* 5.1.11, Safe Use of Vehicles and Mobile Equipment Use in Arboriculture – discussed issue of reverse signal operation of vehicles and that the tree trimming industry would have to comply with the Board's proposed regulation on Reverse Signal Operations, 16 VAC 25-97, if that regulation becomes final, and if it does not, then with current regulations.
* 5.3., Brush Chippers – discussed issue of what constituted "damage" to vehicles, tools, equipment, that would entail removal of the item from service and tagging until the item is repaired or discarded. Department staff agreed to add a definition for the term "damage" to the regulation.
* 5.7., Log Loaders, Knuckebooms, Cranes and Related Hoists – discussed issues related to the use of a crane to lift tree trimmers into a tree, as a last resort if other methods for trimming would create a greater hazard to employee safety. Department staff added language to the proposed regulation based on 1926.550(g), which addresses use of personnel baskets on cranes in the construction industry. It also reviewed several other provisions from 1926.550(g) with the group to see if they were appropriate to add to enhance safety (1926.550(g)(3)(i)(B) [added]; (g)(3)(i)(D) [not added]; (g)(3)(i)(F) [not added]; (g)(5)(i) [added with changes]; (g)(6)(v) [added with changes]. The group agreed that the ANSI 5.7.9.11 and .12 be deleted (these provisions would have allowed the tree trimmer to be tied off to the crane while it was under load).

* 5.9., Equipment Mounted Winches – discussed issue of use of synthetic lines as well as steel cables on winches. Much of the industry is moving to synthetic lines for some uses as a way of reducing injury from steel cables breaking.
* 8.1.1, Ropes and Arborist Climbing Equipment - the group discussed the issue of adding a section on tree risk assessment, based on the NAA Pocket Guide for Indentifying Hazard Trees. The TCIA agreed to contact Dr. Eric Wiseman of Virginia Tech, who could serve as an expert consultant on the issue.
* 8.1.3, Ropes and Arborist Climbing Equipment – discussed adding a definition for the term "split-tail system", which was not previously defined.
* 8.1.8., Ropes and Arborist Climbing Equipment – discussed issue of allowable minimum rope diameter – changed from ½ to 7/16 (11 mm).
* 8.1..22, Ropes and Arborist Climbing Equipment – discussed adding a definition for the terms "false crotch" and "false crotch redirect", which were not previously defined.
* 8.3., Cabling – discussed adding additional safety procedures for removing/replacing cabling systems. Industry representatives agreed to provide suggested language.
* 8.4.17., Rigging - discussed adding a definition for the term "load binder", which was not previously defined.
* Department staff asked industry personnel to provide information on numbers of employers/employees impacted by the regulation, estimates of average wages and average training time/costs.
* Industry personnel requested that in any training materials eventually developed for the final regulation that the Department provide information on typical hazards and applicable standards in tree industry work shops.

VII. Summary of Comments: Sixty Day Public Comment Period and Public Hearing

The Board adopted proposed regulatory language on July 10, 2008. The proposed regulation was published on March 16, 2009, with a 60-day comment period ending on May 15, 2009. A public hearing was held by the Board on April 16, 2009. The results of the 60 day comment period and public hearing are summarized below.

Commenter 1: April 16, 2009 Public Hearing: Kevin Forgue, Asplundh Tree Expert Company

"Asplundh is a vegetation management company with over 28,000 employees in the United States, Canada, Australia and New Zealand. Asplundh offers a variety of services, including line-clearance tree trimming performed for electric utilities….Asplundh has a regular safety training program for new employees. Asplundh's employees in the field also receive ongoing training, including toolbox talks, professional development programs, and on-the-job training for new techniques. Asplundh is firmly committed to the safety of its employees and applauds Virginia for

considering a tree care regulation.

Written comments regarding the proposal will be filed on or before May 15. As such, Asplundh is not providing detailed comments at this time regarding the substance of the proposal, such as the fall protection, traffic control, first aid, and other provisions. At the same time, Asplundh has a global comment about the proposal as a whole.

Line-clearance tree trimming is already regulated under OSHA federal standard 1910.269, which Virginia has adopted. Based on the language in the proposal, Virginia has not considered or evaluated the impact of adopting a second industry-specific regulation applicable to line-clearance tree trimming. Specifically, line-clearance tree trimming would apparently be the only industry required to comply with two separate vertical standards, and it is not clear whether Virginia has considered how to reconcile the standards so as to make the compliance obligations transparent to employers. This is in contrast to the logging industry, which is governed by 1910.266 and would clearly be exempt from the tree care regulation. As such, the logging industry will continue to be covered by a single vertical standard, which we believe is the most appropriate way to regulate a specific industry.

Asplundh understands that there may be a need for a regulation covering residential and commercial tree trimming work since the logging standard is clearly not intended for this purpose. Given, however, that line-clearance tree trimming work is already regulated under 1910.269, we ask that Virginia consider whether additional regulation is needed. If Virginia concludes that it is, then we suggest Virginia include provisions applicable to line-clearance tree trimming in a separate section of the standard."

Agency Response:

The Department received four major comments on the application of the proposed Tree Trimming Operations regulation to line-clearance tree trimming and will address the issue later in this document, under **Commenter 4.**

In addition, it should be noted that it has been the Department's stated intent, at the request of the tree trimming industry, to use as much of ANSI Z133.1-2006 as possible because of the familiarity of the industry with the national consensus standard, to limit costs of compliance as much as possible, to aid in ease of developing standardized training programs, to ease the burdens of compliance as much as possible for multi-state employers, and because it represents the input of many varied interest groups, including employer representatives, employee representatives, government agencies, public utility companies, safety professionals and others. In fact, Asplundh was a participant in the development of ANSI Z133.1-2006. The Department made no initial attempt to change the scope or application of the proposed regulation with regard to line-clearance tree trimming with the understanding that the industry did not have any significant concerns

with ANSI Z133.1-2006, but is willing to do so now to address more recent concerns that have apparently developed since its adoption in 2006.

Commenter 2: April 16, 2009 **Public Hearing and Written Comment:** Samuel R. Brumberg, LeClair, Ryan; representing the Virginia, Maryland and Delaware Association of Electric Cooperatives

Public Hearing Comment, April 16, 2009:

"The cooperatives are, first and foremost, consumer organizations owned and controlled by the customers they serve. They are not-for-profit and are focused solely on providing reliable service at the lowest possible cost in a way that advances environmental stewardship. There are thirteen electric cooperatives in Virginia serving approximately 450,000 electric meters, representing over 1 million Virginia consumers. As not-for-profit electric – as they are not-for-profit organizations, electric cooperatives distribute electricity to their members who are charged on a cost-based rate with no additional margin or markup, so the cooperatives are particularly sensitive to costs which might raise the monthly electric bill for rural consumers and for Virginia's farmers.

The reason I wanted to address you about the tree trimming regulation, in particular is that the cooperatives are eager to obtain an exemption similar to the one already put in paragraph C for logging operations. We feel as though the work that's done incidental to right-of-way maintenance or electric utility operations probably should not be covered in the regulation applicable to professional tree service companies. My concern, in reading the regulation, would be that it's possible that the cooperatives might come under this regulation if it were not absolutely clear that they did not.

The cooperatives are heavily regulated by the state and by the federal government's utility service. These regulations govern almost every aspect of their operation, including right-of-way maintenance, and so the cooperatives are concerned about duplicative costs where the safety system that's in place is already functioning well.

Across the thirteen cooperatives there are – there's a mixed system of how the tree trimming part of the right-of-way maintenance happens. Some of that is done by in-house lineman and utility folks. Some of that is contracted to professional tree trimming companies. And clearly, what I'm advocating here would not be applicable – you know, .there would be no exemption just because a professional tree trimming company would be working for the cooperative , but it would cover the cooperative's in-house operations. And then there [are a] certain number of cooperatives that have a mixed operation, some contract, some done in-house.

So, simply for clarity's sake, I would advocate an additional sentence be added to paragraph C similar to the exemptions already there for logging operation[s],

construction/real estate development, etc., and would cover all electric utility operations performed by both the cooperatives and large utilities, like Dominion Virginia Power, who also has comprehensive safety programs."

Written Comment, May 14, 2009:

"I write on behalf of the Virginia, Maryland, and Delaware Association of Electric Cooperatives. The Association is an organization whose members are the Virginia, Maryland, and Delaware electric distribution cooperatives. In Virginia, the cooperatives serve approximately 450,000 electric meters and over one million individual consumers. The cooperatives are different from for-profit businesses in that they are owned by their members—by those they serve—and controlled a board of directors elected from among the members. The cooperatives seek to provide reliable electric service at the lowest reasonable cost in a way that advances environmental stewardship.

I spoke before the Safety and Health Codes Board at its meeting on April 16, 2009, and want to reiterate the comments I made at the public hearing on behalf of the Association. Specifically, the Association, on behalf of its members, would respectfully request an exemption from the Proposed Rule be added to paragraph 16 VAC 25-73-10(C), so that no potential ambiguity will result as to the Proposed Rule's intended scope. We understand that the Proposed Rule was originally intended to govern operations of professional tree trimming companies and not electric utilities. As one proposal an exemption similar to that for logging operations could be added to the paragraph on scope and applicability: "This regulation does not apply to electric utility operations conducted by public service corporations or their equivalent."

The cooperatives are regulated at various levels, including by the U.S. Department of Agriculture's Rural Utilities Service and the Virginia State Corporation Commission. In addition, tree trimming work, when performed by electric utilities in Virginia, complies with federal OSHA requirements, *see* 29 C.F.R. § 1910.269(r), and American National Standards Institute standard Z133.1. The cooperatives have a variety of tree trimming operations: some have an arborist on staff and conduct all trimming in-house, others use all outside contractors, still others use a hybrid arrangement somewhere in between the two. Whatever the case, utility tree trimming operations in Virginia are guided by standards set forth by the Division of Energy Regulation of the State Corporation Commission. The cooperatives respectfully submit that safety requirements for right-of-way maintenance and other utility operations are adequately regulated outside the scope of the Proposed Rule."

Agency Response:

The Department received four major comments on the application of the proposed Tree Trimming Operations regulation to line-clearance tree trimming and will address the issue later in this document, under **Commenter 4.**

With regard to a broader exemption that would cover all electric utility operations performed by both cooperatives and large utility companies, the Department agrees that additional language in the Applicability section of the proposed regulation would help to clear up any confusion. The Department generally agrees that 16 VAC 25-90-269, Electric power generation, transmission, and distribution, should remain the primary regulation applicable to the industry, whenever exposure to tree-related electrical hazards covered by that regulation are present.

However, there are at least three tree-related activities not directly addressed by 16 VAC 25-90-269, for which further clarification is need. These activities present hazards to employees which need to be addressed by either the proposed regulation or the Logging Standard, 16 VAC 25-90-266, to assure similarly situated employees are provided equivalent protections, no matter what the tree trimming/removal activity involves. This regulatory coverage is needed, because although 16 VAC 25-90-269 contains requirements in some areas that are covered by the proposed regulation (e.g., Brush chippers, Sprayers and related equipment, Stump cutters, Rope, Fall protection), the regulation is silent on such essential requirements as Climbing and tie-in requirements, Rigging, and Tree Removal, all of which come into play in the following tree trimming/removal activities:

1. Right-of-way clearance for **new** power generation, transmission and distribution lines, where no exposure to electrical lines is present.

2. Land clearing activities associated with the construction of new power generation, transmission and distribution facilities, where no exposure to electrical lines in present.

3. Tree trimming operations around buildings, offices, facilities owned or operated by the cooperatives or other utility companies, where no exposure to electrical lines is present.

Section 16 VAC 25-73-10.C. currently addresses tree removal activities where the primary objective is land clearing in preparation for construction, real estate development or other related activities, and makes clear that such activities are exempt from the proposed regulation and covered by the Logging Standard, 16 VAC 25-90-266; unless the tree removal activities are directly supervised by a qualified arborist, in which case the proposed regulation would still apply. The exemption as currently drafted clearly addresses **item 2** above and would offer the described options for compliance to the cooperatives and utility companies without further change.

The Department recommends addressing **item 1** above by adding the following language to 16 VAC 25-73-10.C:

….

> "This regulation does not apply to tree removal activities where the primary objective is land clearing in preparation for construction, real estate development, **right-of-ways for new utility installations,** or other related activities, unless directly supervised by a qualified arborist. Such activities are covered by 16VAC25-90-1910.266.

With regard to **item 3** above, such activities clearly fall under the current scope of the proposed regulation, regardless of whether the tree trimming work is done by a subcontractor to the cooperative or utility company, or by their own employees, so no additional change to the proposed regulation is necessary.

Commenter 3: May 13, 2009 Cynthia Mills, CAE, CMC, President and CEO, Tree Care Industry Association

"The Tree Care Industry Association, Inc. (TCIA) enthusiastically supports the development of a VOSH Standard for tree care operations that is derived from the most recent revision of the ANSI Z133.1, the American National Standard for Arboricultural Operations – Safety Requirements (Z133).

TCIA (formerly the National Arborist Association or NAA) is a trade association whose members are tree care companies. As of April 30, we represent 67 companies headquartered in Virginia as well as about eight to 10 regional/national companies with operations there, all of whom have a direct and material interest in this standard.

In June 2008, at VOSH's invitation, we very willingly assembled a delegation of Virginia TCIA members to help VOSH refine the proposed standard, and we are generally very pleased with the result.

It is important for VOSH to understand the "community" it intends to regulate. Our typical member employs eight full-time "arborists" in its field force. There are estimated to be as many as 300,000 people in the Arboriculture profession in the U.S.[1], so obviously the industry is comprised of many, many very small businesses.

Within the arborist profession, one can delineate two broad types of employer, the utility line clearance contractor and the residential/commercial tree care firm. While it is instructive to understand the differences in the work, it is an oversimplification to assume that all employers fall entirely into one class or the other.

1. The utility line clearance contractor, or utility vegetation management company, as it is sometimes referred to, works for the utility owner or operator to trim trees and

[1] Dr. John Ball, South Dakota State University, personal communication. Dr. Ball has conducted a multiple-year study of accidents in the arborist profession.

maintain vegetation around overhead conductors or in utility corridors. A relatively small number of employers engage in line clearance. Although fewer in number, these tend to be larger employers. In TCIA's membership, the median number of employees in a company that does one-half or more of its work for utilities is 20, as compared to a median of eight employees for all companies surveyed. Our largest utility line clearance tree trimming members each employ thousands. In Virginia, line clearance contractors are already covered by a relatively contemporary and stringent Vertical Standard, 29 CFR §1910.269.

Table 1. Typical tasks and associated hazards in the tree care industry.

Arborist Task	Related Hazard(s)
Working at height to trim, remove or perform other work in trees.	Struck-by to person(s) on the ground from falling tree, limb, branch, hanger, or hand tools. Fall hazard to worker aloft due to failure to use fall protection; cut line; tree failure or equipment failure.
Working near energized electrical conductors.	Electric shock from direct or indirect contact.
Chain saw use while tree climbing, working from an aerial lift or cutting on the ground.	Lacerations due to chain saw kickback or accidental contact with the moving or stationary saw chain. Falls due to cut line and failure to use redundant system; tied into the cut tree portion.
Using a chain saw to piece out or to fell a tree	Limbs/trees striking co-workers on the ground, or chain saw operator, or aerial lift boom causing lift failure.
Operating a self-feeding brush chipper	Being caught by and drawn into the feed/cutting

2. The other type of employer is the residential/commercial tree care firm that prunes and otherwise cares for trees on residential and commercial properties. Significantly, some companies that work primarily in residential/commercial also perform limited utility line clearance and as such are regulated by 1910.269. Otherwise, in Virginia the residential/commercial tree care company is covered by general industry standards as well as the Virginia Overhead High Voltage Line Safety Act.

Regardless of the type of arboriculture performed, there is important general information about the tree care industry that should inform this rule-making process:

- Definitive data on how many companies do tree work is unavailable; however we can state with confidence that there are at least 17,000 such companies nationally and at least 750 in Virginia. Ninety-eight percent of our members perform tree trimming and/or removal, and these services combined make up almost 86 percent of their business volume. Other tree care-related operations include: tree fertilization, pesticide application, and cabling and bracing. The most significant tasks and their attendant hazard(s) are summarized in Table 1.
- The occupation is fraught with hazard leading to very high injury statistics. Recent reports from the Centers for Disease Control and Prevention (CDC)/NIOSH[2,3] corroborate VOSH's historical data on fatal accidents by

[2] *Fact Sheet: Non-Fatal Occupational Injuries in the Landscape Services Industries.* Published by Department of Health and Human Services, Centers for Disease Control and Prevention, National Institute for Occupational Safety and Health, 4676 Columbia Parkway, Cincinnati, OH 45226-1998

[3] *Work-Related Fatalities Associated with Tree Care Operations — United States, 1992–2007.* Morbidity and Mortality Weekly Report (www.cdc.gov/mmwr), Vol. 58, No. 15. April 24, 2009.

illustrating that both days away from work (DAFW) and fatal accident statistics for tree care occupations are significantly higher than in most other industrial sectors.

- Private sector tree care businesses are plagued with an unusually high employee turnover rate.
- The Morbidity and Mortality Weekly Report from CDC cites insufficient training as a key contributor to worker accidents in the tree care industry.
- The tree care industry has had the constructive guidance of the ANSI Z133.1 available to it since 1972. The Z133 Committee has diligently updated the Standard keeping it abreast of improvements in technology and knowledge.

The existing patchwork of standards that VOSH is compelled to use to regulate our industry is insufficient and confusing to practitioners and enforcers. In the past, we have expressed our concerns about the application of Logging Standard (29 CFR §1910.266) to tree trimming and removal operations. The reality is that logging and tree care are two separate professions, and most equipment and methods used in these respective professions are quite different. Therefore, an "Arborist Standard" is in the best interests of our industry and VOSH in its safety oversight role."

Agency Response: None.

Commenter 3, Continued:

"Economic Impact of this Proposal

Generally speaking, employers in the tree care industry, including line clearance tree trimming contractors, will have to familiarize themselves with the requirements of any new regulation and train employees on its requirements. However, because the proposed regulation is very closely based on the extant revision of ANSI Z133.1, a standard that has been available to the industry since 1972, the cost of compliance should be negligible, since theoretically companies should already comply with Z133.

There is one concern we would like to register with the practical implementation of another proposed regulation, 16VAC25-95, which is incorporated by reference at 16VAC25-73-40(C)(5). It calls for at least one CPR/first aid trained individual to be available to the crew at every work site.

Our industry's average annual employee turnover is 30 percent, and employee absenteeism on any given day can be very high. Furthermore, there is a strong seasonal fluctuation in the volume of work and hence the size of the workforce. Because of these factors, the strict enforcement of 16VAC25-95 has the unintended consequence of imposing a severe economic hardship, especially to the small employer in tree care.

For example, if the typical company (with a field workforce of eight) employs three first aid/CPR trained employees to work on different crews and one does not show up for work on Monday morning, the company may be forced to send one-third of its workforce home, because it cannot assemble a compliant crew. Alternately, if because of business volume this same company decides that it must field an additional crew, it is prevented from doing so until it can train another employee in first aid/CPR.

Turnover tends to happen within 30-60 days of hire, so it would be reasonable and workable if the employer can be exempted from the one-trained-person-per-crew requirement by documenting that it initiates first aid/CPR training for all full-time crew personnel within two months (60 days) of hire.

There is precedent for an exemption in the Vertical Standard at 1910.269(b)(1)(i): "For field work involving two or more employees at a work location, at least two trained persons shall be available. However, only one trained person need be available if all new employees are trained in first aid, including CPR, within 3 months of their hiring dates.""

Agency Response:

The Department addressed the issue of unforeseen employee absences in the rulemaking for its proposed regulations, 16 VAC 25-95, Medical Services and First Aid Standards for General Industry, and for 16 VAC 25-177, Medical Services and First Aid Standards for the Construction Industry:

> "With regard to a situation when an employer is faced with an unforeseen situation, for example when a first aid trained employee is late for work, calls in sick, or changes jobs; or a foreseeable situation when a first aid trained employee is on vacation, the Department will review those situations on a case-by-case basis. As with any VOSH inspection, in deciding whether or not to take enforcement action, the Department will take into account mitigating circumstances (e.g., sickness, job changes, cancellation of scheduled first aid classes, etc.). The final regulation was purposely drafted to allow employer's some level of flexibility in achieving compliance, and as with all VOSH regulations, each employer must determine how it can most effectively and efficiently meet the requirements of the final regulation."

The Department is cognizant of the fact that when a new employee is hired, it will be difficult for an employer to obtain immediate first aid/CPR training for the individual, and is also aware of the historical problems that the tree care and logging industries have experienced with employee turnover, as this excerpt from VOSH Directive 06-009, Applicability of the Logging Standard, §1910.266, to Arborists, demonstrates:

> "[NOTE: Day laborers working in a logging operation for an arborist do not have to be trained in first aid if they are not using machines and are doing clean-up work]"
> http://www.townhall.state.va.us/L/GetFile.cfm?File=E:\townhall\docroot\Guidanc

eDocs\181\GDoc_DOLI_3603_v1.pdf

However, the Department also believes it is unlikely that tree trimming companies are the only employers who will encounter turnover problems on the scale suffered by the tree trimming industry as a whole. Turnover rates can vary depending on the time of year, the labor supply, the general economic conditions in the locality or region and for other reasons. Accordingly, the Department is concerned about giving any exemption from the First Aid/CPR regulations that could "swallow the rule."

The final regulation on Medical Services and First Aid in General Industry is currently undergoing Executive Branch review. The relevant sections of that regulation provide as follows:

> 16 VAC 25-95
> ….
> "D. Covered employers are permitted to make written arrangements with and reasonably rely on another contractor or employer on the same job site or establishment to provide selected employees to serve as first aid and CPR responders for employees of the covered employer.
>
> E. Employers of mobile work crews (i.e., crews that travel to more than one worksite per day) of two or more employees that assign employees to travel to worksites or engage in work activities that could potentially expose those employees to serious physical harm or death shall either:
>
> 1. assure that at least one employee on the mobile crew is selected and adequately trained to administer first aid and CPR during all workshifts; or
> 2. comply with section D. above."

The Commenter's suggested exemption is not one that would "swallow the rule", since it could result in a tree trimming employer having more than one person trained on first aid/CPR on any given work crew, and appears to be a reasonable compromise to address the industry's historically well-documented concern about turnover rates. However, the Department has also encountered situations during inspections of tree trimming companies where an employee will work for 3-4 weeks at a time, take a few weeks off to work another job or not work at all, and then go back to the same tree trimming company for another 5-6 weeks, etc. Such an employee would not normally fit a standard definition for "full-time employee" but nonetheless can work significant hours for an individual tree trimming company. Obviously, an individual work crew composed of such employees would always fall outside the language proposed by the Commenter. Accordingly, the Department prefers the use of the term "new employee" instead of "full-time employee" (the term "new employee" is used in 1910.269(b)(1)(i), referenced by the Commenter above).

Accordingly, the following change to the regulatory language is recommended to address the above issues. [NOTE: §16 VAC 25-95.E.1. is referenced because tree trimming crews meet the criteria for "mobile work crews" under the First Aid/CPR final regulation.]:

16 VAC 25-73-40.C.5:

"5. Cardiopulmonary resuscitation (CPR) and first-aid training shall be provided in accordance with 16VAC25-95. **An employer is exempted from complying with 16 VAC 25-95.E.1 if it can document in writing that it initiated first-aid/CPR training for all new crew personnel within two months (60 days) of hire, or whenever a previously employed person has accumulated forty-five (45) work days for the same employer during the previous year."**

Commenter 3, Continued:

"**Specific concerns listed in order of their occurrence**

16VAC25-73-10(C). The latter part of the statement should be revised. Our suggested new language is underlined: This regulation does not apply to tree removal activities where the primary objective is land clearing in preparation for construction, real estate development, or other related activities, unless directly supervised by a qualified arborist or qualified line clearance arborist.

One would probably infer that the original reference to "qualified arborist" encompasses the qualified line clearance arborist; but since the latter term is separately defined in the proposal, it should be made unmistakably clear that either a qualified arborist or a qualified line clearance arborist may supervise a land clearing operation, making said operation subject to the proposed standard."

Agency Response:

The Department agrees with the Commenter's proposed language change and recommends the following change to the regulatory language:

16 VAC 25-73-10.C.

"C.
….
This regulation does not apply to tree removal activities where the primary objective is land clearing in preparation for construction, real estate development, or other related activities, unless directly supervised by a qualified arborist **or qualified line-clearance arborist**. Such activities are covered by 16VAC25-90-1910.266.

Commenter 3, Continued:

"16VAC25-73-10(C). Being derived from Z133, the proposed standard contains language gleaned from a variety of OSHA and ANSI standards, including 1910.269 and 1910.331-335. To be sure, there is similar and in some cases identical language in 1910.269 and this document that could lead to confusion in the regulated community and particularly among line clearance tree trimmers. Our aim is to reduce or eliminate any confusion for all parties with a concise statement. We recommend that the following be added to the end of 16VAC25-73-10(C): Line clearance tree trimming operations, as defined in this regulation, are subject to the requirements of 1910.269 paragraphs (a)(2), (b), (c), (g), (k), (p) and (r) as well as this regulation. Where this regulation and 1910.269 contain similar requirements, the qualified line clearance tree trimmer shall follow the requirements of 1910.269."

Agency Response:

The Department received four major comments on the application of the proposed Tree Trimming Operations regulation to line-clearance tree trimming and will address the issue later in this document under **Commenter 4.**

Commenter 3, Continued:

"**16VAC25-73-20.** "Job briefing" is defined as the communication of at least the following subjects for arboricultural operations: hazards associated with the job, work procedures involved, special precautions, electrical hazards, job assignments, and personal protective equipment.

In order to make the goals of the job briefing achievable for the employer and enforceable for VOSH, the wording must be changed to "known hazards associated with the job" or "recognizable hazards associated with the job."

Agency Response:

The Department does not recommend any changes to the proposed regulation in response to the Commenter's suggested language changes. A long line of court decisions provide that the Department, in order to uphold any citation issued to an employer, must demonstrate that the employer "knew or should have known" of the violative condition. That case law precedent applies to any potential violation that could be cited under the proposed regulation, so there is no need to add such language to a specific provision in the regulatory text.

Commenter 3, Continued:

16VAC25-73-60(A)(9). The second sentence of this paragraph, "Fall protection shall be provided for employees performing maintenance or inspection on top of units six feet or more above a lower level," does not appear in the ANSI Z133 Standard, and for good

reason. The dilemma centers on aerial lift devices with what are called cab guards or "headache racks."

The cab guard is primarily to protect the truck cab and any occupants from falling debris. Secondarily on some units, the operator must take one or two steps on the top of the cab guard to climb into the bucket. Most lift manufacturers and employers require the lift operator to perform a brief visual inspection of the upper boom's critical components and again, this brief inspection is performed from the top of the cab guard.

Whether alighting into the bucket or performing the brief inspection, there is no feasible form of fall protection that can be provided. Guardrails on top of the cab guard interfere with the boom's rotation and could easily cause catastrophic damage to the boom or bucket. The fall restraint or fall arrest device has not yet been invented that would allow the operator the necessary mobility to perform the safety inspection and prevent the operator from contact with some lower level, including the road surface.

The current language of Z133 from which this is borrowed minimizes any risk to a negligible level, akin to climbing a ladder. Work shall not be performed from the top of the cab guard. Certainly we would agree that if inspection or maintenance that must be performed is more extensive than a very brief, visual inspection, then the employer must make provisions for fall protection.

The second sentence of the proposed 16VAC25-73-60(A)(9) must be stricken.

Agency Response:

The Department agrees in part and disagrees in part with the Commenter's suggested language changes.

First, the Department notes that the provision in question applies to all vehicles and mobile equipment, so deleting the suggested language merely to address a concern about aerial lift devices, unnecessarily weakens employee fall protection requirements.

Second, the Department agrees that inspections can be reasonably excluded from the requirement for fall protection, since the employee when mounting the vehicle will normally have the use of hands and feet for climbing as would be the case on a ladder (in fact, there is nothing in the proposed regulation that would prohibit the use of a ladder to conduct the inspection in lieu of climbing on the vehicle). There is also precedence in OSHA regulations for exempting employees from using fall protection while conducting inspections in 16 VAC 25-175-500(a)(1), Fall Protection (in Construction):

> "The provisions of this subpart do not apply when employees are making an inspection, investigation, or assessment of workplace conditions prior to the actual start of construction work or after all construction work has been completed."

OSHA explained this exception to the general fall protection requirements in the preamble to the regulation:

> "OSHA has set this exception because employees engaged in inspecting, investigating and assessing workplace conditions before the actual work begins or after work has been completed are exposed to fall hazards for very short durations, if at all, since they most likely would be able to accomplish their work without going near the danger zone. Also, the Agency's experience is that such individuals who are not continually or routinely exposed to fall hazards tend to be very focused on their footing, ever alert and aware of the hazards associated with falling. These practical considerations would make it unreasonable, the Agency believes, to require the installation of fall protection systems either prior to the start of construction work or after such work has been completed. Such requirements would impose an unreasonable burden on employers without demonstrable benefits.
>
> OSHA notes that the operations covered by paragraph (a)(1) are normally conducted in good weather, that the nature of such work normally exposes the employee to the fall hazard only for a short time, if at all, and that requiring the installation of fall protection systems under such circumstances would expose the employee who installs those systems to falling hazards for a longer time than the person performing an inspection or similar work. In addition, OSHA anticipates that employees who inspect, investigate or assess workplace conditions will be more aware of their proximity to an unprotected edge than, for example, a roofer who is moving backwards while operating a felt laying machine, or a plumber whose attention is on overhead pipe and not on the floor edge."
>
> 59 Fed. Reg. 40672-40753

Third, while inspections can be classified as potentially of short duration, maintenance activities cannot be routinely assumed to be of short duration. Maintenance activities also involve employees using their hands to do the actual maintenance work, instead of being able to use their hands to hold onto parts of the vehicle/equipment to avoid falls. Accordingly, the Department does not recommend that fall protection requirements be eliminated for maintenance activities. As referenced above, there is nothing to prohibit an employer from allowing its employees to use ladders, scaffolds, scissor lifts, etc., for maintenance activities, all of which would avoid the need for guard rails or a personal fall arrest system by the employee.

The Department recommends the following change to the regulatory language:

> 16 VAC 25-73-60.A.9.
>
> "9. Riding or working outside or on top of units shall not be permitted unless the units are designed for that purpose or the operator is performing maintenance or inspection. Fall protection shall be provided for employees performing maintenance ~~**or inspection**~~ on top of units six feet or more above a lower level.

Fall protection is not required when performing inspections on top of units six feet or more above a lower level."

Commenter 3, Continued:

"16VAC25-73-60(G)(9). We take exception solely to the phrase, "…if the crane manufacturer's specifications and limitations do not prohibit such use." This one short phrase completely undermines the purpose of the remainder of (G)(9).

ANSI Z133.1 provides VOSH with the most contemporary, most realistic and safest guidance for arborist operations employing cranes, bar none. As VOSH already knows, ANSI Z133.1-2006 contains provisions allowing the use of a crane to lift (hoist) a qualified arborist, using an arborist climbing line and arborist saddle, and secured to a designated anchor point on the boom line or crane. The standard goes on to lay out two pages of requirements that must be met by the overall crane operation before the climber can be hoisted, all of which VOSH proposes to adopt.

By contrast, OSHA general industry regulation and other crane standards prohibit lifting a worker on the load line, but are silent with respect to the circumstances faced by arborists with the removal of trees too dangerous to climb, because such circumstances were not considered when these documents were drafted.

Specifically, the arborists' practice of being hoisted by a crane has been deemed to be contrary to 29 CFR §1910.180, Crawler, Locomotive and Truck Cranes. However, we are convinced that this guidance, when it was written over 30 years ago, was intended to prevent a worker from placing his foot into the crane hook, grabbing the load line and being hoisted into the air. That practice bears no semblance whatsoever to the carefully controlled, safe work practice utilized by arborists.

Paradoxically, if crane manufacturer's operating guidelines address the practice at all, they mimic §1910.180 or other outdated and inappropriate guidance on the matter.

This concern of hoisting a worker with a crane has been recognized repeatedly by both federal and state agencies, as well as industry professionals. For example, in 1993, Mr. Roy Gurnham of the Directorate of Construction issued a letter of interpretation stating that "OSHA has already determined that when the use of a conventional means of access to an elevated worksite would be impossible or more hazardous, a violation of 1910.180(h)(3)(v) will be treated as de minimis if the employer has complied with the provisions set forth in 1926.550(g)(3), 1926.550(g)(4), 1926.550(g)(5), 1926.550(g)(6), 1926.550(g)(7) and 1926.550(g)(8)." The exception that OSHA made was to allow the use of a personnel basket, sometimes called a man-cage, to hoist workers, under construction conditions, on the load line. With this interpretation, OSHA made an important exception to a dated rule that benefited worker safety.

Our industry has attempted to use man-cages to enter trees under certain conditions, but at times the man-cage can actually place the tree worker in an extremely hazardous

situation. Often, the lack of balance as well as the interference from the cables and metal structure while attempting to use a chain saw creates a situation that increases risk, even jeopardizing the lives of the workers. It is, in part, for these reasons that our industry's safety professionals developed procedures for tying into a crane above the headache ball or on a clevis near the jib or boom tip with an arborist saddle and climbing line meeting ANSI Z133 requirements. As an industry, we have been using cranes this way for almost 50 years with no fatalities.

This practice was recognized and condoned by California OSHA in 2004 when it adopted an emergency amendment, which subsequently became a permanent regulation, in their tree access standard, Title 8, Section 3427. Their original justification was: "[f]or the preservation of the public safety and the safety of the affected workforce, it is necessary to immediately adopt standards that would prescribe a safe alternative means and method to access trees." Amendments to Title 8, Section 3427 now permit a qualified tree worker to enter a tree suspended by the closed safety type hook of a crane when a tree cannot be safely accessed by conventional methods permitted in existing standards.

In addition, Oregon OSHA has issued a letter of interpretation condoning the practice of hoisting a climber, and Washington State OSHA regulations spell out under what circumstances a "boatswain's chair" may be used to hoist a worker with a crane. To further understand this issue, we point to OSHA's industry-specific standards for marine terminals contained in 29 CFR 1917.45(j)(1)(ii) that permit the employee to be hoisted by a crane or derrick in a "boatswain's chair" or other device rigged to prevent it from accidental disengagement from the hook or supporting member.

For clarification, a boatswain's chair is a seat supported by slings attached to a suspended rope, designed to accommodate one employee in a sitting position. It is an archaic term for something that was the precursor to the modern-day work-positioning arborist saddle we use in a tree or on a crane load line.

The overarching reason that the tree worker is hoisted by the crane or uses the crane as a tie-in point is because it presents the *safest alternative* for that removal operation. Moreover, in all of the thousands and thousands of hazardous tree removal jobs in which arborists have used cranes, *not one climber in our industry has been killed by using the ANSI-compliant and safe work practice of being hoisted by the crane*.

Juxtaposed against this statistic are at least 11 tree workers who died in calendar years 2006 and 2007 when the tree they were in failed. Indeed, there are several fatalities among the 27 "tree trimming" accidents cited by VOSH in which a tree failed while the climber was in it. Exercising hindsight, a crane would have offered a far more safe and secure tie-point to any one of them.

In the interest of worker safety and in consideration of the fact that it is writing a standard applicable solely to arborist operations and not the full scope of all crane operations, VOSH needs to make a clean break from old crane standards and their one-size-fits-all

requirements. The phrase, "…if the crane manufacturer's specifications and limitations do not prohibit such use" must be removed from 16VAC25-73-60(G)(9)."

Agency Response:

The Department respectfully disagrees with the Commenter's recommendation that the regulation be amended to permit an employer to use a crane contrary to it's manufacturer's specifications and limitations:

First, the Department disagrees with the Commenter's assertion that the language cited "completely undermines the purpose of the remainder of (G)(9)." That would only be accurate if all crane manufacturer's prohibited the practice, but the Department has no information to indicate that is the case. Even the commenter notes "Paradoxically, if crane manufacturer's operating guidelines address the practice at all, they mimic §1910.180 or other outdated and inappropriate guidance on the matter," which certainly implies that some manufacturers do not address the practice in their crane manuals. If a manufacturer does not reference the practice, then the employer can proceed with using a crane under the conditions listed in 16VAC25-73-60.G.9.

Second, it is longstanding policy of the Department to require employers to comply with manufacturer's specifications and limitations during the use of vehicles, equipment, machinery, tools, etc., through the use of the "General Duty Clause" (Va. Code §40.1-51.1(a)); specific requirements in existing OSHA standards (e.g., 1926.550(a)(1)), and more recently through VOSH regulation §16 VAC 25-60-120, which provides:

> "The employer shall comply with the manufacturer's specifications and limitations applicable to the operation, training, use, installation, inspection, testing, repair and maintenance of all machinery, vehicles, tools, materials and equipment; unless specifically superseded by a more stringent corresponding requirement in Part 1910. The use of any machinery, vehicle, tool, material or equipment which is not in compliance with any applicable requirement of the manufacturer is prohibited, and shall either be identified by the employer as unsafe by tagging or locking the controls to render them inoperable, or be physically removed from its place of use or operation."

It simply is not the policy of the Department to sanction through regulation a practice that would abrogate a manufacturer's specifications and limitations on the safe use of its machinery, vehicles, tools, materials and equipment. If, as the Commenter suggests, the manufacturer's limitations are based on outdated ideas, and safety of the employees being lifted is no longer a concern, it is up to the industry to reach out to the manufacturers to get those limitations changed.

Commenter 3, Continued:

“16VAC25-73-60(I)(10). It is infeasible to comply with the statement: “The winch shall never be used with personnel, including the operator, within the span of the winch cable and the winch.”

The statement could be interpreted to mean that workers cannot be situated anywhere between the winch and where the winch line is attached to a limb, even if they are to the side of the winch line. We believe that the original intent of the Z133 language was to address the hazard of a worker in very close proximity being clipped by a winch line that is suddenly tensioned. If this is the case, there has to be a better way to phrase it.

We suggest the following revision:

> “10. All personnel shall be sufficiently clear of the winch and winch cable (line) before the winch is activated and while the winch cable is under tension so as to avoid being struck.””

Agency Response:

The Department respectfully disagrees with the Commenter’s contention that compliance with the provision would be infeasible, and that the provision may have only been designed to address the hazard of a worker being clipped by a winch line that is suddenly tensioned. The Department does not recommend adoption of the language proposed by the Commenter.

First, the Department notes that the language in question is original to ANSI Z133.1-2006, with no changes having been made by the Department. It has been the Department’s stated intent, at the request of the tree trimming industry, and the TCIA in particular, to use as much of ANSI Z133.1-2006 as possible because of the familiarity of the industry with the national consensus standard, to limit costs of compliance as much as possible, to aid in ease of developing standardized training programs, to ease the burdens of compliance as much as possible for multi-state employers, and finally because it represents the input of many varied interest groups, including employer representatives, employee representatives, government agencies, public utility companies, safety professionals and others. TCIA was a participant in the development of ANSI Z133.1-2006.

Second, while Department personnel were not part of the ANSI Committee and cannot speak directly to the intent of the original language, there are a number of potential hazards associated with winches other than the winch line being suddenly tensioned. They include the winch line breaking under tension which would expose employees to whipping winch lines; a catastrophic failure of the winch or the winch anchoring point, which would not only expose employees to a winch line out of control, but could expose them to flying parts from the winch itself; or a failure of the tree while the winch line was under tension which would expose employees to both falling tree sections and the out-of-control winch line. The Department believes the hazards of using a winch line under tension are sufficiently dangerous to warrant such a strong prohibition as is described in the original ANSI language. Employees need to be required to be well-clear of the winch

line path while it is under tension, with only the tree climber and the winch operator in any proximity to the winch line while it is under tension, with those two employees not being in the path but on either end of the winch line connection points.

Commenter 3, Continued:

"16VAC25-73-90(A)(9). The following statements must be re-phrased to clarify their intent: "All components of a climbing system (e.g., ropes, pulleys, etc.) shall meet the manufacturer's design, specifications, and limitations. Components from different climbing systems shall not be combined without prior approval of the manufacturers."

Perhaps it is because these statements are not derived from ANSI Z133.1-2006 language that we cannot decipher their intent. As goals they would be unattainable, and as VOSH requirements, they would be both unattainable to the employer and unenforceable by VOSH.

No manufacturer that we are aware of creates a complete climbing system, although some manufacturer may produce more than one of the main components. Competition and product liability being what they are, Company X is not likely to grant "prior approval" for the use of Company Y's rope, if Company X manufactures both a rope and a saddle. Even if a manufacturer wanted to give prior approval, it could not possibly anticipate all the combinations of components that the arborist may wish to employ.

To clarify what we believe is VOSH's intent with this paragraph, we suggest the following wording:

> 16VAC25-73-90(A)(9). The qualified arborist shall assure that each component of the climbing system is approved by the manufacturer for its intended use as well as its compatibility with other components of the climbing system.

Misunderstanding and confusion stems from the fact that "climbing system" was never defined in Z133. We suggest the following definition:

> "Climbing system" means the various pieces of gear (components) that the arborist relies upon to secure himself/herself while aloft in the tree, such as but not limited to: an arborist saddle, one or more arborist climbing lines, and one or more lanyards as well as carabiners and/or snap hooks approved by their manufacturer for climbing.

On behalf of our members and the hundreds of workers this proposal potentially affects, we thank you for the opportunity to comment. We sincerely appreciate the dedication and diligence of the VOSH personnel who brought the proposal to this point, and we look forward to working with VOSH for the expedient adoption of an effective arborist standard to keep our workforce safe.

Agency Response:
The original language was developed in response to discussions held during the Department's meeting with interested parties of June 10, 2008, which was attended by TCIA representatives. Nonetheless, the Department agrees with the Commenter's recommendation to amend 16VAC25-73-90.A.9., as follows:

16VAC25-73-90.A.9.

"9. ~~**All components of a climbing system (e.g., ropes, pulleys, etc.) shall meet the manufacturer's design, specifications, and limitations. Components from different climbing systems shall not be combined without prior approval of the manufacturers.**~~ **The qualified arborist shall assure that each component of the climbing system is approved by the manufacturer for its intended use as well as its compatibility with other components of the climbing system."**

The Department agrees with the Commenter's recommendation to add a definition of "climbing system", as follows:

16 VAC 25-73.20

"Climbing system" means the various pieces of gear or components that the arborist relies upon to secure himself/herself while aloft in the tree, such as but not limited to: an arborist saddle, one or more arborist climbing lines, and one or more lanyards as well as carabiners and/or snap hooks approved by their manufacturer for climbing.

Commenter 4: May 14, 2009 Melissa A. Bailey, Ogletree, Deakins, Nash, Smoak & Stewart; Counsel to the Utility Line Clearance Coalition (ULCC)

"The ULCC is composed of: Asplundh Tree Expert Co., Carolina Tree Care, The Davey Tree Expert Co., Lewis Tree Service, Inc., Lucas Tree Experts, Inc., McCoy Tree Surgery, Inc., Nelson Tree Service, Inc., Townsend Tree Service Inc., Trees, Inc., and Wright Tree Service, Inc. Each of these companies engages in vegetation management for electric utility, municipal and commercial customers. This work includes electric utility "right of way" clearance to create or maintain electric power line rights-of-way as specified by the electric utility or other customer. ULCC members use specialized techniques that allow utility line-clearance to be done safely and consistently without the de-energization of electric supply to communities.

The ten members of the ULCC perform an estimated ninety percent of all utility line-clearance tree-trimming work performed in the nation. ULCC member companies employ approximately 37,000 employees who are involved in line-clearance arborist work, and employee approximately 1500 qualified line-clearance arborists and trainees in Virginia.

SUBSTANTIVE COMMENTS

As stated, line-clearance tree trimming is already regulated by an industry-specific standard – 29 C.F.R. Section 1910.269. As such, the ULCC concludes that an additional regulation covering the operations of its members is unnecessary. If, however, VOSHA determines that an additional regulation would present some safety benefit in relation to costs of implementation, then the ULCC has a number of suggested changes.

A. Section 1910.269 Regulates the Hazards of Line-Clearance Tree Trimming Work, and a Separate Regulation Applicable to Line-Clearance Tree Trimming is Unnecessary

Based on the ULCC's analysis, the provisions in Section 1910.269 cover many – if not most – of the hazards addressed in VOSHA's proposal. Specifically, the following hazards or issues are currently addressed in Section 1910.269:

- First aid (in fact, the first aid and CPR provisions in Section 1910.269 are more stringent than those proposed by VOSHA)
- Brush chippers
- Communication, *i.e.* the requirement for a second line-clearance tree trimmer to have voice-communication with the first trimmer for certain work (in fact, Section 1910.269(r)(1)(ii) is more protective than the provisions proposed by VOSHA in Section 25-73-50(B)(4))
- Minimum approach distances for workers and equipment
- Insulated tools
- Prohibitions on work during adverse weather conditions Sprayers, including walking and working surfaces requirements applicable when employees stand on top of equipment
- Stump cutters
- Power and chain saws
- Climbing ropes
- Fall protection requirements, which allow fall protection used for aerial lifts to consist of either full-body harness with six foot lanyards or body belts with shorter lanyards
- Provisions that mandate substantial training in "the safety-related work practices, safety procedures and other safety requirements" that "pertain to their respective job requirements," as well as "applicable emergency procedures"
- "Regular supervision" and "inspections" to determine whether employees are complying with safety-related work practices
- Refresher or re-training because of: deficiencies found during the inspections; the introduction of new technology or equipment; or the performance of tasks that are performed less than once per year
- An assessment of the potential electrical hazards presented by the work as well as a job briefing are required before each job
- Requirements for mechanical equipment, including inspections, operating requirements, and the use of outriggers

VOSHA proposes regulating these same hazards. VOSHA's reasoning in proposing a second regulation to cover the same hazards already addressed in Section 1910.269 is unclear. This is particularly true given the confusion that a second regulation would cause. For example, how would compliance officers decide whether to cite Section 1910.269 or the Tree Trimming Operations regulation? Would employers be required to cull through both regulations and determine which provisions to include in compliance programs and training materials? What if Section 1910.269 and the VOSHA regulation have different requirements for the same hazard – how would employers identify the provisions that apply?

Uncertainty about compliance obligations will result in citations that do not target true safety hazards, and may even result in additional hazards if front-line supervisors are unable to determine which regulation applies to the work being performed. As such, VOSHA should exempt line-clearance tree trimming from the Tree Trimming Operations regulation.

Finally, the ULCC concludes that VOSHA has underestimated the costs associated with implementing a second vertical standard for the line-clearance industry. ULCC member companies estimated that developing programs to comply with Section 1910.269 resulted in costs of between $1 million to $10 million. The cost of training an employee to the level of a qualified line-clearance arborist was approximately $12,000. While there is clearly overlap between the VOSHA proposal and Section 1910.269, the costs of developing and implementing an entirely new program and providing training will be substantial. These costs are not justified by any safety benefits in the line-clearance industry.

Agency Response:

The Department agrees that some additional language in the Applicability section of the proposed regulation would help to clear up any confusion on the issue of line-clearance tree trimming.

First, we would note that it has been the Department's stated intent, at the request of the tree trimming industry, to use as much of ANSI Z133.1-2006 as possible because of the familiarity of the industry with the national consensus standard, to limit costs of compliance as much as possible, to aid in ease of developing standardized training programs, to ease the burdens of compliance as much as possible for multi-state employers, and because it represents the input of many varied interest groups, including employer representatives, employee representatives, government agencies, public utility companies, safety professionals and others. In fact, five of ULCC's members were participants in the development of ANSI Z133.1-2006 (Asplundh Tree Expert Co., The Davey Tree Expert Co., Lewis Tree Service, Inc., McCoy Tree Surgery, Inc., and Wright Tree Service, Inc.). The Department made no initial attempt to change the scope or application of the proposed regulation with regard to line-clearance tree trimming with the understanding that the industry did not have any significant concerns with ANSI

Z133.1-2006, but is willing to do so now to address more recent concerns that have apparently developed since its adoption in 2006.

In developing a proposed language change to address line-clearance tree trimming issues, the Department took into consideration that work around overhead powerlines can be done by several different groups:

Group 1: tree trimmers working for the owner or operator of the lines,

Group 2: tree trimmers who contract with the owner of operator of the lines, and

Group 3: tree trimmers who have no connection with the owner or operator of the lines.

The Department also had to consider the implications of the Virginia Overhead High Voltage Line Safety Act, Va. Code §59.1-406, et.seq., which contains requirements and prohibitions against working around overhead high voltage lines (voltage in excess of 600 volts as defined in the Act), but does not apply to work "performed by the employees of the owner or operator of the systems or independent contractors engaged on behalf of the owner or operator of the system to perform the work."

The Department recommends the following changes to the regulatory language in the Application section. The effect of the changes will be to:

* exempt line-clearance tree trimming, as defined in the proposed regulation, from coverage under the proposed regulation

* provide that work around overhead power lines that does not meet the definition of line-clearance tree trimming in the proposed regulation, must either be conducted in accordance with the Virginia Overhead High Voltage Line Safety Act (voltage in excess of 600 volts as defined in the Act), or for lesser voltages conducted in accordance with 16VAC25-90-1910.333(c)(1)

The recommended changes are as follows:

16 VAC 25-73-10.C.
"C. This regulation is intended to apply to all employers engaged in the business, trade, or performance of arboriculture, including employers engaged in tree pruning, repairing, maintaining; removing trees; cutting brush; or performing pest or soil management who hire one or more persons to perform such work. This regulation may require situational modifications in response to personnel emergencies and is not intended to limit the options available to emergency responders. **This regulation does not apply to line-clearance tree trimming activities as defined in 16VAC25-73-20. Such activities are covered by 16VAC 25-90-1910.269.** This regulation does not apply to logging operations covered by 16VAC25-90-1910.266. This regulation does not apply to tree

removal activities where the primary objective is land clearing in preparation for construction, real estate development, or other related activities, unless directly supervised by a qualified arborist. Such activities are covered by 16VAC25-90-1910.266."

The Department recommends the following change to the definition of "line-clearance tree trimming," which, with the exception of the last sentence (which is derived from Va. Code §59.1-413), is identical to the corresponding definition in 16VAC25-90-1910.269(x):

16 VAC 25-73-20
" ~~"Line clearance"~~ **"Line-clearance tree trimming"** means the pruning, trimming, repairing, maintaining, removing, ~~treating,~~ or clearing of trees or the cutting of brush (vegetation management) that is within 10 feet (3.05 m) of electric supply lines and equipment; ~~and vegetation management work performed by qualified line-clearance arborists or qualified line-clearance arborist trainees for the construction or maintenance of electric supply lines and/or the electric utility right-of-way corridor.~~ Line-clearance **tree trimming** activities are performed by the employees of the owner or operator of the electrical or communication systems, or independent contractors engaged on behalf of the owner or operator of the system to perform the work.

The above changes will clarify that Groups 1 and 2 will be covered by 16VAC25-90-1910.269 generally and -1910.269(r) specifically when engaged in "line-clearance tree trimming" activities, while Group 3 will be covered by the proposed regulation.

Please also see the Department's response to **Commenter 1** that clarifies that the following activities, even when undertaken by employees of the owner or operator of the power lines or a subcontractor on behalf of the owner/operator are not covered by 16VAC25-90-1910.269(r), but will be covered by the Logging Standard, 16VAC25-90-266, unless the tree removal activities are directly supervised by a qualified arborist or qualified line-clearance arborist, in which case the proposed regulation would apply:

1. Right-of-way clearance for **new** power generation, transmission and distribution lines, where no exposure to electrical lines is present.

2. Land clearing activities associated with the construction of new power generation, transmission and distribution facilities, where no exposure to electrical lines in present.

3. Tree trimming operations around buildings, offices, facilities owned or operated by the cooperatives or other utility companies, where no exposure to electrical lines is present.

The following changes will be made to 16VAC25-73-50, Electrical hazards:

16VAC25-73-50. Electrical hazards.

“A. General.

1. All overhead and underground electrical conductors and all communication wires and cables shall be considered energized with potentially fatal voltages. **This section does not apply to line-clearance tree trimming as defined in 16VAC25-73-20, which shall be conducted in accordance with 16VAC25-90-1910.269. Non-line-clearance tree trimming work around overhead high voltage lines covered by §§ 59.1-406 through 59.1-414 of the Code of Virginia, Overhead High Voltage Line Safety Act (Act)(voltage in excess of 600 volts as defined in the Act), shall be conducted in accordance with the Act. Non-line-clearance tree trimming work around overhead electrical lines of 600 volts or less not covered by the Act shall be conducted in accordance with 16VAC25-90-1910.333(c)(1).**

2. The employer shall certify in writing that each employee has been trained to recognize and is appropriately qualified to work within proximity to electrical hazards that are applicable to the employee's assignment.

3. Arborists and other workers shall be instructed that:

a. Electrical shock will occur when a person, by either direct contact or indirect contact with an energized electrical conductor, energized tree limb, tool, equipment, or other object, provides a path for the flow of electricity to a grounded object or to the ground itself. Simultaneous contact with two energized conductors phase to phase will also cause electric shock that may result in serious or fatal injury.

b. Electrical shock may occur as a result of ground fault when a person stands near a grounded object (for example, if an uninsulated aerial device comes into contact with a conductor with outriggers down).

c. In the event of a downed energized electrical conductor or energized grounded object, there exists the hazard of step potential.

~~**4. If the minimum approach distance for a qualified line-clearance arborist (shown in Table 1 of this section) or for a qualified arborist (shown in Table 2 of this section) cannot be maintained during arboricultural operations, the electrical system owner/operator shall be advised and an electrical hazard abatement plan implemented before any work is performed in proximity to energized electrical conductors.**~~

B. Working in proximity to electrical hazards.

1. The items contained in subsection A of this section shall always be included in the review of this section. Sections 59.1-406 through 59.1-414

of the Code of Virginia, Overhead High Voltage Line Safety Act (Act), are hereby incorporated by reference, and apply as specified in the Act anytime the voltage of overhead high voltage lines~~, as defined in the Act,~~ exceeds 600 volts **as defined in the Act.** The Act does not apply anytime line-clearance activities are performed by the employees of the owner or operator of the electrical or communication systems, or independent contractors engaged on behalf of the owner or operator of the system to perform the work.

2. An inspection shall be made by a qualified arborist to determine whether an electrical hazard exists before climbing, otherwise entering, or performing work in or on a tree.

3. Only qualified line-clearance arborists or qualified line-clearance arborist trainees shall be assigned to work where an electrical hazard exists. Qualified line-clearance arborist trainees shall be under the direct supervision of qualified line-clearance arborists. A qualified line-clearance arborist trainee shall not serve as a ground observer for another qualified line-clearance arborist trainee who is engaged in line clearing operations aloft, unless a qualified arborist is also present at the work site.

~~**4. A second qualified line-clearance arborist or line-clearance arborist trainee shall be within visual or normal (that is unassisted) voice communication during line-clearing operations aloft when an arborist must approach closer than 10 feet (3.05 m) to any energized electrical conductor in excess of 750 volts (primary conductor) or when:**~~

~~**a. Branches or limbs closer than 10 feet (3.05 m) to any energized electrical conductor in excess of 750 volts (primary conductor) are being removed, which cannot first be cut (with a nonconductive pole pruner/pole saw) to sufficiently clear electrical conductors, so as to avoid contact; or**~~

~~**b. Roping is required to remove branches or limbs from such electrical conductors.**~~

~~**Table 1.**~~
~~**Minimum approach distances from energized conductors for qualified line-clearance arborists and qualified line-clearance arborist trainees.**~~

~~Nominal voltage in kilovolts (kV) phase to phase~~	~~Includes 1910.269 elevation factor, sea level to 5,000 ft*~~		~~Includes 1910.269 elevation factor, 5,000–10,000 ft*~~		~~Includes 1910.269 elevation factor, 10,001–14,000 ft*~~	
	~~ft in~~	~~M~~	~~ft in~~	~~M~~	~~ft in~~	~~m~~
~~0.051 to 0.3~~	~~Avoid contact~~		~~Avoid contact~~		~~Avoid contact~~	

0.301 to 0.75	1-01	0.33	1-03	0.38	1-04	0.41
0.751 to 15.0	2-05	0.7	2-09	0.81	3-00	0.88
15.1 to 36.0	3-00	0.91	3-05	1.04	3-09	1
36.1 to 46.0	3-04	1.01	3-10	1.16	4-02	1.09
46.1 to 72.5	4-02	1.26	4-09	1.44	5-02	1.3
72.6 to 121.0	4-06	1.36	5-02	1.55	5-07	1.68
138.0 to 145.0	5-02	1.58	5-11	1.8	6-05	1.96
161.0 to 169.0	6-00	1.8	6-10	2.06	7-05	2.23
230.0 to 242.0	7-11	2.39	9-00	2.73	9-09	2.95
345.0 to 362.0	13-02	3.99	15-00	4.56	16-03	4.94
500.0 to 550.0	19-00	5.78	21-09	6.6	23-07	7.16
765.0 to 800.0	27-04	8.31	31-03	9.5	33-10	10.29
*Exceeds phase to ground; elevation factor per 29 CFR 1910.269.						
Note: At time of publication, the minimum approach distances in this table for voltages between 301 and 1,000 volts exceed those specified by 29 CFR 1910.269.						

-

Table ~~2~~ 1.
Minimum approach distances to energized conductors for persons other than qualified line-clearance arborists and qualified line-clearance arborist trainees

Nominal voltage in kilovolts (kV) phase to phase*	Distance	
	ft-in	m
0.0 to 1.0	10-00	3.05
1.1 to 15.0	10-00	3.05
15.1 to 36.0	10-00	3.05
36.1 to 50.0	10-00	3.05
50.1 to 72.5	10-09	3.28
72.6 to 121.0	12-04	3.76
138.0 to 145.0	13-02	4
161.0 to 169.0	14-00	4.24
230.0 to 242.0	16-05	4.97
345.0 to 362.0	20-05	6.17
500.0 to 550.0	26-08	8.05
785.0 to 800.0	35-00	10.55

*Exceeds phase to ground per 29 CFR 1910.333.

~~5. Qualified line-clearance arborists and line-clearance arborist trainees shall maintain minimum approach distances from energized electrical conductors in accordance with Table 1.~~

~~6.~~ 4 All ~~other~~ arborists and other workers shall maintain a minimum approach distance from energized electrical conductors in accordance with Table ~~2~~ 1.

~~7. Branches hanging on an energized electrical conductor shall be removed using nonconductive equipment.~~

~~8.~~ 5. The tie-in position shall be above the work area and located in such a way that a slip would swing the arborist away from any energized electrical conductor or other identified hazard.

~~9.~~ 6. While climbing, the arborist shall climb on the side of the tree that is away from energized electrical conductors while maintaining the required distances shown in Table 1 ~~or 2, as applicable~~.

~~10.~~ 7. Footwear, including lineman's overshoes or those with electrical-resistant soles, shall not be considered as providing any measure of safety from electrical hazards.

~~11.~~ 8. Rubber gloves, with or without leather or other protective covering, shall not be considered as providing any measure of safety from electrical hazards.

~~12.~~ 9. A rope that is wet, that is contaminated to the extent that its insulating capacity is impaired, or that is otherwise not to be considered insulated for the voltage involved shall not be used near exposed energy lines.

~~13.~~ 10. Ladders, platforms, and aerial devices, including insulated aerial devices, shall be subject to minimum approach distances in accordance with Table 1 ~~or 2, as applicable~~.

~~14.~~ 11. Aerial devices with attached equipment (such as chippers) brought into contact with energized electrical conductors shall be considered energized. Contact by people and/or equipment shall be avoided.

~~15.~~ 12. Emergency response to an electric contact shall be performed in accordance with 16VAC25-73-40 C.

~~C. Storm work and emergency conditions: line clearance.~~

~~1. The items contained in subsection A of this section shall always be included in the review of this section.~~

~~2. Line clearance shall not be performed during adverse weather conditions such as thunderstorms, high winds, and snow and ice storms.~~

~~3. Qualified line-clearance arborists and qualified line-clearance arborist trainees performing line clearance after a storm or under similar conditions shall be trained in the special hazards associated with this type of work.~~

~~4. Line-clearance operations shall be suspended when adverse weather conditions or emergency conditions develop involving energized electrical conductors. Electrical system owners/operators shall be notified immediately."~~

Commenter 4, Continued:

"If Line-Clearance Work Will Be Regulated, the Requirements for Line-Clearance Tree Trimming Should Be Included in Section 1910.269 and Supplemented by the VOSHA Regulation

As stated, it is important to provide a link between the requirements in Section 1910.269(r) and the Tree Trimming Operations, and to clarify that Section 1910.269(r) will continue to serve as the primary vertical standard for line-clearance work. In addition, the definitions of "line-clearance tree trimming" in Section 1910.269 and the VOSHA regulation must be consistent. The amendments to Section 1910.269 and

VOSHA's proposal that are necessary to effectuate these changes are discussed in this section.

1. Section 1910.269(r) and the VOSHA proposal must be amended to clarify the requirements for line-clearance tree trimming.

Amendments to both Section 1910.269(r) and the VOSHA proposed regulation are required to ensure that qualified line-clearance arborists understand which provisions are applicable. Section 1910.269(r) must be amended to read: "This paragraph and 16VAC25-73 provide additional requirements for line clearance (as that term is defined in 16VAC25-73-20) operations."

Section 16VAC25-73-10 must be expanded to state in a new Section (D): "This regulation and Paragraphs (a)(2), (b), (c), (g), (k), (p) and (r) of 1910.269 apply to line clearance operations performed by qualified line clearance arborists and qualified line clearance arborist trainees (as those terms are defined by 16VAC25-73-20). To the extent the applicable provisions in Section 1910.269 and 16VAC25-73 govern or address the same hazards, operations, equipment or work practices, the provisions in Section 1910.269 shall apply to line-clearance operations."

These amendments are critical for the line-clearance industry for two reasons. First, the suggested amendments provide an important link between Section 1910.269 – which has served successfully as the vertical standard applicable to line-clearance tree trimming – and the VOSHA regulation. This regulatory system will allow line-clearance arborist employers to continue to communicate effectively with its customers – electrical utilities – regarding safety requirements since both entities are regulated by Section 1910.269. Line-clearance arborists and electric utilities worked together extensively during federal OSHA's promulgation of Section 1910.269, and conclude that it is an effective standard that comprehensively addresses the electrical and other hazards employees face. To put it simply, Section 1910.269 provides a common safety "language" that is used by both electric utilities and line-clearance arborists, and it makes both industries safer. As such, the provisions in Section 1910.269 must be preserved.

Second, the provisions in the proposed VOSHA regulation are important, and should act as a supplement to the provisions in Section 1910.269. Specifically, to the extent Section 1910.269 does not address a particular hazard, then the VOSHA regulation should apply. The alternative – applying both Section 1910.269 and the VOSHA regulation – is simply not practical, and may even increase the risk of safety hazards. For example, Section 1910.269(a)(2) sets out training requirements that have been used successfully in the line-clearance industry since 1994. These provisions rather than the training provisions in the VOSHA regulation should apply. Similarly, line-clearance arborists perform job briefings as required by Section 1910.269(c), and those provisions rather than the requirements in the VOSHA regulation should apply. Confusion will result if line-clearance arborists are not certain which provision apply.

Finally, citations issued because employers did not follow the specific provisions in the VOSHA regulation when Section 1910.269 applies to the relevant hazard do not benefit anyone. For example, there is no evidence that line-clearance arborists who receive training pursuant to Section 1910.269(a)(2) would be any less safe than those trained pursuant to the provisions in the VOSHA regulation. If citations alleging violations under the VOSHA regulation are issued in this or other situations, employers are forced to deal with a "gotcha" citation issued in the absence of a specific safety hazard, employees are not made any safer, and both the employer and VOSHA have wasted resources."

Agency Response:

See response to this Commenter above which exempts "line-clearance tree trimming" activities, as defined in 16VAC25-73-20, from the proposed regulation.

Commenter 4, Continued:

"1. The definitions of "line-clearance tree trimming" in Section 1910.269 and the proposed Tree Trimming Operations regulation are incompatible

Section 1910.269 defines "line-clearance tree trimming" as: "The pruning, trimming, repairing, maintaining, removing, or clearing of trees or the cutting of brush that is within 10 feet (305 cm) of electric supply lines and equipment." The definition in VOSHA's proposal is broader, and includes the following types of work: "vegetation management work performed by qualified line-clearance arborists or qualified line-clearance arborist trainees for the construction or maintenance of electric supply lines and/or the electric utility right-of-way corridor." VOSHA's proposal adopts the ANSI definition of "line clearance."

Put simply, applying these two separate definitions will not work. Specifically, the Section 1910.269 definition applies when work is performed within 10 feet of power lines, and VOSHA's proposed definition applies to all line-clearance work, regardless of the distance from power lines. If both definitions are maintained, it will be difficult (if not impossible) for line-clearance employers to determine which standard applies. For example, if the work is performed within 10 feet of power lines, does that mean that the Tree Trimming Operations regulation would not apply and Section 1910.269 would? In the alternative, would the VOSHA regulation and Section 1910.269 both apply? If so, how would the employer determine which provisions to follow with regard to specific hazards?"

Agency Response:

See response to this Commenter above which revised the definition of "line-clearance tree trimming" in the proposed regulation to correspond to 16VAC25-90-1910.269(x), with the exception of the last sentence, which is derived from Va. Code §59.1-413, of the Virginia Overhead High Voltage Line Safety Act.

Commenter 4, Continued:

"B. Recommended Changes to the Provisions in the VOSHA Proposal

The specific substantive changes that should be made to the proposal are discussed below.

1. Provisions regarding application of the logging standard

Section 25-73-10 states that the Tree Trimming Operations standard does not apply to "tree removal activities where the primary objective is land clearing preparation for construction, real estate development, or other related activities, *unless directly supervised by a qualified arborist*." (emphasis added). In other words, VOSHA proposes that work supervised by a qualified arborist, including the removal of multiple trees, is not "logging" covered by Section 25-90-1910.266. Rather, this work would be subject to the provisions in the proposed VOSHA regulation.

The ULCC commends VOSHA for including this provision. Logging and work performed by qualified line-clearance arborists are fundamentally different. Loggers fell a tree using methods designed to preserve as much marketable wood as possible. In contrast, line-clearance arborists remove vegetation in accordance with the customer's specifications using the most efficient and safe methods possible, which typically means cutting a tree in pieces or felling a tree completely and then disposing of the branches and other materials by chipping, moving them to the side of the road to be picked up, or hauling them to another location for disposal. Also, unlike logging work performed in a forest, the removal of vegetation for line-clearance purposes requires work methods that prevent contact with electric supply lines and other obstructions, such as utility poles and guy wires.

Because of the different work methods involved in logging and tree care, application of the logging standard to work performed by qualified line-clearance arborists is inappropriate. VOSHA has clearly recognized this in its proposal. The ULCC does, however, have several suggested changes. First, proposed Section 25-73-10(C) should be amended to clarify that the work supervised by either a "qualified arborist" or a "qualified line-clearance arborist" is not "logging" and would be covered by the proposed regulation. The exclusion of the term "line-clearance arborist" appears to be an oversight."

Agency Response:

See response to **Commenter 3** above, where this change was made.

Commenter 4, Continued:

"Second, the note to Section 25-73-90(E)(13) is similar to proposed Section 25-73-10(C), but states that the work must be "directly supervised by a *certified* arborist."

(emphasis added). The term "certified arborist" is not defined, and the ULCC is unclear about what VOSHA means by using this term. To the extent that VOSHA is considering requiring arborists to be certified by the International Society of Arboriculture (ISA), the ULCC urges VOSHA to reject that position. Given the statement in the preamble to the regulation, VOSHA has apparently decided that requiring ISA certification would be expensive and provide little safety benefit. As such, the use of the term "certified" appears to be a mistake. VOSHA should correct Section 25-73-90(E)(13) to state that work "directly supervised by a qualified arborist or qualified line-clearance arborist" is covered by the regulation and is therefore not "logging."

Agency Response:

The Department agrees with the Commenter and recommends the following language change:

> 16VAC25-73-90.E.13.
>
> 13. All workers other than the individual engaged in manual land-clearing operations shall be at least two tree lengths away from the tree or trunk being removed. This requirement does not apply in the presence of site restrictions, such as waterways or cliffs. Other arborists and workers shall be beyond the trees' striking range and at a distance as close to twice the tree's height as possible. NOTE: This regulation does not apply to tree removal activities where the primary objective is land clearing in preparation for construction, real estate development, or other related activities, unless directly supervised by a ~~**certified**~~ **qualified** arborist. Such activities are covered by 16VAC25-90-1910.266.

Commenter 4, Continued:

"Third, the term "directly supervised" is not defined. On some line-clearance projects, multiple crews consisting of some qualified line-clearance arborists and some trainees may be supervised by a single foreman. The foreman and other qualified line-clearance arborists are involved in assessing the hazards of the job and planning the work pursuant to the job briefing process, but may not be directly involved in the work tasks, and may even leave the job site at certain times during the work. Given these factors, VOSHA must clarify that the qualified line-clearance arborist is not required to be directly involved in each job task. Rather, a qualified line-clearance arborist must be involved in assessing the hazards, planning the work, and identifying any special measures that must be taken to mitigate hazards. VOSHA should change the language in Sections 25-73-10(C) and 25-73-90(E)(13) to read, in relevant part: "This regulation does not apply to tree removal activities where the primary objective is land clearing in preparation for construction, real estate development, or other related activities, unless a qualified arborist or qualified line-clearance arborist assesses the work, identifies potential hazards,

and identifies any protective measures or work methods that must be followed during the work."[4]

Agency Response:

The Department respectfully disagrees with the Commenter's suggested change and does not recommend any change to the proposed regulation. The intent of the language referenced is to assure, that since the more stringent requirements contained in the Logging Standard would not have to be complied with, the immediate presence of and direct supervision by a qualified arborist or qualified line-clearance arborist will provide an added level of protection to prevent accidents and avoid employee exposure to tree felling hazards.

Commenter 4, Continued:

"2. Fall protection

In Section 25-73-60(b)(2), VOSHA proposes mandating full-body harnesses with energy-absorbing lanyards for employees working aloft in aerial lifts. In addition, the introduction to the regulation states that "the option to allow an employee to use a body belt and lanyard in an aerial lift has been removed." At the same time, VOSHA incorporates by reference Section 1910.67, which is the federal standard governing aerial lifts. Section 1910.67 requires a body belt and lanyard when working from an aerial lift and, in Section 1910.269(g)(2)(v), OSHA specifically references Section 1910.67 as governing the fall protection requirements for aerial lifts. Section 1910.67 does not limit the length of the lanyard. Given the incorporation of Section 1910.67, it is not clear whether VOSHA is attempting to mandate the use of a full-body harness, or whether the choice to use a body belt and lanyard as set out in Section 1910.67 will be preserved.

Assuming VOSHA's regulation will effectively remove the option to use a body belt and lanyard and leave line-clearance arborists with only one option – a full-body harness and lanyard – the ULCC urges VOSHA to reconsider. While full-body harnesses have some safety advantages, they also have significant disadvantages that are unique to line-clearance work. Specifically, workers performing line-clearance may be working above power lines or other hazards. Mandating a full-body harness with a six-foot lanyard increases the risk that employees will fall directly on to live electrical lines or sharp tree parts, which poses a substantial risk of electrocution or impalement. While a body belt with a lanyard may theoretically produce unacceptable force on the waist of the operator, this is surely preferable to the risk of electrocution. An additional hazard is posed if an employee exits an aerial lift with his or her fall protection still attached because the

[4] The introduction to the regulation states that VOSHA currently applies the Logging standard to work involving the felling of any tree. This policy is not consistent with federal OSHA's. See Federal OSHA Compliance Directive 02-01-045 (August 21, 2008). Moreover, applying the Logging standard under these circumstances raises serious due process concerns in that line-clearance employers arguably have no notice that they are subject to the Logging standard, particularly given that OSHA did not consider or evaluate the impact of the logging standard on line-clearance or tree care industries when the standard was promulgated.

lanyard may get caught in a chipper, which would almost certainly result in death. Line-clearance employers can (and do) impose many work rules related to safety, but the consequences of inadvertently violating this work rule are simply too steep."

Agency Response:

See response to this Commenter above which exempts "line-clearance tree trimming" activities, as defined in 16VAC25-73-20, from the proposed regulation.

Commenter 4, Continued:

"3. Components of climbing systems

Proposed Section 25-73-90(A)(9) addresses climbing systems, and states: "Components from different climbing systems shall not be combined without prior approval from the manufacturers." This provision is unworkable for two reasons. First, manufacturers will not agree to allow their systems to be combined with components from other manufacturers for the obvious reason – they want employers to buy complete systems from them. Moreover, manufacturers are, understandably, concerned about products liability lawsuits, and will likely decline to even consider whether their products are compatible with those of another manufacturer, let alone verify or certify this to the line-clearance employer. The likelihood that a manufacturer will respond to a request from an employer to verify that its products can be safely used with another manufacturer's products is essentially nil, and this fact has nothing to do with employee safety.

Second, VOSHA's proposal will result in significant expense to employers. Because manufacturers will not agree to confirm that their products can be safely used with others, line-clearance employers in Virginia will be forced to purchase components from a single manufacturer and discard other products that are perfectly serviceable and safe. Again, there is absolutely no safety reason to require employers to take this action, and VOSHA apparently has not considered the costs this would impose.

The ULCC has no objection to a provision requiring employers to follow the manufacturer's instructions. For example, a manufacturer may state that a component (such as a rope) should not be used with a particular *type* of another component (such as a pulley). However, this warning from the manufacturer has nothing to do with which company made the component.

Given these issues, the ULCC strongly urges VOSHA to amend this provision. The ULCC suggests that VOSHA amend the language in Section 25-73-90(A)(9) to read as follows: "The employer shall comply with manufacturer's specifications and limitations applicable to components of climbing systems. Components from different manufacturers shall not be combined unless the employer or a qualified line-clearance arborist determines that it is safe to combine the components."

Agency Response:

See the Department's response to **Commenter 3**, which addressed this issue with language changes similar but not identical to that suggested by the Commenter.

Commenter 4, Continued:

"4. Training provisions for qualified line-clearance arborists and VOSHA personnel

ULCC member companies provide substantial training to employees, and agree with VOSHA that operations and safety training is crucial to protecting workers. As stated, the training provisions in Section 1910.269(a)(2) must continue to apply to qualified line-clearance arborists. At the same time, the ULCC appreciates the inclusion of Appendix A, which sets out guidelines for training materials and may be useful as ULCC member companies continue to improve the training required by Section 1910.269(a)(2).

The introduction to the proposed regulation states that VOSHA "personnel will have to be trained in the requirements" of the new regulation, and that VOSHA will "develop a standardized training program for employers that can be placed on the department's website." The ULCC would like to assist in developing these materials, and would be pleased to offer a webinar or other training session regarding line-clearance operations or an opportunity for VOSHA compliance personnel to observe a job site. The assistance of line-clearance employers in developing these materials is particularly important given the interplay between Section 1910.269 and the VOSHA regulation. The ULCC can provide valuable input about the importance of ensuring that Section 1910.269 continues to be the primary vertical standard regulating line-clearance work. More importantly, ULCC members can provide VOSHA compliance staff with information about how and why certain provisions certain provisions should apply to line-clearance work."

Agency Response:

See response to this Commenter above which exempts "line-clearance tree trimming" activities,
as defined in 16VAC25-73-20, from the proposed regulation.

Commenter 4, Continued:

"5. First aid

The ULCC is confused about the proposals for first-aid and CPR training. Proposed Section 25-73-40(C)(5) references 16 VA 25-95. This provision is apparently under consideration, but has not been adopted, since the introduction to the proposed regulation references the "board's current rulemaking, which proposed a change in the general industry requirements for first aid/CPR." The ULCC has no information about the proposed changes to the first aid provisions, and is therefore unable to comment on whether it makes sense to apply them to line-clearance work.

The ULCC suggests that VOSHA apply the provisions for first aid and CPR that are in Section 1910.269(b), at least for line-clearance work. In its analysis, the Department of Planning states that requiring one employee "trained in first aid and CPR present at all (working) times" will "cost less for all arboriculture employers who have more than one employee." While this may be true, the requirements in Section 1910.269(b), which generally mandate that at least two employees are trained,
is more protective.

Specifically, under VOSHA's proposal, if the one employee with training is injured or has a heart attack, there will be no other employee to assist him or her. As such, the Section 1910.269(b) provisions are more protective and should be applied to line-clearance work."

Agency Response:

See response to this Commenter above which exempts "line-clearance tree trimming" activities, as defined in 16VAC25-73-20, from the proposed regulation.

Commenter 4, Continued:

"6. Vehicles and mobile equipment
The ULCC has two comments on these proposed provisions. First, proposed Section 25-73-60(A)(9) states: "Fall protection shall be provided for employees performing maintenance or inspecting the top of units six feet or more above a lower level." The ULCC recommends that VOSHA delete this provision because providing fall protection is not feasible. Specifically, where will employees tie off? In the alternative, how will the employer fashion guardrails that fit on a vehicle or other mobile equipment?

Also, even assuming there were some way to design portable guardrails (and the ULCC does not believe there is), VOSHA has apparently not considered the costs involved, which would likely be substantial. In addition, VOSHA has apparently not accounted for the low level of risk involved in these types of maintenance and inspections. Employees do not spend substantial amounts of time atop vehicles performing maintenance and inspections. As such, the costs of providing fall protection – again, assuming it is even possible – would far outweigh any benefits.

Federal OSHA has recognized that it is *not* feasible to require fall protection on vehicles. OSHA has proposed amendments to the Subpart D standards several times, most recently in a proposal issued on May 2, 2003. 68 *Fed. Reg.* 23527. OSHA proposed exempting from the Subpart D requirements all "surfaces that are an integral part of self-propelled, motorized mobile equipment, other than platforms hoisted or lifted by powered industrial lift trucks, which are covered by paragraph (e) of Section 1910.31." The ULCC recommends that VOSHA follow federal OSHA's lead on this issue.

Second, Section 25-73-60(A)(7) proposes that "platforms on mobile equipment" be "skid resistant." This provision is taken directly out of the ANSI standard. ULCC member

companies, many of which are on the ANSI Committee, have never interpreted this provision to require skid resistance for aerial lifts. The ULCC requests that VOSHA confirm that interpretation."

Agency Response:

See response to this Commenter above which exempts "line-clearance tree trimming" activities, as defined in 16VAC25-73-20, from the proposed regulation.

Also, see response to **Commenter 3** which addresses the issue of fall protection during maintenance and inspection activities.

With regard to 16VAC25-73-60.A.7, Va. Code §40.1-22(5) provides in part that:

> "Such standards [as adopted by the Virginia Safety and Health Codes Board] when applicable to products which are distributed in interstate commerce shall be the same as federal standards unless deviations are required by compelling local conditions and do not unduly burden interstate commerce."

The requirement in 16VAC25-73-60.A.7 is a provision that could be interpreted to place a burden on manufacturers of covered mobile equipment to install skid resistant materials, and could therefore be covered by Va. Code §40.1-22(5). To avoid possible legal ramifications of this code section, the Department recommends the following language change:

> 16VAC25-73-60.A.7.
>
> "7. **If previously installed by the manufacturer, skid resistant** ~~**S**~~ **s**tep surfaces and platforms on mobile equipment shall be **properly maintained** ~~**skid resistant**~~."

Commenter 4, Continued:

"7. Traffic control

VOSHA states in the introduction that it is proposing adoption of the Virginia Department of Transportation Manual on Uniform Traffic Control rather than the federal Department of Transportation Manual on Uniform Traffic Control ("MUTCD") because the MUTCD has a "great deal of 'should' and 'may' provisions," which are "unenforceable."

While that may be true, the ULCC advises VOSHA to consider the safety and financial effects of deviating from the MUTCD. Line-clearance arborists often work in multiple states, particularly during storm work, and are trained as necessary to address traffic control through compliance with the MUTCD. Requiring these employees to learn what may be a different signage and signaling system for use only in Virginia poses real safety

hazards because of the risk of confusion. In addition, employers are vulnerable to citations for following the MUTCD rather than VDOT's procedures even when there is no real safety hazard. Compliance with the VDOT system also has financial implications that VOSHA has apparently not considered because employers may be required to purchase different signs and equipment for use only in Virginia, and will have to train employees who may work in Virginia in different traffic control requirements. The additional purchases and training provide no discernable safety benefit.

If VOSHA is concerned about the "may" and "should" language, then it should review the language in the MUTCD, change the permissive language so that it mandates certain actions where appropriate, and adopt it as a regulation."

Agency Response:

See response to this Commenter above which exempts "line-clearance tree trimming" activities, as defined in 16VAC25-73-20, from the proposed regulation.

In addition and as a point of clarification, the VDOT Work Area Protection Manual is substantially based on relevant sections of the MUTCD, so the Department does not anticipate significant areas of disagreement between the documents, other than the fact that the MUTCD uses such unenforceable language as "may" and "should" and designates most of the safety provisions as advisory or recommended instead of mandatory.

The Department does not recommend any change to the proposed regulatory language.

Commenter 4, Continued:

"8. Minimum approach distances

The ULCC has two comments on these provisions. First, the notes to Tables 1 and 2 in Section 25-73-50(B) state that the minimum approach distances ("MADs") for "voltages between 301 and 1000 volts exceed those specified by 29 C.F.R. 1910.269," but VOSHA does not explain why this is the case.

The ULCC understands that federal OSHA has re-opened the record in the Section 1910.269 rulemaking to address some technical errors in the MADs. If it is VOSHA intention to issue a regulation consistent with the corrected MADs, then the ULCC supports that effort.

If, however, VOSHA intends to establish MADs different than those under Section 1910.269, VOSHA should reconsider this course of action. As stated, the crews that work for ULCC member companies may work in multiple states, particularly during emergency storm situations. Requiring line-clearance arborists to follow one set of MADs unless they are working in Virginia is not advisable from either a practical or

safety standpoint. In addition, VOSHA has set out no justification for mandating MADs that are different than federal OSHA's.

Second, if it is not possible to perform the work outside of the MADs, then the utility will be required to implement an electric hazard abatement plan as set out in proposed Section 25-73-50(A)(4). The ULCC has adopted a guidance document setting out a sample procedure for qualified line-clearance arborists to use in communicating with the electric utility on this issue. The ULCC urges VOSHA to recognize the sample procedure, either through adoption as a voluntary Appendix to the regulation or in its compliance guidance.[5] "

Agency Response:

See response to this Commenter above which exempts "line-clearance tree trimming" activities, as defined in 16VAC25-73-20, from the proposed regulation.

Commenter 4, Continued:

"9. Equipment

VOSHA proposes throughout the regulation that employers must "tag" and "remove from service" any equipment that is "damaged." See e.g. Section 25-73-60(B), (C) and (D). It is not clear why damaged equipment must be both tagged and removed from service. Employers could certainly tag equipment warning employees not to use it, or could remove the equipment from the site or disable it so that it cannot be used.

The ULCC suggests amending the language to read as follows: "Damaged [insert type of equipment] must be tagged or removed from service such that employees cannot use the [equipment].""

Agency Response:

See response to this Commenter above which exempts "line-clearance tree trimming" activities, as defined in 16VAC25-73-20, from the proposed regulation.

The Department has encountered numerous instances during VOSH inspections where employers have removed from service such items as damaged ladders or damaged extension cords, which were then put back in to use by an employee that did not realize the damaged item was not to be used, because they had not been informed of the employer's action. Tagging items removed from service provides that notice to any employee on any workshift that the item is damaged and not to be used.

The Department does not recommend any change to the proposed regulatory language.

[5] A copy is attached to these comments as Exhibit B.

Commenter 4, Continued:

"10. Fire protection

The provisions in Section 25-73-40(E) address fire protection, but do not mention the burning of vegetation in open areas. ULCC member companies may perform open burning, provided that it is permitted in the local jurisdiction. VOSHA should clarify that open burning is permitted."

Agency Response:

See response to this Commenter above which exempts "line-clearance tree trimming" activities, as defined in 16VAC25-73-20, from the proposed regulation.

In addition, the language questioned by the Commenter is original to ANSI Z133.1-2006. As previously mentioned, it has been the Department's stated intent, at the request of the tree trimming industry, to use as much of ANSI Z133.1-2006 as possible because of the familiarity of the industry with the national consensus standard, to limit costs of compliance as much as possible, to aid in ease of developing standardized training programs, to ease the burdens of compliance as much as possible for multi-state employers, and because it represents the input of many varied interest groups, including employer representatives, employee representatives, government agencies, public utility companies, safety professionals and others. Five of ULCC's members were participants in the development of ANSI Z133.1-2006 (Asplundh Tree Expert Co., The Davey Tree Expert Co., Lewis Tree Service, Inc., McCoy Tree Surgery, Inc., and Wright Tree Service, Inc.).

The Department does not recommend any change to the proposed regulatory language.

Commenter 4, Continued:

"11. Underground utilities

Proposed Section 25-73-60(B)(22) states that employers "shall locate" underground hazards prior to using aerial devices off-road. Proposed Section 25-73-60(E)(6) states that the operator "shall be aware" of underground utilities prior to performing work with a stump cutter.

While the ULCC understands the intent of this provision, it is simply not practical. First, there is no evidence that the use of aerial devices or stump cutters in off-road locations typically poses a hazard from underground utilities. Second, requiring line-clearance arborist employers to contact providers of underground utilities each and every time an aerial device or stump cutter is used off-road would be time-consuming and costly, and would most often provide little or no safety benefit. It is evident from the proposal that VOSHA has not tried to quantify these costs or assessed whether there would be a safety

benefit. Given the lost work time that would result if these provisions are adopted, the costs would be substantial."

Agency Response:

See response to this Commenter above which exempts "line-clearance tree trimming" activities, as defined in 16VAC25-73-20, from the proposed regulation.

In addition, the language questioned by the Commenter is original to ANSI Z133.1-2006 - see Agency Response to item 10 above.

With regard to stump cutters, their use could constitute an excavation under Va. Code § 56-265.14, et. seq., the Underground Utility Damage Prevention Act, which provides in §56-265.17, that:

> "…no person, including operators, shall make or begin any excavation or demolition without first notifying the notification center for that area. Notice to the notification center shall be deemed to be notice to each operator who is a member of the notification center. The notification center shall provide the excavator with the identity of utilities that will be notified of the proposed excavation or demolition. Except for counties, cities, and towns, an excavator who willfully fails to notify the notification center of proposed excavation or demolition shall be liable to the operator whose facilities are damaged by that excavator, for three times the cost to repair the damaged property, provided the operator is a member of the notification center. The total amount of punitive damages awarded under this section, as distinguished from actual damages, shall not exceed $10,000 in any single cause of action."

Commenter 4, Continued:

12. Portable power tools

"Section 25-73-70(B)(5)(b) states that arborists shall not "lay extension cords in water." The ULCC recommends mandating portable GFCI rather than relying upon arborists to avoid water. Requiring an engineered solution – like GFCI – will be more protecting than relying upon administrative solution, such as adherence to an operating procedure. Also, proposed Section 25-73-70(B)(5)(c) requires "support" for tools and supply cords used aloft. While support may be advisable based upon the configuration of the work or other circumstances, mandating support any time tools or supply cords are used aloft is not justified. The ULCC suggests that this provision be amended to read: "If the qualified arborist identifies a safety hazard, then electric power tools and supply cords must be supported by a tool lanyard or separate line when used aloft.""

Agency Response:

See response to this Commenter above which exempts "line-clearance tree trimming"

activities, as defined in 16VAC25-73-20, from the proposed regulation.

In addition, the language questioned by the Commenter is original to ANSI Z133.1-2006 - see Agency Response to item 10 above.

Commenter 4, Continued:

"13. Visual/voice communication

Section 25-73-90(A)(2) requires "visual or voice communication" for "operations above 12 feet." Section 25-73-50 also requires communication for operations performed within 10 feet of electric supply lines. The ULCC questions why twelve feet and ten feet have been deemed the proper "cut-off" for visual or voice communication.

Agency Response:

See response to this Commenter above which exempts "line-clearance tree trimming" activities, as defined in 16VAC25-73-20, from the proposed regulation.

In addition, the language questioned by the Commenter is original to ANSI Z133.1-2006 - see Agency Response to item 10 above.

Commenter 4, Continued:

"14. Rigging equipment

Section 25-73-90(D)(5) states that rigging and climbing equipment "shall be clearly marked to indicate their different purposes." This proposed requirement [is] too prescriptive, and does not take into account the fact that specific types of rigging and climbing equipment may look very different without special markings. The ULCC suggests that VOSHA adopt the language in the ANSI standard: "When the potential exists for rigging equipment to be confused with climbing equipment, the equipment shall be clearly marked to indicate their different purposes.""

Agency Response:

See response to this Commenter above which exempts "line-clearance tree trimming" activities, as defined in 16VAC25-73-20, from the proposed regulation.

Commenter 4, Continued:

"D. Incorporating Changes to the ANSI Standard in the VOSHA Regulation

VOSHA explains in the introduction to the proposed regulation that it drew heavily upon the ANSI Z133.1-2006 standard in developing the proposal. Indeed, it is evident from

the text of the proposal that it is very similar to the ANSI standard. As stated, the ULCC appreciates VOSHA's reliance on the provisions of the ANSI standard.

VOSHA did not include any mechanism to update the regulation when the ANSI standard is amended, which occurs every six years. The ULCC understands that given the requirements of the Virginia rulemaking process as well as the resources required to issue a regulation, the regulation cannot be automatically updated each time the ANSI standard is amended."

At the same time, the ULCC recommends including some mechanism or safe harbor to protect employers who are complying with the latest edition of the ANSI standard rather than the specific provisions in the VOSHA regulation. Specifically, federal OSHA characterizes a condition as *de minimis* if the employer is complying with a more recent version of a consensus standard. The ULCC recommends that VOSHA consider adopting a similar policy with regard to the proposed regulation and the ANSI Z133.1 standard."

Agency Response:

See response to this Commenter above which exempts "line-clearance tree trimming" activities, as defined in 16VAC25-73-20, from the proposed regulation.

In addition, the Department is required by Va. Code §2.2-4007.1.E. to review all final regulations every five years, at which time revised versions of ANSI Z133.1-2006 can be reviewed:

> "E. In addition to other requirements of § 2.2-4017, all final regulations adopted after July 1, 2005, shall be reviewed every five years to ensure that they minimize the economic impact on small businesses in a manner consistent with the stated objectives of applicable law."

Department of Planning and Budget Recommended Changes:

The Department of Planning and Budget (DPB), in its Economic Impact Analysis of September 24, 2008, recommended the following changes to the proposed regulatory language:

1. Remove language that references "possession of a recognized degree, certification or professional status" from the proposed definition of a "qualified arborist."

Agency Response:

The Department agrees with DPB's recommendation and proposes the following change to the regulatory language:

16 VAC 25-73-20.

“"Qualified arborist" means an individual who, ~~**by possession of a recognized degree, certification, or professional standing, or**~~ through related training and on-the-job experience, is familiar with the equipment and hazards involved in arboricultural operations and who has demonstrated ability in the performance of the special techniques involved.”

2. Amend language concerning pesticide application requirements to clarify that the regulation is only intended to apply to tree care operations and not intended to be more widely applicable to landscaping operations.

Agency Response:

The Department agrees with DPB’s recommendation. The following proposed changes to the regulatory language limit application of the regulation to tree care operations as referenced in the definition of “arboriculture” in 16 VAC 25-73-20 ("Arboriculture" means the art, science, technology, and business of utility, commercial, and municipal tree care.):

16 VAC 25-73-10.

“C. This regulation is intended to apply to all employers engaged in the business, trade, or performance of arboriculture, including employers engaged in tree pruning, repairing, maintaining; removing trees; cutting brush; or performing pest or soil management **during tree care operations** who hire one or more persons to perform such work. This regulation may require situational modifications in response to personnel emergencies and is not intended to limit the options available to emergency responders. **This regulation does not apply to non-arboricultural landscaping operations.** This regulation does not apply to logging operations covered by 16VAC25-90-1910.266. This regulation does not apply to tree removal activities where the primary objective is land clearing in preparation for construction, real estate development, or other related activities, unless directly supervised by a qualified arborist. Such activities are covered by 16VAC25-90-1910.266.”

3. Amend language that defines job briefings to clarify that the briefings are meant to provide information before work begins and about what tasks, equipment, etc., will be required to complete a job.

Agency Response:

The Department agrees with DPB’s recommendation and proposes the following change to the regulatory language:

16 VAC 25-73-20.

"Job briefing" means the communication **before work begins** of at least the

following subjects for arboricultural operations: hazards associated with the job, work procedures involved, special precautions, electrical hazards, job assignments, and personal protective equipment."

Contact Person:

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RECOMMENDED ACTION

Staff of the Department of Labor and Industry recommends that the Safety and Health Codes Board consider for adoption the final regulation, 16 VAC 25-73, Tree Trimming Operations.

The Department also recommends that the Board state in any motion it may make to amend this regulation that it will receive, consider and respond to petitions by any interested person at any time with respect to reconsideration or revision of this or any other regulation.

16 VAC 25-73, Proposed Regulation on Tree Trimming Operations

As Adopted by the

Safety and Health Codes Board

Date: _____

VIRGINIA OCCUPATIONAL SAFETY AND HEALTH PROGRAM

VIRGINIA DEPARTMENT OF LABOR AND INDUSTRY

Effective Date: _____

CHAPTER 73
REGULATION APPLICABLE TO TREE TRIMMING OPERATIONS

16VAC25-73-10. Scope, purpose and applicability.

A. This regulation contains arboriculture safety requirements for pruning, repairing, maintaining, and removing trees; cutting brush; and for using equipment in such operations. (Note: Terms specific to the safe practice of arboriculture are defined in 16VAC25-73-20.)

B. The purpose of this regulation is to provide safety criteria for arborists and other workers engaged in arboricultural operations.

C. This regulation is intended to apply to all employers engaged in the business, trade, or performance of arboriculture, including employers engaged in tree pruning, repairing, maintaining; removing trees; cutting brush; or performing pest or soil management **[during tree care operations]** who hire one or more persons to perform such work. This regulation may require situational modifications in response to personnel emergencies and is not intended to limit the options available to emergency responders. **[This regulation does not apply to non-arboricultural landscaping operations. This regulation does not apply to line-clearance tree trimming activities as defined in 16VAC25-73-20. Such activities are covered by 16VAC 25-90-1910.269.]** This regulation does not apply to logging operations covered by 16VAC25-90-1910.266. This regulation does not apply to tree removal activities where the primary objective is land clearing in preparation for construction, real estate development, **[right-of-ways for new utility installations]** or other related activities, unless directly supervised by a qualified arborist **[or qualified line-clearance arborist]**. Such activities are covered by 16VAC25-90-1910.266.

16VAC25-73-20. Definitions.

The following words and terms when used in this chapter shall have the following meanings unless the context indicates otherwise:

"Aerial device" means any one of the following types of vehicle-mounted apparatus used to elevate personnel to jobsites above ground:

1. Extensible boom platform.
2. Aerial ladder.
3. Articulating boom platform.
4. Vertical tower.
5. A combination of any of the above, as defined in ANSI A92.2.

"Anti-two block device" means a device consisting of a hollow weight suspended from the boom nose or jib of log loaders, cranes, or related hoists by a chain. The weight hangs with hoist cable running through its center. An electromechanical switch mounted on the boom nose or jib is connected to the chain via a retractable steel cable. When contact is made with the suspended weight by the hook block or any other lifting device nearing the nose or jib, the anti-two block switch circuit is deactivated, and hoist up or telescope out is prevented.

"Apex" means the point at which two saw cuts meet to form a notch.

"Applicator" means a qualified person engaged in the application of materials such as, but not limited to, pesticides, growth regulators, and fertilizers.
"Approved" means acceptable to the federal, state, or local jurisdiction having enforcement authority.
"Arboriculture" means the art, science, technology, and business of utility, commercial, and municipal tree care.
"Arborist" means an individual engaged in the profession of arboriculture.
"Arborist climbing line" means a line designated to support the climber while aloft in a tree or attached to a crane, constructed according to specifications outlined in 16VAC25-73-90 A 8.

"Arborist saddle" means an arrangement of straps, fittings, and buckles or other elements in the
form of a waist belt with a low attachment element or elements and connecting support encircling the legs, suitably arranged to support the body in a sitting position.
"Ascender" means a mechanical device used for climbing rope.
"Authorized" means designated by the entity that has care, custody, and control of the unit.
"Back cut" means the cut made in a tree limb or trunk on the side opposite the intended direction of fall.
"Belay" means roping technique, managed by the ground person, to safeguard the arborist while climbing.
"Brush hog" means a heavy-duty rotary mower, normally pulled by a farm-type tractor, used for cutting and mulching brush.
"Bucket" means a basket-type platform approximately four feet (1.22 m) high, which is attached to the end of the upper boom on an aerial device, providing a work platform for working aloft.
"Bucking" means the act of sawing trees, limbs, or both, into smaller sections once they are on the ground.
"Cant hook" means a long-handled lever fixed with a blunt metal end to handle logs; includes a swinging, metal hook opposing the blunt end to create leverage.
"Carabiner" means a connector generally composed of a trapezoidal or oval-shaped
body with a closed gate or similar arrangement that may be opened to receive an object and, when released, automatically closes to retain the object.
"Chopping tool" means a wooden, fiberglass, or steel-handled tool with a sharp, single- or double-edged steel head or blade mounted to it that is used to cut or split wood (for example, an ax or machete).
"Climbing/friction hitch" means a hitch used for securing a tree climber to the climbing line, permitting controlled ascent, descent, and work positioning. Examples of climbing hitches include, but are not limited to, the tautline hitch, Blake's hitch, and the Prusik hitch/knot.

["Climbing system" means the various pieces of gear or components that the arborist relies upon to secure himself/herself while aloft in the tree, such as but not limited to: an arborist saddle, one or more arborist

climbing lines, and one or more lanyards as well as carabiners and/or snap hooks approved by their manufacturer for climbing.]

"Conventional notch" means a directional felling cut into the side of a tree, facing the intended direction of fall and consisting of a horizontal face cut and an angle cut above it, creating a notch of approximately 45 degrees.

"Crew leader" means the qualified arborist designated as the individual in charge of a specific job or group of workers.

"Crotch" (n.) means branch union; the angle formed by two branches in the tree.

"Crotch" (v.) means to place a line through a branch union.

"Damaged" means a defect, impairment or injury to machinery, vehicle, tool, material or equipment that would meet the manufacturer's criteria for removal from service, or in the absence of such criteria, would materially effect the safe operation or safe use of the item during tree trimming operations.

"DBH" means acronym for diameter at breast height; diameter of a tree measured at 4.5 feet (1.3 m) above ground.

"Deadman control" means a safety switch, electrical or mechanical, that deactivates the equipment's function when released by the operator.

"Dielectric" means nonconductive of electrical current.

"Direct contact" means a direct contact is made when any part of the body touches or contacts an energized electrical conductor.

"Direct supervision" means direct supervision occurs when a qualified arborist or a qualified arborist supervisor is physically present on the jobsite.

"Drop-starting" means the act of starting a chain saw by pushing the saw away from the body with
one hand while simultaneously pulling on the starter cord handle with the other.

"Electrical conductor" means any overhead or underground electrical device capable of carrying an electric current, including communications wires and cables, power lines, and other such fixtures or apparatus.

"Electrical hazard" means an object or situation that poses risk of injury or death due to direct or indirect contact with an electrical conductor. Where unguarded, energized electrical conductors are present, specific minimum approach distances based on the arborist's or worker's level of training, as set forth in this regulation, shall be followed.

"Electrical system owner/operator" means an organization that operates or controls the transmission and/or distribution of electric power through electrical conductors.

"Electric supply" means conductors used to transmit electric energy and their necessary supporting or containing structures. Signal lines of more than 400 volts are always supply lines, and those of less than 400 volts are considered as supply lines if so run and operated throughout.

"Energy (shock) absorber" means a component of a climbing system whose primary function is to dissipate energy and limit deceleration forces that the system
imposes on the body during fall arrest.

"Fall-arrest lanyard" means a rope or strap designed to be used with a full-body harness to limit maximum arresting force on a climber to 1,800 pounds (8 kN) in a fall.
"False crotch" means a device installed in a tree to set ropes during climbing or rigging because there is not a suitable natural crotch available, or to protect an available crotch, and/or to reduce wear on ropes.
"False crotch for rigging" means a pulley, block, sling, lashing, or metal ring affixed to a tree's leader or limb, through which a load line is passed, to lower or raise limbs or equipment.
"False crotch redirect" means consists of the use of a false crotch in conjunction with either a natural crotch or a second false crotch in instances where the arborist is working away from the trunk of the tree and could otherwise be subject to an uncontrolled pendulum swing in the event of a slip.
"Footlock" means to climb up a suspended rope by pulling with the hands and arms and pushing upward with the feet. The loose end of the rope is wrapped under the middle and over the top of one foot and is locked in place with pressure from the other foot.
"Friction point" means the point at which the rope surface of the climber's hitch rubs against the climbing line.
"Good working condition" means a term describing a piece of equipment that has no mechanical defects, has all guards in place, and is operated as intended by the manufacturer.
"Ground fault" means any undesirable current path from a current-carrying conductor to ground.
"Guarded" means covered, fenced, enclosed, or otherwise protected by suitable covers or casings, barrier rails or screens, mats, or platforms that have been designed by the electrical system owner/operator to minimize the possibility of dangerous approach or accidental contact by persons or objects under normal conditions. Also see unguarded.
"Handline" means a length of rope designated as a tool to leverage, lift, and hold tools, equipment, wood, or other objects; the proper rope strength is specified for each particular use.
"High-pressure excavation" means the removal or displacement of soil using pressurized air or water.
"Humboldt notch" means a directional felling cut into the side of a tree, facing the intended direction of fall and consisting of a horizontal face cut and an angled cut below it, creating a notch of approximately 45 degrees. A Humboldt cut is usually reserved for larger trees on steep slopes.
"Indirect contact" means indirect contact is made when any part of the body touches any conductive object, including tools, tree branches, trucks, equipment, or other objects, that is in contact with an energized electrical conductor. Such contact can also be made as the result
of communication wires and cables, fences, or guy wires being accidentally energized.
"Job briefing" means the communication **[before work begins]** of at least the following subjects for arboricultural operations: hazards associated with the job,

work procedures involved, special precautions, electrical hazards, job assignments, and personal protective equipment.
"Kilovolt, kV (Tables 1 and 2)" means the term for 1,000 volts, abbreviated as kV. Higher voltages are generally given as kilovolts. Example: 12.5 kV (12,500 volts) and 19.9 kV (19,900 volts).
"Kilonewton, kN" means the measurement of force, abbreviated as kN. Equal to 224.8 pounds. Example: 24.02 kilonewtons equals 5,400 pounds.
"Ladder" means a two-, three-, or four-legged structure that utilizes vertical side legs with cross sections uniformly placed between the side legs to be used as steps; available in wood, aluminum, or fiberglass; used to ascend to and descend from a height. Also see tripod/orchard ladder.
"Lanyard" means a component of a climbing system consisting of a flexible line of rope, wire rope, or a strap that generally has a connector at each end for connecting the body support to a fall arrester, energy absorber, anchorage connector, or anchorage.
"Leg protection" means personal protective equipment constructed with cut-resistant material, such as ballistic nylon, intended to reduce the risk of injury to the legs during chain-saw operations.
[~~"Line clearance"~~ **"Line-clearance tree trimming"** means the pruning, trimming, repairing, maintaining, removing, **[**~~**treating**~~**]**, or clearing of trees or the cutting of brush (vegetation management) that is within 10 feet (3.05 m) of electric supply lines and equipment; ~~**[and vegetation management work performed by qualified line-clearance arborists or qualified line-clearance arborist trainees for the construction or maintenance of electric supply lines and/or the electric utility right-of-way corridor].**~~ Line-clearance **[tree trimming]** activities are performed by the employees of the owner or operator of the electrical or communication systems, or independent contractors engaged on behalf of the owner or operator of the system to perform the work.
"Load binder" means a synthetic strap with a ratchet mechanism or a properly secured rope or chain to encircle a tree trunk or limb as a means of preventing splitting.
"Manual land clearing" means the removal of trees, shrubs, and vines using chain saws or other cutting tools where there are no structures or objects that need to be avoided and pull lines are not used to pull or drop a tree and/or trunk to the ground.
"Maul" means a heavy-handled hammer, sometimes made with a single edge; used to drive wedges or split wood.
"Minimum approach distance" means safe working distances from overhead electrical conductors as defined in Tables 1 and 2 of 16VAC25-73-50.
"Open-face notch" means a directional felling cut into the side of the tree, facing the intended direction of fall and consisting of two cuts creating a notch greater than 70 degrees.
"Outrigger" means built-in device used to stabilize cranes, aerial devices, and similar equipment.
"Phase" means any current-carrying conductor that has an electric potential other than ground (ground is assumed to be 0 volts).

"Phase to ground (Tables 1 and 2)" means the electric potential (voltage) between a conductor and ground.
"Phase to phase" means the electrical potential (voltage) between two conductors, each having its own electric potential relative to ground.
"Primary conductor" means any conductor, including aluminum, copper, or aluminum conductor steel reinforced (ACSR), that is bare, covered, or insulated, with a nominal voltage above 750 volts.
"Proximity" means an area within 10 feet (3.05 m) of energized overhead electrical conductors rated 50 kV phase to phase or less. For overhead electrical conductors rated more than 50 kV phase to phase, the distance is increased 4/10 inch (10 mm) for each additional kV.
"Prusik knot" means a sliding friction knot, as in a work-positioning lanyard.
"Prusik loop" means an endless loop of rope used to fashion a Prusik knot. The endless loop
may be spliced or knotted with, at minimum, a double fisherman's knot.
"Qualified arborist" means an individual who, **[~~by possession of a recognized degree, certification, or professional standing, or~~]** through related training and on-the-job experience, is familiar with the equipment and hazards involved in arboricultural operations and who has demonstrated ability in the performance of the special techniques involved.
"Qualified arborist trainee" means an individual undergoing on-the-job training under the direct supervision of a qualified arborist. In the course of such training, the trainee becomes familiar with the hazards and equipment involved in arboricultural operations and demonstrates ability in the performance of the special techniques involved.
"Qualified crane operator" means an individual who, by reason of a recognized credential or professional standing, or through related training and on-the-job experience, is familiar with the equipment and hazards involved with arboriculture crane operations and who has demonstrated competence in operating a crane and performing the special techniques involved.
"Qualified line-clearance arborist" means an individual who, through related training and on-the-job experience, is familiar with the equipment and hazards in line-clearance and has demonstrated the ability to perform the special techniques involved. This individual may or may not currently be employed by a line-clearance contractor.
"Qualified line-clearance arborist trainee" means an individual undergoing line-clearance training under the direct supervision of a qualified line-clearance arborist. In the course of such training, the trainee becomes familiar with the equipment and hazards in line-clearance and demonstrates ability in the performance of the special techniques involved.
"Qualified personnel" means an individual who, by reason of training and experience, has demonstrated the ability to safely perform assigned duties and, where required, is properly licensed in accordance with federal, state, or local laws and regulations.

"Quick-acting connector" means hose connectors in a hydraulic or pneumatic system designed to allow rapid connection or disconnection without leakage when the system is pressurized.
"Saddle, arborist": see arborist saddle.
"Secured (object)" means made firm or tight; fastened. Example: The load is secured to the truck.
"Secured (person)" means when an arborist is safeguarded from unintended movement by utilizing a climbing system that is attached to the arborist and connected to a tree or other stable support. Examples of being secured include, but are not limited to, (i) being tied in, (ii) using a work-positioning lanyard, (iii) being on belay, and (iv) ascending the arborist climbing line using the footlock technique while utilizing a Prusik loop or ascenders.
"Shall," as used in this regulation, denotes a mandatory requirement.
"Should," as used in this regulation, denotes an advisory recommendation.
"Snap hook" means commonly called a self-locking or double-locking rope snap. The locking type (required by this regulation for climbing) has a self-closing, self-locking gate that remains closed and locked until intentionally opened by the user for connection or disconnection. A captive eye is an integral part of a snap hook but is independent of the hook and gate portion.
"Split tail system and split tail" refers to a system in which the climbing line is tied to
the saddle, preferably indirectly with an ANSI-compliant carabiner or locking rope snap, without leaving a tail beyond the termination. The climbing/friction hitch is then tied onto the climbing line with a separate short section of climbing line called a split tail. The split tail is separately connected to a designated anchor point on the saddle.
"Spotter" means a person within voice and visual communication of the driver and located in a position to view the area in which the vehicle (unit) is backing to help ensure that the backing operation is, and will remain, safe.
"Step potential" means the voltage between the feet of a person standing near an energized grounded object. It is equal to the difference in voltage, given by the voltage distribution curve, between two points at different distances from the electrode. A person could be at risk of injury during a fault simply by standing near the grounding point.
"Tackle blocks and pulleys" means equipment used in most tree situations to take a strain rather
than move a load. Critical components of the system are the appropriate ropes, blocks, and, especially, the lock or connecting link.
"Termination knot" means any knot suitable for rope termination, including, but not limited to, double fisherman's loop (scaffold hitch), anchor hitch, and buntline hitch.
"Tied in" means the term that describes an arborist whose climbing line has been run through a natural or false crotch attached to an arborist's saddle and completed with a climbing hitch or mechanical device, permitting controlled movement and work positioning.

"Tool lanyard" means short line or strap used to secure a tool while working aloft.

"Tripod/orchard ladder" means a three-legged ladder that utilizes the third leg to form a tripod to stabilize itself among orchard trees and/or shrubs. It is recommended for use on turf for better stability and to avoid slippage of the legs. Not recommended for use on hard surfaces.

"Unguarded" means not guarded from approach or contact with electrical conductors.

"Volt" means a unit of electric potential difference between two points. Lower-voltage systems are generally expressed in terms of volts, for example, 120 volts or 240 volts.

"Wedge" means a piece of material with two sides meeting at an angle; used to raise or split objects by applying a driving force, such as with a hammer.

"Wheel chock" means wedge-shaped block manufactured or employer approved to prevent unintentional movement of vehicle. Wheel chocks are placed in front of or in back of a vehicle's tires or tracks. If necessary, the chocks can be placed both in front and in back of the tires or tracks.

"Worker" means an individual involved in an arboricultural operation, such as ground operations, equipment operations, and removal operations.

"Working load" means limiting load values derived from the minimum breaking strength of a cord or rope divided by the design factor. For example, given a minimum breaking strength of 10,000 pounds (44.48 kN) and a design factor of 10: 10,000/10 = 1,000 (working load, in pounds) or given a minimum breaking strength of 10,000 pounds (44.48 kN) and a design factor of 5:10,000/5 = 2,000 (working load, in pounds).

"Working-load limit" means the working load that must not be exceeded for a particular application as established by a regulatory or standards-setting agency.

"Workline" means rope used for lifting, lowering, or guiding limbs or equipment, or both, into or out of the tree.

"Work-positioning system" means an arborist climbing system designed to be used under tension to support the arborist or other worker on an elevated vertical surface, such as a tree limb, and allow him to work with both hands free.

16VAC25-73-30. Orientation and training.

A. Prior to permitting an employee to engage in any arboricultural activity covered by this regulation, the employer shall ensure that each employee receives orientation and training on the requirements of this regulation.

B. Refresher training on applicable provisions of this regulation shall be provided by the employer for any employee who has:

1. Been observed to violate the requirements of this regulation;
2. Been involved in an accident or near miss accident; or
3. Received an evaluation that reveals the employee is not working in a safe manner in accordance with the requirements of this regulation.

16VAC25-73-40. General safety requirements.

A. General.

1. Machinery, vehicles, tools, materials and equipment shall conform to the requirements of this regulation. 16VAC25-60-120 is hereby incorporated by reference.

2. Employers shall instruct their employees in the proper use, inspection, and maintenance of tools and equipment, including ropes and lines, and shall require that appropriate working practices be followed.

3. A qualified arborist shall determine whether direct supervision is needed on a jobsite.

4. A job briefing shall be performed by the qualified arborist in charge before the start of each job. The briefing shall be communicated to all affected workers. An employee working alone need not conduct a job briefing. However, the employer shall ensure that the tasks are being performed as if a briefing were required.

B. Traffic control around the jobsite.

1. High-visibility safety apparel and headgear, when required, shall conform to the Virginia Department of Transportation's (VDOT) Virginia Work Area Protection Manual.

2. Effective means for controlling pedestrian and vehicular traffic shall be instituted on every jobsite where necessary, in accordance with the VDOT's Virginia Work Area Protection Manual and applicable state and local laws and regulations.

3. Temporary traffic-control devices used in arboricultural operations shall conform to the VDOT Virginia Work Area Protection Manual and applicable federal and state regulations.

C. Emergency procedures and readiness.

1. Emergency phone numbers shall be available when and where arboricultural operations are being carried out. Arborists and other workers shall be instructed as to the specific location of such information.

2. A first-aid kit, adequately stocked and maintained in accordance with 16VAC25-95, shall be provided by the employer, when and where arboricultural operations are being carried out. Arborists and other workers shall be instructed in its use and specific location.

3. Instruction shall be provided in the identification, preventive measures, and first-aid treatment of common poisonous plants (poison ivy, poison oak, and poison sumac), stinging and biting insects, and other pests indigenous to the area in which work is to be performed.

4. Employees who may be faced with a rescue decision shall receive training in emergency response and rescue procedures appropriate and applicable to the work to be performed, as well as training to recognize the hazards inherent in rescue efforts (see 16VAC25-73-140, Appendix E).

5. Cardiopulmonary resuscitation (CPR) and first-aid training shall be provided in accordance with 16VAC25-95. **[An employer is exempted**

from complying with 16VAC25-95.E.1 if it can document in writing that it initiated first-aid/CPR training for all new crew personnel within two months (60 days) of hire, or whenever a previously employed person has accumulated forty-five (45) work days for the same employer during the previous year."]

D. Personal protective equipment (PPE).

1. Personal protective equipment (PPE), as outlined in this section, shall be required when there is a reasonable probability of injury or illness that can be prevented by such protection, and when required by 16VAC25-90-1910.132. Training shall be provided in the use, care, maintenance, fit, and life of personal protective equipment.
2. Workers engaged in arboricultural operations shall wear head protection (helmets) that conforms to ANSI Z89.1, and in accordance with 16VAC25-90-1910.135. Class E helmets shall be worn when working in proximity to electrical conductors, in accordance with ANSI Z89.1. Workers shall not place reliance on the dielectric capabilities of such helmets.
3. Face protection shall comply with 16VAC25-90-1910.133.
4. Clothing and footwear appropriate to the known job hazards shall be approved by the employer and worn by the employee in accordance with 16VAC25-90-1910.132.
5. Respiratory protection shall comply with 16VAC25-90-134.
6. Hearing protection provided by the employer shall be worn when it is not practical to decrease or
isolate noise levels that exceed acceptable standards and in accordance with 16VAC25-90-1910.95.
7. Eye protection shall comply with 16VAC25-90-1910.133 and shall be worn when engaged in arboricultural operations.
8. Chain-saw resistant leg protection shall be worn while operating a chain saw during ground operations.

E. Fire protection.

1. Equipment shall be refueled only after the engine has stopped. Spilled fuel shall be removed from equipment before restarting.
2. Equipment shall not be operated within 10 feet (3.05 m) of refueling operations or areas in which refueling has recently taken place.
3. Flammable liquids shall be stored, handled, and dispensed from approved containers.
4. Smoking shall be prohibited when handling or working around flammable liquids.
5. Clothing contaminated by flammable liquid shall be changed as soon as possible.
6. Open flame and other sources of ignition shall be avoided.

16VAC25-73-50. Electrical hazards.

A. General.

1. All overhead and underground electrical conductors and all communication wires

and cables shall be considered energized with potentially fatal voltages. **[This section does not apply to line-clearance tree trimming as defined in 16VAC25-73-20, which shall be conducted in accordance with 16VAC25-90-1910.269. Non-line-clearance tree trimming work around overhead high voltage lines covered by §§ 59.1-406 through 59.1-414 of the Code of Virginia, Overhead High Voltage Line Safety Act (Act)(voltage in excess of 600 volts as defined in the Act), shall be conducted in accordance with the Act. Non-line-clearance tree trimming work around overhead electrical lines of 600 volts or less not covered by the Act shall be conducted in accordance with 16VAC25-90-1910.333(c)(1).]**

2. The employer shall certify in writing that each employee has been trained to recognize and is appropriately qualified to work within proximity to electrical hazards that are applicable to the employee's assignment.

3. Arborists and other workers shall be instructed that:

a. Electrical shock will occur when a person, by either direct contact or indirect contact with an energized electrical conductor, energized tree limb, tool, equipment, or other object, provides a path for the flow of electricity to a grounded object or to the ground itself. Simultaneous contact with two energized conductors phase to phase will also cause electric shock that may result in serious or fatal injury.

b. Electrical shock may occur as a result of ground fault when a person stands near a grounded object (for example, if an uninsulated aerial device comes into contact with a conductor with outriggers down).

c. In the event of a downed energized electrical conductor or energized grounded object, there exists the hazard of step potential.

~~**[4. If the minimum approach distance for a qualified line-clearance arborist (shown in Table 1 of this section) or for a qualified arborist (shown in Table 2 of this section) cannot be maintained during arboricultural operations, the electrical system owner/operator shall be advised and an electrical hazard abatement plan implemented before any work is performed in proximity to energized electrical conductors.]**~~

B. Working in proximity to electrical hazards.

1. The items contained in subsection A of this section shall always be included in the review of this section. Sections 59.1-406 through 59.1-414 of the Code of Virginia, Overhead High Voltage Line Safety Act (Act), are hereby incorporated by reference, and apply as specified in the Act anytime the voltage of overhead high voltage lines **[**~~**,**~~

~~as defined in the Act,~~] exceeds 600 volts [as defined in the Act]. The Act does not apply anytime line-clearance activities are performed by the employees of the owner or operator of the electrical or communication systems, or independent contractors engaged on behalf of the owner or operator of the system to perform the work.

2. An inspection shall be made by a qualified arborist to determine whether an electrical hazard exists before climbing, otherwise entering, or performing work in or on a tree.

3. Only qualified line-clearance arborists or qualified line-clearance arborist trainees shall be assigned to work where an electrical hazard exists. Qualified line-clearance arborist trainees shall be under the direct supervision of qualified line-clearance arborists. A qualified line-clearance arborist trainee shall not serve as a ground observer for another qualified line-clearance arborist trainee who is engaged in line clearing operations aloft, unless a qualified arborist is also present at the work site.

~~[4. A second qualified line-clearance arborist or line-clearance arborist trainee shall be within visual or normal (that is unassisted) voice communication during line-clearing operations aloft when an arborist must approach closer than 10 feet (3.05 m) to any energized electrical conductor in excess of 750 volts (primary conductor) or when:~~

~~a. Branches or limbs closer than 10 feet (3.05 m) to any energized electrical conductor in excess of 750 volts (primary conductor) are being removed, which cannot first be cut (with a nonconductive pole pruner/pole saw) to sufficiently clear electrical conductors, so as to avoid contact; or~~

~~b. Roping is required to remove branches or limbs from such electrical conductors.]~~

~~[Table 1.~~
~~Minimum approach distances from energized conductors for qualified line-clearance arborists and qualified line-clearance arborist trainees.~~

~~Nominal voltage in kilovolts (kV) phase to phase~~	~~Includes 1910.269 elevation factor, sea level to 5,000 ft*~~		~~Includes 1910.269 elevation factor, 5,000–10,000 ft*~~		~~Includes 1910.269 elevation factor, 10,001–14,000 ft*~~	
	~~ft-in~~	~~m~~	~~ft-in~~	~~m~~	~~ft-in~~	~~m~~
~~0.051 to~~	~~Avoid contact~~		~~Avoid contact~~		~~Avoid contact~~	

0.3						
0.301 to 0.75	1-01	0.33	1-03	0.38	1-04	0.41
0.751 to 15.0	2-05	0.7	2-09	0.81	3-00	0.88
15.1 to 36.0	3-00	0.91	3-05	1.04	3-09	1
36.1 to 46.0	3-04	1.01	3-10	1.16	4-02	1.09
46.1 to 72.5	4-02	1.26	4-09	1.44	5-02	1.3
72.6 to 121.0	4-06	1.36	5-02	1.55	5-07	1.68
138.0 to 145.0	5-02	1.58	5-11	1.8	6-05	1.96
161.0 to 169.0	6-00	1.8	6-10	2.06	7-05	2.23
230.0 to 242.0	7-11	2.39	9-00	2.73	9-09	2.95
345.0 to 362.0	13-02	3.99	15-00	4.56	16-03	4.94
500.0 to 550.0	19-00	5.78	21-09	6.6	23-07	7.16
765.0 to 800.0	27-04	8.31	31-03	9.5	33-10	10.29

*Exceeds phase to ground; elevation factor per 29 CFR 1910.269.

Note: At time of publication, the minimum approach distances in this table for voltages between 301 and 1,000 volts exceed those specified by 29 CFR 1910.269.]

Table [2. 1.]

Minimum approach distances to energized conductors for persons other than qualified line-clearance arborists and qualified line-clearance arborist trainees

Nominal voltage in kilovolts (kV) phase to phase*	Distance	
	ft-in	m

0.0 to 1.0	10-00	3.05
1.1 to 15.0	10-00	3.05
15.1 to 36.0	10-00	3.05
36.1 to 50.0	10-00	3.05
50.1 to 72.5	10-09	3.28
72.6 to 121.0	12-04	3.76
138.0 to 145.0	13-02	4
161.0 to 169.0	14-00	4.24
230.0 to 242.0	16-05	4.97
345.0 to 362.0	20-05	6.17
500.0 to 550.0	26-08	8.05
785.0 to 800.0	35-00	10.55

*Exceeds phase to ground per 29 CFR 1910.333.

[~~5. Qualified line-clearance arborists and line-clearance arborist trainees shall maintain minimum approach distances from energized electrical conductors in accordance with Table 1.~~]

[~~6.~~ 4.] All other arborists and other workers shall maintain a minimum approach distance from energized electrical conductors in accordance with Table **[~~2.~~ 1.]**

[~~7. Branches hanging on an energized electrical conductor shall be removed using nonconductive equipment.~~]

[~~8.~~ 5.] The tie-in position shall be above the work area and located in such a way that a slip would swing the arborist away from any energized electrical conductor or other identified hazard.

[~~9.~~ 6.] While climbing, the arborist shall climb on the side of the tree that is away from energized electrical conductors while maintaining the required distances shown in Table 1 **[~~or 2, as applicable~~]**.

[~~10.~~ 7.] Footwear, including lineman's overshoes or those with electrical-resistant soles, shall not be considered as providing any measure of safety from electrical hazards.

[~~11.~~ 8.] Rubber gloves, with or without leather or other protective covering, shall not be considered as providing any measure of safety from electrical hazards.

[~~12.~~ 9.] A rope that is wet, that is contaminated to the extent that its insulating capacity is impaired, or that is otherwise not to be considered insulated for the voltage involved shall not be used near exposed energy lines.

[~~13.~~10.] Ladders, platforms, and aerial devices, including insulated aerial devices, shall be subject to minimum approach distances in accordance with Table 1 or 2, as applicable.

[~~14.~~ 11.] Aerial devices with attached equipment (such as chippers) brought into contact with energized electrical conductors shall be considered energized. Contact by people and/or equipment shall be avoided.
[~~15.~~ 12.] Emergency response to an electric contact shall be performed in accordance with 16VAC25-73-40 C.

[~~C. Storm work and emergency conditions: line clearance.~~
~~1. The items contained in subsection A of this section shall always be included in the review of this section.~~
~~2. Line clearance shall not be performed during adverse weather conditions such as thunderstorms, high winds, and snow and ice storms.~~
~~3. Qualified line-clearance arborists and qualified line-clearance arborist trainees performing~~
~~line clearance after a storm or under similar conditions shall be trained in the special~~
~~hazards associated with this type of work.~~
~~4. Line-clearance operations shall be suspended when adverse weather conditions or emergency conditions develop involving energized electrical conductors.~~
~~Electrical system owners/operators shall be notified immediately.~~]

16VAC25-73-60. Safe use of vehicles and mobile equipment used in arboriculture.

A. General.

1. Prior to daily use of any vehicles and mobile equipment (units), visual walk-around inspections and operational checks shall be made in accordance with manufacturers' and owners' instructions (see 16VAC25-60-120) and applicable federal, state, and local requirements.
2. Units shall be equipped and maintained with manufacturers' safety devices, instructions, warnings, and safeguards. Arborists and other workers shall follow instructions provided by manufacturers.
3. Manufacturers' preventive maintenance inspections and parts replacement procedures shall be followed.
4. Manufacturers' instructions shall be followed in detecting hydraulic leaks. No part of the body shall be used to locate or stop hydraulic leaks.
5. Units shall be operated or maintained only by authorized and qualified personnel in accordance with company policies and federal, state, or local laws.
6. Material and equipment carried on vehicles shall be properly stored and secured in compliance with the design of the unit in order to prevent the movement of material or equipment.
7. **[If previously installed by the manufacturer, skid resistant ~~S~~ s**tep surfaces and platforms on mobile equipment shall be **[~~skid resistant~~ properly maintained]**.
8. Safety seat belts, when provided by the manufacturer, shall be worn while a unit is being operated.
9. Riding or working outside or on top of units shall not be permitted unless the units are designed for that purpose or the operator is performing maintenance or inspection. Fall protection shall be provided for employees performing maintenance **[~~or inspection~~]** on top of units six feet or more above a lower level. **[Fall protection is**

not required when performing inspections on top of units six feet or more above a lower level.]

10. Hoisting or lifting equipment on vehicles shall be used within rated capacities as stated by the manufacturers' specifications.

11. Units with obscured rear vision, particularly those with towed equipment, shall be backed up in accordance with 16VAC25-97.

12. When units are left unattended, keys shall be removed from ignition, the wheels chocked, and, if applicable, the parking brake applied.

13. Units shall be turned off, keys removed from the ignition, and rotating parts at rest prior to making repairs or adjustments, except where manufacturers' procedures require otherwise. Defects or malfunctions affecting the safe operation of equipment shall be corrected before such units are placed into use.

14. Personal protective equipment (for example, eye, head, hand, and ear protection) shall be worn in accordance with 16VAC25-73-40 D.

15. When towing, safety chains shall be crossed under the tongue of the unit being towed and connected to the towing vehicle.

16. The unit's exhaust system shall not present a fire hazard.

17. Towed units that detach from another unit (for example, a motorized vehicle) shall be chocked or otherwise secured in place.

18. Units operated off-road shall be operated in the proper gear and at the proper speed relative
to the operating environment and the manufacturers' instructions and guidelines.

B. Aerial devices.

1. The items contained in subsection A of this section shall always be included in the review of this section. 16VAC25-90-1910.67 is hereby incorporated by reference. Damaged aerial devices and vehicles shall be removed from service and tagged until repaired or discarded.

2. Aerial devices shall be provided with an approved point of attachment on which to secure a full-
body harness with an energy-absorbing lanyard, which shall be worn when aloft.

3. Booms, buckets, or any other part of the aerial device shall not be allowed to make contact or violate minimum approach distances with energized electrical conductors, poles, or similar conductive objects. See Table 2 of 16VAC25-73-50 or §§ 59.1-406 through 59.1-414 of the Code of Virginia (Overhead High Voltage Line Safety Act), as applicable.

4. Aerial devices or aerial ladders shall not be used as cranes or hoists to lift or lower materials or tree parts, unless they were specifically designed by the manufacturer to do so (see 16VAC25-60-120).

5. Wheel chocks shall be set before using an aerial device unless the device has no wheels on the ground or is designed for use without chocks.

6. Units equipped with outriggers or a stabilizing system shall be operated in a manner consistent with manufacturers' requirements.

7. The operator shall ensure adequate clearance exists and give warning to all employees in the work area prior to lowering outriggers. Pads shall be placed under outrigger feet when they are needed to ensure stable footing.

8. When operating aerial devices, the operator shall look in the direction the bucket is traveling and be aware of the location of the booms in relation to all other objects and hazards.
9. Clearances from passing vehicles shall be maintained, or traffic control shall be provided when booms or buckets are operated over roads in accordance with VDOT's Virginia Work Area Protection Manual.
10. One-person buckets shall not have more than one person in them during operations.
11. Hydraulic/pneumatic tools shall be disconnected when they are being serviced or adjusted, except where manufacturers' procedures require otherwise.
12. To avoid flying particles or whipping hydraulic/pneumatic hoses, pressure shall be released before connections are broken, except where quick-acting connectors are used. Hydraulic/pneumatic hoses shall never be kinked in order to cut off pressure.
13. No part of the body shall be used to locate or stop hydraulic leaks.
14. Hoses affecting dielectric characteristics of equipment shall meet manufacturers' requirements.
15. The flash point of hydraulic fluid shall meet the minimum set by the manufacturer.
16. Combined loads shall not exceed rated lift capacities. Load ratings shall be conspicuously and permanently posted on aerial devices in accordance with ANSI A92.2.
17. Electric cables/cords used with electric saws or lights, or other conductive material shall not be run from the vehicle to the bucket when arborists are working in proximity to energized electrical conductors.
18. Aerial devices shall not be moved with an arborist on an elevated platform (for example, a bucket) except when equipment is specifically designed for such operation.
19. Holes shall not be drilled in buckets or liners.
20. During aerial device operations, arborists and other workers who are not qualified line-clearance arborists shall maintain a minimum approach distance from energized electrical conductors in accordance with Table 2of 16VAC25-73-50. Only qualified line-clearance arborists or qualified line-clearance arborist trainees using an insulated aerial device may operate in accordance with minimum approach distances provided in Table 1.
21. Arborists and other workers shall be instructed that insulated aerial buckets do not protect them
from other electric paths to the ground, such as paths through trees, guy wires, or from one phase wire to the second phase wire, any one of which can be fatal.
22. All underground hazards shall be located prior to operating aerial lift devices off-road. These hazards could include natural gas tanks, underground oil tanks, and septic systems.

C. Brush chippers.

1. The items contained in subsection A of this section shall always be included in the review of this section. Damaged brush chippers shall be removed from service and tagged until repaired or discarded.
2. Access panels (for example, guards) for maintenance and adjustment, including discharge chute and cutter housing, shall be closed and secured prior to starting the engine of brush chippers. These access panels shall not be opened or unsecured until

the engine and all moving parts have come to a complete stop (see 16VAC25-73-110, Appendix B, General Safety Procedures that Apply to All Tree Work).
3. Rotary drum or disc brush chippers not equipped with a mechanical infeed system shall be equipped with an infeed hopper not less than 85 inches (2.15 m) measured from the blades or knives to ground level over the center line of the hopper. Side members of the infeed hopper shall have sufficient height so as to prevent workers from contacting the blades or knives during operations.
4. Rotary drum or disc brush chippers not equipped with a mechanical infeed system shall have a flexible anti-kickback device installed in the infeed hopper to reduce the risk of injury from flying chips and debris.
5. Chippers equipped with a mechanical infeed system shall have a quick-stop and reversing device on the infeed system. The activating mechanism for the quick-stop and reversing device shall be located across the top, along each side, and close to the feed end of the infeed hopper within easy reach of the worker.
6. Vision, hearing, and other appropriate personal protective equipment shall be worn when in the immediate area of a brush chipper in accordance with 16VAC25-73-40 D.
7. Arborists, mechanics, and other workers shall not, under any circumstances, reach into the infeed hopper when the cutter disc, rotary drum, or feed rollers are moving.
8. When trailer chippers are detached from the vehicles, they shall be chocked or otherwise secured in place.
9. When in a towing position, chipper safety chains shall be crossed under the tongue of the chipper and properly affixed to the towing vehicle.
10. See 16VAC25-73-90 F, for additional requirements.

D. Sprayers and related equipment.

1. The items contained in subsection A of this section shall always be included in the review of this section. Damaged sprayers and related equipment shall be removed from service and tagged until repaired or discarded.
2. Walking and working surfaces of all sprayers and related equipment shall be covered with skid-resistant material.
3. Equipment on which the applicator/operator stands while the vehicle is in motion shall be equipped with guardrails around the working area. Guardrails shall be constructed in accordance with 16VAC25-90-1910.23.
4. The applicator/operator shall make a visual inspection of hoses, fittings, exposed plumbing, tanks, covers, and related equipment prior to its use each workday.
5. The applicator/operator shall not allow hoses or other parts of the equipment to create a tripping hazard for coworkers or the public.
6. The applicator/operator shall have a firm grip on the spray gun/excavation tool when pulling the trigger.
7. The operator of high-pressure excavation equipment shall wear a face shield in addition to
eye protection.
8. Related equipment:

a. The applicator/operator shall be aware of underground utility locations when drilling holes in the ground for fertilizer or pesticide applications.

b. The equipment shall have splash guards, and the applicator shall wear eye protection when injecting liquid fertilizer or pesticides into the ground.

c. The applicator shall wear eye protection and follow label instructions when injecting liquids into trees.

E. Stump cutters.

1. The items contained in subsection A of this section shall always be included in the review of this section. Damaged stump cutters shall be removed from service and tagged until repaired or discarded.
2. Stump cutters shall be equipped with enclosures or guards that reduce the risk of injury during operation. Enclosures or guards shall be kept in place when stump cutters are operative.
3. Arborists and other workers in the immediate stump-cutting work zone shall wear vision, hearing, and other personal protective equipment in accordance with 16VAC25-73-40 D.
4. When in a towing position, stump-cutter safety chains shall be crossed under the tongue of the stump cutter and properly affixed to the towing vehicle.
5. Towable stump cutters or stump-cutter trailers, when detached from the vehicle, shall be chocked or otherwise secured in place.
6. The operator shall be aware of underground utility locations prior to performing work.

F. Vehicles.

1. The items contained in subsection A of this section shall always be included in the review of this section. (See 16VAC25-60-120.) Damaged vehicles shall be removed from service and tagged until repaired or discarded.
2. A steel bulkhead or equivalent protective devices shall be provided to protect workers from load shifts in vehicles carrying logs or other material.
3. Load-securing procedures shall be followed to prevent accidental shifting or discharge of logs or other materials from the vehicle during transport.
4. Logs or other material shall not overhang the sides; obscure taillights, brake lights, or vision; or exceed height limits per state and local requirements for bridges, overpasses, utility lines, or other overhead hazards.
5. To avoid the hazard of spontaneous combustion or the generation of undesirable odors, wood chips shall not be left in vehicles for extended periods.

G. Log loaders, knuckleblooms, cranes, and related hoists

1. The items contained in subsection A of this section shall always be included in the review of this section. Damaged log loaders, knuckle booms, cranes and related hoists shall be removed from service and tagged until repaired or discarded.
2. Log loaders, cranes, and related hoisting equipment shall be inspected in accordance with applicable regulations as well as manufacturers' instructions and guidelines. Chokers, slings, and other means of lifting, lowering, or rigging equipment shall be

inspected before each use. An inspection procedure checklist shall be available to the crew.
3. Operators of hoisting equipment shall be trained and shall maintain a minimum approach distance from energized conductors in accordance with Table 1 or 2 of 16VAC25-73-50, or §§ 59.1-406 through 59.1-414, Overhead High Voltage Line Safety Act, as applicable. A spotter shall be used when work is being performed in proximity to electrical conductors. Personnel assigned to work in proximity to the tree removal shall be trained and follow guidelines for electrical hazards (see 16VAC25-73-50).
4. The crane operator shall be familiar with the potential hazards encountered and operational techniques used in tree work.
5. Cranes with telescoping booms shall be equipped with an anti-two block device. A boom angle
indicator and a device to indicate the boom's extended length shall be clearly visible to the operator
at all times. A load rating chart with clearly legible letters and figures shall be provided with each crane and securely fixed at a location easily visible to the operator.
6. Operators of hoisting equipment shall remain at the controls while a load is lifted, suspended, or lowered.
7. Tree sections shall be rigged to minimize load shifting. Controlled load lowering shall be employed. Shock-loading shall be avoided, and free fall is prohibited. A green log weight chart (see 16 VAC25-73-130, Appendix D), shall be available to the crew. All workers shall be kept clear of loads about to be lifted and of suspended loads.
8. Riding the load line of a crane while it is under load tension shall be prohibited.
9. The use of a crane to hoist a qualified arborist into position is prohibited, except when the use of conventional means of reaching the work area, such as, but not limited to, an aerial lift, would be more hazardous or is not physically possible because of worksite conditions. If the above exception applies, a qualified arborist may be hoisted into position utilizing a crane if the crane manufacturer's specifications and limitations do not prohibit such use, and any fall protection requirements of the crane manufacturer are complied with, and the arborist is tied in with an arborist climbing line and arborist saddle and secured to a designated anchor point on the boom line or crane. The following procedures shall be followed when an arborist is to be lifted by a crane:

a. The qualified crane operator, the signal person, the person responsible for the work to be performed and the arborist to be lifted shall meet prior to the work to review the procedures to be followed. A job briefing shall be done before any work begins, in accordance with 16VAC25-73-40 A 4.

b. The arborist climbing line shall be secured to the crane in such a way that it does not interfere with the function of any damage-prevention or

warning device on the crane and so that no part of the crane compromises the climbing line or any component of the climbing system.

c. The crane operator shall test the adequacy of footing prior to any lifting, and shall conduct a trial lift immediately before lifting the arborist into position. The crane operator shall determine that all systems, controls and safety devices are activated and functioning properly; that no interferences exist; and that all configurations necessary to reach the intended work location will allow the operator to remain under the 50% limit of the hoist's rated capacity. The crane shall be uniformly level and located on firm footing. If necessary, blocking shall be used so that the support system does not exceed its load-bearing capabilities. Cranes equipped with outriggers shall have them all fully extended and properly set, as applicable, before lifting and lowering operations begin and/or before the qualified arborist is lifted.

d. Lifting and supporting shall be done under controlled conditions and under the direction of a qualified arborist or an appointed signal person. Lifting and supporting operations shall not be performed during adverse weather conditions such as thunderstorms, high winds, and snow and ice storms.

e. The load-line hoist drum shall have a system or other device on the power train, other than the load hoist brake, that regulates the lowering speed of the hoist mechanism. Load lines shall be capable of supporting, without failure, at least seven times the maximum intended load, except that where rotation resistant rope is used, the lines shall be capable of supporting without failure, at least 10 times the maximum intended load.

The required design factor is achieved by taking the current safety factor of 3.5 and applying 50% de-rating of the crane capacity.

f. Communication between the crane operator and the arborist being lifted shall be maintained either directly or through the appointed signal person. This communication shall either be visual, using the accepted hand signals, or audible, using voice or radio. Radio communication shall be used to control blind picks. The crew members shall know and follow hand signals for standard crane operations (see 16VAC25-73-150, Appendix F).

g. The crane operator shall remain at the controls when the qualified arborist is attached to the crane and during lifting and lowering operations.

h. The crane boom and load line shall be moved in a slow, controlled, cautious manner when the

arborist is attached. Lifting or lowering speed shall not exceed 100 feet/minute (0.5 m/sec), and any

sudden movements shall be avoided. The crane shall be operated so that lowering is power controlled.

i. The crane carrier shall not travel at any time while the qualified arborist is attached. An accurate determination of the load radius to be used during lifting shall be made before the qualified arborist is hoisted.

j. The qualified arborist shall be detached from the crane any time it comes under load tension.

H. Specialized units.

1. The items contained in subsection A of this section shall always be included in the review of this section.

2. Off-road and tracked vehicles shall be operated at the proper speed and in the proper gear relative to the operating environment and the manufacturer's instructions and guidelines.
3. Deadman controls on towing equipment for brush hogs and similar implements shall be used and maintained in good working condition. If the deadman control is malfunctioning or not operational, the equipment shall be removed from service and tagged until it has been repaired or discarded. When deadman controls were not provided by the manufacturer, the worker shall disengage the power source to the rotary or cutter head before dismounting.

I. Equipment-mounted winches.

1. The items contained in subsection A of this section shall always be included in the review of this section. Damaged equipment mounted winches shall be removed from service and tagged until repaired or discarded.
2. Operators shall wear the appropriate personal protective equipment during winch operations, including eye and head protection.
3. The winch cable/synthetic line shall be inspected daily for broken or worn strands, bird caging, major kinks, and other defects. Damaged cables shall be removed from service and tagged until repaired or discarded.
4. Cable hooks and attachment points shall be inspected for damage. Damaged hooks or attachment assemblies shall be removed from service and tagged until repaired or discarded.
5. All mounting bolts and hardware shall be inspected for loose or missing components. The winch shall not be used until complete repairs are made to damaged or missing bolts and hardware.
6. Operators shall be aware of the dangers of load or cable breakage and ensure that all personnel remain clear of the recoil area in the event of load or cable breakage.
7. All winch operators shall be properly trained and be aware of the inherent dangers associated with winch operations.
8. Operators shall be aware of the winch cable at all times during extension and ensure that it does not become a hazard to personnel or machinery.
9. Winch systems and cables shall be used only as intended and instructed by the manufacturer.
10. The winch shall never be used with personnel, including the operator, within the span of the winch cable and the winch.
11. Pinch point hazards develop during winching operations; therefore, all operators involved in the winching operation shall constantly be aware of such hazards and stand clear of these areas.
12. All loads shall be pulled in such a manner as to avoid angles that may result in tipping, cause the vehicle to become unstable, or result in unintended movement of the vehicle.
13. Pulling loads from the side requires special equipment and techniques. Therefore, loads shall be pulled in line with the winch unless the winch is properly equipped with a fair lead and the operator is trained to pull loads at an angle.
14. The operator shall ensure that the vehicle supporting the winch is secured to avoid unintended movement.
15. The operator shall ensure that all rigging points comply with 16VAC25-73-90 D.

16. To ensure precise communication, an effective means of communication shall be established and used with all workers involved in the winching operations (see 16VAC25-73-90 D 14).

16VAC25-73-70. Portable power hand tools.

A. General.

1. The purpose of this section is to provide guidelines for arborists and other workers pertaining to the safe use and care of portable power hand tools. Damaged portable power tools shall be removed from service and tagged until repaired or discarded.
2. Manufacturers' operating and safety instructions shall be followed (see 16VAC25-60-120).
3. Before starting or otherwise using any portable power tools, a communication system shall be established in accordance with the requirements of 16VAC25-73-90 B 1.

B. Portable electric power tools.

1. The items contained in subsection A of this section shall always be included in the review of this section. Damaged portable electric power tools shall be removed from service and tagged until repaired or discarded.
2. Corded electric power tools shall not be used in trees or aerial devices near energized electrical conductors where there is a possibility of power tools or supply cords contacting the conductor.
3. All corded portable electric power tools shall be:

a. Equipped with three-wire cords having the ground wire permanently connected to the tool frame and a means for grounding the other end;

b. Double insulated and permanently labeled as "double insulated"; or

c. Connected to power supplies by means of an isolating transformer or other isolated power supply.

4. Extension cords shall be maintained in safe condition. Exposed metal sockets shall not be used. Worn or frayed extension cords shall be removed from service and tagged until repaired or discarded.
5. Arborists and other workers shall:

a. Prevent cords from becoming entangled, damaged, or cut by blades and bits;

b. Not lay extension cords in water; and

c. Support electric power tools and supply cords by a tool lanyard or separate line, when used aloft.

C. Chain saws.

1. The items contained in subsection A of this section shall always be included in the review of this section. Damaged chain saws shall be removed from service and tagged until repaired or discarded.
2. Chain saws shall not be operated unless the manufacturer's safety devices are in proper working order. Chain-saw safety devices shall not be removed or modified.
3. When an arborist or other worker is working in a tree other than from an aerial device, chain saws weighing more than 15 pounds (6.8 kg) service weight shall be made safe against falling (i.e., supported by a separate line or tool lanyard).
4. Secure footing shall be maintained when starting the chain saw.
5. When starting a chain saw, the operator shall hold the saw firmly in place on the ground or otherwise support the saw in a manner that minimizes movement of the saw when pulling the starter handle. The chain saw shall be started with the chain brake engaged, on saws so equipped. Drop-starting a chain saw is prohibited.
6. Chain-saw engines shall be started and operated only when other arborists and workers are clear of the swing radius of the chain saw.
7. When operating a chain saw, the arborist or other worker shall hold the saw firmly with both hands, keeping the thumb and fingers wrapped around the handle.
8. Arborists shall use a second point of attachment (for example, lanyard or doublecrotched climbing
line) when operating a chain saw in a tree, unless the employer demonstrates that a greater hazard is posed by using a second point of attachment while operating a chain saw in that particular situation. Using both ends of a two-in-one lanyard shall not be considered two points of attachment when using a chain saw.
9. Chain-saw mufflers and spark arresters (if the latter are provided) shall be maintained in good condition.
10. The chain brake shall be engaged, or the engine shut off, before setting a chain saw down.
11. When a chain saw is being carried more than two steps, the chain brake shall be engaged or the engine shut off. The chain saw shall be carried in a manner that will prevent operator contact with the cutting chain and the muffler.
12. The chain-saw operator 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, have insecure footing, or relinquish a firm grip on the saw.

D. Powered pole tools and backpack power units.

1. The items contained in subsection A of this section shall always be included in the review of this section. Damaged powered pole tools and backpack power units shall be removed from service and tagged until repaired or discarded.
2. Only workers operating the equipment shall be within 10 feet (3.05 m) of the cutting head of a brush saw during operations.
3. Power units shall be equipped with a readily accessible, quick shutoff switch.
4. Operators shall observe the position of all other workers in the vicinity while the equipment is running.
5. Engines shall be stopped for all cleaning, refueling, adjustments, and repairs to the saw or engine, except where manufacturers' procedures require otherwise.
6. Powered pole tools with poles made of metal or other conductive material shall not be used in operations where electrical hazards exist.

16VAC25-73-80. Hand tools and ladders.

A. General.

1. Correct hand tools and equipment shall be selected for the job.
2. Hand tools and equipment that have been made unsafe by damage or defect, including tools with loose or cracked heads or cracked, splintered, or weakened handles, shall be removed from service and tagged until repaired or discarded.
3. Workers shall maintain a safe working distance from other workers when using hand tools and equipment.
4. When climbing into a tree, arborists shall not carry hand tools and equipment in their hands unless the tools are used to assist them in climbing. Tools other than ropes or throwlines shall not be thrown into a tree or between workers aloft.
5. Arborist climbing lines or handlines shall be used for raising and lowering hand tools and equipment. Arborists shall raise or lower hand tools and equipment in a manner such that the cutting edge will not contact the arborist climbing line or handline.
6. Hand tools and equipment shall be properly stored or placed in plain sight out of the immediate work area when not in use.

B. Cant hooks, cant dogs, peaveys, and tongs.

1. The items contained in subsection A of this section shall always be included in the review of this section. Damaged cant hooks, cant dogs, peaveys and tongs shall be removed from service and tagged until repaired or discarded.
2. Cant hooks shall be firmly set before applying force.
3. Points of hooks shall be at least two inches (5 cm) long and kept sharp.
4. Arborists and other workers shall always stand uphill from rolling logs, and all workers shall be
warned and in the clear before logs are moved.

C. Wedges, chisels, and gouges.

1. The items contained in subsection A of this section shall always be included in the review of this section.
2. Wedges, chisels, and gouges shall be inspected for cracks and flaws before use. Tools with damaged heads shall be removed from service and tagged until repaired or discarded.
3. Wedges and chisels shall be properly pointed and tempered.
4. Eye protection shall be used during impact operations.
5. Only wood, plastic, or soft-metal wedges shall be used while operating chain saws.
6. Wood-handled chisels shall be protected with a ferrule on the striking end.
7. Wood, rubber, or high-impact plastic mauls, sledges, or hammers shall be used when striking wood-handled chisels or gouges.

D. Chopping tools.

1. The items contained in subsection A of this section shall always be included in the review of this section. Damaged chopping tools shall be removed from service and tagged until repaired or discarded.
2. Chopping tools shall not be used while working aloft.
3. Chopping tools shall not be used as wedges or used to drive metal wedges.
4. Chopping tools shall be swung away from the feet, legs, and body, using the minimum force practical for function and control.

5. When swinging tools such as grub hoes, mattocks, and axes, a secure grip, firm footing, and clearance of workers and overhead hazards shall be maintained.

E. Ladders.

1. The items contained in subsection A of this section shall always be included in the review of this section.
2. Ladders made of metal or other conductive material shall not be used where electrical hazards exist. Only wooden ladders or nonconductive ladders made of synthetic material equal to or exceeding the strength of wooden ladders shall be used. Portable wooden ladders shall be used in accordance with 16VAC25-90-1910.25.
3. Metal ladders used where no electrical hazard exists shall be used in accordance with 16VAC25-90-1910.26.
4. All ladders shall be inspected before use and removed from service if found defective, and tagged until repaired or discarded.
5. Cleats, metal points, skid-resistant feet, lashing, or other effective means of securing the ladder shall be used.
6. Ladders shall not be used as bridges or inclined planes to load or handle logs or other material.
7. Ladders shall be supported while in storage to prevent sagging. Except when on mobile equipment, ladders shall be stored under suitable cover, protected from the weather, and kept in a dry location away from excessive heat.
8. The third, or hinged, leg of a tripod/orchard ladder shall be braced or fastened when on hard or slick surfaces.
9. All ladders shall be used in accordance to the manufacturers' specifications and limitations and shall not be altered in a way that contradicts those specifications and limitations.

16VAC25-73-90. Work procedures.

A. Ropes and arborist climbing equipment.

1. A visual hazard assessment, including a root collar inspection, shall be performed prior to
climbing, entering, or performing any work in a tree, and an ongoing hazard assessment shall be conducted as operations progress while the arborist is in the tree. If the hazard assessment reveals a serious hazard to the climber or ground personnel, work shall immediately stop and personnel shall be removed from the hazardous area until a work plan is developed to safety remove the hazard/tree. The following items, at a minimum shall be inspected:

a. Trunk and root hazards including, but not limited to, cracks, cavities, wood decay/rot, cut roots, mushrooms;

b. Lower stem hazards including, but not limited to, loose bark, open cavities, cracks, mushrooms, conks, and depressions or swelling in the stem;

c. Limb hazards including, but not limited to, watersprouts, hangers, cankers, dead branches, lightning damage, and weak crotches; and

d. Storm damage hazards including, but not limited to, cracked stems and crotches, broken limbs supported by cables, points of pressure, and tension on limbs or small trees underneath larger fallen trees.

2. A second arborist or other worker trained in emergency procedures shall be within visual or voice communication during arboricultural operations above 12 feet (3.65 m) that are not subject to the requirements of 16VAC25-73-50 B 4.

3. Climbing lines used in a split-tail system and split-tails shall be terminated with an eye splice or a knot that interfaces appropriately with the connecting link that it is attached to. The termination knot selected shall remain secure under normal loading and unloading. When using a carabiner without a captive eye, the knot or eye splice shall cinch in place to prevent accidental opening and/or side-loading of the carabiner.

4. Arborists shall inspect climbing lines, worklines, lanyards, and other climbing equipment for damage, cuts, abrasion, and/or deterioration before each use and shall remove them from service if signs of excessive wear or damage are found. The items removed from service shall be tagged until repaired or discarded.

5. Arborist saddles and lanyards used for work positioning shall be identified by the manufacturer as suitable for tree climbing.

6. Arborist saddles and lanyards used for work positioning shall not be altered in a manner that would compromise the integrity of the equipment.

7. Hardware used in the manufacture of arborist saddles shall meet the hardware material, strength, and testing requirements outlined in ANSI 359.1.

8. Arborist climbing lines shall have a minimum diameter of 7/16 (11 mm) and be constructed from a synthetic fiber, with a minimum breaking strength of 5,400 pounds (24.02 kilonewtons (kN)) when new. Maximum working elongation shall not exceed 7.0% at a load of 540 pounds (2.402 kN). Arborist climbing lines shall be identified by the manufacturer as suitable for tree climbing.

9. **[~~All components of a climbing system (e.g., ropes, pulleys, etc.) shall meet the manufacturer's design, specifications, and limitations. Components from different climbing systems shall not be combined without prior approval of the manufacturers.~~ The qualified arborist shall assure that each component of the climbing system is approved by the manufacturer for its intended use as well as its compatibility with other components of the climbing system.]**

10. Prusik loops, split-tails, and work-positioning lanyards used in a climbing system shall meet the minimum strength standards for arborist climbing lines.

11. Snap hooks (rope snaps) used in climbing shall be self-closing and self-locking, with a minimum tensile strength of 5,000 pounds (22.24 kN).

12. Carabiners used in climbing shall be self-closing and self-locking, with a minimum tensile strength of 5,000 pounds (22.24 kN).

Carabiners shall be designed to release the load by requiring at least two consecutive, deliberate actions to prepare the gate for opening.
13. Splicing shall be done in accordance with cordage manufacturers' specifications.
14. All load-bearing components of the climbing system shall meet the minimum standards for arborist climbing equipment.
15. Equipment used to secure an arborist in the tree or from an aerial lift shall not be used for anything other than its intended purpose.
The arborist climbing line may be used to raise and lower tools.
16. Rope ends shall be finished in a manner to prevent raveling.
17. Ropes and climbing equipment shall be stored and transported in such a manner to prevent damage through contact with sharp tools, cutting edges, gas, oil, or chemicals.
18. Arborist climbing lines shall never be left in trees unattended.
19. Arborists shall have available a climbing line and at least one other means of being secured while working aloft; for example, an arborist climbing line and a work-positioning lanyard.
20. The arborist shall be secured while ascending the tree. The arborist shall be tied in once the work begins and shall be tied in until the work is completed and he has returned to the ground. The arborist shall be secured when repositioning the climbing line.
21. While ascending a ladder to gain access to a tree, the arborist shall not work from or leave the ladder until he is tied in or otherwise secured.
22. A false crotch and/or false crotch redirect may be used at the discretion of the arborist in lieu of a natural crotch.
23. The tie-in position shall be such that the arborist will not be subjected to an uncontrolled pendulum swing in the event of a slip.
24. When a climber is working at heights greater than one-half the length of the arborist climbing line, a figure-8 knot shall be tied in the end of the arborist climbing line to prevent pulling the rope through the climbing hitch.

B. Pruning and trimming.

1. Voice communications among arborists aloft and among arborists and other workers on the ground shall be established before cutting and dropping limbs. The communication method shall be clearly understood and used by all workers during all operations. The command "stand clear" from aloft and the response "all clear," "Underneath," or "No" from the ground are terms that may be used for this purpose. Prearranged, two-way hand signals may also be used when verbal communication is not possible because of distance or surrounding noise levels. Arborists and other workers returning to the work area shall be acknowledged by arborists aloft.
2. Pole pruners and pole saws, when hung, shall be securely positioned to prevent dislodgment. Pole pruners or pole saws shall not be hung on electrical conductors or left in a tree unattended. Pole saws and pole pruners shall be hung so that sharp edges are away from the arborist and shall be removed when the arborist leaves the tree.
3. Scabbards or sheaths shall be used to carry handsaws when not in use. Folding saws, when not in use, shall be closed and hooked to the arborist saddle.
4. Pole tools used in line-clearance operations shall be constructed with fiberglass reinforced plastic (FRP) or wooden poles meeting the requirements of 16VAC25-90-1910.269.

5. A separate workline shall be attached to limbs that cannot be dropped safely or controlled by hand. Arborist climbing lines and worklines shall not be secured to the same crotch.
6. Dry conditions and dead palm fronds present an extreme fire hazard. When dry conditions exist, arborists and other workers shall not smoke while working in or near dead palm fronds. All chain saws used under such conditions shall have mufflers and spark arresters in good working condition.
7. Palm frond skirts that have three years or more of growth shall be removed from the top down. Arborists performing this work shall be supported by an arborist climbing line and a false crotch. Arborists shall never attempt to remove skirts of three years or more by positioning themselves below work areas while being supported by a lanyard.
8. Cut branches shall not be left in trees upon completion of work.

C. Cabling.

1. Arborists and other workers on the ground shall not stand under the work area of a tree when a
cabling system is being installed.
2. Tools used for cabling, bark tracing, and cavity work shall be carried in a bag, on a belt designed to hold such tools, or attached to a tool lanyard.
3. Arborists installing cabling systems in trees shall be positioned off to one side in order to avoid injury in case of cable system failure that could occur when a block and tackle or a hand winch is released.
4. When removing a cable from a tree, a block and tackle or come-along system shall be installed before removing the existing cable.
5. When installing a replacement cable, the replacement cable shall be fully installed before removing the outdated cable.

D. Rigging.

1. Arborists performing rigging operations shall inspect trees for their integrity to determine whether the trees have any visible defect that could affect the operation. If it is determined that the tree poses a risk of failure due to the forces and strains that will be created by the design of the rigging operation, an alternate plan shall be used that does not expose workers to the hazards of a failure.
2. The number of connecting links used for connecting components of a rigging system shall be minimized when possible. Connecting links shall interface properly and be in compliance with manufacturers' specifications and limitations (reference 16VAC26-60-120).
3. The qualified arborist shall ensure that load ratings shown on the rigging equipment or provided by the manufacturer for all ropes, connecting links, and rigging equipment are observed in all rigging operations. Rigging equipment shall be chosen for the specific task based on working-load limits and design specifications.
4. All equipment used for rigging operations shall be in good working condition. Equipment that has been damaged or overloaded shall be removed from service. Items removed from service shall be tagged until repaired or discarded.
5. To avoid confusion between rigging equipment and climbing equipment, the equipment shall be clearly marked to indicate their different purposes.
6. Rigging points shall be assessed for their structural integrity by a qualified arborist. The rigging plan and the tree shall be considered relative to the forces being applied to

any part of the tree, including branch attachments and anchoring roots, before a rigging point is chosen and established.
7. Climbers shall choose tie-in points that will provide proper protection while allowing for a separation between the rigging system and the climbing system. Running rigging lines shall not be allowed to come into contact with any part of the climbing system.
8. Arborists performing rigging operations shall be educated to understand and trained to estimate the potential forces at any point in the rigging system being used. The system components shall comply with working-load limits relative to the operation and the maximum potential forces.
9. Careful consideration shall be given to the potential forces resulting from the specific influences of rope angles as well as the number of lines and/or line parts that will act on any rigging point.
10. Prior to the start of removal/rigging operations, a communication system shall be established in accordance with the requirements in subdivision B 1 of this section.
11. A work zone shall be established prior to the start of rigging operations. Workers not directly involved in the rigging operation shall stay out of the pre-established work zone until it has been communicated by a qualified arborist or qualified arborist trainee directly involved in the rigging operation that it is safe to enter the work zone. Workers shall be positioned and their duties organized so that the actions of one worker will not create a hazard for any other worker.
12. Only qualified arborists or qualified arborist trainees directly involved in the operation shall be permitted in the work zone when a load is being suspended by the rigging system. All workers shall be kept clear of suspended loads.
13. Taglines or other means may be used to help control and handle suspended loads.
14. Arborists working aloft shall position themselves so as to be above or to the side of the piece being rigged and out of the path of movement of the piece when it has been cut. Climbers and their climbing systems shall be positioned outside of the rigging system itself when a cut is being made or a load is being moved or lowered. Climbers shall have an escape plan prepared.
15. The spars, limbs, or leaders being worked on and the spars being used for tie-in and/or rigging points shall be assessed for structural integrity and potential reaction forces that could cause a spar to split when it is cut.
16. Steps shall be taken to prevent spars from splitting or tearing during the rigging operation, and climbers shall take steps to avoid trapping, pinning, or entangling themselves in the system should the tree split or the rigging fail. Load binders are one possible means of preventing splitting.

E. Tree removal.

1. Before beginning any tree removal operation, the chain-saw operator and/or crew leader shall carefully consider all relevant factors pertaining to the tree and site and shall take appropriate actions to ensure a safe removal operation. The following factors shall be considered:

a. The area surrounding the tree to be removed, including nearby trees;

b. Species and shape of the tree;

c. Lean of the tree;

d. Loose limbs, chunks, or other overhead material;

e. Wind force and direction;

f. Decayed or weak spots throughout the tree (be aware of additional hazards if these conditions exist in the hinge area);

g. Location and means to protect other persons, property, and electrical conductors;

h. Size and terrain characteristics or limitations of the work area; and

i. Evidence of bees or wildlife habitation in the tree.

2. Work plans for removal operations shall be communicated to all workers in a job briefing before commencing work.
3. Workers not directly involved in the removal operation shall be clear of the work area, beyond the length of the tree, unless a team of workers is necessary to remove a particular tree.
4. A planned escape route for all workers shall be prepared before cutting any standing tree or trunk. The preferred escape route is 45 degrees on either side of a line drawn opposite the intended direction of the fall. Obstructions shall be cleared along the escape path. The chain-saw operator shall use this path for egress once the cut has been completed.
5. When it is necessary to shorten or remove branches before removing the tree, the arborist shall determine whether the tree can withstand the strain of the lowering procedures. If not, other means of removing the tree shall be considered and used.
6. The crew leader shall determine the number of workers necessary for tree removal operations.
7. The crew leader shall develop a work plan so that operations do not conflict with each other, thereby creating a hazard.
8. Climbing spurs shall have gaffs of a type and length compatible for the tree being climbed.
9. Wedges, block and tackle, rope, wire cable (except where an electrical hazard exists), or other appropriate devices shall be used when there is a danger that the tree or trees being removed may fall in the wrong direction or damage property. All limbs shall be removed to a height and width sufficient to allow the tree to fall clear of any wires and other objects in the vicinity.
10. Tackle blocks and pulleys and their connecting links shall be inspected immediately before use and removed from service if they are found to be defective.

11. Workers returning to the work area shall not enter until the chain-saw operator has acknowledged that it is safe to do so.
12. When a pull line is being used, workers involved in removing a tree or trunk shall be clear
by a minimum of one tree length.
13. All workers other than the individual engaged in manual land-clearing operations shall be at least two tree lengths away from the tree or trunk being removed. This requirement does not apply in the presence of site restrictions, such as waterways or cliffs. Other arborists and workers shall be beyond the trees' striking range and at a distance as close to twice the tree's height as possible.
NOTE: This regulation does not apply to tree removal activities where the primary objective is land clearing in preparation for construction, real estate development, or other related activities, unless directly supervised by a **[~~certified~~ qualified]** arborist. Such activities are covered by 16VAC25-90-1910.266.
14. Notches shall be used on all trees and trunks greater than five inches (12.7 cm) in diameter at breast height.
15. Notches and back cuts shall be made at a height that enables the chain-saw operator to safely begin the cut, control the tree or trunk, and have freedom of movement for escape:

a. The notch cut used shall be a conventional notch, an open-face notch, or a Humboldt notch.

b. Notches shall be 45 degrees or greater and large enough to guide the fall of the tree or trunk to prevent splitting.

c. Notch depth shall not exceed one-third the diameter of the tree.

d. The back cut shall not penetrate into the predetermined hinge area.

16. With a conventional notch or Humboldt notch, the back cut shall be one to two inches (2.5 to 5 cm) above the apex of the notch to provide an adequate platform to prevent kickback of the tree or trunk. With an open-face notch (greater than 70 degrees), the back cut shall be at the same level as the apex of the notch.
17. The two cuts that form the notch shall not cross at the point where they meet.
18. Before making the back cut, there shall be a command such as "stand clear" from the arborist operating the chain saw and a response such as "all clear" from the workers supporting the removal operation. Pre-arranged, two-way hand signals may also be used in accordance with subdivision B 1 of this section. Only designated persons shall give such signals. All workers in the vicinity shall be out of range when the tree or trunk falls. Visual contact shall be maintained with the tree or trunk until it is on the ground.
19. When the back cut has been completed, the chain-saw operator shall immediately move a safe distance away from the tree or trunk using the planned escape route.

20. Workers shall not approach mechanical tree removal or mechanical re-clearing operations, such as with a rotary or flail mower, until the operator has acknowledged that it is safe to do so.

F. Brush removal and chipping.

1. Traffic control around the jobsite shall be established prior to the start of chipping operations along roads and highways (see 16VAC25-73-40 B).
2. Brush and logs shall not be allowed to create hazards in the work areas.
3. To prevent an entanglement hazard, loose clothing, climbing equipment, body belts, harnesses, lanyards, or gauntlet-type gloves (for example, long-cuffed lineman's or welder's gloves) shall not be worn while operating chippers.
4. Personal protective equipment shall be worn when in the immediate area of chipping operations in accordance with 16VAC25-73-40 D.
5. Training shall be provided in the proper operation, feeding, starting, and shutdown procedures for the chipper being used.
6. Maintenance shall be performed only by those persons authorized by the employer and trained to perform such operations.
7. Brush and logs shall be fed into chippers, butt or cut end first, from the side of the feed table center line, and the operator shall immediately turn away from the feed table when the brush is taken into the rotor or feed rollers. Chippers shall be fed in accordance with the manufacturer's instructions.
8. The brush chipper discharge chute or cutter housing cover shall not be raised or removed while any
part of the chipper is turning or moving. Chippers shall not be used unless a discharge chute of sufficient length or design is provided that prevents personal contact with the blades (see 16VAC25-73-110, Appendix B, General Safety Procedures that Apply to All Tree Work).
9. Foreign material, such as stones, nails, sweepings, and rakings, shall not be fed into chippers.
10. Small branches shall be fed into chippers with longer branches or by being pushed with a long stick.
11. Hands or other parts of the body shall not be placed into the infeed hopper. Leaning into or pushing material into infeed hoppers with feet is prohibited.
12. While material is being fed into the chipper infeed hopper chute, pinch points continually develop within the material being chipped and between the material and machine. The operator shall be aware of this situation and respond accordingly.
13. When feeding a chipper during roadside operations, the operator shall do so in a manner that prevents him from stepping into traffic or being pushed into traffic by the material that is being fed into the chipper.
14. When using a winch in chipper operations, the operator shall ensure that the winch cable is properly stored before initiating chipper operations.
15. Refer to 16VAC25-73-60 C, for additional information.

G. Limbing and bucking.

1. Work plans for limbing and bucking operations shall be communicated to all workers in a job briefing before work begins.

2. When more than one worker is limbing or bucking a tree, each shall be positioned and their duties organized so that the actions of one worker will not create a hazard for any other worker.
3. Chain saws shall be operated away from the vicinity of the legs and feet. Natural barriers, such as limbs between the saw and the body, shall be employed where possible, while ensuring proper balance. While operating a chain saw, the preferred working position is on the uphill side of the work.
4. The worker shall make sure of firm footing before and during limbing and bucking. The worker shall not stand on loose chunks or logs that will roll when the log being bucked is sawed off.
5. Trees, limbs, or saplings under tension shall be considered hazardous. Appropriate cutting techniques and precautions shall be followed.
6. Wedges shall be used as necessary to prevent binding of the guide bar or chain when bucking trunks of trees.
7. Cant hooks or peaveys shall be used as an aid in rolling large or irregular logs to complete bucking.
8. If mechanized equipment is to be used, the equipment operator shall establish an effective means of communication with other workers (see subdivisions B 1 and D 10 of this section).
9. Workers shall not approach mechanized equipment operations until the equipment operator has acknowledged that it is safe to do so.

H. Pesticide application.

1. The applicator shall follow label instructions in regard to pesticide applications.
2. The applicator shall follow pesticide label instructions in regard to laundering his clothing.
3. The applicator shall comply with the manufacturer's instructions with regard to showering or bathing at the end of each workday.
4. The employer shall provide a clean water source at the worksite, which can be used for emergency personal decontamination. Precautions shall be taken to prevent contamination of the clean water source. Drinking water and decontamination water shall be kept in separate containers.
5. The applicator shall not direct a solid spray column into contact with electrical conductors.

16VAC25-73-100. Appendix A (Informative): Recommended Guidelines for Standard Performance and Safety Training for Qualified Line-Clearance Arborists/Qualified Line-Clearance Arborist Trainees and Qualified Arborists/Qualified Arborist Trainees.

NOTE: The content of this training outline is generic and may be customized to achieve equivalent levels of safe practice by substituting or, where deemed appropriate to the circumstances, omitting portions of

this outline. Use or nonuse of training aids that may be available shall not be evidence of noncompliance with this regulation.

A. General requirements. Specific training in the area of individual expertise and work required of a qualified line-clearance arborist or qualified arborist shall be provided by the employer and documentation of training retained on file for the duration of employment.

1. Introduction and employer/employee responsibilities.

2. Employee orientation, to include:

a. Job description appropriate to job assignment (qualified line-clearance arborist or qualified arborist).

b. Introduction to immediate supervisor and crew members.

c. Familiarization with appropriate personal protective clothing and equipment and its proper use and maintenance.

d. Familiarization with equipment.

e. Introduction to company policies, procedures, and safe work practices.

f. Safe work practices as related to job assignments.

g. Written acknowledgment by employee that he has participated in such training.

3. Line-clearance or tree care pruning techniques appropriate to job assignments, as follows:

a. Provide education and training in accordance with prevailing national standards for utility pruning. Refer to recommended resources in 16VAC25-73-120 (Appendix C) for further information.

b. Provide education and training in accordance with prevailing local, state, or regional standards for utility pruning, as well as those specified by utility contracts.

c. Provide tree knowledge for line-clearance or tree care techniques appropriate to job assignments.

d. Provide education and training relative to predominant tree species within geographic area, such as identification, growth habits, structure, and wood strength.

e. Provide education and training for recognition and evaluation of potentially hazardous conditions related to tree structure. Refer to recommended resources in 16VAC25-73-120 (Appendix C).

B. General safety.

1. VOSH regulations. Familiarize employees with the requirements of VOSH regulations as applicable to employee job assignments. Refer to recommended resources in 16VAC25-73-120 (Appendix C).

2. American national standards. Familiarize employees with the requirements in ANSI A300 as applicable to employee job assignments. Refer to additional recommended standards in 16VAC25-73-120 (Appendix C).

3. Public safety and traffic control. Provide education and training in the use of public safety and traffic control devices as applicable under federal, state, or local regulations.

4. Electrical hazards. Provide education and training in the recognition and avoidance of electrical hazards applicable to employee job assignments (line-clearance or tree care).

5. Emergency conditions. Provide education and training in the proper procedures for safely performing work in emergency conditions applicable to employee job assignments.

6. Jobsite briefings. Provide education and training in jobsite-specific hazards associated with the job, work procedures, and practices involved. Instruct employees about special precautions, personal protective clothing, and equipment requirements as applicable to employee job assignments.

C. Personal safety.

1. Personal protective equipment. Provide personal protective equipment as required for applicable job assignments, and instruct employees in its proper use, fit, life, and maintenance.

2. Emergency response procedures. Furnish employees with appropriate information and training necessary to expedite a response to a worksite emergency, such as first aid, CPR, and aerial rescue (see 16VAC25-73-150, Appendix E, Aerial Rescue Flowchart).

3. Prevention of back and other injuries. Provide education and training in the techniques required to avoid back and other injuries applicable to job assignments.

4. Identification and avoidance of animals and poison plants. Provide education and training in the identification of and the need to avoid contact with poison plants and instructions for treating insect stings/bites and snake bites.

D. Equipment safety.

1. Mobile equipment and aerial lifts. Provide education and training in the inspection, operation, and maintenance of all vehicles and equipment, such as aerial lifts, brush chippers, stump grinders, log loaders, tree cranes, mowing equipment, and pesticide application equipment. All equipment shall comply with applicable federal and state regulations, local ordinances, and manufacturers' operating instructions (see 16VAC25-60-120). Such training shall be appropriate to employee job assignments.

2. Aerial equipment and electrical hazards. Provide education and training so that affected employees understand the required and recommended procedures for operating aerial devices in proximity to electrical hazards. Such training shall be appropriate to employee job assignments.

3. Chain saw, power tool, and hand tool use and safety. Provide education and training in the safe use of chain saws, power tools, and hand tools in accordance with manufacturers' instructions. Such training shall be appropriate to employee job assignments.

4. Climbing equipment use and safety. Provide education and training in the inspection, maintenance, and storage of climbing equipment such as ropes, saddles, personal lanyards, rope snaps, carabiners, and related equipment. Such training shall be appropriate to employee job assignments.

E. Operational safety.

1. Climbing techniques. Provide education and training in climbing techniques as appropriate to employee job assignments.

2. Rigging and tree removal:

a. Provide education and training appropriate to employee job assignments, such as knots and ropes, rigging techniques, tree strength and weight characteristics, and potential electrical hazards.

b. Provide education and training in the identification and removal of hazard trees. Such training shall be appropriate to employee job assignments.

3. Hazard communications. Provide education and training necessary to comply with federal and state regulations appropriate to employee job assignments.

4. Pesticide use. Provide education and training necessary to comply with federal and state regulations appropriate to employee job assignments.

16VAC25-73-110. Appendix B (Informative): General Safety Procedures that Apply to All Tree Work.

A. Lifting. Before lifting any weight, workers shall:

1. Be sure there is a clear path available if the weight is to be carried from one place to another;

2. Decide exactly how the object should be grasped to avoid sharp edges, slivers, splinters, or other factors that might cause injury;

3. Make a preliminary lift to be sure the load can be safely handled;
4. Place feet solidly on the walking surface;
5. Crouch as close to the load as possible, with legs bent at an angle of about 90 degrees;
6. Lift with the legs, not the back, keeping the weight as close to the body as possible; and
7. Use additional workers or material-handling equipment when necessary.

B. Control of hazardous energy. When a worker, hereafter referred to as the "authorized person," is doing mechanical work, precautions must taken to prevent injury caused by moving or elevated parts, or the release of stored energy, such as hydraulic pressure. Failure to do so could result in a serious, potentially maiming, or fatal injury. The authorized person performing maintenance/repair shall comply with the employer's procedures. The specific Control of Hazardous Energy requirements established by VOSH may be obtained by consulting 16VAC25-90-1910.147.

1. The following is a sample procedure.
Sequence for Securing Equipment (Sample):

a. The authorized person shall notify the crew and/or affected employees that maintenance or repair is to be done and that such equipment must be shut down and secured.

b. The authorized person shall refer to the manufacturer's manual for proper procedures (as needed).

c. If equipment is in an operational mode, it shall be shut down by normal procedures.

d. Rotating parts, such as chipper blades, shall be stopped before maintenance or repair. Keyed ignition systems must be in working order.

e. Keys shall be removed and pocketed by the foreman or mechanic. When there is no keyed ignition system, the battery cables or spark plug wires shall be disconnected.

f. The power takeoff shall be disengaged before beginning service or repair tasks, such as hose replacement. All hydraulic tools shall be disconnected before equipment is adjusted or serviced.

g. An employee shall never attempt to stop a hydraulic leak with his body.

h. Materials or parts that must be raised or disconnected and suspended shall be properly secured, such as with an appropriate sling or jackstand. Flywheels, such as chipper cutter heads, are to be blocked to prevent pinch points.

i. Before proceeding with maintenance or repair, the authorized person shall ensure that equipment is isolated and will not operate.

j. Any piece of equipment being serviced or repaired shall not be started, energized, or used by any other worker not under the direction of the authorized person.

k. When the engine must be running for tuning or adjustment, special care must be given to moving parts.

2. Restoring equipment to service (sample). When maintenance or repair is complete and equipment is ready to return to normal operation, the following steps shall be taken by the authorized person to restore the equipment to service:

a. To prevent accidental contact with moving or electrical components when the equipment is engaged, check for loose parts or tools that may have been left in the immediate area.

b. Ensure that all guards are in place and employees are in the clear.

c. Confirm that controls are in neutral.

d. Reconnect key, cable, or plug wires.

e. Notify affected employees that equipment is ready to return to service.

16VAC25-73-120. Appendix C (Informative): Additional Resources.

A. Applicable American National Standards:

Fall protection systems for construction and demolition operations (A10.32-2004)

Personal fall arrest systems, subsystems, and components (Z359.1-1992 [R1999])
Protective headgear for industrial workers (Z89.1-2003)
Tree care operations—tree, shrub, and other woody plant maintenance (A300, Parts 1 through 7)
Vehicle-mounted elevating and rotating aerial devices (A92.2-2001)

B. Cordage Institute Rope Standards

The Cordage Institute, www.ropecord.com

C. Applicable VOSH and U.S. Department of Labor/Federal Labor/Federal Motor Carrier Safety Administration Regulations

Electric Power Generation, Transmission, and Distribution, 16VAC25-90-1910.269
General Industry, 16VAC25-90-1910
Hazard Communication, 16VAC25-90-1910.1200
Medical Services and First Aid, 16VAC25-95 [PROPOSED REGULATION]
Occupational Noise Exposure, 16VAC25-90-1910.95
Personal Protective Equipment, 16VAC25-90-1910.132 to 16VAC25-90-1910.136
Electrical - Safety-Related Work Practices, 16VAC25-90-1910.331 to 16VAC25-90-1910.335
Telecommunication, 16VAC25-90-1910.268
Transportation (49 CFR, Subchapter B, Federal Motor Carrier Safety Regulations)

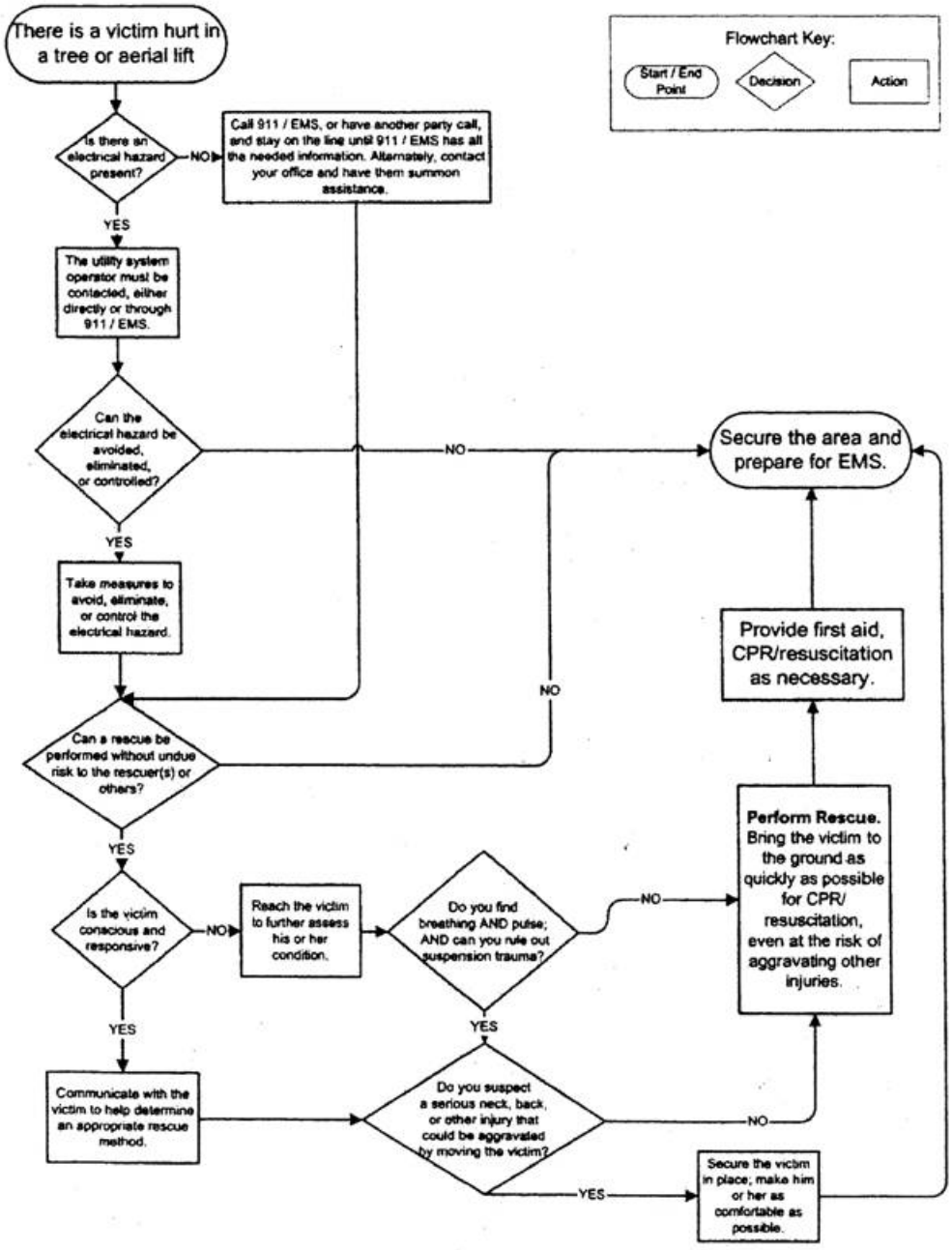
16VAC25-73-130. Appendix D (Informative): Weight of Green Logs.

Species	Weight, lb per ft	Weight of 1-ft section, based on average diameter						
		10"	12"	14"	16"	18"	20"	22"
Alder, red	46	25	36	49	64	81	100	121
Ash, green	47	25	37	50	66	83	102	124
Ash, Oregon	48	26	38	51	67	85	104	126
Ash, white	48	26	38	51	67	85	104	126
Aspen, quaking	43	23	34	46	60	76	94	114
Baldcypress	51	28	40	54	71	90	111	135
Basswood	42	23	33	45	59	74	92	111
Beech	54	29	42	58	75	95	118	142
Birch, paper	50	27	39	53	70	88	109	132
Cedar, incense	45	25	35	48	63	79	98	119
Cedar, western red	28	15	22	30	39	49	61	74
Cherry, black	45	25	35	48	63	79	98	119
Chinaberry	50	27	39	53	70	88	109	132
Cottonwood	49	27	38	52	68	86	107	129
Elm, American	54	29	42	58	75	95	118	142
Fir, Douglas	39	21	30	41	55	69	85	103
Fir, noble	29	16	23	31	41	51	63	77
Fir, white	47	25	37	50	66	83	102	124
Gum, black	45	25	35	48	63	79	98	119
Gum, red (Eucalyptus)	50	27	39	53	70	88	109	132
Hackberry	50	27	39	53	70	88	109	132

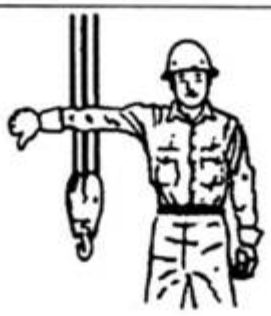
Hemlock, eastern	49	27	38	52	68	86	107	129
Hemlock, western	41	22	32	43	57	72	89	108
Hickory, shagbark	64	35	50	68	89	113	140	169
Horsechestnut	41	22	32	43	57	72	89	108
Larch	51	28	40	54	71	90	111	135
Locust, black	58	32	45	62	81	102	126	153
Locust, honey	61	33	48	65	85	108	133	161
Maple, red	50	27	39	53	70	88	109	132
Maple, silver	45	25	35	48	63	79	98	119
Maple, sugar	56	31	44	60	78	99	122	148
Oak, California black	66	36	51	70	92	116	144	174
Oak, English	52	28	41	55	72	92	113	137
Oak, live	76	41	60	81	106	134	166	200
Oak, pin	64	35	50	68	89	113	140	169
Oak, post	63	34	49	67	88	111	137	166
Oak, red	63	34	49	67	88	111	137	166
Oak, scarlet	64	35	50	68	89	113	140	169
Oak, white	62	34	48	66	86	109	135	163
Pecan	61	33	48	65	85	108	133	161
Persimmon	63	34	49	67	88	111	137	166
Pine, eastern white	36	20	28	38	50	64	78	95
Pine, loblolly	53	29	41	56	74	93	116	140
Pine, lodgepole	39	21	30	41	55	69	85	103
Pine, longleaf	55	30	43	58	77	97	120	145
Pine, ponderosa	46	25	36	49	64	81	100	121

Pine, slash	58	32	45	62	81	102	126	153
Pine, sugar	52	28	41	55	72	92	113	137
Pine, western white	36	20	28	38	50	64	78	95
Poplar, yellow	38	21	30	40	53	67	83	99
Redwood, coast	50	27	39	53	70	88	109	132
Spruce, red	34	19	27	36	47	60	74	90
Spruce, Sitka	32	17	25	34	45	56	70	84
Sweetgum	55	30	43	58	77	97	120	145
Sycamore	52	28	41	55	72	92	113	137
Walnut, black	58	32	45	62	81	102	126	153
Willow	32	17	25	34	45	56	70	84

16VAC25-73-140. Appendix E (Informative): Aerial Rescue Flowchart.


There is a victim hurt in a tree or aerial lift
Flowchart Key:
Start / End Point
Decision
Action
Is there an electrical hazard present?
NO
Call 911 / EMS, or have another party call, and stay on the line until 911 / EMS has all the needed information. Alternately, contact your office and have them summon assistance.
YES
The utility system operator must be contacted, either directly or through 911 / EMS.
Can the electrical hazard be avoided, eliminated, or controlled?
NO
Secure the area and prepare for EMS.
YES
Take measures to avoid, eliminate, or control the electrical hazard.
Provide first aid, CPR/resuscitation as necessary.
NO
Can a rescue be performed without undue risk to the rescuer(s) or others?
YES
Perform Rescue. Bring the victim to the ground as quickly as possible for CPR/ resuscitation, even at the risk of aggravating other injuries.
Is the victim conscious and responsive?
NO
Reach the victim to further assess his or her condition.
Do you find breathing AND pulse; AND can you rule out suspension trauma?
NO
YES
YES
Communicate with the victim to help determine an appropriate rescue method.
Do you suspect a serious neck, back, or other injury that could be aggravated by moving the victim?
NO
YES
Secure the victim in place, make him or her as comfortable as possible.

16VAC25-73-150. Appendix F (Informative): Hand Signal Chart for Crane Operations.

 HOIST. With forearm vertical, forefinger pointing up, move hand in small horizontal circles.	 LOWER. With arm extended downward, forefinger pointing down, move hand in small horizontal circles.	 USE MAIN HOIST. Tap fist on head, then use regular signals.
 USE WHIPLINE. (Auxiliary Hoist) Tap elbow with one hand, then use regular signals.	 RAISE BOOM. Extend arm, fingers closed, thumb pointing upward.	 LOWER BOOM. Extend arm, fingers closed, thumb pointing downward.

 MOVE SLOWLY. Use one hand to give any motion signal and place other hand motionless above the hand giving the motion signal. (Hoist slowly shown as example.)	 RAISE THE BOOM AND LOWER THE LOAD. With arm extended, thumb pointing up, flex fingers in and out as lone as load movement is desired.	 LOWER THE BOOM AND RAISE THE LOAD. With arm extended, thumb pointing down, flex fingers in and out as long as load movement is desired.
 SWING. Extend arm, point with finger in direction of swing of boom.	 STOP. Extend arm, palm down; move arm back and forth horizontally.	 EMERGENCY STOP. Both arms extended, palms down, move arms back and forth horizontally.
 TRAVEL. Extend arm forward, hand open and slightly raised; make pushing motion in direction of travel.	 DOG EVERYTHING. Clasp hands in front of body.	 TRAVEL (Both Tracks). Use both fists in front of body, making a circular motion about each other, indicating direction of travel, forward or backward (for land cranes only).

TRAVEL. (One Side Track). Lock the track on side indicated by raised fist. Travel opposite track indicated by circular motion of other fist, rotated vertically in front of body (for land cranes only).

EXTEND BOOM. (Telescoping Booms). Hold both fists in front of body, thumbs pointing outward.

RETRACT BOOM (Telescoping Booms). Hold both fists in front of body, thumbs pointing toward each other.

EXTEND BOOM (Telescoping Boom). One-hand signal. Hold one fist in front of chest, thumb tapping chest.

RETRACT BOOM (Telescoping Boom). One-hand signal. Hold one fist in front of chest, thumb pointing outward and heel of fist tapping chest.

DOCUMENTS INCORPORATED BY REFERENCE (16VAC25-73)

American National Standards Institute (ANSI), 11 West 42nd Street, New York, NY 10036:

ANSI/ASSE A10.32-2004, Fall Protection Systems for Construction and Demolition Operations.

ANSI Z359.1-1992 (R-1999), Personal Fall Arrest Systems, Subsystems, and Components.

ANSI Z89.1-2003, Protective Headgear for Industrial Workers.

ANSI A300, Tree Care Operations—Tree, Shrub, and Other Woody Plant Maintenance—Standard Practices:

Part 1-2001, Pruning, revised 2008.

Part 2-1998, Fertilization, revised 2004.

Part 3-2000, Supplemental Support Systems, revised 2006.

Part 4-2002, Lightning Protection Systems.

Part 5-2005, Management of Trees and Shrubs During Site Planning, Site Development, and Construction.

Part 6-2005, Transplanting.

Part 7-2006, Integrated Vegetation Management, Electric Utility Rights-of-Way.

ANSI/SIA A92.2-2001, Vehicle-Mounted Elevating and Rotating Aerial Devices.

Virginia Work Area Protection Manual, Standards and Guidelines for Temporary Traffic Control, Virginia Department of Transportation, May 2005.

VIRGINIA SAFETY AND HEALTH CODES BOARD

BRIEFING PACKAGE

FOR AUGUST 13, 2009

Various Corrections and Technical Amendments to: PART 1910 – General Industry and PART 1915 – Shipyard Employment

I. Action Requested.

The Virginia Occupational Safety and Health (VOSH) Program requests the Safety and Health Codes Board to consider for adoption federal OSHA's revised final rule for Corrections and Technical Amendments to Parts 1910 and 1915 (for those provisions which, among other things, removed "§1910.20" and added "§1910.1020" in items 1, 34 and 36), as published in 71 FR 16669 on April 3, 2006. Except for the above, all other corrections and technical amendments in this 2006 revision were adopted by the Board on June 19, 2006, and became effective on September 1, 2006.

The proposed effective date is November 15, 2009.

II. Summary of the Amendments.

As part of the ongoing review of its regulations, federal OSHA amended various safety and health standards in need of corrections, housekeeping changes or technical amendments. The revisions do not affect the substantive requirements or coverage of the standards involved, modify or revoke existing rights and obligations, or establish new rights and obligations. The revisions included updating references from existing OSHA

standards, including standards governing occupational noise exposure, vinyl choride, inorganic arsenic, lead, cadmium, coke oven emissions and bloodborne pathogens.

During its June 19, 2006, the Board adopted the preponderance of various corrections and technical amendments to Parts 1910 – General Industry, 1915 – Shipyard Employment, and 1926 –Construction, as published in 71 FR 16669 on April 3, 2006. It did not, however, adopt any amendments that substituted "§1910.1020" for "§1910.20" when referencing the regulation for Access to Employee Exposure and Medical Records [items 1, 34 and 36] because the Virginia unique regulation [16 VAC 25-80 (§1910.20)], not the current federal regulation, §1910.1020, was in effect in Virginia at that time. Additionally, in §1913, "Rules of Agency Practice and Procedure Concerning OSHA Access to Employee Medical Records" under item 34 [p. 16674], paragraph (n) was removed because it specified an effective date that expired over 20 years ago.

As a result of a recent periodic review of current regulations, the Board repealed its Virginia unique version of Access to Employee Exposure and Medical Records [16 VAC 25-80 (§1910.20)] and adopted the federal regulation, 29 CFR 1910.1020. The Board thereby adopts federal OSHA changes relating to this regulation. The effective date of the newly adopted regulation is August 20, 2009.

III. Basis, Purpose and Impact of the Amendment.

A. Basis and Purpose.

In 1988, federal OSHA made numerous revisions to the regulation for Access to Employee Exposure and Medical Records and, among these revisions, OSHA renumbered §1910.20 to §1910.1020. At that time, the Safety and Health Codes Board (Board), chose not to adopt the revisions and section renumbering, and chose to continue the enforcement of the former federal standard, §1910.20.

On April 3, 2006, federal OSHA published corrections and technical amendments to Parts 1910, 1915 and 1926 [71 FR 16669]. The U. S. Department of Labor has an on-going multi-year review of its regulations to update non-substantive or nomenclature references in the Code of Federal Regulations (CFR). These updates help promote a regulatory structure that facilitates compliance flexibility and reduce regulatory burdens by eliminating errors, incorrect references and obsolete provisions to existing standards; thereby, aiding employer compliance and understanding by clarifying regulatory intent. During its meeting on June 19, 2006, the Board adopted all federal OSHA changes which were published in the April 3, 2006 technical changes and corrections, except the changes which substituted removed "§1910.20" and added in its place "§1910.20". September 1, 2006 was the effective date of this revision.

As a result of the periodic review of current regulations, VOSH compared the Virginia unique standard, 16 VAC 25-80 [§1910.20] and the current federal OSHA standard, 29 CFR 1910.1020. As a result, on April 16, 2009, the Board, upon recommendation of the Department, repealed the state unique regulation (the old pre-1988 federal regulation), Access to Employee Exposure and Medical Records,16 VAC 25-80 [§1910.20], and adopted the current federal OSHA Access to Employee Exposure and Medical Records standard, 29 CFR 1910.1020; thereby necessitating the adoption of "§1910.1020" to replace "§1910.20" in items 1, 34 and 36, as published by federal OSHA in 71 FR 16669 [April 3, 2006].

B. Impact on Employers.

Adopting these clean-up housekeeping and technical amendments do not affect the substantive requirements or coverage of the standards involved, modify or revoke existing rights and obligations, or establish new right and obligations.

C. Impact on Employees.

This correction will increase employee understanding and protection.

D. Impact on the Department of Labor and Industry.

These technical corrections will have no impact on the Department.

Federal regulations 29 CFR 1953.23(a) and (b) require that Virginia, within six months of the occurrence of a federal program change, to adopt identical changes or promulgate equivalent changes which are at least as effective as the federal change. The Virginia Code reiterates this requirement in §40.1-22(5). Adopting these revisions will allow Virginia to conform to the federal program change.

Contact Person:

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RECOMMENDED ACTION

Staff of the Department of Labor and Industry recommends that the Safety and Health Codes Board adopt item 1 – Part 1910 [Nomenclature change], item 34 – §1913.10 [Amended], and item 36 [§1915.1001– Amended] of the attached Corrections and Technical Amendments to the final rules for various provisions in Parts 1910 and 1915, as authorized by Virginia Code
§§ 40.1-22(5) and 2.2-006.A.4(c), with an effective date of November 15, 2009.

The Department also recommends that the Board state in any motion it may make to amend this regulation that it will receive, consider and respond to petitions by any interested person at any time with respect to reconsideration or revision of this or any other regulation which has been adopted in accordance with the above-cited subsection A.4(c) of the Administrative Process Act.

Corrections and Technical Amendments to various standards in:

PART 1910 -- General Industry; and
PART 1915 -- Shipyard Employment; Final Rule

As Adopted by the

Safety and Health Codes Board

Date: _____

VIRGINIA DEPARTMENT OF LABOR AND INDUSTRY

VIRGINIA OCCUPATIONAL SAFETY AND HEALTH PROGRAM

VIRGINIA DEPARTMENT OF LABOR AND INDUSTRY

Effective Date: _____

16 VAC 25-90 -- General Industry, Part 1910; and
16 VAC 25-100 -- Shipyard Employment, Part 1915; Final Rule

When the regulations, as set forth in the attached Corrections and Technical amendments to the final rules of various provisions in Parts 1910 and 1915, are applied to the Commissioner of the Department of Labor and Industry and/or to Virginia employers, the following federal terms shall be considered to read as below:

Federal Terms	VOSH Equivalent
29 CFR	VOSH Standard
Assistant Secretary	Commissioner of Labor and Industry
Agency	Department
April 3, 2006	September 1, 2006
April 3, 2006	November 15, 2009

PART 1910—OCCUPATIONAL SAFETY AND HEALTH STANDARDS

Part 1910 [Nomenclature change]

■ 1. In 29 CFR part 1910, remove the reference "§ 1910.20" and add, in its place, the reference "§ 1910.1020" in the following paragraphs:
■ a. § 1910.95(m)(4)
■ b. § 1910.120(f)(8)(i)
■ c. § 1910.440(b)(2)
■ d. § 1910.1001(m)(3)(i), (m)(3)(iii), (m)(5)(ii), (m)(5)(iii), and (m)(6)(i)
■ e. § 1910.1003(g)(2)(ii)
■ f. § 1910.1017(m)(2) introductory text and (m)(3)
■ g. § 1910.1018(q)(3)(ii) and (q)(4)(iv)
■ h. § 1910.1025(n)(4)(ii) and (n)(5)(iv)
■ i. § 1910.1027(m)(4)(iii)(H), (n)(1)(iii), (n)(3)(iii), (n)(5)(i), and (n)(6)
■ j. § 1910.1029(m)(3)(ii) and (m)(4)(iv)
■ k. § 1910.1030(h)(1)(i), (h)(1)(iv), (h)(3)(iii), and (h)(4)(i)
■ l. § 1910.1043(k)(3)(ii) and (k)(4)(iv)
■ m. § 1910.1044(p)(3)(ii) and (p)(4)(iv)
■ n. § 1910.1045(q)(4)(ii) and (q)(5)(iv)
■ o. § 1910.1047(k)(2)(iii), (k)(3)(i), (k)(3)(iii), (k)(4)(ii), (k)(4)(iii), and (k)(5)(i)
■ p. § 1910.1048(o)(6)(ii) and (o)(6)(iii)
■ q. § 1910.1050(n)(3)(i), (n)(3)(iii), (n)(4)(i), (n)(4)(iv), (n)(6)(ii), (n)(6)(iii), and (n)(7)(i)
■ r. § 1910.1051(m)(2)(iii), (m)(4)(iii), (m)(5)(ii), and (m)(6)(ii)

Subpart G—Occupational Health and Environmental Control

■ 2. The authority citation for 29 CFR part 1910 subpart G is revised to read as follows:

Authority: Secs. 4, 6, and 8 of the Occupational Safety and Health Act of 1970 (29 U.S.C. 653, 655, 657); Secretary of Labor's Order No. 12–71 (36 FR 8754), 8–76 (41 FR 25059), 9–83 (48 FR 35736), 1–90 (55 FR 9033), 6–96 (62 FR 111), 3–2000 (65 FR 50017), or 5–2002 (67 FR 50017) as applicable; and 29 CFR part 1911.

§ 1910.95 [Amended]

■ 3. In § 1910.95, paragraph (p) is removed.

Subpart I—Personal Protective Equipment

■ 4. In 29 CFR part 1910, the authority citation for subpart I is revised to read as follows:

Authority: Secs. 4, 6, and 8 of the Occupational Safety and Health Act of 1970 (29 U.S.C. 653, 655, 657); Secretary of Labor's Order No. 12–71 (36 FR 8754), 8–76 (41 FR 25059), 9–83 (48 FR 35736), 1–90 (55 FR 9033), 6–96 (62 FR 111), 3–2000 (65 FR 50017), or 5–2002 (67 FR 65008) as applicable; and 29 CFR part 1911.

§§ 1910.132, 1910.134, and 1910.136 also issued under 29 CFR part 1911.

§§ 1910.133, 1910.135, and 1910.136 also issued under 29 CFR part 1911 and 5 U.S.C. 553.

§ 1910.134 [Amended]

■ 5. In § 1910.134, paragraph (n) is removed and reserved.

Subpart N—Materials Handling and Storage

■ 6. In 29 CFR part 1910, the authority citation for subpart N is revised to read as follows:

Authority: Secs. 4, 6, and 8 of the Occupational Safety and Health Act of 1970 (29 U.S.C. 653, 655, 657); Secretary of Labor's Order No. 12–71 (36 FR 8754), 8–76 (41 FR 25059), 9–83 (48 FR 35736), 1–90 (55 FR 9033), 6–96 (62 FR 111), 3–2000 (65 FR 50017), or 5–2002 (67 FR 65008) as applicable; and 29 CFR part 1911.

§§ 1910.176, 1910.177, 1910.178, 1910.179, 1910.180, 1910.181, and 1910.184 also issued under 29 CFR part 1911.

■ 7. In § 1910.178, paragraph (a)(2) is revised to read as follows:

§ 1910.178 Powered industrial trucks.

(a) * * *

(2) All new powered industrial trucks acquired and used by an employer shall meet the design and construction requirements for powered industrial trucks established in the "American National Standard for Powered Industrial Trucks, Part II, ANSI B56.1–1969", which is incorporated by reference as specified in § 1910.6, except for vehicles intended primarily for earth moving or over-the-road hauling.

* * * * *

Subpart R—Special Industries

■ 8. The authority citation for 29 CFR Part 1910 subpart R is revised to read as follows:

Authority: Sections 4, 6, and 8 of the Occupational Safety and Health Act of 1970 (29 U.S.C. 653, 655, 657); Secretary of Labor's Order Nos. 12–71 (36 FR 8754), 8–76 (41 FR 25059), 9–83 (48 FR 35736), 6–96 (62 FR 111), 3–2000 (65 FR 50017), or 5–2002 (67 FR 65008) as applicable; and 29 CFR part 1911.

§ 1910.266 [Amended]

■ 9. In § 1910.266, paragraph (a), Table of Contents, the entry "j. Effective date" is removed, the entry "k. Appendices" is redesignated "j. Appendices", and the text of paragraph (j) is removed and paragraph (k) is redesignated as paragraph (j).

* * * * *

Subpart T—Commercial Diving Operations

■ 10. The authority citation for 29 CFR part 1910 subpart T is revised to read as follows:

Authority: Sections 4, 6, and 8 of the Occupational Safety and Health Act of 1970 (29 U.S.C. 653, 655, and 657); Sec. 107, Contract Work Hours and Safety Standards Act (the Construction Safety Act) (40 U.S.C. 333); Sec. 41, Longshore and Harbor Workers' Compensation Act (33 U.S.C. 941); Secretary of Labor's Order No. 8–76 (41 FR 25059), 9–83 (48 FR 35736), 1–90 (55 FR 9033), 3–2000 (65 FR 50017), or 5–2002 (67 FR 65008) as applicable; 29 CFR part 1911.

§ 1910.441 [Removed]

■ 11. Remove § 1910.441.

Subpart Z—Toxic and Hazardous Substances

■ 12. The authority citation for 29 CFR part 1910 subpart Z is revised to read as follows:

Authority: Sections 4, 6, and 8 of the Occupational Safety and Health Act of 1970 (29 U.S.C. 653, 655, 657); Secretary of Labor's Order No. 12–71 (36 FR 8754), 8–76 (41 FR 25059), 9–83 (48 Fr 35736), 1–90 (55 FR 9033), 6–96 (62 FR 111), 3–2000 (65 FR 50017), or 5–2002 (67 FR 65008) as applicable; and 29 CFR part 1911.

All of subpart Z issued under section 6(b) of the Occupational Safety and Health Act, except those substances that have exposure limits listed in Tables Z–1, Z–2, and Z–3 of 29 CFR 1910.1000. The latter were issued under section 6(a) (29 U.S.C. 655(a)).

§ 1910.1000, Tables Z–1, Z–2 and Z–3 also issued under 5 U.S.C. 553, § 1910.1000 Tables Z–1, Z–2, and Z–3 not issued under 29 CFR part 1911 except for the arsenic (organic compounds), benzene, and cotton dust listings.

§ 1910.1001 also issued under section 107 of the Contract Work Hours and Safety Standards Act (40 U.S.C. 333) and 5 U.S.C. 553.

§ 1910.1002 not issued under 29 U.S.C. 655 or 29 CFR part 1911; also issued under 5 U.S.C. 553.

§ 1910.1018, 1910.1029, and 1910.1200 are also issued under 29 U.S.C. 653.

§ 1910.1000 [Amended]

■ 13. In § 1910.1000, paragraph (f) is removed.

§ 1910.1001 [Amended]

■ 14. In § 1910.1001, paragraph (o) is removed, and paragraph (p) is redesignated paragraph (o).

§ 1910.1017 [Amended]

■ 15. In § 1910.1017, paragraph (o) is removed.

§ 1910.1018 [Amended]

■ 16. In § 1910.1018, paragraph (s) is removed, and paragraph (t) is redesignated paragraph (s) and paragraph (u) is removed.

§ 1910.1020 [Amended]

■ 17. In § 1910.1020, paragraph (f)(4)(v), remove the reference "paragraph (f)(9)" and add in its place, the reference "paragraph (f)(7)".

§ 1910.1025 [Amended]

■ 18. In § 1910.1025, paragraphs (p) and (r) are removed, and paragraph (q) is redesignated as paragraph (p).

■ 19. In § 1910.1025, Appendix B, section XIV. EFFECTIVE DATE—PARAGRAPH (p) is removed and section XV is redesignated section XIV.

§ 1910.1027 [Amended]

■ 20. In § 1910.1027, paragraph (q) is revised to read as follows:

§ 1910.1027 Cadmium.

* * * * *

(q) *Appendices.* Except where portions of appendices A, B, D, E, and F to this section are expressly incorporated in requirements of this section, these appendices are purely informational and are not intended to create any additional obligations not otherwise imposed or to detract from any existing obligations.

* * * * *

§ 1910.1028 [Amended]

■ 21. In § 1910.1028, paragraph (m) is removed and reserved, and paragraph (n) is revised to read as follows:

§ 1910.1028 Benzene.

* * * * *

(n) *Appendices.* The information contained in Appendices A, B, C, and D is not intended, by itself, to create any additional obligations not otherwise imposed or to detract from any existing obligations.

* * * * *

§ 1910.1029 [Amended]

■ 22. In § 1910.1029, paragraph (o) is removed and reserved.

§ 1910.1030 [Amended]

■ 23. In § 1910.1030, paragraph (g)(2)(ii)(B) is removed, and paragraph (g)(2)(ii)(C) is redesignated paragraph (g)(2)(ii)(B), and paragraph (g)(2)(iii) is removed and reserved.

§ 1910.1043 [Amended]

■ 24. In § 1910.1043, paragraph (m) is removed, and paragraphs (n) and (o) are redesignated paragraphs (m) and (n), respectively.

§ 1910.1045 [Amended]

■ 25. In § 1910.1045, paragraph (s) is removed and reserved.

§ 1910.1047 [Amended]

■ 26. In § 1910.1047, paragraph (m) is removed and reserved.

§ 1910.1048 [Amended]

■ 27. In § 1910.1048, paragraph (p) is removed.

■ 28. In § 1910.1048, Appendix A, the section entitled "Protective Equipment and Clothing", second paragraph entitled "Respiratory Protection:" is revised to read as follows:

§ 1910.1048 Formaldehyde.

* * * * *

Appendix A to § 1910.1048—Substance Technical Guidelines for Formalin

* * * * *

Respiratory Protection: Use NIOSH-approved full facepiece negative pressure respirators equipped with approved cartridges or canisters within the use limitations of these devices. (Present restrictions on cartridges and canisters do not permit them to be used for a full workshift.) In all other situations, use positive pressure respirators such as the positive-pressure air purifying respirator or the self-contained breathing apparatus (SCBA). If you use a negative pressure respirator, your employer must provide you with fit testing of the respirator at least once a year.

* * * * *

§ 1910.1050 [Amended]

■ 29. In § 1910.1050, paragraph (p) is removed and reserved, paragraph (q) is revised to read as set forth below, and paragraph (r) is removed.

§ 1910.1050 Methylenedianiline.

* * * * *

(q) *Appendices.* The information contained in Appendices A, B, C, and D of this section is not intended, by itself, to create any additional obligations not otherwise imposed by this standard nor detract from any existing obligation.

* * * * *

§ 1910.1051 [Amended]

■ 30. In § 1910.1051, paragraph (d)(2)(i) is revised to read as set forth below, and paragraph (n) is removed and reserved.

§ 1910.1051 1,3-Butadiene.

* * * * *

(d) * * *

(2) Initial monitoring. (i) Each employer who has a workplace or work operation covered by this section, shall perform initial monitoring to determine accurately the airborne concentrations of BD to which employees may be exposed, or shall rely on objective data pursuant to paragraph (a)(2)(i) of this section to fulfill this requirement. The initial monitoring required under this paragraph shall be completed within 60 days of the introduction of BD into the workplace.

* * * * *

§ 1910.1052 [Amended]

■ 31. In § 1910.1052, paragraph (n) is removed and reserved.

§ 1910.1450 [Amended]

■ 32. In § 1910.1450, paragraph (k) is removed and reserved.

PART 1913—RULES OF AGENCY PRACTICE AND PROCEDURE CONCERNING OSHA ACCESS TO EMPLOYEE MEDICAL RECORDS

■ 33. The authority citation for part 1913 is revised to read as follows:

Authority: Sec. 8, Occupational Safety and Health Act of 1970 (29 U.S.C. 657); Sec. e, Privacy Act (5 U.S.C. 552a(e); 5 U.S.C. 301); Secretary of Labor's Order No. 8–76 (41 FR 25059), or 5–2002 (67 FR 65008) as applicable.

§ 1913.10 [Amended]

■ 34. Amend § 1913.10 in (b)(1), (b)(3), (b)(4), (d)(4)(i), and (e)(3) by removing the reference "§ 1910.20" and adding, in its place, the reference "§ 1910.1020", and by removing paragraph (n).

PART 1915—OCCUPATIONAL SAFETY AND HEALTH STANDARDS FOR SHIPYARD EMPLOYMENT

■ 35.The authority citation for part 1915 is revised to read as follows:

Authority: Section 41, Longshore and Harbor Workers' Compensation Act (33 U.S.C. 941), Secs. 4, 6, and 8, Occupational Safety and Health Act of 1970 (29 U.S.C. 653,655,657), Secretary of Labor's Order No. 8–76 (41 FR 25059), 9–83 (48 FR 35736), 1–90 (55 FR 9033), 6–96 (62 FR 111), 3–2000 (65 FR 50017) or 5–2002 (67 FR 65008) as applicable; and 29 CFR part 1911.

§ 1915.1001 [Amended]

■ 36. Amend § 1915.1001 by removing the reference "§ 1910.20" and adding, in its place, the reference "§ 1910.1020" in paragraphs (n)(2)(iii), (n)(3)(i), (n)(3)(iii), (n)(7)(ii), (n)(7)(iii), and (n)(8)(i), and by removing paragraph (q).

PART 1926—SAFETY AND HEALTH STANDARDS FOR CONSTRUCTION

Part 1926 [Nomenclature change]

■ 37. In 29 CFR part 1926, remove the reference "§ 1910.20" and add, in its place, the reference "§ 1926.33" in the following places:

■ a. § 1926.60 (o)(4)(iii), (o)(5)(i), (o)(5)(iii), (o)(7)(ii), (o)(7)(iii), and (o)(8)(i).

■ b. § 1926.62 (n)(1)(iii), (n)(2)(iv), and (n)(6)(iv).

■ c. § 1926.800 (j)(3).

■ d. § 1926.1101 (n)(2)(iii), (n)(3)(i), (n)(3)(iii), (n)(7)(ii), (n)(7)(iii), and (n)(8)(i).

Subpart D—Occupational Health and Environmental Controls

■ 38.The authority citation for 29 CFR part 1926 Subpart D is revised to read as follows:

Authority: Sec. 107, Contract Work Hours and Safety Standards Act (Construction Safety Act) (40 U.S.C. 333); Secs. 4, 6, and 8 of the Occupational Safety and Health Act of 1970 (29 U.S.C. 653, 655, and 657); Secretary of Labor's Order No. 12–71 (36 FR 8754), 8–76 (41 FR 25059), 9–83 (48 FR 35736), 1–90 (55 FR 9033), 6–96 (62 FR 111), 3–2000 (65 FR 50017), or 5–2002 (67 FR 65008) as applicable; and 29 CFR part 1911.

§ 1926.60 [Amended]

■ 39. In § 1926.60 paragraph (f)(8)(iii) is revised, paragraphs (q) and (s) are removed, and paragraph (r) is redesignated as (q) and revised to read as follows:

§ 1926.60 Methyenedianiline.

* * * * *

(f) * * *

(8) * * *

(iii) Maintain records of the corrective actions in accordance with paragraph (o) of this section.

* * * * *

(q) *Appendices.* The information contained in appendices A, B, C, and D of this section is not intended, by itself, to create any additional obligations not otherwise imposed by this standard nor detract from any existing obligation.

* * * * *

§ 1926.62 [Amended]

■ 40. In § 1926.62, paragraph (d)(2)(v)(F) is revised, paragraphs (p) and (r) are removed, and paragraph (q) is redesignated as paragraph (p).:

§ 1926.62 Lead.

* * * * *

(d) * * *

(2) * * *

(v) * * *

(F) Training as required under paragraph (l)(1)(i) of this section regarding 29 CFR 1926.59, Hazard Communication; training as required under paragraph (1)(2)(iii) of this section, regarding use of respirators; and training in accordance with 29 CFR 1926.21, Safety training and education.

* * * * *

■ 41. In § 1926.62, Appendix B, paragraph XIV. EFFECTIVE DATE—Paragraph (P) is removed, and paragraph XV is redesignated paragraph XIV.

Subpart R—Steel Erection

■ 42. The authority citation for 29 CFR part 1926 Subpart R is revised to read as follows:

Authority: Sec. 107, Contract Work Hours and Safety Standards Act (Construction Safety Act) (40 U.S.C. 333); Sec. 4, 6, and 8, Occupational Safety and Health Act of 1970 (29 U.S.C. 653, 655, 657); Secretary of Labor's Order No. 3–2000 (65 FR 50017), No. 5–2002 (67 FR 65008), and 29 CFR part 1911.

§ 1926.754 [Amended]

■ 43. In § 1926.754, paragraph (c) is revised to read as follows:

§ 1926.754 Structural steel assembly.

* * * * *

(c) *Walking/working surfaces—shear connectors and other similar devices.* (1) *Tripping hazards.* Shear connectors (such as headed steel studs, steel bars or steel lugs), reinforcing bars, deformed anchors or threaded studs shall not be attached to the top flanges of beams, joists or beam attachments so that they project vertically from or horizontally across the top flange of the member until after the metal decking, or other walking/working surface, has been installed.

(2) *Installation of shear connectors on composite floors, roofs and bridge decks.* When shear connectors are used in construction of composite floors, roofs and bridge decks, employees shall lay out and install the shear connectors after the metal decking has been installed, using the metal decking as a

working platform. Shear connectors shall not be installed from within a controlled decking zone (CDZ), as specified in § 1926.760(c)(8).

* * * * *

Subpart Y — Diving

■ 44. The authority citation for 29 CFR part 1926, Subpart Y, is revised to read as follows:

Authority: Sections 4, 6, and 8 of the Occupational Safety and Health Act of 1970 (29 U.S.C. 653, 655, 657); Sec. 107, Contract Work Hours and Safety Standards Act (the Construction Safety Standards Act) (40 U.S.C. 333); Sec. 41, Longshore and Harbor Workers' Compensation Act (33 U.S.C. 941); Secretary of Labor's Order No. 12–71 (36 FR 8754), 8–76 (41 FR 25059), 9–83 (48 FR 35736), 1–90 (55 FR 9033), 3–2000 (65 FR 50017) or 5–2002 (67 FR 65008) as applicable; and 29 CFR part 1911.

§ 1926.1092 [Removed]

■ 45. Section 1926.1092 is removed.

Subpart Z—Toxic and Hazardous Substances

■ 46. The authority citation for 29 CFR part 1926 subpart Z is revised to read as follows:

Authority: Sec. 107, Contract Work Hours and Safety Standards Act (the Construction Safety Standards Act) (40 U.S.C. 333); Secs. 4, 6, and 8, Occupational Safety and Health Act of 1970 (29 U.S.C. 653, 655, 657); Secretary of Labor's Order No. 12–71 (36 FR 8754), 8–76 (41 FR 25059), 9–83 (48 FR 35736), 6–96 (62 FR 11), 3–2000 (65 FR 50017), or 5–2002 (67 FR 65008) as applicable; and 29 CFR part 1911.

§ 1926.1102 not issued under 29 U.S.C. 655 or 29 CFR part 1911; also issued under 5 U.S.C. 553.

§ 1926.1101 [Amended]

■ 47. In § 1926.1101, paragraph (q) is removed.

§ 1926.1127 [Amended]

■ 48. In § 1926.1127, paragraph (p) is removed and reserved, paragraph (q)(1) is removed, and paragraph (q)(2) is redesignated paragraph (q) and revised to read as follows:

§ 1926.1127 Cadmium.

* * * * *

(q) *Appendices.* Except where portions of appendices A, B, D, E, and F to this section are expressly incorporated in requirements of this section, these appendices are purely informational and are not intended to create any additional obligations not otherwise imposed or to detract from any existing obligations.

* * * * *

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