

COMMONWEALTH of VIRGINIA

DEPARTMENT OF LABOR AND INDUSTRY

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TENTATIVE AGENDA

SAFETY AND HEALTH CODES BOARD MEETING

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

Thursday, July 10, 2008

10:00 a.m.

1. Call to Order
2. Approval of Agenda
3. Approval of Minutes of February 28, 2008 Meeting
4. Election of Officers
5. Opportunity for the Public to Address the Board on the 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**

- a) Update on 16 VAC 25-50, Boiler and Pressure Vessel Rules and Regulations;
- b) Update on 16 VAC 25-185, Confined Space Standard for Agriculture;
- c) Proposed Regulation to amend the Administrative Regulations for the VOSH Program, 16 VAC 25-60- 245; and
- d) Proposed Regulations:

1) For General Industry, Part 1910:

16 VAC 25-96, Regulation to Amend Reverse Signal Operation Safety Procedures dealing with Vehicular Equipment, Motor Vehicles, Material Handling Equipment and Motor Vehicle Equipment in Existing Standards: 16 VAC 25-90-1910.269; 16 VAC 175-1926.601; 16 VAC 25-175-602 and 16 VAC 25-175-952

2) For the Construction Industry, Part 1926:

Regulation to Establish Reverse Signal Operation Safety Procedures for Vehicles, Machinery and Equipment for General Industry and the Construction Industry, 16 VAC 25-97

7. **New Business**

- a) Public Participation Guidelines for the Safety and Health Codes Board; Final, 16 VAC 25-10

8. **Items for Possible Discussion – Not yet finalized**

- a) Proposed Regulation Applicable to Tree Trimming Operations, 16 VAC 25-73

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

10. Items of Interest from Members of the Board

11. Meeting Adjournment



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VIRGINIA SAFETY AND HEALTH CODES BOARD

BRIEFING PACKAGE

for July 10, 2008

Proposed Confined Space Standard for Agriculture

I. **Action Requested.**

None at this time. The Virginia Occupational Safety and Health (VOSH) Program seeks postponement of further regulatory action by the Safety and Health Codes Board on the adoption of a confined space standard for the Agriculture Industry.

II. **Summary of Events Since the Approval of the Notice of Intended Regulatory Action.**

On June 11, 2008, VOSH held a meeting with employer and employee representatives of agricultural interests on confined space hazards in agriculture. The following people attended the meeting:

Mr. Tony Banks, Virginia Farm Bureau Federation
Ms. Katie K. Frazier, Assistant V. P.- Public Affairs, Virginia Agribusiness Council
Mr. Dale Gardner, Exec. Secretary, Virginia State Dairymen's Association (by phone)
Ms. Perida Giles, Virginia Dept. of Agriculture and Consumer Services
Mr. Ron Graham, Director, Occ. Health Enforcement, Va. Dept. of Labor & Industry
Dr. Bobby Grisso, Virginia Tech Extension Engineer
Ms. Marlene Larios, Pesticide & Workplace Safety Trainer, Telamon Corp. (by phone)
Mr. Leigh Pemberton, Dairy Committee
Mr. Larry Seamans, Maryland & Virginia Cooperative Milk Producers Association

Mr. Bruce Stone, Safety Manager, Virginia Farm Bureau Federation
Mr. Jay Withrow, Director, Office of Legal Support, Va. Dept. of Labor & Industry

III. Basis and Purpose for the Request for Postponement of Action.

- A. According to multiple members of the above listed group, the technology involved in the five person fatal accident in 2007 (Scott Showalter dba Mountain Valley Farm, Rockingham County), that was the precipitating event for the Notice of Intended Regulatory Action (NOIRA) adopted by the Board at its October 18, 2007 meeting, is very old and outdated and not in use very much on farms in the state anymore. Apparently at the time of the accident there were only two small family farms in Rockingham County that had enclosed manure pits, and after the accident, both were removed from use. It was the opinion of the group that it is likely that only small family farms, which may not even have any non-family member employees, still use such technology.

Prior to the June 11, 2008 meeting, VOSH anticipated recommending a proposed regulation limited to addressing enclosed manure pits and open manure ponds. If there are not a significant number of enclosed manure pits in Virginia, or if most of them are used by small family farms that don't have any employees, then a regulation might not really be necessary or appropriate to address the enclosed pit issue.

The Virginia Farm Bureau, the Virginia Agribusiness Council and the Maryland and Virginia Milk Producer's Co-operative Association indicated that they would be willing to conduct a survey of their members to determine how much of this old technology remains in the state, and what other kinds of technologies are used (see item B. below). Once the survey results are available, a determination can be made as to whether a regulation is necessary.

- B. The latest technology for manure disposal systems is apparently the use of open air manure ponds/lagoons/enclosures. This was the other main area under consideration for coverage of a new regulation. According to the group, the U.S. Department of Agriculture (USDA) administers the Natural Resources Conservation Service (NRCS) which offers partial financing to farmers when they want to construct an open manure pond disposal system. The process for obtaining the financing involves significant planning and design considerations, including the placement of bumpers/guard rails around areas where tractors are used to push manure into the enclosure. In Virginia, there was one fatality in 2003 and one in 1997 where operators of farm tractors flipped them over into manure ponds/enclosures and the operators were drowned/engulfed. VOSH obtained the name of a contact person with the NRCS and will contact him to get information on current design requirements and any information on how many manure ponds/enclosures there are in Virginia in order to further define the hazards involved and the scope of the problem.

- C. The group discussed the positive impact that the Virginia Farm Bureau (VFB) and other insurance agencies can have on this issue. The VFB estimated that there are 730-750 dairy farms in Virginia and that VFB insures approximately 70 to 80% of them. They related that they offer their clients that use Workers' Compensation an inspection program where they will visit the farm and conduct a safety/health survey. They identify hazards and give the farmer a period for abatement of the hazards. One issue identified by VFB and Leigh Pemberton, a dairy farmer and member of the VFB's Dairy Committee, was the lack of warning signs and basic training on the hazards and dangers of confined spaces, both of which are addressed during VFB inspection surveys.

We also had a brief discussion with VFB about how the Department's Boiler and Pressure Vessel Safety Program works with insurance companies, specifically how the Department issues certificates to boiler owner/operators after they receive a boiler inspection from their insurance company; while the Department handles uninsured boiler issues. VOSH discussed the possibility of working with VFB on some arrangement that could address the manure pit/pond issue through their inspection program. This might be another avenue for achieving compliance with a set of confined space guidelines developed jointly with VFB which they could then provide to their clients and assure abatement of the hazards. VOSH could possibly consider an agreement to try to address uninsured farmers in a fashion similar to how the DOLI Boiler Division handles uninsured boilers.

- D. There was a brief discussion of the hog industry which also has significant manure handling/disposal issues. The hog industry is apparently much more vertically integrated than the dairy industry. The contract growers are responsible for running an operation that meets guidelines established by the meat packing plant that it sells its hogs to, and the operations generally use modern technology. At this point, VOSH is unclear of the scope of the confined space issues that may need to be addressed in the hog industry and further research is necessary to determine if a regulation is needed.

- E. Another possible option for addressing the issue in an indirect way was offered by Leigh Pemberton. The group had been discussing all the aspects of dairy farming that can make applying safety/health regulations difficult and noted the following issues:

1. Many farms are small family farms, often with none or only a few "employees";
2. Many of the small farms operate financially on the margin and often have cash flow problems which is not conducive to spending money on safety equipment, such as proper atmospheric testing equipment, respirators and safety harnesses and lanyards, and warning signs;
3. A small farmer is basically a "jack of all trades" and when a problem, such as a malfunctioning manure pump occurs, the immediate focus is on fixing the problem without considering safety and health issues. More than one member of the group noted that farmers can become complacent about safety, health and training issues because they are being pulled in so many different directions; and

4. Although there are some private contractors that will work on things such as malfunctioning manure pumps, there are not many, and they are expensive, since they will use all the appropriate safety/health precautions in entering a manure pit to access a pump, so the likelihood that a small farmer would hire one is unlikely (cost, downtime, etc.)

Mr. Pemberton said that if you really wanted to overcome the complacency issue and assure that a dairy farmer paid attention to a safety/health issue (e.g., had received training on confined space issues, and had purchased a safety harness and rescue lanyard for instance), you would tie the requirement for it to the renewal of his milk permit which is issued by the VDACS, Board of Agriculture. According to the group, there are no safety/health issues currently tied to the issuance or re-issuance of a milk permit. There is also the option of approaching the Board of Agriculture to see if they would consider working cooperatively on the issue. Milk permits are issued based on procedures in their regulations, so any effort to tie safety/health issues to the issuance/re-issuance of the milk permit would require a regulatory change.

- F. All parties in the group were ready to work with VOSH on a cooperative, non-regulatory approach in the interim period, if indeed a regulation was going to be developed. The VFB was particularly interested in pursuing a voluntary approach in the near term to see if that could be effective, and possibly avoid a regulation altogether. They would like to work with VOSH on a standard set of confined space entry procedures and a standard training package that could be used by all groups.

RECOMMENDED ACTION

Staff of the Department of Labor and Industry recommends that the Board take no additional action on an adoption of a confined space standard for the Agriculture Industry at this time, thereby providing the Department with additional time to research technical issues and explore other methods to address confined space hazards in enclosed manure pits and open manure ponds.



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VIRGINIA SAFETY AND HEALTH CODES BOARD

BRIEFING PACKAGE FOR

JULY 10, 2008

**Proposed Regulation to Amend the
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**

I. Action Requested.

The Virginia Occupational Safety and Health (VOSH) Program requests the Safety and Health Codes Board to consider for adoption as a proposed 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 Proposed 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 proposed 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 have 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 proposed regulation provides that an application for an inspection warrant under Va. Code §§40.1-49.8

through -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.

III. Basis, Purpose and Impact of the Proposed Rulemaking.

A. Basis for Proposed 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. 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. Purpose.

The purpose of the proposal 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 proposed 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 proposed 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 proposed 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 proposed 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 transcriptions services ranges for a one hour interview is approximately \$200. The VOSH Program estimates that annual costs for interviews under the proposed regulations would be \$1,000 or less.

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 proposed regulation, amending 16 VAC 25-60-240, and adding a new section 16 VAC 25-60-245, to establish procedures in the Administrative Regulation for the Virginia Occupational Safety and Health (VOSH) Program 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.

**Proposed Regulation to Amend the
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 Oaths

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.



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VIRGINIA SAFETY AND HEALTH CODES BOARD

BRIEFING PACKAGE

FOR JULY 10, 2008

Proposed Regulation 16 VAC 25-96 to Amend Reverse Signal Operation Safety Procedures Dealing with Vehicular Equipment, Motor Vehicles, Material Handling Equipment and Motor Vehicle Equipment in Existing Standards: 16 VAC 25-90-1910.269; 16 VAC 25-175- 1926.601; 16 VAC 25-175- 602 and 16 VAC 25-175- 952;

and

Proposed Regulation to Establish Reverse Signal Operation Safety Requirements for Vehicles, Machinery and Equipment for General Industry and the Construction Industry, 16 VAC 25-97.

I. Action Requested.

The Virginia Occupational Safety and Health (VOSH) Program requests the Safety and Health Codes Board to consider for adoption as a **revised** proposed regulation of the Board the following VOSH proposed amendments pursuant to Va. Code §40.1-22(5):

- A.** Amend the following Part 1910 General Industry and Part 1926 Construction Industry standards governing the reverse signal operation safety procedures for off-road motor

B. vehicles and vehicular or mechanical equipment, 16 VAC 25-96:

- §1910.269(p)(1)(ii) - Vehicular Equipment for Electric Power Generation, Transmission and Distribution
- §1926.601(b) - Motor Vehicles
- §1926.602(a)(9)(ii) - Material Handling Equipment
- §1926.952(a)(3) - Mechanical Equipment, Power Transmission and Distribution;

B. Establish new reverse signal operation safety procedures for all vehicles, machinery and equipment with an obstructed view to the rear in General Industry and the Construction Industry, 16 VAC 25-97.

II. Summary of Rulemaking Process.

- A. Notice of Intended Regulatory Action (NOIRA) was adopted by Board on March 7, 2006. The NOIRA was published on September 4, 2006, with 30-day comment period ending October 4, 2006. No comments were received.

Next, the Board adopted proposed regulatory language on December 6, 2006. The proposed regulation was published on August 20, 2007, with a 60-day comment period ending on October 19, 2007. No comments were received. A public hearing was held by the Board on October 18, 2007. No comments were received.

After the close of the 60-day comment period, the Department received requests from the following individuals for an additional opportunity to comment (*see requests and Department responses attached in Appendix*):

Listed in alphabetical order:

- P. Dale Bennett, Virginia Trucking Association
- J. R. (Randy) Bush, Virginia Forest Products Association
- Terry Pruitt, Precon Construction Company, Precon Marine, Inc., Precon Development Corporation
- Mark Singer, Virginia Utility & Heavy Contractors Council (two letters and Department responses)
- Steve Vermillion, Associated General Contractors of Virginia

At its meeting on February 28, 2008, the Board approved the publication of an additional 30-day comment period, which was published from April 14 to May 14, 2008. No comments were received through Virginia's Regulatory Town Hall. **Comments were submitted directly to the VOSH Program, and are addressed in section V., below.** The Department held a meeting on April 16, 2008, with interested parties representing employer and employee interests from the construction and general industries. **The results of the April 16th meeting are summarized in section VI., below.**

III. Summary of the Proposed Regulations.

Construction Standards

The VOSH Program seeks the amendment of reverse signal operation safety procedures in standards for the construction industry in §§1926.601(b)(4), 1926.602(a)(9)(ii), and 1926.952(a)(3); and to establish a comprehensive reverse signal operation procedures regulation for all construction vehicles, machinery and equipment with an obstructed view to the rear, whether for operation in off-road work zones or over the road transportation or hauling.

The following boxes highlight the differences between the existing standards on this issue:

§1926.601(b)(4): “No employer shall use any motor vehicle equipment having an obstructed view to the rear unless:

- (i)The vehicle has a reverse signal alarm audible above the surrounding noise level or;
- (ii)The vehicle is backed up only when an observer signals that it is safe to do so.”

§1926.602(a)(9)(ii): “No employer shall permit earthmoving or compacting equipment which has an obstructed view to the rear to be used in reverse gear unless the equipment has in operation a reverse signal alarm distinguishable from the surrounding noise level or an employee signals that it is safe to do so.”

§1926.952(a)(3): “No employer shall use any motor vehicle equipment having an obstructed view to the rear unless:

- (i)The vehicle has a reverse signal alarm audible above the surrounding noise level or;
- (ii)The vehicle is backed up only when an observer signals that it is safe to do so.”

General Industry Standard

The VOSH Program seeks the amendment of the reverse signal operation safety procedures for the Electric Power Generation, Transmission and Distribution standard for general industry contained in §1910.269(p)(1)(ii); and to establish a comprehensive reverse signal operation safety procedures regulation for all general industry vehicles or equipment with an obstructed view to the rear, whether for operation in off-road work zones or over the road transportation or hauling.

The following box highlights the existing standard on this issue:

§1910.269(p)(1)(ii): “No vehicular equipment having an obstructed view to the rear may be operated on off-highway jobsites where any employee is exposed to the hazards created by the moving vehicle unless:

- (i)The vehicle has a reverse signal alarm audible above the surrounding noise level, or;
- (ii)The vehicle is backed up only when a designated employee signals that it is safe to do so.”

The **original** proposed regulation provides additional protection for employees by requiring the following for all vehicles, machinery and equipment in construction and general industry with an obstructed view to the rear, whether for operation in off-road work zones or over the road transportation or hauling:

The back-up alarm requirements in the current regulations at 1910.269(p)(1)(ii), 1926.601(b), 1926.602(a)(9)(ii), 1926.952(a)(3), will be deleted by 16 VAC 25-96, and the regulated community is referred to the new comprehensive proposed regulation at:

Reverse Signal Operation Safety Requirements for Motor Vehicles, Machinery and Equipment in General Industry and the Construction Industry, 16 VAC 25-97

The new comprehensive proposed regulation at 16 VAC 25-97 will provide that construction and general industry vehicles, machinery and equipment (hereafter referred to as covered vehicles), whether for operation in off-road work zones or over the road transportation or hauling, shall not be operated in reverse unless the vehicle has a reverse signal alarm audible above the surrounding noise level and the vehicle is backed up only when a designated observer or ground guide signals that it is safe to do so. The proposed regulation provides a definition of the phrase “obstructed view to the rear.”

While engaged in signaling activities, designated signalers/ground guides must have no other assigned duties, must not be distracted by such things as personal cellular phones or headsets and must be provided with and wear high visibility/reflective warning garments. No driver of a covered vehicle will travel in reverse unless they maintain constant visual contact with the designated signaler/ground guide. If visual contact is lost, the driver must immediately stop the vehicle until visual contact is regained and a positive indication is received from the signaler/ground guide that backup operations can proceed.

Prior to permitting an employee to engage in any covered activity, the employer shall ensure that each driver of a covered vehicle and each designated signaler/ground guide is trained in the requirements of this section. Refresher training shall be provided by the employer for any driver of a covered vehicle or any designated signaler/ground guide when the driver or designated signaler has been observed to violate the requirements of this section or involved in an accident or near miss accident; or has received an evaluation that reveals that the driver or designated signaler/ground guide is not operating in a safe manner.

Covered vehicles with video or similar technological capability to provide the driver with a full view behind the vehicle are exempt from the requirement to have a designated signaler/ground guide.

Covered vehicles are exempt from the requirement to have a designated signaler/ground guide if the driver visually determines from outside the vehicle that no employees are in the backing zone and that it is reasonable to expect that no employees will enter the backing zone during reverse operation of the vehicle.

Covered vehicles that were not equipped with a reverse-signal alarm upon manufacture or were not later retrofitted with an alarm are exempt from having a reverse signal alarm audible above the surrounding noise level, but must still comply with other requirements in the proposed regulation.

To the extent that any federal Department of Transportation (DOT) regulation applies to covered vehicles conflicts with this section, the DOT regulation will take precedence.

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

A. Basis for Proposed Action.

1. Existing Federal Identical Standards Are Insufficient

Construction

A review of VOSH fatal accident investigations from 1992 to September 30, 2007 (**updated since December 6, 2006 Board meeting**), found 19 fatal vehicle or equipment accidents in construction work zones where employees were struck:

Number of fatalities Type of vehicle

11	dump truck
<u>8</u>	1 each: cement truck, fuel truck, pavement planer, vacuum truck, bobcat, tandem truck, trackhoe and other-unspecified.
Total	19

While in some cases it was found that reverse signal alarms were not operational, many accidents occurred even with operational reverse signal alarms. In a situation where an existing standard appears to be applicable, VOSH is often faced with the difficulty of having to document whether a reverse signal alarm was audible over the surrounding construction noise at the time of the accident. This can be problematic at best, since exact accident conditions cannot be recreated. In at least two cases, an employee operating as the signaler was struck by the vehicle when the driver lost sight of the employee while backing-up.

Fatal accidents also occurred to employees engaged in their own work unrelated to such vehicles or equipment where they apparently became de-sensitized to the familiar and repeated sounds of reverse signal alarms and other construction noise in the work zone.

In addition, the existing standards are limited in their scope and do not apply to all construction vehicles or equipment with an obstructed view to the rear. For instance, §1926.601(b)(4) only applies to motor vehicles on an off-highway jobsite not open to public traffic, and specifically does not apply to earthmoving

equipment covered by §1926.602(a)(9)(ii). Neither regulation covers compactors or “skid-steer” equipment.

In VOSH investigations of a back-up accidents involving vehicles or equipment not covered by the previously cited standards, the only enforcement tool available is the use of §40.1-51.1.A. This statutory provision, used in the absence of an applicable regulatory standard, is more commonly referred to as the “general duty clause.” It provides, in part, 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....”

This general wording does not specifically mention hazards associated with vehicles or equipment or any other specific situation. Therefore, according to case law VOSH must document that the hazard in question was “recognized” either through industry recognition (e.g. a national consensus standard), employer recognition (e.g. a company safety rule, or the existence of an operator’s manual for the vehicle), or common sense recognition.

A concern with the use of the general duty clause is that it does not always result in consistent application of safety rules. This occurs as the use of the clause is often fact specific and dependent on a particular industry’s national consensus standard, or employer work rule or equipment operator’s manual.

Another issue regarding the general duty clause is that the statute has been interpreted in case law to only apply to “serious” violations, i.e., those that would cause “death or serious physical harm”. It cannot be used to eliminate “other-than-serious” hazards before they can become serious in nature.

General Industry

The requirements of §1910.269(p)(1)(ii) do not provide adequate protection for employees under the Electric Power Generation, Transmission and Distribution standard and provide no coverage at all for all other areas in general industry.

A review of VOSH fatal accident investigations from 1992 to September, 2007 (**updated since December 6, 2006 Board meeting**), found nine fatal accidents in general industry work zones where employees were struck:

<u>Number of fatalities</u>	<u>Type of vehicle</u>
3	logging vehicles
1	garbage trucks
1	fuel truck
3	tractor-trailer trucks

1	fork lift
1	dump truck
<u>1</u>	vehicle not specified

Total 11

As with the accident history in construction, general industry also had cases where it was found that reverse signal alarms were not operational, but other accidents occurred even with operational reverse signal alarms. Again, as in construction, general industry fatal accidents often occurred to employees who were engaged in their own work who apparently became de-sensitized to the sound of reverse signal alarms and other sounds in the work zone.

In addition, the standard is limited in its scope and does not apply to all general industry vehicles or equipment with an obstructed view to the rear. Section 1910.269(p)(1)(ii) only applies to motor vehicles in the electric power generation, transmission and distribution industry. When VOSH investigates a back-up accident involving a vehicle not covered by the above Part 1910 standard, the only enforcement tool available is the use of §40.1-51.1.A., referred to as the “general duty clause.” The same concerns regarding the use of the statute in the Construction Industry apply to its use in the General Industry sector as well.

2. Board Authorization and Mandate

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 VOSH 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.”

Va. Code §2.2-4007.03.B. provides:

“If an agency wishes to change a proposed regulation before adopting it as a final regulation, it may choose to publish a revised proposed regulation, provided the latter is subject to a public comment period of at least 30 additional days and the agency complies in all other respects with this section.”

Va. Code § 2.2-4007.06 provides:

“If one or more changes with substantial impact are made to a proposed regulation from the time that it is published as a proposed regulation to the time it is published as a final regulation, any person may petition the agency within 30 days from the publication of the final regulation to request an opportunity for oral and written submittals on the changes to the regulation. If the agency receives requests from at least 25 persons for an opportunity to submit oral and written comments on the changes to the regulation, the agency shall (i) suspend the regulatory process for 30 days to solicit additional public comment and (ii) file notice of the additional 30-day public comment period with the Registrar of Regulations, unless the agency determines that the changes made are minor or inconsequential in their impact. The comment period, if any, shall begin on the date of publication of the notice in the Register. Agency denial of petitions for a comment period on changes to the regulation shall be subject to judicial review.”

B. Purpose.

The purpose of the proposed change is to provide more comprehensive protection to employees in construction and general industry work areas exposed to vehicular, machinery and equipment traffic covered by the aforementioned standards and to provide the same degree of protection to employees in similar working conditions where vehicles, machinery and equipment with obstructed views to the rear are not otherwise covered by current regulations. The proposed regulation will apply to all covered vehicles, machinery and equipment in both construction and general industry, whether during operations in off-road work zones or over the road transportation or hauling.

C. Impact on Employers.

Under the **original** proposed regulation, employers would be required to train both drivers of covered vehicles, machinery and equipment and designated employee signalers/ground guides on the requirements of the amended and new regulations. Some costs to employers would be associated with the training required under the standard. Other issues that were added to the proposed regulation to provide employers with flexibility to achieve safe vehicle back-up operations include:

- * Covered vehicles with video or similar technological capability to provide the driver with a full view behind the vehicle can be operated in reverse without a designated employee signaler/ground guide.
- * Under the **original** proposed regulation, covered vehicles could be exempted from using

a designated employee signaler/ground guide if it has a reverse signal alarm audible above surrounding noise and the driver visually determines from outside the vehicle that no employees are in the backing zone and that it is reasonable to expect that no employees will enter the backing zone during reverse operations. **In the revised proposed regulation, the VOSH Program is recommending that the option allowing the driver to visually determine from outside the vehicle that no employee is in the backing zone, be replaced with language based on 1910.266(f)(2)(v) of the Logging Standard which provides:**

“Before starting or moving any machine, the operator shall determine that no employee is in the path of the machine.”

* Under the original proposed regulation, covered vehicles that were not equipped with a reverse-signal alarm upon manufacture or later retrofitted with an alarm are exempt from the reverse signal alarm requirement if they either use a designated employee signaler/ground guide, or if the driver visually determines from outside the vehicle that no employees are in the backing zone and that it is reasonable to expect that no employees will enter the backing zone during back-up. **In the revised proposed regulation, the VOSH Program is recommending that the option allowing the driver to visually determine from outside the vehicle that no employee is in the backing zone, be replaced with language based on 1910.266(f)(2)(v) of the Logging Standard which provides:**

“Before starting or moving any machine, the operator shall determine that no employee is in the path of the machine.”

* To the extent that any federal Department of Transportation (DOT) regulation applying to covered vehicles conflicts with any proposed regulation adopted by the Board, the DOT regulation would preempt any Board regulation in accordance with Va. Code §40.1-1, which provides in part that:

“...however, nothing in the occupational safety and health provisions of this title or regulations adopted hereunder shall apply to working conditions of employees or duties of employers with respect to which the Federal Occupational Safety and Health Act of 1970 does not apply by virtue of § 4 (b) (1) of the federal act.”

[NOTE: Section 4(b)(1) of the OSH Act provides that “Nothing in this Act shall apply to working conditions of employees with respect to which other Federal agencies...exercise statutory authority to prescribe or enforce standards or regulations affecting occupational safety or health.”]

The Department plans to prepare and make available to employers a free training program that could be used to meet the training requirements contained in the revised proposed regulation. Based on information received during the additional 30 day comment period from April 14 to May 14, 2008, commenters for the construction industry indicated that current rate of pay is \$20 per hour for operators, plus fringes (if we assume a 25% rate for fringes, the total compensation rate is \$25 per hour); and \$15 per hour, plus fringes, for laborers (if we assume a 25% rate for fringes, the total compensation rate is \$18.75 per hour). The Department estimates that training on the revised proposed regulation would take between 30-60 minutes. Costs for operators

would range from \$17.50 to \$25.00 per operator and from \$9.38 to \$18.75 per laborer.

D. Impact on Employees.

Construction and general industry employees across the state would benefit from increased safety requirements from vehicular, machinery and equipment back-up operations. A significant reduction in employee deaths attributed to covered vehicles is anticipated. Employees that are drivers of covered vehicles or designated signalers/ground guides will have to receive training on the requirements of the proposed regulation.

E. Impact on the Department of Labor and Industry.

The Department would have to designate and train personnel on the requirements of the **revised** proposed regulation. The Department plans to prepare and make available to employers a free training program that could be used to meet the training requirements contained in the proposed regulation. The cost to place an interactive training module on the Department's website is approximately \$1,000 per year.

V. Comments.

A Notice of Intended Regulatory Action (NOIRA) was adopted by Board on March 7, 2006. The NOIRA was published on September 4, 2006, with 30-day comment period ending October 4, 2006. No comments were received.

The Board adopted proposed regulatory language on December 6, 2006. The proposed regulation was published on August 20, 2007, with a 60-day comment period ending on October 19, 2007. No comments were received. A public hearing was held by the Board on October 18, 2007. No comments were received.

After the close of the 60-day comment period, the Department received requests from five individuals for an additional opportunity to comment. At its meeting on February 28, 2008, the Board approved the publication of an additional 30-day comment period, which was published from April 14 to May 14, 2008. No comments were received through Virginia's Regulatory Town Hall. The following comments were submitted directly to the VOSH Program:

Commenter 1: April 14, 2008 James R. Leaman, President, Virginia AFL-CIO

Mr. Leaman wrote in support of the proposed regulation commenting that the 29 reverse operation fatalities in the last 13 years – an average of 2 or more per year – was an unacceptably high number. He also noted that the free training program to be provided by the Department should alleviate some costs associated with the regulation.

Agency Response: None.

Commenter 2: April 17, 2008 Will Karbach, Branch Highways, Inc.

Mr. Karbach wrote in opposition to parts of the regulation commenting that the requirement to have a designated observer/ground guide could result in additional injuries because the environment in which his company works could result in the observer, despite the best of training, could become distracted or complacent and become a victim himself.

He also commented that the requirement to have a designated observer/ground guide could result in increased expense and provided an example:

“On one particular project we currently have in operation, there are 52 people and 30 pieces of construction equipment, not including those of our subcontractors. If we were to have observers for each piece of equipment, it would result in a 58% increase in labor costs. With weekly payroll across the company of over \$150k, I estimate that this would equate to an additional \$4+million in payroll per year, not including insurance and taxes.”

Finally, he commented that on a macroeconomic level there must be several hundred thousand pieces of equipment that could be covered by the proposed regulation and did not think there would be enough people in the labor market to provide designated observers/ground guides for each piece of equipment.

Agency Response:

Many commenters raised concerns that the requirement to have a designated observer/ground guide could result in additional injuries to the designated observers/ground guides and the added expense to employers of having to provide a designated observer/ground guide for each piece of covered equipment.

Department Response Related to the Revised Proposed Regulation

The Department held a meeting with interested parties on April 16, 2008 (see section VIII for summary), and is proposing to the Board the following substantive change to address the above concerns:

- The revised proposed regulation would require that no covered vehicle operate in reverse unless:
 1. The covered vehicle has a reverse signal alarm audible above the surrounding noise level, and
 - 2.a. The covered vehicle is operated in reverse ~~backed-up~~ only when a designated observer or ground guide signals that it is safe to do so; or

2.b. Before operating the covered vehicle in reverse, the driver visually determines that no employee is in the path of the covered vehicle.

The above underlined language added in section 2b is based on 1910.266(f)(2)(v) of the Logging Standard which provides:

“Before starting or moving any machine, the operator shall determine that no employee is in the

path of the machine.”

The change is being recommended to the Board to address potential cost issues associated with the exemption from use of a designated observer/ground guide that would have allowed drivers to get out of the vehicle to determine that no employees are in the backing zone and that it is reasonable to expect that no employees will enter the backing zone. The change would also provide a level of consistency by providing drivers of covered vehicles in construction and general industry the same reverse operation option as provided drivers in the logging industry.

This change would also help to address situations like a driver pulling into a large shipping terminal and having to back-up to a loading dock – the change would allow the driver as he pulls in to determine that no employees are in the back-up area and then continue with back-up without having to get out of the vehicle. Finally, the Department also considered concerns expressed at the April 16th meeting by construction contractors that significant costs could be incurred by the delays on large road building projects where a constant flow of dump trucks could result in each driver having to stop his vehicle, exit the cab to check for employees in the back-up zone, re-enter the cab and proceed with reverse operations for hundreds of yards.

Department Response Related to the Original Proposed Regulation

With regard to the **original** proposed regulation, the Department does not believe that hundreds or thousands of new "designated observer/ground guides" would have to be hired to comply with the regulation. We believe that most employers who currently do not use "designated observer/ground guides" would have taken advantage of the exemption that enables the driver to operate in reverse without a "designated observer/ground guide":

"if the driver visually determines from outside the vehicle that no employees are in the backing zone and that it is reasonable to expect that no employees will enter the backing zone during reverse operation of the vehicle."

For those employers that send delivery/trade trucks out with only one person, as noted above, those employers/drivers can take advantage of the exemption. If the single employee drives onto a worksite with other employers working in the area and chooses to request, as many do currently, assistance from an employee of another contractor on site to act as the "designated observer/ground guide," there is nothing in the proposed regulation to prohibit that practice. The employer of the driver would not be required to hire or train a "designated observer/ground guide" just to accompany their single driver, nor would it be that employer's responsibility to train the other contractor's "designated observer/ground guide."

What the Department wants to accomplish with the proposed regulation is to change current behaviors that cause these deaths and debilitating accidents. Without exception, every reverse signal operation fatality involves the driver either not knowing anyone is in the back-up zone or losing sight of someone he knows is in the back-up zone and proceeding anyway. Under the current regulations, as long as a covered vehicle has a functioning back-up alarm, the burden of avoiding an accident is placed squarely on the shoulders of the pedestrians in the traffic area. No real safety responsibility is placed on the driver while operating the vehicle other than to make sure the back-up alarm is working. A driver can back-up without even checking his side mirrors under the current regulations. The revised proposed regulation will place a positive responsibility on the driver to either keep the designated

observer/ground guide in sight at all times during reverse operations, or in the absence of a designated observer/ground guide, to visually determine that no one is in the back-up zone prior to beginning reverse operations of the vehicle.

Commenter 3: April 17, 2008 **Russell Quesenberry, Safety Administrator, S. W. Rodgers, Inc.**

Mr. Quesenberry wrote in opposition to parts of the regulation expressing concerns similar to Commenter 2 that the requirement to have a designated observer/ground guide in the construction industry could result in additional injuries to the designated observers/ground guides:

“I foresee employers using labor class employees for this task and this being a boring job thus creating an even more hazardous situation by having an employee at or near the rear of every machine being operated in reverse. I see more accidents when the designated observer would be the person run over because we put them in harms way. Everyone in the construction business knows where you have large machinery working and backing, you keep personnel away, not assign them to work in this hazardous location. What would be the distance for the designated spotter to be effective in backing the equipment safely but not be too close to be in danger themselves? About the issue of becoming complacent to the sound of a back up alarm, this person is going to listen to one all day and soon learn to tune it out, just like a chiming clock in a house. I agree every piece of equipment should have a back up alarm and not as worded by OSHA "with an obstructed view to the rear. What does not have an obstructed view to the rear? The human body has an obstructed view to the rear. Let's use a common sense approach to this problem and use the general duty clause to enforce "that we all have to provide a safe work place. We install back up alarms and maintain them on anything that goes in reverse. This also could save a few kids, mailboxes and trash cans from parents in automobiles. Next we educate the public and continue to educate and remind our employees just what that beep beep beep really means.”

With regard to a general industry setting, Mr. Quesenberry commented:

“My concern here is only places of business open to the public. When you mix shoppers and browsers with heavy equipment such as forklifts and large floor polishers, then a designated spotter would be a good idea or as most of the places do, barricade off the area while the equipment is in use. Here you have a mix of people who may not have any idea what that beep beep beep means. They may think it is the cash register scanner. Also public places mean children. Children are not allowed on construction sites nor usually found wandering around a shop or warehouse. This would be my suggestion; if the area is open to the public then a designated spotter is required or the area of equipment operation is barricaded or signed and closed to the public, but isn't this about what we are doing already?”

Agency Response: See the Department’s response to Commenter 2’s concern that the requirement to have a designated observer/ground guide could result in additional injuries.

With regard to what constitutes an obstructed view to the rear, the proposed regulation provides the following definition for that term and is based on a federal OSHA’s interpretation on the same issue:

“The phrase “obstructed view to the rear” means anything that interferes with the overall view

of the operator of the vehicle to the rear of the vehicle at ground level, and includes, but is not limited to, such obstacles as any part of the vehicle (e.g., structural members); its load (e.g., gravel, dirt, machinery parts); its height relative to ground level viewing; damage to windows or side mirrors, etc., used for rearview movement of the vehicle; restricted visibility due to weather conditions (e.g., heavy fog, heavy snow); or work being done after dark without proper lighting.

A number of Commenters may be under the impression that because a vehicle has a reverse signal alarm, it automatically would be considered to have an obstructed view to the rear and be covered by the proposed regulation. That is not the case. The following additional guidance has already been provided by Department personnel in interpreting the language of the proposed regulation:

"...will a Lowe's truck delivering a refrigerator to a model home under construction be covered?"

Response: Although I have seen different types and sizes of Lowes' trucks, any delivery truck operated on behalf of an employer will be covered under the proposal if there is no access to look out a rear window of the vehicle, as the dangers present are the same. If the vehicle is essentially a pick-up truck or flatbed with a refrigerator sitting in the back, and the cargo is completely blocking the rear window of the truck thereby creating a blind spot, then that would constitute an obstructed view to the rear and the truck would be covered by the proposed regulation."

"What about pick-up trucks with shells?"

Response: With the exceptions noted in the definition for "obstructed view to the rear" such as "damaged windows", as long as the shell has a front and rear window that are not obstructed and they allow the driver to look directly out the rear window of the truck, then the truck would not have an obstructed view to the rear and would not be covered by the proposed regulation."

"You asked whether forklifts, pick-up trucks, cars, vans, tractor-trailers and powered industrial trucks are covered by the proposed regulation.

Response: Generally, any truck where the driver can see directly behind the vehicle at ground level by looking through a rear view mirror, or by turning around and looking out the rear window/opening would not be considered to have an obstructed view to the rear. Of the examples you posed, the proposed regulation would not generally apply to fork lifts, pick-up trucks, cars, certain vans, etc., as long as they did not have an "obstructed view to the rear" as defined in the regulation and currently by OSHA. As noted in the regulation, there are certain exceptions to this general rule (e.g. damage to windows/mirrors, restricted visibility due to weather conditions or work being done after dark without proper lighting).

On the other hand, certain tractor trailers pulling a large enclosed trailer, and vans with no or blocked/obstructed back windows, would be covered because they would be considered to have an obstructed view to the rear."

Commenter 4: April 18, 2008 Camella Megatiotis, FSAI

Mr. Megatiotis wrote in opposition to parts of the regulation expressing concerns similar to Commenter

2 that the requirement to have a designated observer/ground guide in the construction industry could result in additional injuries to the designated observers/ground guides:

“I fully support the decision to have backup alarms on none highway use equipment but to require a spotter? I feel this will create a bigger problem. Spotters behind every piece of equipment on a project site would mean additional personal on the ground. I believe you would see an increase of persons being injured on construction sites if this change occurs.”

Agency Response: See the Department’s response to Commenter 2’s concern that the requirement to have a designated observer/ground guide could result in additional injuries.

Commenter 5: April 22, 2008 William A. McClellan, Jr., Pinnacle Construction & Development Corporation

Mr. McLellan wrote in opposition to parts of the regulation expressing the concern that the regulation is an over-reaction to the 15 [construction] fatalities cited from 1992 through 2005:

“Reviewing fatality statistics in the U. S.:

- There were an estimated 6,289,000 car accidents in the US in 1999 resulting in about 3.4 million injuries and 41,611 people killed.
- The total number of people killed in highway crashes in 2001 was 42,116, compared to 41,945 in 2000.
- An average of 114 people dies each day in car crashes in the U.S.
- On average, 90 people are killed every year in the U.S. by lightning.

The number of accidents potentially affected by the proposed changes to the reverse signal operation requirements is minimal. Also, as we understand the proposal, it could be interpreted to require the assignment of an observer to each piece of equipment on the job site. We feel this is an unfair burden to place on the industry and respectfully request the proposal be dropped.”

Agency Response: Overall, there have been 29 reverse signal operation fatal accidents in Virginia from 1992 to 2007 (20 in construction and 9 in general industry).

The statistics quoted by Mr. McClellan in support of his contention that the proposed regulation should be dropped cannot be relevantly compared to the VOSH reverse signal operation fatality statistics, unless he can provide a way to correlate the two sets of data. For instance, there are obviously exponentially more people exposed to car accidents on a daily or yearly basis in the United States, resulting in many more injuries and fatalities, then there are workers exposed to vehicles operating in reverse with an obstructed view to the rear in Virginia for either time period. The injury and fatality statistics for are not comparable unless you can develop some sort of rate of accidents or fatalities per so many people exposed.

Mr. McClellan also expressed concerns similar to Commenter 2 that the requirement to have a designated observer/ground guide in the construction industry could result in increased expenses for employers. See the Department’s response to Commenter 2.

Commenter 6: April 22, 2008 Mike Weakley, Safety Manager, Marvin V. Templeton &

Sons, Inc.

Mr. Weakley wrote in opposition to parts of the regulation expressing concerns similar to Commenter 2 that the requirement to have a designated observer/ground guide in the construction industry could result in additional injuries, and Commenter 3 with regard to what constitutes an obstructed view to the rear:

“It seems to me that as written this proposal would require Rollers (including asphalt rollers) and Rubber tire loaders (including skid steer loaders) that would be classified as "covered vehicles" to meet all of the requirements of this proposal. That would mean that they would either need to be equipped with cameras (this is not cost effective and would be a maintenance nightmare in a lot of applications) or have a trained spotter (not very safe or cheap when this equipment by back only a few feet at a time and may back several hundred times a shift) or the operator would have to get out of or down from the equipment to insure that no one would get in the path of the equipment a day (same note as for a spotter, unless you are the person getting in and out or off and on the equipment several times a day increasing the chance of slip, trip and fall as well as back and other injuries). This proposal needs to be taken back to the table and reviewed as for all "covered vehicles" and their possible job functions so that it can be determined both what is reasonable and what is safe, remembering that putting a trained spotter on the ground may put another person in harms way. This would be especially true if it required placing a spotter which would be an additional person in a work zone. This would be just one more potential person for an errant vehicle to run into.”

Agency Response: See the Department’s response to Commenter 3 on the issue of what constitutes an obstructed view to the rear. Rollers would typically not be considered to have an obstructed view to the rear because the operator can normally turn his head and look behind his vehicle through an opening in his cab – in fact many rollers don’t even have a cab, so there could be no obstruction that could interfere with the driver’s ability to look behind the vehicle as he was traveling in reverse. Rubber tire loaders as well normally have a glass enclosed cab that allows the driver to turn his head and look out the rear view window, so such vehicles would not normally be considered to have an obstructed view to the rear. Skid steer loaders, depending on the design, may or may not be considered to have an obstructed view to the rear, depending on the location of the drivers seat and any rear view window that the driver can look out of.

See the Department’s response to Commenter 2’s concern that the requirement to have a designated observer/ground guide could result in additional injuries.

Commenter 7: April 25, 2008 D. S. Kemp, Training Director, JAC, Joint Apprenticeship & Training Program, Operating Engineers, Local No. 147

Mr. Kemp wrote in support of the proposed regulation commenting that:

“As operating engineers we drive and operate commercial trucks and heavy equipment on construction sites and industrial plants all across the state. We are in support of the ... Regulation...as proposed. We feel the this will give employees a more healthful and safe work environment and will be cost effective for the employers.

Agency Response: None.

**Commenter 8: May 9, 2008 John Roland, Director of Engineering and Environmental Affairs,
Virginia Asphalt Association**

Mr. Roland wrote in opposition to parts of the regulation expressing concerns similar to Commenter 2 that the requirement to have a designated observer/ground guide could result in increased injuries to employees and expense to employers:

“Our industry is, as I'm sure you know, heavily involved in highway transportation with extensive activities within work zones involving numerous vehicles that must back up many times in the paving and road construction process. The new rule if imposed will create a number of logistics problems not to mention the added cost of having trained spotters or watchers involved in every backing operation (It is impractical and potentially unsafe to have vehicle drivers step out of the vehicle and look each time the vehicle backs up). The cost of building and maintaining Va.'s roads has dramatically increased over the last few years with what has happened to the cost of fuel and liquid asphalt as well as other materials. This regulation requiring both an alarm system and a spotter will be very costly to implement. Since the spotter can not have other responsibilities while performing the required safety task and given the number of backing operations typical on paving sites, there will basically have to be at least one additional paid employee hired to perform the spotter task on each job. Additional people in the work zone also creates its own set of potential hazards to those individuals.

It's hard to argue against proposals that address employee safety as our industry views that as a top priority of concern. The fact is that backing operations do have a history of causing accidents and it is probably important to do something in this area. Several suggestions to consider as an alternative to the current proposal which we believe might be more cost effective are listed below:

1. Require "sound sequencing" alarm systems that allows the warning device to change pitch or character periodically so that workers don't become accustomed to hearing the same warning sound over and over again and basically not react to the repetitive noise in the work zone.
2. Beef up training requirements for personnel in work zones to help increase awareness of the hazards involved.

Agency Response: See the Department's response to Commenter 2's concern that the requirement to have a designated observer/ground guide could result in increased expenses to employers.

See the Department's response to Commenter 2's concern that the requirement to have a designated observer/ground guide could result in additional injuries.

With regard to Mr. Roland's suggestion that an alternative approach could involve "sound sequencing" of alarm systems (e.g., changing the pitch or character of the alarm sound periodically), the Department agrees that alarms designed in that fashion could help to avoid the hazard of employees becoming so accustomed to the sound of reverse signal alarms that they ignore or "tune them out." However, because such a proposal would involve a product (alarms) which are distributed in interstate commerce, the Board would have to comply with Va. Code §40.1-22(5), which states in part:

“Such standards when applicable to products 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.”

With regard to Mr. Roland’s suggestion that an alternative approach could involve better training requirements for personnel in work zones, the original proposed regulation does include training requirements for drivers and designated observers/ground guides. The Department is also recommending that additional training provisions be added to the revised proposed regulation for personnel in work zones (see section VIII, below). Finally, the Department plans to prepare and make available to employers a training program that could be used to meet the training requirements contained in the proposed regulation. The availability of a free training program should help to alleviate some cost concerns.

Commenter 9: May 9, 2008 Jim Patterson, F. G. Pruitt, Inc.

Mr. Patterson wrote in opposition to parts of the regulation expressing concerns similar to Commenter 2 that the requirement to have a designated observer/ground guide in the construction industry could result in additional injuries and expense, and Commenter 3 with regard to what constitutes an obstructed view to the rear:

“Currently all of our equipment utilizes back up alarms per regulation. We do not `employee spotters except in specific situations where they are needed or required. We purposely limit or exclude employees from being on the ground in areas where heavy equipment is operating unless their presence is a fundamental part of the work. This new regulation would in essence require us to double our work force and introduce employees into dangerous places they previously did not need to be.

There is a portion of the regulation that says if you do not have spotters, the employee can disembark the vehicle and look for themselves. Please consider just one example of a large earth mover (scraper). The operator may back this machine 150 times or more in a given day. He normally works in an area where no employee is on the ground. He is strapped in 10' off of the ground. He would be required to stop the machine, lower all implements, remove his seatbelt, climb 10' down (often in wet or muddy conditions), walk approximately 100' one way and then reverse this entire procedure getting back on. The employee would never be able to physically stand this, it would not be safe and the production he would lose would cause huge economic impacts. Mobile vehicles such as delivery trucks and dump trucks would all be required to have 2 people in the vehicle under this regulation. Again, lacking two people, all of the above adverse conditions would still be in effect even for these vehicles.

The regulation allows for video monitoring. Our equipment does not employee this technology. Furthermore much of our fleet has open cabs subject to weather and vandalism. This is a costly and impractical solution for our type work.

The regulation states localities will not be particularly affected. Counties such as Henrico County who maintain their roads will incur all of the above costs and undue hardships. How can it state there is no effect? VDOT will also be impacted. Given the current condition of Virginia roads and our budget problems, we must question where the money will come from to pay for implementing this regulation.

The regulation states there are no other options, yet it does not mention, detail or provide any method or steps taken to arrive at this statement.

The above only represents only a small part of the adverse impact of this regulation as written. We encourage you to carefully consider these impacts. Setting aside the economic impacts, if we knowingly pass regulations which put employees in danger, there is something terribly wrong with the system. We support safety and have a long track record to back this up. We agree becoming complacent when it comes to safety can lead to accidents. We agree and would support any and all additional training as mentioned in this regulation. We would encourage you to consider pushing this training before we change something that may not be broken.

Agency Response:

See the Department's response to Commenter 2's concern that the requirement to have a designated observer/ground guide could result in increased expenses to employers.

See the Department's response to Commenter 2's concern that the requirement to have a designated observer/ground guide could result in additional injuries.

See the Department's response to Commenters 3 and 6 on the issue of what constitutes an obstructed view to the rear. Mr. Patterson mentions scrapers and many of their "open cab" vehicles as vehicles they own that would be covered by the regulation. Without any photos or video to view, the Department would consider many scrapers and many open cab construction vehicles to not have an obstructed view to the rear and not be covered by the standard because the driver can see directly behind the vehicle at ground level by looking through a rear view mirror, or by turning around and looking out the rear window/opening. In addition, according to federal OSHA interpretations, vehicles with rotating cabs are not considered to have an obstructed view to the rear since the operator can rotate the cab in the direction he is traveling.

With regard to Mr. Patterson's suggestion that an alternative approach could involve better training requirements for personnel, the original proposed regulation does include training requirements for drivers and designated observers/ground guides. The Department is also recommending that additional training provisions be added to the revised proposed regulation for personnel in work zones (see section VIII, below). Finally, the Department plans to prepare and make available to employers a training program that could be used to meet the training requirements contained in the proposed regulation. The availability of a free training program should help to alleviate some cost concerns.

Commenter 10: May 9, 2008 Daniel M. Minnix, Corporate Safety Director, The Branch Group, Inc.

Mr. Minnix wrote in opposition to parts of the regulation expressing concerns similar to Commenter 2 that the requirement to have a designated observer/ground guide in the construction industry could result in additional injuries:

"First, on a large project it is unlikely that each equipment operator will be willing to make the determination that no employees will enter the backing zone. This being the case, if one spotter will be in the area each piece of equipment will then be required to have a spotter.

As a result, we have not introduced multiple employees into an area where there would likely

have been none, and are now exposing multiple employees to a hazard that they would not have otherwise been exposed to, in effect significantly increasing our chances of a backing accident. Instead of having multiple pieces of equipment operating on a jobsite, we now have multiple pieces of equipment intertwined with multiple employees and I shutter to consider the consequences.

Our second concern relates to operator diligence. We believe that equipment operators will be come less diligent when there is a spotter present and that this casual attitude will eventually become normal behavior, thereby creating another more significant hazard.”

Mr. Minnix wrote in support of a requirement that all employees wear high visibility apparel around moving equipment.

Agency Response: See the Department’s response to Commenter 2’s concern that the requirement to have a designated observer/ground guide could result in additional injuries.

Commenter 11: May 12, 2008 Steven C. Vermillion, Chief Executive Officer, Associated General Contractors of Virginia, Inc.

Mr. Vermillion wrote in opposition to parts of the regulation expressing concerns similar to Commenter 2 that the requirement to have a designated observer/ground guide in the construction industry could result in additional injuries and expense:

On behalf of the members of the Associated General Contractors of Virginia, please be advised that we are strongly opposed to the new requirement as drafted. We believe it will be extremely costly, and will not necessarily result in safer worksites. Our concerns are detailed below.

Specific Concerns

As originally proposed, we believe that additional employees would have to be added in most cases to serve as observers (one per vehicle). And if these observers are required to maintain visual contact with the operator, we are particularly concerned that they may be in more danger than would otherwise be the case. At least three of the fatalities cited as justification for the regulation were observers. We believe this change adds more people to the “danger zone” behind vehicles and will likely result in additional fatalities. This is especially true if the observer is working behind a skid steer loader, for instance.

In terms of cost, let’s just consider some numbers. First, let’s assume that this requirement will require observers for 6,000 pieces of equipment at any given time. (There are more than 30,000 registered contractors in the Commonwealth. If we assume just 10% regularly utilize equipment that would fall under these regulations, and each of these firms has two pieces of equipment that would require observers.)

Assuming the observers would be paid about the same as laborers, the cost of this proposal to Virginia employers would be more than \$14 million per year (6,000 observers times 2,000 hours times \$12.00 (\$10 hourly wage plus 20% burden for taxes and benefits). Obviously these numbers are just estimations. We actually believe that the impact may be greater, but this example demonstrates our point.

....

We are also concerned about vehicle owner-operators making deliveries to jobsites. First off, we are not certain if these individuals are even subject to VOSH regulations since they are sole proprietors with no employees. Regardless, you could have an instance where an independent operator who has not been trained makes a delivery to the jobsite and is cited for non-compliance. The controlling contractor would likely be cited, too under the multi-employer policy. Considering how the industry operates for the delivery of crushed stone from a quarry, for instance, this could be a problem. Or, for that matter, a UPS truck making a delivery at the jobsite could be subject to this requirement.

The end result could conceivably be to require the addition of employees at all possible entrances to the jobsite to turn away any drivers who have not been trained. Again, extra expense for the contractor....very little improvement in jobsite safety.

....

Recommendation

We suggest that the proposed regulation be modified as we discussed on April 16 to provide training for operators and observers to help them operate in a safe manner. We suggest at this point that the training be optional to see if it is effective. Beyond that, we suggest that no other requirements be changed.”

Agency Response: See the Department’s response to Commenter 2’s concern that the requirement to have a designated observer/ground guide could result in increased expenses to employers.

See the Department’s response to Commenter 2’s concern that the requirement to have a designated observer/ground guide could result in additional injuries.

With regard to Mr. Vermillion’s concern that vehicle owner-operators or UPS drivers making deliveries to jobsites, Mr. Vermillion is correct that there some jurisdictional issues. If the owner-operator is a sole owner of the company (not incorporated, not a partnership), and has no employees, then VOSH laws, standards and regulations do not apply. While VOSH does have a multi-employer worksite citation policy, it does not use it to enforce training provisions in regulations. So, if the sole-ownership vehicle operator/owner was not trained in the proposed regulation, VOSH would not cite the general contractor for that lack of training.

Commenter 12: May 13, 2008 Tom Witt, Engineer Director, Virginia Transportation Construction Alliance

Mr. Witt wrote in opposition to parts of the regulation expressing concerns similar to Commenter 2 that the requirement to have a designated observer/ground guide in the construction industry could result in additional injuries and expenses to employers:

“On the surface VOSH’s proposed language appears to be an obvious improvement to significantly reduce reverse operation incidents. However, the small but significant changes to the current language have the potential to cause more problems on the jobsite [than] it is intended to prevent.

We respectfully request that you carefully reconsider the original intent of the proposed changes

and not adopt the new requirement that requires both a designated spotter and a reverse signal alarm during operation of the vehicle.

....

My members are primarily concerned with the possibility of putting additional employees at risk as well as the impact on efficiency and costs.”

Agency Response: See the Department’s response to Commenter 2’s concern that the requirement to have a designated observer/ground guide could result in additional injuries.

See the Department’s response to Commenter 2’s concern that the requirement to have a designated observer/ground guide could result in increased expenses to employers.

Commenter 13: May 14, 2008 J. R. (Randy) Bush, CAE, Virginia Forest Products Association

Mr. Bush wrote in opposition to parts of the regulation expressing concerns similar to Commenter 2 that the requirement to have a designated observer/ground guide in the construction industry could result in additional injuries and expenses to employers:

“When the initial proposal as published in the Register was reviewed, there were a number of concerns our organization identified. While the meeting of stakeholders on April 16th helped to clarify and mediate some of our concerns (*should the suggested changes generated from the April 16th meeting be implemented*), a number of them still exist.

One major concern is that a requirement for additional workers mandated to implement the use of both reverse audible signals and “ground guides” may well serve as a safety hazard in itself by exposing more individuals to potential harm. This is especially true when there may be multiple instances of “ground guides” where a number of operations may be taking place simultaneously.

While worker safety is of paramount importance, in reviewing the Reverse Signal accidents record, it appears that some of the incidents would not have been prevented even through a change in the regulation.

....

Finally, because of the potential for placing new and significant liability on equipment operators or other company employees should any of the proposed requirements be adopted, we suggest that an emphasis on safety training with regard to procedures associated with backing up vehicles covered by this section might provide equal, if not more favorable, results than simply increasing proscriptive requirements as is being proposed.”

Agency Response: See the Department’s response to Commenter 2’s concern that the requirement to have a designated observer/ground guide could result in increased expenses to employers.

See the Department’s response to Commenter 2’s concern that the requirement to have a designated observer/ground guide could result in additional injuries.

With regard to Mr. Witt’s suggestion that an emphasis be placed on safety training requirements for personnel, the original proposed regulation does include training requirements for drivers and designated observers/ground guides. The Department is also recommending that additional training

provisions be added to the revised proposed regulation for personnel in work zones (see section VIII, below). Finally, the Department plans to prepare and make available to employers a training program that could be used to meet the training requirements contained in the proposed regulation. The availability of a free training program should help to alleviate some cost concerns.

VI. Meeting With Interested Parties

The Department held a meeting on April 16, 2008, with interested parties representing employer and employee interests from the construction and general industries. The following individuals attended:

P. Dale Bennett, Virginia Trucking Association
J. R. (Randy) Bush, Virginia Forest Products Association
Terry Pruitt, Precon Construction Company, Precon Marine, Inc., Precon Development Corporation
Mark Singer, Virginia Utility & Heavy Contractors Council
Steve Vermillion, Associated General Contractors of Virginia
Jim Leaman, President VA AFL-CIO
Dan Nix, Plumbers and Pipefitters
Darold Kemp IUOE, Local 147 Apprenticeship
Delegate John A. Cosgrove, Virginia House of Delegates
Jim Patterson, F. G. Pruitt, Inc.
Ken Olsen, Slurry Pavers, Inc.
Tom Witt, Virginia Transportation Construction Alliance
Tom Moline, Whitehurst Paving Co.
J. R. Glasscock, Virginia Paving Co.
Jim Stepahin, Heavy Construction Contractor's Association
Scott Wynn, Branscome Richmond
Bill Burge, Assistant Commissioner, Department of Labor and Industry
Glenn Cox, VOSH Director, Department of Labor and Industry
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 as was outlined in more detail in an April 7th e-mail to the participants:

“Please note that the purpose of this meeting is to have an informal but thorough substantive discussion on the current wording of the proposed regulation. If you want to address the broader policy issues of whether or not there should be a regulation, that is within the purview of the Board to consider and should be addressed in a formal written comment to the Board. You can also take the opportunity to express such broader policy issues/concerns to the Board in person the next time the regulation is before the Board (at the beginning of every Board meeting, anyone can address the Board on any topic related to the Boards mandate, but speaking time is usually limited to 5 minutes per speaker).

In light of the above, the approach that will be taken during the meeting is to focus on making sure the structure and wording of regulation provides increased safety protections for

employees and employers over current regulations, while still being practical and cost effective for employers to implement, easy for employees, employers and Department personnel to understand, and simple for the Department to enforce.”

Also please note that if a final regulation is adopted, the Department intends to develop a sample training program that would be made available free of charge through the mail or on the Department's website for use by employers and employees. We also intend to research the possibility of posting a 15-30 minute version of the training course online so that it could be completed and a training certification form printed out by the individual once the course is completed. Any input you might have on this approach to training would be welcome at the meeting as well.”

The group then proceeded to review some revised text under consideration by the Department, which are indicated below in underlined, bold italics print:

16 VAC 25-97-10. Applicability.

This chapter shall apply to all general industry and construction industry vehicles, machinery or equipment capable of operating traveling in reverse and with an obstructed view to the rear (hereafter referred to as “covered vehicles”), whether intended for operation in off-road work zones or over the road transportation or hauling.

Group Response: Approved

16 VAC 25-97-30.A. Covered vehicle requirements.

A. No employer shall use operate any covered vehicle in reverse unless:

1. The covered vehicle has a reverse signal alarm audible above the surrounding noise level, and

2.a. The covered vehicle is operated in reverse backed up only when a designated observer or ground guide signals that it is safe to do so; ***or***

2.b. Before operating the covered vehicle in reverse, the driver visually determines that no employee is in the path of the covered vehicle.

[NOTE: NEW LANGUAGE IN 2.b. WAS ADDED IN RESPONSE TO 4.16.08 MEETING: “visually”.]

Group Response: Approved

The above language change in 2.b. is based on 1910.266(f)(2)(v) of the Logging Standard which provides:

“Before starting or moving any machine, the operator shall determine that no employee is in the path of the machine.”

The change in text was added to address potential cost issues associated with the exemption in the original proposed regulation from use of a designated observer/ground guide that would have allowed drivers to get out of the vehicle to determine that no employees are in the backing zone and that it is reasonable to expect that no employees will enter the backing zone. The change would also provide a level of consistency by providing drivers of covered vehicles in construction and general industry the same reverse operation option as provided drivers in the logging industry.

This change would also help to address situations like a driver pulling into a large shipping terminal and having to back-up to a loading dock – the change would allow the driver as he pulls in to determine that no employees are in the back-up area and then continue with back-up without having to get out of the vehicle. Finally, the Department also considered concerns expressed at the April 16th meeting by construction contractors that significant costs could be incurred by the delays on large road building projects where a constant flow of dump trucks could result in each driver having to stop his vehicle, exit the cab to check for employees in the back-up zone, re-enter the cab and proceed with reverse operations for hundreds of yards.

16 VAC 25-97-30.B. Covered vehicle requirements.

~~**B. C.**~~ Covered vehicles that were not equipped with a reverse-signal alarm upon manufacture or were not later retrofitted with an alarm are exempt from subdivision A.1 of 16 VAC 25-97-30.

If the manufacturer of the covered vehicle offered the employer a reverse signal alarm retrofit package at a reasonable and economically feasible cost and the employer did not have the retrofit package installed, this exemption does not apply.

[NOTE: NEW LANGUAGE IN B. IN RESPONSE TO 4.16.08 MEETING: “at a reasonable and economically feasible cost”.]

Group Response: Approved

This changed section is being moved from the 16 VAC 25-97-60 Exemptions, section so that all coverage issues are addressed in one area. The new text regarding retrofit packages is added for consistency purposes – federal OSHA has a similar policy for older industrial trucks (forklifts) that were originally manufactured without seat belts. OSHA’s policy is that if a manufacturer offered to retrofit a seatbelt onto a forklift, and OSHA can prove that the retrofit package was offered to and refused by the employer, then OSHA will issue a citation to the employer for failure to provide a seatbelt. If no retrofit package is available or it was not offered to the specific employer, no citation can be issued for failure to have the retrofit completed.

16 VAC 25-97-30.C. Covered vehicle requirements.

C. Covered vehicles equipped with a reverse signal alarm that is not operational or is not functioning properly shall be either:

1. operated in reverse only when a designated observer or ground guide signals that it is safe to do so; or

2. removed from service until the reverse signal alarm is repaired.

[NOTE: NEW LANGUAGE IN C.1. IN RESPONSE TO 4.16.08 MEETING: “either:

1. operated in reverse only when a designated observer or ground guide signals that it is safe to do so; or

2.”

Group Response: Approved

The new text is added to assure that malfunctioning reverse signal alarms are promptly repaired. A concern was expressed at the April 16th meeting about what a general contractor is supposed to do if an independent dump truck driver attempts to enter a road construction site with a malfunctioning reverse signal alarm. One option mentioned by a participant was to not allow the dump truck onto the work site. Department personnel agreed with that approach.

Another concern was raised on the issue of what the Department would require if it was found that a back-up alarm stopped functioning after it was already on the work site (and the alarm had been properly functioning when it entered the work site). Department personnel indicated that in such a circumstance, and in light of it being impossible for the employer to comply with the reverse signal alarm portion of the regulation, it would be permissible to operate the vehicle with only a designated observer/ground guide, and that the revised proposed regulation would be changed to allow such operation. All agreed that the malfunctioning alarm is then to be fixed as soon as possible.

16 VAC 25-97-30.D. Covered vehicle requirements.

D. ~~A.~~ Covered vehicles with operable video or similar technological capability used by the driver and capable of providing the driver to provide the driver with a full view behind the vehicle are exempt from subdivision 2- A.2.a of 16 VAC 25-97-30.

Group Response: Approved

This section is being moved from the 16 VAC 25-97-60, Exemptions, section so that all coverage issues are addressed in one area. Text changes were made to clarify that the equipment has to be operable and used in order for the exemption to apply.

16 VAC 25-97-30.E. Covered vehicle requirements.

E. To the extent that any federal Department of Transportation (DOT) regulation applies to covered vehicles conflicts with this chapter, the DOT regulation shall take precedence.

Group Response: Approved

This changed section is being moved from the 16 VAC 25-97-70., Applicability of Federal Regulations, section so that all coverage issues are addressed in one area.

16 VAC 25-97-40. Responsibilities while engaged in signaling reverse signal operation activities.

A. While engaged in reverse signaling activities, an employee is functioning as the designated observer/ground guide during reverse signaling activities (e.g., collecting tickets from drivers, giving verbal instructions to drivers, signaling to drivers once reverse operation of the covered vehicle has begun), the designated observer/ground guide shall:

Group Response: Approved. The new text was distributed to the group on April 23rd, asking that any suggested comments to be provided by May 14th. No suggested changes were received.

NOTE: NEW LANGUAGE IN A. IN RESPONSE TO 4.16.08 MEETING: “an employee is functioning as the designated observer/ground guide during reverse signaling activities (e.g., collecting tickets from drivers, giving verbal instructions to drivers, signaling to drivers once reverse operation of the covered vehicle has begun), the designated observer/ground guide shall:”.]

The new text is to make clear that the provisions in A.1 – 8 only apply to employees while they are functioning as designated observers/ground guides for covered vehicles when the vehicles are operating in reverse. When the employees are not engaged as designated observers/ground guides, they are free to do other assigned work.

16 VAC 25-97-40.A.1 - .7. Responsibilities while engaged in signaling reverse signal operation activities.

1. Have no other assigned duties;

2. 1. Not engage in any other activities unrelated to back-up operations other than those related

to the covered vehicle being signaled;

~~3. 2.~~ Not use personal cellular phones, personal head phones or similar items that could pose a distraction for the designated observer/ground guide; ~~and~~

~~4. 3.~~ Be provided with and wear during daytime operations a safety vest or jacket in orange, yellow, strong yellow green or fluorescent versions of these colors ~~, reflective warning garments; and~~

~~5. 4.~~ Be provided with and wear during nighttime operations a safety vest or jacket with retroreflective material in orange, yellow, white, silver, strong yellow green or a fluorescent version of these colors and shall be visible at a minimum distance of 1,000 feet.

~~6. 5.~~ *Not cross behind in close proximity to of a covered vehicle while it is operating in reverse;*

~~7.~~ *Only work from the driver's side of the covered vehicle;*

~~8.~~ *Avoid covered vehicle blind spots;*

~~9. 6.~~ *Always maintain eye visual contact with the driver of the covered vehicle while it is operating in reverse; and*

~~10. 7.~~ *Maintain a safe working distance from the covered vehicle.*

Group Response: The new text was distributed to the group on April 23rd, asking that **any suggested comments to be provided by May 14th. As noted below, comments were received with regard to formerly designated A.1, as duplicative of A.2, and potentially confusing to employers; and formerly designated A.6 as being too rigid to allow employers some flexibility to address work site configurations.**

[NOTE: NEW LANGUAGE IN REDESIGNATED A.5. IN RESPONSE TO 4.16.08 MEETING COMMENTS: “in close proximity to”

NEW LANGUAGE IN REDESIGNATED A.6. IN RESPONSE TO 4.16.08 MEETING: “visual”

FORMER ITEM A.1 DELETED AS DUPLICATIVE OF A. AND A.2.

FORMER ITEMS A. 7 AND A.8 DELETED IN RESPONSE TO 4.16.08 MEETING.]

The above changes are added to address unsafe behaviors of designated observers/ground guides identified by the Department that have led to fatal accidents in the past. Violation of these requirements by a trained employee would normally constitute employee misconduct. The wording for the additional provisions comes from safety rules instituted by a Virginia employer following the death of their employee who was functioning as a designated observer/ground

guide.

16 VAC 25-97-40.B, Responsibilities while engaged in signaling reverse signal operation activities.

B. When using a designated observer/ground guide, ~~N~~no driver of a covered vehicle shall operate travel in reverse unless they maintain constant visual contact with the designated observer/ground guide. If visual contact is lost, the driver shall immediately stop the vehicle until visual contact is regained and a positive indication is received from the designated observer/ground guide to restart back-up reverse operations.

Group Response: The new language at the beginning of the paragraph was submitted after in response to the April 16th meeting and clarifies that this section only applies when the driver is using a designated observer/ground guide. The other non-substantive changes were approved by the group.

NEW LANGUAGE IN B. IN RESPONSE TO 4.16.08 MEETING COMMENTS: *“When using a designated observer/ground guide”.*

16 VAC 25-97-40.C, Responsibilities while engaged in signaling reverse signal operation activities.

~~C. Except as provided for in subdivisions A. and B. of 16VAC25-97-40, no employees shall not enter or cross the path in close proximity to of a covered vehicle while it is operating in reverse, unless they maintain a safe distance of not less than one hundred (100) feet from the rear vehicle.~~

Group Response: The new text was distributed to the group on April 23rd, asking that any suggested comments to be provided by May 14th. As noted above, comments were received with regard to formerly designated 16 VAC 25-97-40.A.6, as being too rigid to allow employers some flexibility to address work site configurations. The commenters also noted that A.6. and 16 VAC 25-97-4.C. should use the same language since the same hazard of walking behind a vehicle while it is operating in reverse.

NEW LANGUAGE IN C. IN RESPONSE TO 4.16.08 MEETING COMMENTS: *“in close proximity to”*

NEW LANGUAGE DELETED IN RESPONSE TO 4.16.08 COMMENTS: *“unless they maintain a safe distance of not less than one hundred (100) feet from the rear vehicle.”*

This new language is to address the issue where a covered vehicle is backing up for a long distance and an employee needs to cross the back-up path, but the truck may still be several hundred yards from the where the employee is going to cross; or the paving example used during the meeting where the employee cannot walk across the newly paved roadway. a 100 foot distance was ORIGINALLY chosen so that there would be no blind spot issues with large vehicles and keeping in mind that a vehicle traveling at 5 MPH covers about 7.3 feet/second - Comments were requested on this distance issue. One commenter suggested more “performance oriented” language such as “in the immediate vicinity” to give employers more flexibility to

address site configuration issues. Department staff recommend use of the phrase “in close proximity to.” The Department intends to address the issue of vehicle backing speeds and blind spots in its training materials on the eventual standard.

16 VAC 25-97-50. B., Training.

B. Refresher training shall be provided by the employer for any driver of a covered vehicle or any designated observer/ground guide when the driver or designated observer/ground guide has:

1. Been observed to violate the requirements of this chapter;
2. Been involved in an accident or near miss accident; or
3. Received an evaluation that reveals that the driver or designated signaler observer/ground guide is not operating under this chapter in a safe manner.

Group Response: Approved

[NOTE: NEW LANGUAGE IN B.3. AFTER 4.16.08 MEETING TO CORRECT TERMINOLOGY ERROR: “signaler observer/ground guide”]

~~16 VAC 25-97-60. Exemptions:~~

~~A. Covered vehicles with video or similar technological capability to provide the driver with a full view behind the vehicle are exempt from subdivision 2 of 16 VAC 25-97-30.~~

~~B. Covered vehicles are exempt from subdivision 2 of 16 VAC 25-97-30 if the driver visually determines from outside the vehicle that no employees are in the backing zone and that it is reasonable to expect that no employees will enter the backing zone during reverse operation of the vehicle.~~

~~C. Covered vehicles that were not equipped with a reverse signal alarm upon manufacture or were not later retrofitted with an alarm are exempt from subdivision 1 of 16 VAC 25-97-30.~~

~~16 VAC 25-97-70. Applicability of federal regulations:~~

~~To the extent that any federal Department of Transportation (DOT) regulation applies to covered vehicles conflicts with this chapter, the DOT regulation shall take precedence.~~

[NOTE: FORMER ITEMS 16 VAC 25-97-60 AND -70 DELETED AND MOVED TO 16 VAC 25-97-30 SO THAT ALL COVERAGE ISSUES ARE ADDRESSED IN ONE AREA.]

Group Response: Approved

After review of the revised proposed regulatory text was completed, Delegate Cosgrove expressed a significant concern that the original proposed regulation would have had a significant impact and cost for small employers and on public sector employers, such as county and city governments that engage road crews. He asked why the regulation had not been designated as having a significant impact on small employers, which would have resulted in its being referred to the General Assembly's Joint Commission on Administrative Rules. Department staff explained that state agencies rely heavily on the Department of Planning and Budget (DPB) to analyze cost impacts and that apparently under Virginia Regulatory Town Hall procedures, DPB is responsible for indicating whether a proposed regulation does or does not have a significant impact on small employers. In this case they did not.

Department staff requested information from participants on average wages for drivers and designated observers/ground guides be submitted with any comments on the revised proposed text.

At the close of April 16th meeting, participants were told that changes would be made to the revised proposed regulation text and distributed for comment and that comments would be due back by the close of the 30 day comment period, May 14, 2008. The following comments were submitted directly to the VOSH Program:

Commenter 1: April 24, 2008 Steven C. Vermillion, Chief Executive Officer, Associated General Contractors of Virginia, Inc.

“1. On page 8, I understand that you need some specificity with regard to crossing the path of a covered vehicle, but I think 100 feet is excessive in many instances. For example, if it is a small site and a loader is operating "in the middle", does this mean workers might have to leave the site in order to go to another portion of the project? In other words, a flat 100 foot rule is a problem. Perhaps it should say in the immediate vicinity (and I know this is subject to interpretation, but it would cause fewer problems).

2. In drafting our comments to you for sharing with the Board, should we treat this draft as a replacement for the original proposal, or do we need to comment on each?

3. Re hourly rates, based on the information we have (others may have better info), you should probably figure, on average, about \$20 per hour for operators, plus fringes, and \$15 per hour, plus fringes, for laborers. But please note...the training cost will be minimal as compared to the cost of the observer.”

Agency Response: With regard to comment 1-1, the Department has inserted the phrase “in close proximity” into redesignated sections 16 VAC 25-97-40.A.5 and 16 VAC 25-97-40.C.

The Department has no response to comments 1-2 and 1-3.

Commenter 2: April 29, 2008 Terry Pruitt, Precon Construction Company

1. “Thank you for the revisions, having reviewed these changes, I am much more comfortable with the proposed rules; with one exception. Please refer to your page 8, paragraph C "Except as provided for in

subdivisions A. and B. of 16VAC25-97-40..." I can foresee that it may not always be possible to provide at least 100' safe distance from the rear of a backing vehicle. In the alternative, I suggest language to the effect that the person crossing the path of a backing vehicle only do so, after determining that the speed and distance of the backing vehicle allow sufficient time and space to permit safe crossing. Of course this element would also have to be addressed in the training component for the observer/ground guide.

2. You may also, already know, VDOT has a Flagger Certification Program, that could be amended to include observer/ground guide duties as well."

Agency Response: With regard to comment 2-1, the Department has eliminated the "100' safe distance" requirement from 16 VAC 25-97-40.C., and inserted the phrase "in close proximity" into redesignated sections 16 VAC 25-97-40.A.5 and 16 VAC 25-97-40.C.

The Department has no response to comment 2-2.

Commenter 3: May 9, 2008 Jim Patterson, F. G. Pruitt, Inc.

1. "Having attended the open meeting on April 16, 2008, we look forward to your consideration of implementing the positive feedback derived from that meeting. "

Agency Response: None.

Commenter 4: May 10, 2008 Mark I. Singer, Legislative Representative, Virginia Utility & Heavy Contractors Council

"The VUHCC strongly supports the following changes proposed and discussed at the 4/16/08 meeting of industry stakeholders.

[1.] **16VAC 25-97-30 adding the following language -**
or 2.b. Before operating the covered vehicle in reverse, the driver determines that no employee is in the path of the covered vehicle.

[2.] Modification to the new language creating Section B adding a "reasonable time" provision.

[3.] Modification to the new language creating Section C by adding a "use of spotter" provision that would allow the vehicle to remain in service.

16VAC 25-97-40

[4.] Eliminate items A. 7 and 8 and modify 9 by substituting "visual" for "eye".

[5.] With regard to item A. 6 this language, which also appears in a slightly different form in one other location of the proposed regulations as Section C, creates a blanket prohibition on both the ground guide and all employees such that neither shall "enter or cross the path "of a covered vehicle while it is operating in reverse. At a minimum the language should be consistent in all places. Most importantly, as was pointed out in the 4/16 meeting, there are certain applications such as in a paving train, when

compliance under this proposed language simply is unrealistic. Per discussions at the meeting we believe that the words “when reasonable” or similar language need to be added to allow for unique industry circumstances.

[6.] Specific industry representatives from our three associations have also indicated to me that they may have additional unique circumstances that require the use of a “reasonable” standard, or perhaps an exemption from the proposed regulations. For example, loading a large generator or building materials onto the deck of pickup truck (that obstructs the rear view) and moving that load, in reverse for at least some of the time, to a different job location. In these instances the driver certainly should be responsible for backing up in a safe manner, but to require the addition of a back-up alarm on a vehicle for infrequent or one-time usage that would trigger compliance with the proposed regulations seems onerous, expensive, and unnecessary. We would, therefore, urge that language be added to the proposed regulations which would not require compliance in these situations.

[7.] Finally, because of the potential for placing new and significant liability on equipment operators or other company employees should any of the proposed requirements be adopted, we suggest that an emphasis on safety training with regard to procedures associated with backing up vehicles covered by this section might provide equal, if not more favorable, results than simply increasing proscriptive requirements as is being proposed.

On behalf of the VUHCC and our 350 members, I want to thank you and the Board for your willingness to both allow additional time to review this proposal to exceed federal OSHA requirements, and for arranging the 4/16 industry meeting of interested parties. With the adoption of the suggestions offered in this correspondence, VUHCC would have no objections to adoption of the proposal.”

Agency Response: With regard to comments 4-1, 4-2 and 4.3, the requested language is included in the revised proposed regulation text.

With regard to comment 4-4, the listed sections have been deleted from the revised proposed regulation text.

With regard to comment 4-5, the Department has eliminated the “100’ safe distance” requirement from 16 VAC 25-97-40.C., and inserted the phrase “in close proximity” into redesignated sections 16 VAC 25-97-40.A.5 and 16 VAC 25-97-40.C.

With regard to comment 4-6, the revised proposed regulation does not require an employer to add a reverse signal alarm to a vehicle that was not originally equipped with one, unless the manufacturer later specifically offers a retrofit package to that employer “at a reasonable and economically feasible cost” (see 16 VAC 25-97-30.B). If no retrofit is ever offered, the vehicle is exempt from the requirement to have a reverse signal alarm.

With regard to comment 4-7, the Department plans to prepare and make available to employers a free training program that could be used to meet the training requirements contained in the proposed regulation.

Commenter 5: May 12, 2008

**Thomas Moline, Safety Director, Whitehurst Transport, Inc.,
Whitehurst Paving Company, Inc.**

“Our average pay for a driver is \$15 [per] hour and for the flagger is \$9.”

Agency Response: None.

Commenter 6: May 13, 2008 **Tom Witt, Engineer Director, Virginia Transportation Construction Alliance**

“I certainly think that the summary of proposed changes resulting from our April 16th meeting are improvements and will make the changes more palatable. However, I still do struggle with the concerns that the changes may not gain the desired effect but have the potential to cause other unintended consequences. My members are primarily concerned with the possibility of putting additional employees at risk as well as the impact on efficiency and costs.

....

“However, if it is determined that the changes are necessary VTCA encourages the inclusion of the changes proposed during the April 16th stakeholder meeting reflected in your summary email dated April 23, 2008.

VTCA recommends the following additional changes to the proposed language:

- [1.] Section 16 VAC 25-97-40: Delete item 1 “Have no other assigned duties;” to clarify the intent that the designated observer is allowed to have other “assigned duties” as long as they are not performed during reverse operations. Item 2 in the same section is sufficient to convey the requirement without confusion that item 1 introduces.
- [2.] Section 16 VAC 25-97-40: Modify Section B to read: “*When using a designated observer/ground guide no driver of a covered vehicle shall operate...*”. This clarifies that when a ground observer is not being utilized (as provided in the proposed language allowing visual inspection) that visual contact is not necessary (or possible).”

Agency Response: With regard to comment 6-1, the listed section has been deleted from the revised proposed regulation text.

With regard to comment 6-2, the recommended language has been added to the revised proposed regulation text.

Commenter 7: May 12, 2008 **Steven C. Vermillion, Chief Executive Officer, Associated General Contractors of Virginia, Inc.**

[1.] “While the changes discussed on the 16th to section VAC 25-97-30 to allow the operator to determine that no employees are in the path of the covered vehicle while seated in the vehicle would be a major improvement, the requirement still could be a problem for some types of equipment that frequently operate in reverse, such as a front end loader or skid steer loader.

....

[2.] We are also concerned about personal liability for operators when they make a determination that no employees are or will be in the path of the machine. While they may not be subject as an individual to a VOSH citation, we believe they may be assuming some potential liability.”

Agency Response: With regard to comment 7-1, see the Department’s response to Commenter 3 from the 30-day comment period on the issue of what vehicles would be considered to have an obstructed view to the rear. As noted in that response, “a number of Commenters may be under the impression

that because a vehicle has a reverse signal alarm, it automatically would be considered to have an obstructed view to the rear and be covered by the proposed regulation. That is not the case.” A front end loader (with only a bucket attachment on the front of the vehicle and no attachment on the back) that has a large glass enclosed cab that allows the operator to see directly behind the vehicle through the rear glass, would not be considered to have an obstructed view to the rear. As noted in the regulation, there are certain exceptions to this general rule (e.g. damage to windows/mirrors, restricted visibility due to weather conditions or work being done after dark without proper lighting).

With regard to comment 7-2, as noted previously, the newly added language in 16 VAC 25-97-30.A.2.b. (“Before operating the covered vehicle in reverse, the driver visually determines that no employee is in the path of the covered vehicle.”), is based on a current provision from the federal OSHA Logging Standard, 1910.266. The Department is not aware of any liability issues with regard to the Logging Standard provision that did not already exist in statutory or common law. If an accident occurs “off road” then VOSH regulations will apply as will existing Workers’ Compensation laws and regulations. If an accident occurs on the highway or a street, the same laws and regulations will apply, along with existing traffic regulations that are enforced by police and sheriff’s department around the state.

Commenter 8: May 14, 2008 J. R. (Randy) Bush, CAE, Virginia Forest Products Association

“Even with suggested changes from the April 16 stakeholders meeting, concerns still lie with the level of “gray” areas (*i.e. those subject to interpretation*) that may provide confusion in the implementation of the proposed regulation. While one person may interpret language one way, another may view it differently.

This interpretation is important since requiring additional employees can create a significant financial impact, especially when all costs, potential benefits, and potential new safety hazards are considered.

While we do not feel that a change in the current regulation is warranted, if changes in the standard are made we feel the adoption of modifications and clarifying language from the April 16th stakeholders meeting should be implemented. In particular, the following suggested modifications are particularly critical:

[1.] **16VAC 25-97-30 adding the following language -**
or 2.b. Before operating the covered vehicle in reverse, the driver determines that no employee is in the path of the covered vehicle.

This suggested change above should include appropriate implementation guidance, such as consideration of employee training regarding safe “no-go” zones and the ability for operators to scan affected areas upon approach.

NEW LANGUAGE IN B. IN RESPONSE TO 4.16.08 MEETING: “at a reasonable and economically feasible cost”.

[2.] Modification to the new language creating Section B adding a “reasonable time” provision.

[3.] Modification to the new language creating Section C by adding a “use of spotter” provision that would allow the vehicle to remain in service.

Agency Response: With regard to comments 8-1, 8-2 and 8.3, the requested language is included in the revised proposed regulation text.

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 **revised** proposed regulation, 16 VAC 25-96, to amend the following standards:

Vehicular Equipment for Electric Power Generation, Transmission and Distribution in General Industry, 16 VAC 25-90-1910.269(p)(1)(ii);

Motor Vehicles in the Construction Industry, 16 VAC 25-175-1926.601(b)(4);

Material Handling Equipment in the Construction Industry, 16 VAC 25-175-1926.602(a)(9)(ii); and,

Mechanical Equipment, Power Transmission and Distribution in the Construction Industry, 16 VAC 25-175-1926.952(a)(3).

and also consider for adoption the **revised** proposed comprehensive regulation:

Reverse Signal Operation Safety Requirements for Motor Vehicles, Machinery and Equipment in General Industry and the Construction Industry, 16 VAC 25-97.

Staff of the Department of Labor and Industry recommends that the Safety and Health Codes Board approve an additional 30-day public comment period for the **revised** proposed amendments to Amend Reverse Signal Operation Safety Procedures for General Industry and the Construction Industry pursuant to Va. Code §§40.1-22(5), and 2.2-4007.03.

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.

Proposed Regulation 16 VAC 25-96 to Amend Reverse Signal Operation Safety Procedures Dealing with Vehicular Equipment, Motor Vehicles, Material Handling Equipment and Motor Vehicle Equipment in Existing Standards: 16 VAC 25-90-1910.269; 16 VAC 25-175- 1926.601; 16 VAC 25-175- 602 and 16 VAC 25-175- 952;

and

Proposed Regulation to Establish Reverse Signal Operation Safety Requirements for Vehicles, Machinery and Equipment for General Industry and the Construction Industry, 16 VAC 25-97.

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 25-96-1910.269 (p)(1)(ii), Vehicular Equipment for Electric Power Generation, Transmission and Distribution in General Industry;

16 VAC 25-175-1926.601 (b)(4), Motor Vehicles in the Construction Industry;

16 VAC 25-175-1926.602 (a)(9)(ii), Material Handling Equipment in the Construction Industry;

16 VAC 25-175-1926.952 (a)(3), Mechanical Equipment, Power Transmission and Distribution in the Construction Industry

16 VAC 25-97, Reverse Signal Operation Safety Requirements for Motor Vehicles, Machinery and Equipment in General Industry and the Construction Industry

DRAFT REVISIONS IN RESPONSE TO 4.16.08 MEETING AND COMMENTS RECEIVED FROM 4.16.08 TO 5.14.08

KEY:

- * **BLACK LETTERING INDICATES ORIGINAL PROPOSED REGULATION TEXT.**
- * **RED LETTERING INDICATES REVISED TEXT PROPOSED BY DEPARTMENT FOR 4.16.08 MEETING WITH INTERESTED PARTIES.**
- * **BLUE LETTERING INDICATES REVISED TEXT BASED ON COMMENTS RECEIVED DURING 4.16.08 MEETING AND COMMENTS RECEIVED AFTER THE MEETING.**

16 VAC 25-90-1910.269(p)(1)(ii)

Electric Power Generation, Transmission, and Distribution; Mechanical Equipment

~~1910.269(p)(1)(ii): No vehicular equipment having an obstructed view to the rear may be operated on off highway jobsites where any employee is exposed to the hazards created by the moving vehicle unless:~~

- ~~(i) The vehicle has a reverse signal alarm audible above the surrounding noise level, or;~~
- ~~(ii) The vehicle is backed up only when a designated employee signals that it is safe to do so.~~

See Reverse Signal Operation Safety Requirements for Motor Vehicles, Machinery and Equipment in General Industry and the Construction Industry, 16 VAC 25-97.

16 VAC 25-175-1926.601(b)(4)

Motor Vehicles

~~§1926.601(b)(4): No employer shall use any motor vehicle equipment having an obstructed view to the rear unless:~~

- ~~(i) The vehicle has a reverse signal alarm audible above the surrounding noise level or;~~
- ~~(ii) The vehicle is backed up only when an observer signals that it is safe to do so.~~

See Reverse Signal Operation Safety Requirements for Motor Vehicles, Machinery and Equipment in

General Industry and the Construction Industry, 16 VAC 25-97.

16 VAC 25-175-1926.602(a)(9)(ii)

Material Handling Equipment

~~§1926.602(a)(9)(ii): No employer shall permit earthmoving or compacting equipment which has an obstructed view to the rear to be used in reverse signal unless the equipment has in operation a reverse signal alarm distinguishable from the surrounding noise level or an employee signals that it is safe to do so.~~

See Reverse Signal Operation Safety Requirements for Motor Vehicles, Machinery and Equipment in General Industry and the Construction Industry, 16 VAC 25-97.

16 VAC 25-175-1926.952(a)(3)

Mechanical Equipment

~~§1926.952(a)(3): No employer shall use any motor vehicle equipment having an obstructed view to the rear unless:~~

- ~~(i) The vehicle has a reverse signal alarm audible above the surrounding noise level or;~~
- ~~(ii) The vehicle is backed up only when an observer signals that it is safe to do so.~~

See Reverse Signal Operation Safety Requirements for Motor Vehicles, Machinery and Equipment in the Construction Industry, 16 VAC 25-97.

CHAPTER 97.

REVERSE SIGNAL OPERATION SAFETY REQUIREMENTS FOR MOTOR VEHICLES, MACHINERY AND EQUIPMENT IN GENERAL INDUSTRY AND THE CONSTRUCTION INDUSTRY.

16 VAC 25-97-10. Applicability.

This chapter shall apply to all general industry and construction industry vehicles, machinery or equipment capable of **operating traveling** in reverse and with an obstructed view to the rear (hereafter referred to as “covered vehicles”), whether intended for operation in off-road work zones or over the road transportation or hauling.

16 VAC 25-97-20. Definitions.

The phrase “obstructed view to the rear” means anything that interferes with the overall view of the operator of the vehicle to the rear of the vehicle at ground level, and includes, but is not limited to, such obstacles as any part of the vehicle (e.g., structural members); its load (e.g., gravel, dirt, machinery parts); its height relative to ground level viewing; damage to windows or side mirrors, etc., used for rearview movement of the vehicle; restricted visibility due to weather conditions (e.g., heavy fog, heavy snow); or work being done after dark without proper lighting.

16 VAC 25-97-30. Covered vehicle requirements.

A. No employer shall **use operate** any covered vehicle **in reverse** unless:

1. The covered vehicle has a reverse signal alarm audible above the surrounding noise level, and

2.a. The covered vehicle is **operated in reverse** ~~backed-up~~ only when a designated observer or ground guide signals that it is safe to do so; **or**

2.b. Before operating the covered vehicle in reverse, the driver visually determines that no employee is in the path of the covered vehicle.

B. G. Covered vehicles that were not equipped with a reverse-signal alarm upon manufacture or were not later retrofitted with an alarm are exempt from subdivision A.1 of 16 VAC 25-97-30. If the manufacturer of the covered vehicle offered the employer a reverse signal alarm retrofit package at a reasonable and economically feasible cost and the employer did not have the retrofit package installed, this exemption does not apply.

C. Covered vehicles equipped with a reverse signal alarm that is not operational or is not functioning properly shall be either:

1. operated in reverse only when a designated observer or ground guide signals that it is safe to do so; or

2. removed from service until the reverse signal alarm is repaired.

D. A. Covered vehicles with **operable video or similar technological capability **used by the driver and capable of providing the driver** ~~to provide the driver~~ with a full view behind the vehicle are exempt from subdivision ~~2-~~ **A.2.a** of 16 VAC 25-97-30.**

E. To the extent that any federal Department of Transportation (DOT) regulation applies to covered vehicles conflicts with this chapter, the DOT regulation shall take precedence.

16 VAC 25-97-40. Responsibilities while engaged in **signaling reverse signal operation** activities.

A. While ~~engaged in reverse signaling activities~~, an employee is functioning as the designated observer/ground guide **during reverse signaling activities (e.g., collecting tickets from drivers, giving verbal instructions to drivers, signaling to drivers once reverse operation of the covered vehicle has begun), the designated observer/ground guide shall:**

1. Have no other assigned duties;

2. 1. Not engage in any ~~other~~ activities ~~unrelated to back-up operations~~ other than those related to the covered vehicle being signaled;

3. 2. Not use personal cellular phones, personal head phones or similar items that could pose a distraction for the designated observer/ground guide; ~~and~~

4. 3. Be provided with and wear during daytime operations a safety vest or jacket in orange, yellow, strong yellow green or fluorescent versions of these colors ~~, reflective warning garments; and~~

5. 4. Be provided with and wear during nighttime operations a safety vest or jacket with retroreflective material in orange, yellow, white, silver, strong yellow green or a fluorescent version of these colors and shall be visible at a minimum distance of 1,000 feet.

~~6. 5. Not cross behind in close proximity to of a covered vehicle while it is operating in reverse;~~

~~7. Only work from the driver's side of the covered vehicle;~~

~~8. Avoid covered vehicle blind spots;~~

~~9. 6. Always maintain eye visual contact with the driver of the covered vehicle while it is operating in reverse; and~~

~~10. 7. Maintain a safe working distance from the covered vehicle.~~

B. When using a designated observer/ground guide, ~~N~~no driver of a covered vehicle shall ~~operate travel~~ in reverse unless they maintain constant visual contact with the designated observer/ground guide. If visual contact is lost, the driver shall immediately stop the vehicle until visual contact is regained and a positive indication is received from the designated observer/ground guide to restart ~~back-up reverse~~ operations.

~~C. Except as provided for in subdivisions A. and B. of 16VAC25-97-40, no employees shall not enter or cross the path in close proximity to of a covered vehicle while it is operating in reverse, unless they maintain a safe distance of not less than one hundred (100) feet from the~~

~~rear vehicle.~~

16 VAC 25-97-50. Training.

A. Prior to permitting an employee to engage in any covered activity under this chapter, the employer shall ensure that each driver of a covered vehicle and each designated observer/ground guide is trained in the requirements of this chapter.

B. Refresher training shall be provided by the employer for any driver of a covered vehicle or any designated observer/ground guide when the driver or designated observer/ground guide has:

1. Been observed to violate the requirements of this chapter;
2. Been involved in an accident or near miss accident; or
3. Received an evaluation that reveals that the driver or designated ***signaler observer/ground guide*** is not operating under this chapter in a safe manner.

**NEW LANGUAGE IN B.3. AFTER 4.16.08 MEETING TO CORRECT TERMINOLOGY ERROR:
“*signaler observer/ground guide*”**

~~16 VAC 25-97-60. Exemptions.~~

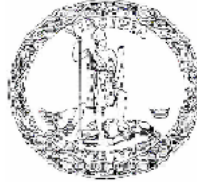
~~A. Covered vehicles with video or similar technological capability to provide the driver with a full view behind the vehicle are exempt from subdivision 2 of 16 VAC 25-97-30.~~

~~B. Covered vehicles are exempt from subdivision 2 of 16 VAC 25-97-30 if the driver visually determines from outside the vehicle that no employees are in the backing zone and that it is reasonable to expect that no employees will enter the backing zone during reverse operation of the vehicle.~~

~~C. Covered vehicles that were not equipped with a reverse signal alarm upon manufacture or were not later retrofitted with an alarm are exempt from subdivision 1 of 16 VAC 25-97-30.~~

~~16 VAC 25-97-70. Applicability of federal regulations.~~

To the extent that any federal Department
to covered vehicles conflicts with this
precedence.



of Transportation (DOT) regulation applies
chapter, the DOT regulation shall take

COMMONWEALTH of VIRGINIA
DEPARTMENT OF LABOR AND INDUSTRY

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VIRGINIA SAFETY AND HEALTH CODES BOARD

BRIEFING PACKAGE

for July 10, 2008

**Revision of the Public Participation Guidelines
for the Safety and Health Codes Board; Final
16VAC25-10**

I. Action Requested.

The Virginia Occupational Safety and Health (VOSH) Program and the Division of Boiler Safety Compliance request the Safety and Health Codes Board to consider for adoption the attached revised Public Participation Guidelines for use by the Board.

The proposed effective date is September 15, 2008.

II. Summary of the Revision.

This revision updates the public participation guidelines (PPGs) for the Safety and Health Codes Board required by Virginia Administrative Process Act (*Appendix AA*) in accordance with the additional requirements of Chapter 321 of the 2008 Acts of Assembly (*Appendix AB*). For consideration of the Board, Department staff has developed the attached revised PPGs using the model PPGs developed by the Department of Planning and Budget (DPB) in accordance with option listed in § 1.a. of Chapter 321.

Changes include the specific identification of interested persons or groups, and the deletion of information unrelated to the direct purpose of the guidelines such as reference to the OSHA state plan and voluntary actions by the Department regarding any federal OSHA regulatory changes.

III. Basis, Purpose and Impact of the Revision.

A. Basis.

Chapter 321 of the 2008 Acts of Assembly required the DPB, in consultation with the Office of the Attorney General, to:

1. develop a uniform model of PPGs as well as an alternative to accommodate any unusual specific agency or board requirements; and,
2. provide this model to each Executive branch agency and regulatory policy board that have the authority to promulgate regulations.

These tasks have been ongoing by DPB and pre-final draft was provided to the Department of Labor and Industry from which staff has developed the attached draft PPGs **for the Board=s review in advance of the July 10 meeting. The finalized version will be provided as soon as possible with changes noted for comparison purposes.**

In addition, by December 1, 2008, Chapter 321 requires that each such Executive branch agency or policy board shall either (a) adopt the model PPGs or (b) if significant additions or changes are proposed, promulgate PPGs with the proposed changes as fast-track regulations pursuant to

§ 2.2-4012.1. The Board=s action in adopting such model PPGs in accordance with (a) above would be exempt from the Article 2 requirements of the APA and is the same adoption procedure the Board currently uses when it adopted federal identical OSHA standards for the VOSH program.

After January 1, 2009, any regulatory action to modify a department, agency or board=s PPGs must be done in accordance with the APA, and any other regulations for which a NOIRA is filed after that date must be processed according to the PPGs required by Chapter 321.

B. Purpose.

The purpose of this requested action before the Board is to implement a standardized set of PPGs consistent with those being adopted by all Executive branch agencies and policy boards in Virginia in compliance with Chapter 321 of the 2008 Acts of Assembly.

C. Impact on Employer/ Employees.

There is no fiscal impact from the proposed PPGs to employers or employees. Adoption of these required uniform State procedures by the Board may, however, spur public comment not only on any regulatory actions of the Board by interested employers and employees but for regulatory actions of other state departments, agencies and boards which may impact such employers and employees.

D. Impact on the Board and the Department of Labor and Industry.

The revision will create no fiscal or programmatic impact for either the Board or the Department beyond the costs of promulgating these regulations.

E. Technology Feasibility

The PPGs as proposed are technologically feasible and consistent with the requirements of the anticipated Department of Planning and Budget final model as mandated by Chapter 321.

F. Benefit/Cost

Any determination of direct or indirect benefit vs cost in the adoption uniform PPGs either for Executive agencies and boards in toto, or for the Safety and Health Codes Board singularly cannot be determined at this time as the revisions have not been enacted either universally or by the Board, nor has sufficient time elapsed beyond such adoptions to assess any impacts.

However, given the small cost involved in the adoption process, coupled with no other apparent direct or indirect costs to the Board, the staff of the Department postulates that adoption of these revised PPGs, in concert with similar PPG adoptions by all other agencies and boards, will provide a positive benefit/cost to both the public and regulated community. Such a positive benefit/cost would be difficult to quantify and would be in terms of facilitating greater ease, simplicity, and a better understanding of the process to comment on proposed regulatory actions when the full Administrative Process Act Article 2 public participation procedures are used during the Board=s adoption of a Virginia unique regulation either for the Boiler Division or for VOSH.

V. Implementation Schedule

The revised PPGs would become fully effective 30 days after publication in the Virginia Register. The proposed effective date is September 15, 2008.

Contact Person:

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APPENDIX A

Virginia Administrative Process Act Section 2.2-4007.02.

▸ 2.2-4007.02. Public participation guidelines.

- A. Public participation guidelines for soliciting the input of interested parties in the formation and development of its regulations shall be developed, adopted, and used by each agency pursuant to the provisions of this chapter. The guidelines shall set out any methods for the identification and notification of interested parties and any specific means of seeking input from interested persons or groups that the agency intends to use in addition to the Notice of Intended Regulatory Action. The guidelines shall set out a general policy for the use of standing or ad hoc advisory panels and consultation with groups and individuals registering interest in working with the agency. Such policy shall address the circumstances in which the agency considers the panels or consultation appropriate and intends to make use of the panels or consultation.

- B. In formulating any regulation, including but not limited to those in public assistance and social services programs, the agency pursuant to its public participation guidelines shall afford interested persons an opportunity to submit data, views, and arguments, either orally or in writing, to the agency, to include an on-line public comment forum on the Virginia Regulatory Town Hall, or other specially designated subordinate. However, the agency may begin drafting the proposed regulation prior to or during any opportunities it provides to the public to submit comments.

(2007, cc. 873, 916.)

APPENDIX B

VIRGINIA ACTS OF ASSEMBLY -- CHAPTER 321

An Act to standardize public participation guidelines for executive branch agencies.

[H 1167]
Approved

Be it enacted by the General Assembly of Virginia:

' 1. *That on or before July 1, 2008, the Department of Planning and Budget, in consultation with the Office of the Attorney General, shall (i) develop model public participation guidelines meeting the requirements of ' [2.2-4007.02](#) of the Code of Virginia and (ii) provide these model public participation guidelines to each agency that has the authority to promulgate regulations. By December 1, 2008, each agency shall either (a) adopt the model public participation guidelines or (b) if significant additions or changes are proposed, promulgate the model public participation guidelines with the proposed changes as fast-track regulations pursuant to ' [2.2-4012.1](#) of the Code of Virginia. Agency action in adopting the model public participation guidelines in accordance with clause (a) shall be exempt from the operation of Article 2 (' [2.2-4006](#) et seq.) of Chapter 40 of Title 2.2 of the Code of Virginia. The repeal of any existing public participation guidelines shall occur in the same regulatory action as the promulgation of the model public participation guidelines required by this section.*

' 2. *The model public participation guidelines adopted pursuant to this act shall apply to the promulgation and adoption of regulations for which a notice of intended regulatory action is filed in accordance with ' [2.2-4007.01](#) of the Code of Virginia on or after January 1, 2009.*

' 3. *However, any amendments made after January 1, 2009, to an agency' s public participation guidelines adopted as required by this act shall be subject to the requirements of the Administrative Process Act (' [2.2-4000](#) et seq. of the Code of Virginia).*

' 4. *For the purposes of this act, the terms "agency" and "regulations" mean the same as those terms are defined in ' [2.2-4001](#) of the Code of Virginia.*

RECOMMENDED ACTION

Staff of the Department of Labor and Industry recommends that the revised Public Participation Guidelines for the Safety and Health Codes Board as authorized by Chapter 321 of the 2008 Acts of Assembly, Virginia Code §§ 40.1-22(5) and 2.2-4006.A.4(c), be adopted with an effective date of September 15, 2008.

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.

**Public Participation Guidelines for the
Safety and Health Codes Board; Revised; Final
16VAC25-10**

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 25-10

CHAPTER 10
PUBLIC PARTICIPATION GUIDELINES
Part I
Definitions

~~16VAC25-10-10. Definitions.~~

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

~~"Ad hoc advisory group" means a task force to develop a new regulation, or review current regulations, or revise current regulations, or advise the board on particular issues under consideration for regulation.~~

~~"Administrative Process Act" means Chapter 40 (§ 2.2-4000 et seq.) of Title 2.2 of the Code of Virginia.~~

~~"Board" means the Virginia Safety and Health Codes Board.~~

~~"Commissioner" means the Commissioner of Labor and Industry or his designee.~~

~~"Department" means the Virginia Department of Labor and Industry.~~

~~"Open meeting" means an informal meeting to provide an opportunity for the board or their designee to hear information, receive views and comments, and to answer questions presented by the public on a particular issue or regulation under consideration by the board. It is a meeting to facilitate the informal exchange of information and may be held prior to or during the regulation promulgation process.~~

~~"OSHA" means the Occupational Safety and Health Administration, U.S. Department of Labor.~~

~~"Public hearing" means an informational proceeding conducted pursuant to § 2.2-4007 of the Code of Virginia.~~

~~"Regulation" means any statement of general application, having the force of law, affecting the rights or conduct of any person, promulgated by the board in accordance with the authority conferred upon it by applicable basic law.~~

~~"Secretary" means the Secretary of Commerce and Trade or his designee.~~

Part II
General Information

~~16VAC25-10-20. Applicability.~~

~~This chapter shall apply to all regulations subject to the Administrative Process Act which are adopted by the Virginia Safety and Health Codes Board and administered by the Commissioner of Labor and Industry. The guidelines shall not apply to regulations adopted on an emergency basis. This chapter does not apply to regulations exempted from the provisions of the Administrative Process Act (§ 2.2-4002 of the Code of Virginia) or excluded from the operation of Article 2 of the Administrative Process Act (§ 2.2-4006 of the Code of Virginia).~~

~~16VAC25-10-30. Purpose.~~

~~The purpose of this chapter is to ensure that the public and all parties interested in the regulations have a full and fair opportunity to participate at every stage in the development or revision of the regulations.~~

~~The failure of any person to receive any notice or copies of any documents provided under this chapter shall not affect the validity of any regulation otherwise adopted in accordance with this chapter.~~

~~At the discretion of the board, the procedures in Part III (16VAC25-10-60 et seq.) or Part IV (16VAC25-10-110 et seq.) may be supplemented to provide additional public participation in the regulation adoption process or as necessary to meet federal requirements.~~

~~16VAC25-10-40. Identification of interested persons and groups.~~

~~The major groups interested in the regulatory process of the board are:~~

- ~~1. Business and labor associations and organizations such as the Virginia Manufacturers Association and the Virginia State AFL-CIO;~~
- ~~2. Persons, groups, businesses, industries, and employees affected by the specific regulation who have previously expressed an interest by writing or participating in public hearings; and~~

~~3. Persons or groups who have asked to be placed on an electronic or mail notification list.~~

~~**16VAC25-10-50. Public involvement with formulation of regulations.**~~

~~A. The board shall accept petitions to develop a new regulation or amend an existing regulation from any member of the public. The board shall consider the petition and respond in accordance with the Administrative Process Act.~~

~~B. The petition, at a minimum, shall contain the following information:~~

- ~~1. Name, mailing address and telephone number of petitioner;~~
- ~~2. E-mail address of petitioner, if applicable;~~
- ~~3. Petitioner's interest in the proposed action;~~
- ~~4. Substance and purpose of the requested rulemaking including recommended regulation or addition, deletion or amendment to a specific regulation;~~
- ~~5. Statement of need and justification for the proposed action;~~
- ~~6. Statement of impact on the petitioner and other affected persons; and~~
- ~~7. Reference to the legal authority of the agency to take the action requested; and~~
- ~~8. Supporting documents, as applicable.~~

Part III

Public Participation Procedures

~~**16VAC25-10-60. Advisory groups and consultation.**~~

~~A. The board may form a standing or ad hoc advisory group to make recommendations on a proposed regulation. When an ad hoc advisory group is formed, it shall include representatives from the interested persons or groups identified in 16VAC25-10-40. The membership of any ad hoc~~

~~advisory group shall be selected by the board or, at the board's option, by a committee of board members or, at the direction of the board, by the commissioner.~~

~~B. Ad hoc advisory groups or consultation with groups or individuals will be used when the regulation proposed is unique to Virginia or more stringent than existing federal regulations.~~

~~C. Ad hoc advisory groups or consultation with groups or individuals may be used when:~~

- ~~1. The proposed regulation is of wide general impact;~~
- ~~2. The proposed regulation is of wide general interest to the public;~~
- ~~3. The subject of the regulation has not been regulated previously by the board;~~
- ~~4. The board determines this is the most effective method to develop the regulation; or~~
- ~~5. The board determines additional technical expertise and knowledge would be beneficial in developing the regulation.~~

~~16VAC25-10-70. Open meetings.~~

~~The board may schedule an open meeting or meetings to provide information and to receive views and comments and answer questions from the public. The meetings will normally be held at locations throughout the Commonwealth, but if the proposed regulation will apply only to a particular area of the state, it will be held in the affected area. These meetings may be held prior to the beginning of the formal regulatory process or during the Notice of Intended Regulatory Action period or during the 60-day comment period on proposed regulations and will be in addition to any public hearing.~~

~~16VAC25-10-80. Notice of Intended Regulatory Action (NOIRA).~~

~~A. The board shall issue a NOIRA whenever it intends to develop, amend or repeal any regulation subject to the Administrative Process Act (APA). The NOIRA will include all of the information required by the APA.~~

~~B. If appropriate, the board will appoint an advisory group as outlined in 16VAC25-10-60.~~

~~C. The NOIRA will be disseminated to the public via:~~

~~1. Distribution by mail, facsimile, e-mail or other appropriate delivery method to persons interested in the board's regulatory process;~~

2. ~~Publication in The Virginia Register of Regulations;~~
3. ~~Posting on the Regulatory Town Hall website; and~~
4. ~~Posting on agency website.~~

~~16VAC25-10-90. Proposed regulations.~~

~~A. After consideration of public comment, the board may prepare a proposed draft regulation and any necessary documentation required for review. If an ad hoc advisory group has been established, the draft regulation shall be developed in consultation with such group.~~

~~B. The board will submit the proposed regulation to a 60-day public hearing or comment period by forwarding the appropriate documents to the Registrar of Regulations and the Regulatory Town Hall by the established submission date for the desired date of publication in The Virginia Register and the beginning of the 60-day comment period. The proposed regulation will also be posted on the agency's website and distributed by mail, facsimile or e-mail to persons on the appropriate notification list.~~

~~16VAC25-10-100. Completion of the adoption process.~~

~~A. The board shall prepare a summary of the oral and written comments received during the 60-day public comment period and the board's response to the comments. A draft of the board's summary shall be sent to all parties who commented on the proposed regulation. The summary shall be sent at least five days before final adoption of the regulation.~~

~~B. At the end of the 60-day public comment period, the department shall prepare the final proposed regulation.~~

~~C. The final regulation shall be submitted to the board for adoption.~~

~~D. The board shall submit the final regulation to the Registrar of Regulations and the Regulatory Town Hall for publication in The Virginia Register at least 30 days prior to the effective date of the regulation.~~

Part IV
Occupational Safety and Health Standards Promulgated by the
U.S. Occupational Safety and Health Administration

~~16VAC25-10-110. General.~~

~~The Virginia State Plan for the enforcement of occupational safety and health laws commits the state to adopt regulations that shall be at least as stringent as the standards promulgated by the U.S. Department of Labor, Occupational Safety and Health Administration.~~

~~Accordingly, participation in the formulation of such regulations must occur during the adoption of the regulations at the federal level. To encourage such participation the following actions will be taken.~~

~~16VAC25-10-120. Notice of proposed federal regulatory action.~~

~~A. When advised of proposed federal regulatory action, the board will prepare a general notice of the proposed federal regulatory action for publication on the agency website. The general notice will include:~~

- ~~1. Subject of the proposed regulation;~~
- ~~2. Summary of the issue involved and purpose of the proposed regulation;~~
- ~~3. Timetable for submitting written comments or notification of desire to be heard at hearing or both;~~
- ~~4. Time and place of public hearing;~~
- ~~5. Request that comments be submitted to OSHA with a copy to the Virginia Department of Labor and Industry;~~
- ~~6. Name and address of contact at OSHA; and~~
- ~~7. Copy of proposed regulation or link to OSHA proposed federal action.~~

~~B. The notice will be disseminated to the appropriate persons or groups identified in accordance with 16VAC25-10-40.~~

CHAPTER 10
PUBLIC PARTICIPATION GUIDELINES
Part I
Purpose and Definitions

16VAC25-10-10. Purpose.

The purpose of this chapter is to promote public involvement in the development, amendment or repeal of the regulations of the Safety and Health Codes Board. This chapter does not apply to regulations, guidelines, or other documents exempted or excluded from the provisions of the Administrative Process Act (' 2.2-4000 et seq. of the Code of Virginia).

16VAC25-10-20. Definitions.

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

"Administrative Process Act" means Chapter 40 (' 2.2-4000 et seq.) of Title 2.2 of the Code of Virginia.

"Agency" means the Safety and Health Codes Board, which is the unit of state government empowered by the agency's basic law to make regulations or decide cases. Actions specified in this chapter may be fulfilled by state employees as delegated by the agency.

"Basic law" means provisions in the Code of Virginia that delineate the basic authority and responsibilities of an agency.

"Commonwealth Calendar" means the electronic calendar for official government meetings open to the public as required by ' 2.2-3707 C of the Freedom of Information Act.

"Negotiated rulemaking panel" or "NRP" means an ad hoc advisory panel of interested parties established by an agency to consider issues that are controversial with the assistance of a facilitator or mediator, for the purpose of reaching a consensus in the development of a proposed regulatory action.

"Notification list" means a list used to notify persons pursuant to this chapter. Such a list may include an electronic list maintained through the Virginia Regulatory Town Hall or other list maintained by the agency.

"Open meeting" means any scheduled gathering of a unit of state government empowered by an agency's basic law to make regulations or decide cases, which is related to promulgating, amending or repealing a regulation.

"Person" means any individual, corporation, partnership, association, cooperative, limited liability company, trust, joint venture, government, political subdivision, or any other legal or commercial entity and any successor, representative, agent, agency, or instrumentality thereof.

"Public hearing" means a scheduled time at which members or staff of the agency will meet for the purpose of receiving public comment on a regulatory action.

"Regulation" means any statement of general application having the force of law, affecting the rights or conduct of any person, adopted by the agency in accordance with the authority conferred on it by applicable laws.

A Regulatory action@ means the promulgation, amendment, or repeal of a regulation by the agency.

"Regulatory advisory panel" or "RAP" means a standing or ad hoc advisory panel of interested parties established by the agency for the purpose of assisting in regulatory actions.

"Town Hall" means the Virginia Regulatory Town Hall, the website operated by the Virginia Department of Planning and Budget at www.townhall.virginia.gov that has online public comment forums and displays information about regulatory meetings and regulatory actions under consideration in Virginia and sends this information to registered public users.

"Virginia Register" means the Virginia Register of Regulations, the publication that provides official legal notice of new, amended and repealed regulations of state agencies, which is published under the provisions of Article 6 (' 2.2-4031 et seq.) of the Administrative Process Act.

Part II

Notification of Interested Persons

16VAC25-10-30. Notification list.

A. The agency shall maintain a list of persons who have requested to be notified of regulatory

actions being pursued by the agency.

B. Any person may request to be placed on a notification list by registering as a public user on the Town Hall or by making a request to the agency. Any person who requests to be placed on a notification list shall elect to be notified either by electronic means or through a postal carrier.

C. The agency may maintain additional lists for persons who have requested to be informed of specific regulatory issues, proposals, or actions.

D. When electronic mail is returned as undeliverable on multiple occasions at least 24 hours apart, that person may be deleted from the list. A single undeliverable message is insufficient cause to delete the person from the list.

E. When mail delivered by a postal carrier is returned as undeliverable on multiple occasions, that person may be deleted from the list.

F. The agency may periodically request those persons on the notification list to indicate their desire to either continue to be notified electronically, receive documents through a postal carrier, or be deleted from the list.

16VAC25-10-40. Information to be sent to persons on the notification list.

A. To persons electing to receive electronic notification or notification through a postal carrier as described in 16VAC25-10-30, the agency shall send the following information:

1. A notice of intended regulatory action (NOIRA).

2. A notice of the comment period on a proposed or a repropoed regulation and hyperlinks to, or instructions on how to obtain, a copy of the regulation and any supporting documents.

3. A notice soliciting comment on a final regulation when the regulatory process has been extended pursuant to ' 2.2-4007.06 or 2.2-4013 C of the Code of Virginia.

B. The failure of any person to receive any notice or copies of any documents shall not affect the validity of any regulation or regulatory action.

Part III

Public Participation Procedures

16VAC25-10-50. Public comment.

A. In considering any nonemergency, nonexempt regulatory action, the agency shall afford interested persons an opportunity to submit data, views, and arguments, either orally or in writing, to the agency. Such opportunity to comment shall include an online public comment forum on the Town Hall.

1. To any requesting person, the agency shall provide copies of the statement of basis, purpose, substance, and issues, the economic impact analysis of the proposed or fast-track regulatory action; and the agency's response to public comments received.

2. The agency may begin crafting a regulatory action prior to or during any opportunities it provides to the public to submit comments.

B. The agency shall accept public comments in writing after the publication of a regulatory action in the Virginia Register as follows:

1. For a minimum of 30 calendar days following the publication of the notice of intended regulatory action (NOIRA).

2. For a minimum of 60 calendar days following the publication of a proposed regulation.

3. For a minimum of 30 calendar days following the publication of a re-proposed regulation.

4. For a minimum of 30 calendar days following the publication of a final adopted regulation.

5. For a minimum of 30 calendar days following the publication of a fast-track regulation.

6. For a minimum of 21 calendar days following the publication of a notice of periodic review.

7. Not later than 21 calendar days following the publication of a petition for rulemaking.

C. The agency may determine if any of the comment periods listed in subsection B of this section shall be extended.

D. If the Governor finds that one or more changes with substantial impact have been made to a proposed regulation, he may require the agency to provide an additional 30 calendar days to solicit additional public comment on the changes in accordance with ' 2.2-4013 C of the Code of Virginia.

E. The agency shall send a draft of the agency's summary description of public comment to all public commenters on the proposed regulation at least five days before final adoption of the regulation pursuant to ' 2.2-4012 E of the Code of Virginia.

16VAC25-10-60. Petition for rulemaking.

A. As provided in ' 2.2-4007 of the Code of Virginia, any person may petition the agency to consider a regulatory action.

B. A petition shall include but is not limited to the following information:

1. The petitioner's name and contact information;

2. The substance and purpose of the rulemaking that is requested, including reference to any applicable Virginia Administrative Code sections; and

3. Reference to the legal authority of the agency to take the action requested.

C. The agency shall receive, consider and respond to a petition pursuant to ' 2.2- 4007 and shall have the sole authority to dispose of the petition.

D. The petition shall be posted on the Town Hall and published in the Virginia Register.

E. Nothing in this chapter shall prohibit the agency from receiving information or from proceeding on its own motion for rulemaking.

16VAC25-10-70. Appointment of regulatory advisory panel.

A. The agency may appoint a regulatory advisory panel (RAP) to provide professional specialization or technical assistance when the agency determines that such expertise is necessary to address a specific regulatory issue or action or when individuals indicate an interest in working with the agency on a specific regulatory issue or action.

B. Any person may request the appointment of a RAP and request to participate in its activities. The agency shall determine when a RAP shall be appointed and the composition of the RAP.

C. A RAP may be dissolved by the agency if:

1. The proposed text of the regulation is posted on the Town Hall, published in the Virginia Register, or such other time as the agency determines is appropriate; or

2. The agency determines that the regulatory action is either exempt or excluded from the requirements of the Administrative Process Act.

16VAC25-10-80. Appointment of negotiated rulemaking panel.

A. The agency may appoint a negotiated rulemaking panel (NRP) if a regulatory action is expected to be controversial.

B. A NRP that has been appointed by the agency may be dissolved by the agency when:

1. There is no longer controversy associated with the development of the regulation;

2. The agency determines that the regulatory action is either exempt or excluded from the requirements of the Administrative Process Act; or

3. The agency determines that resolution of a controversy is unlikely.

16VAC25-10-90. Meetings.

Notice of any open meeting, including meetings of a RAP or NRP, shall be posted on the Virginia Regulatory Town Hall and Commonwealth Calendar at least seven working days prior to the date of the meeting. The exception to this requirement is any meeting held in accordance with ' 2.2-3707 D of the Code of Virginia allowing for contemporaneous notice to be provided to participants and the public.

16VAC25-10-100. Public hearings on regulations.

A. The agency shall indicate in its notice of intended regulatory action whether it plans to hold a public hearing following the publication of the proposed stage of the regulatory action.

B. The agency may conduct one or more public hearings during the comment period following the publication of a proposed regulatory action.

C. An agency is required to hold a public hearing following the publication of the proposed regulatory action when:

1. The agency's basic law requires the agency to hold a public hearing;

2. The Governor directs the agency to hold a public hearing; or

3. The agency receives requests for a public hearing from at least 25 persons during the public comment period following the publication of the notice of intended regulatory action.

D. Notice of any public hearing shall be posted on the Town Hall and Commonwealth Calendar at least seven working days prior to the date of the hearing. The agency shall also notify those persons who requested a hearing under 16VAC25-10-100.C.3.

16VAC25-10-110. Periodic review of regulations.

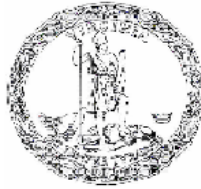
A. The agency shall conduct a periodic review of its regulations consistent with:

1. An executive order issued by the Governor pursuant to ' 2.2-4017 of the Administrative Process Act to receive comment on all existing regulations as to their effectiveness, efficiency, necessity, clarity, and cost of compliance; and

2. The requirements in ' 2.2-4007.1 of the Administrative Process Act regarding regulatory flexibility for small businesses.

B. A periodic review may be conducted separately or in conjunction with other regulatory actions.

C. Notice of a periodic review shall be posted on the Town Hall and published in the Virginia Register.



COMMONWEALTH of VIRGINIA

DEPARTMENT OF LABOR AND INDUSTRY

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VIRGINIA SAFETY AND HEALTH CODES BOARD

BRIEFING PACKAGE FOR

JULY 10, 2008

Proposed 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 proposed regulation applicable to Tree Trimming Operations pursuant to Va. Code §40.1-22(5).

II. Summary of Intended Regulatory Action.

The VOSH Program seeks to adopt regulations applicable to Tree Trimming Operations. The proposed 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 proposal addresses non-logging, tree-trimming and cutting operations on residential and commercial work sites.

The proposed regulation based on ANSI-Z133.1-2006 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, knucklebooms, 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.

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 proposal 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 proposal 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.

III. Basis, Purpose and Impact of the Proposed Rulemaking.

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 at times 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 we have 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	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 proposed change is to reduce/eliminate employee injuries and fatalities by considering for adoption a comprehensive regulation to address non-logging, arborist/tree trimming and cutting operations on residential and commercial work sites.

C. Summary of Comments

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. 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 fullbody 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.

D. 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 [attended meeting]
Kristina Villaire, City of Virginia Beach [attended meeting]
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, Knucklebooms, 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 Identifying 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.

E. 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 than 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 as 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).

F. Impact on Employees.

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.

G. 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.

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 proposed 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

Board

Date:

Codes



VIRGINIA
OCCUPATIONAL SAFETY AND HEALTH PROGRAM
VIRGINIA DEPARTMENT OF LABOR AND INDUSTRY

Effective Date: _____

16 VAC 25-73

Tree Trimming Operations

Draft: June 18, 2008

KEY:

- * **BLACK LETTERING INDICATES ORIGINAL ANSI TEXT.**
- * **BLUE USED FOR STRIKETHROUGHS OF TEXT PROPOSED BY DEPARTMENT FOR 6.10.08 MEETING WITH INTERESTED PARTIES**
- * **RED LETTERING INDICATES REVISED TEXT PROPOSED BY DEPARTMENT FOR 6.10.08 MEETING WITH INTERESTED PARTIES.**
- * **GREEN LETTERING INDICATES REVISED TEXT BASED ON COMMENTS RECEIVED DURING 6.10.08 MEETING AND COMMENTS RECEIVED AFTER THE MEETING.**

[NOTE: THE PROPOSED REGULATION WILL HAVE TO BE RENUMBERED IN ACCORDANCE WITH THE “FORM, STYLE AND PROCEDURE MANUAL FOR PUBLICATION OF VIRGINIA REGULATIONS.]

1 GENERAL

1.1 Scope

This ~~standard~~ **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 appear in boldface type at first use and are defined in ~~Annex~~ **Appendix A**, the glossary.)

1.2 Purpose

The purpose of this ~~standard~~ **regulation** is to provide safety criteria for **arborists** and other **workers** engaged in arboricultural operations. ~~It is intended as a guide to federal, state, and local authorities in drafting their regulations and may be adopted in whole or in part.~~

1.3 Application

This ~~standard~~ **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 standard serves as a reference for safety requirements for those engaged in tree pruning, repairing, maintaining; removing trees; cutting brush; or performing pest or soil management.~~ This ~~standard~~ **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 logging operations covered by 16 VAC 25-90-1910.266.

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 ~~certified~~ qualified arborist. Such activities are covered by 16 VAC 25-90-1910.266.

1.4 Responsibilities of the Employee

~~Each person (employee or otherwise) shall be responsible for his or her own safety while on the jobsite and shall comply with the appropriate federal or state occupational safety and health standards and all rules, regulations, and orders that are applicable to his or her own actions and conduct.~~ **[EMPLOYEE RESPONSIBILITIES LISTED IN VA. CODE §40.1-51.2]**

2 NORMATIVE REFERENCES

~~This standard contains references to other American national standards and federal regulations, which, through reference in this text, constitute provisions of this American national standard. See Annex D for a list of these and other applicable informative references. At the time of publication, the editions indicated were valid. All standards are subject to revision, and parties to agreements based on this American national standard are encouraged to investigate the possibility of applying the most recent editions of the standards indicated in Annex D. Because of the many specialized procedures utilized during arboricultural operations, it must be emphasized that exceptions to provisions of this standard may be acceptable and that flexibility and/or a decision as to the applicability of these standards to professional operations may be required.~~

2 ORIENTATION AND TRAINING

2.1 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.

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

- (a) Been observed to violate the requirements of this regulation;
- (b) Been involved in an accident or near miss accident; or
- (c) Received an evaluation that reveals the employee is not working in a safe manner in accordance with the requirements of this regulation.

3 GENERAL SAFETY REQUIREMENTS

3.1 General

3.1.1 ~~Tools Machinery, vehicles, tools, materials~~ and equipment shall conform to the requirements of this ~~standard~~ regulation. 16 VAC 25-60-120 is hereby incorporated by reference.

3.1.2 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.

3.1.3 A **qualified arborist** ~~should~~ ~~will~~ ~~shall~~ determine whether **direct supervision** is needed on a jobsite.

3.1.4 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.

3.2 Traffic Control Around the Jobsite

3.2.1 High-visibility safety apparel and headgear, when required, shall conform to ANSI-ISEA 107-2004 and the ~~U.S. Department of Transportation (DOT) Manual on Uniform Traffic Control Devices (MUTCD), when required.~~ the Virginia Department of Transportation's (VDOT) Virginia Work Area Protection Manual.

3.2.2 Effective means for controlling pedestrian and vehicular traffic shall be instituted on every jobsite where necessary, in accordance with the ~~U.S. Department of Transportation (DOT) Manual on Uniform Traffic Control Devices (MUTCD)~~ or VDOT's Virginia Work Area Protection Manual and applicable state and local laws and regulations.

3.2.3 Temporary traffic-control devices used in arboricultural operations shall conform to the ~~U.S. Department of Transportation (DOT) Manual on Uniform Traffic Control Devices (MUTCD)~~ (VDOT) Virginia Work Area Protection Manual and applicable federal and state regulations.

3.3 Emergency Procedures and Readiness

3.3.1 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.

3.3.2 A first-aid kit, adequately stocked and maintained **in accordance with 16 VAC 25-95 [CURRENT PROPOSED REGULATION]**, 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.

3.3.3 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.

3.3.4 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 (~~Annex~~ Appendix F).

3.3.5 Cardiopulmonary resuscitation (CPR) and first-aid training shall be provided ~~maintained in accordance with 16 VAC 25-95 [CURRENT PROPOSED REGULATION] in the absence of an infirmary, clinic, or hospital near the worksite.~~

3.4 Personal Protective Equipment (PPE)

3.4.1 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 16 VAC 25-90-1910.132**. Training shall be provided in the use, care, maintenance, fit, and life of personal protective equipment.

3.4.2 Workers engaged in arboricultural operations shall wear head protection (helmets) that conforms to ANSI Z89.1, **and in accordance with 16 VAC 25-90-1910.135**. 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.

3.4.3 Face protection shall comply with ~~applicable federal regulations~~ **16 VAC 25-90-1910.133** as well as with ANSI Z87.1.

3.4.4 Clothing and footwear appropriate to the known job hazards shall be **approved** by the employer and worn by the employee **in accordance with 16 VAC 25-90-1910.132**.

3.4.5 Respiratory protection shall comply with ~~applicable federal regulations~~ **16 VAC 25-90-134** as well as with ANSI Z88.2.

3.4.6 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 16 VAC 25-90-1910.95**.

3.4.7 Eye protection shall comply with **16 VAC 25-90-1910.133 as well as** ANSI Z87.1 and shall be worn when engaged in arboricultural operations.

3.4.8 Chain-saw-resistant **leg protection** shall be worn while operating a chain saw during ground operations.

3.5 Fire Protection

3.5.1 Equipment shall be refueled only after the engine has stopped. Spilled fuel shall be removed from equipment before restarting.

3.5.2 Equipment shall not be operated within 10 feet (3.05 m) of refueling operations or areas in which refueling has recently taken place.

3.5.3 Flammable liquids shall be stored, handled, and dispensed from approved containers.

3.5.4 Smoking shall be prohibited when handling or working around flammable liquids.

3.5.5 Clothing contaminated by flammable liquid shall be changed as soon as possible.

3.5.6 Open flame and other sources of ignition shall be avoided.

4 ELECTRICAL HAZARDS

4.1 General

4.1.1 All overhead and underground electrical conductors and all communication wires and cables shall be considered energized with potentially fatal voltages.

4.1.2 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.

4.1.3 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**.

4.1.4 If the **minimum approach distance** for a **qualified line-clearance arborist** (shown in Table 1) or for a qualified arborist (shown in Table 2) 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.

4.2 Working in Proximity to Electrical Hazards

4.2.1 The items contained in section 4.1 shall always be included in the review of this section.

Sections 59.1-406 to -414, 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 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.

4.2.2 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.

4.2.3 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.**

4.2.4 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; and/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-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
121.0 to 138.0	5-02	1.58	5-11	1.8	6-05	1.96
138.0 to 145.0	6-00	1.8	6-10	2.06	7-05	2.23
145.0 to 161.0	7-11	2.39	9-00	2.73	9-09	2.95
161.0 to 169.0	13-02	3.99	15-00	4.56	16-03	4.94
169.0 to 230.0	19-00	5.78	21-09	6.6	23-07	7.16
230.0 to 242.0	27-04	8.31	31-03	9.5	33-10	10.29
242.0 to 345.0						
345.0 to 362.0						
362.0 to 500.0						
500.0 to 550.0						
550.0 to 765.0						
765.0 to 800.0						

*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, in anticipation of OSHA adopting these distances during the life of ANSI Z133.1-2006.

Table 2. 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.

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

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

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

4.2.8 The tie-in position ~~should~~ 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.

4.2.9 While climbing, the arborist ~~should~~ 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.

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

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

4.2.12 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 **may shall** not be used near exposed energy lines.

4.2.13 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.

4.2.14 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.

4.2.15 Emergency response to an electric contact shall be performed in accordance with section 3.3, Emergency Procedures and Readiness.

4.3 Storm Work and Emergency Conditions: Line Clearance

4.3.1 The items contained in section 4.1 shall always be included in the review of this section.

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

4.3.3 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.

4.3.4 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.

5 SAFE USE OF VEHICLES AND MOBILE EQUIPMENT USED IN ARBORICULTURE

5.1 General

5.1.1 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 16 VAC 25-60-120**) and applicable federal, state, and local requirements.

5.1.2 Units shall be equipped and maintained with manufacturers' safety devices, instructions, warnings, and safeguards. Arborists and other workers shall follow instructions provided by manufacturers.

- 5.1.3 Manufacturers' preventive maintenance inspections and parts replacement procedures shall be followed.
- 5.1.4 Manufacturers' instructions shall be followed in detecting hydraulic leaks. No part of the body shall be used to locate or stop hydraulic leaks.
- 5.1.5 Units shall be operated or maintained only by **authorized** and **qualified personnel** in accordance with company policies and federal, state, or local laws.
- 5.1.6 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.
- 5.1.7 Step surfaces and platforms on mobile equipment shall be skid resistant.
- 5.1.8 Safety seat belts, when provided by the manufacturer, shall be worn while a unit is being operated.
- 5.1.9 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 6 feet or more above a lower level.**
- 5.1.10 Hoisting or lifting equipment on vehicles shall be used within rated capacities as stated by the manufacturers' specifications.
- 5.1.11 Units with obscured rear vision, particularly those with towed equipment, ~~should~~ **shall** be backed up **in accordance with 16 VAC 25-97 [PROPOSED REVERSE SIGNAL ALARM REGULATION]** ~~only when absolutely necessary and then should be used with external rear guidance, such as a spotter, or a backup alarm.~~
- 5.1.12 When units are left unattended, keys shall be removed from ignition, the wheels chocked, and, if applicable, the parking brake applied.
- 5.1.13 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.
- 5.1.14 Personal protective equipment (for example, eye, head, hand, and ear protection) shall be worn in accordance with section 3.4, Personal Protective Equipment.
- 5.1.15 When towing, safety chains shall be crossed under the tongue of the unit being towed and connected to the towing vehicle.
- 5.1.16 ~~Care should be taken to ensure that a~~ **The** unit's exhaust system ~~does~~ **shall** not present a fire hazard.
- 5.1.17 Towed units that detach from another unit (for example, a motorized vehicle) shall be

chocked or otherwise secured in place.

5.1.18 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.

5.2 Aerial Devices

5.2.1 The items contained in section 5.1 shall always be included in the review of this section. 16 VAC 25-90-1910.67 is hereby incorporated by reference. **Damaged aerial devices and vehicles shall be removed from service and tagged until repaired or discarded.**

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

5.2.3 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. [REFERENCE TABLE 2 IN SECTION 4] , or §§59.1-406 to -414, **Overhead High Voltage Line Safety Act**, as applicable.

5.2.4 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 16 VAC 25-60-120).

5.2.5 **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.

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

5.2.7 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.

5.2.8 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.

5.2.9 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**.

5.2.10 One-person buckets shall not have more than one person in them during operations.

5.2.11 Hydraulic/pneumatic tools shall be disconnected when they are being serviced or adjusted, except where manufacturers' procedures require otherwise.

5.2.12 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.

5.2.13 No part of the body shall be used to locate or stop hydraulic leaks.

5.2.14 Hoses affecting dielectric characteristics of equipment shall meet manufacturers' requirements.

5.2.15 The flash point of hydraulic fluid shall meet the minimum set by the manufacturer.

5.2.16 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.

5.2.17 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.

5.2.18 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.

5.2.19 Holes shall not be drilled in buckets or liners.

5.2.20 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 [section 4] Table 2. 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 [section 4] Table 1.

5.2.21 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.

5.2.22 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.

5.3 Brush Chippers

5.3.1 The items contained in section 5.1 shall always be included in the review of this section. **Damaged brush chippers shall be removed from service and tagged until repaired or discarded.**

5.3.2 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 Annex Appendix C, General Safety Procedures That Apply to All Tree Work).

5.3.3 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.

5.3.4 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.

5.3.5 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.

5.3.6 Vision, hearing, and ~~or~~ other appropriate personal protective equipment shall be worn when in the immediate area of a brush chipper in accordance with section 3.4, Personal Protective Equipment.

5.3.7 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.

5.3.8 When trailer chippers are detached from the vehicles, they shall be chocked or otherwise secured in place.

5.3.9 When in a towing position, chipper safety chains shall be crossed under the tongue of the chipper and properly affixed to the towing vehicle.

5.3.10 See section 8.6, Brush Removal and Chipping, for additional requirements.

5.4 Sprayers and Related Equipment

5.4.1 The items contained in section 5.1 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.**

5.4.2 ~~Working and walking~~ **Walking and working** surfaces of all sprayers and related equipment shall be covered with skid-resistant material.

5.4.3 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 ANSI A1264.1.

5.4.4 The applicator/operator shall make a visual inspection of hoses, fittings, exposed plumbing, tanks, covers, and related equipment prior to its use each workday.

5.4.5 The applicator/operator shall not allow hoses or other parts of the equipment to create a tripping hazard for coworkers or the public.

5.4.6 The applicator/operator shall have a firm grip on the spray gun/excavation tool when pulling the trigger.

5.4.7 The operator of **high-pressure excavation** equipment shall wear a face shield in addition

to eye protection.

5.4.8 Related Equipment

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

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

5.4.8.3 The applicator shall wear eye protection and follow label instructions when injecting liquids into trees.

5.5 Stump Cutters

5.5.1 The items contained in section 5.1 shall always be included in the review of this section. **Damaged stump cutters shall be removed from service and tagged until repaired or discarded.**

5.5.2 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.

5.5.3 Arborists and other workers in the immediate stump-cutting work zone shall wear vision, hearing, and/or other personal protective equipment in accordance with section 3.4, Personal Protective Equipment.

5.5.4 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.

5.5.5 Towable stump cutters or stump-cutter trailers, when detached from the vehicle, shall be chocked or otherwise secured in place.

5.5.6 The operator shall be aware of underground utility locations prior to performing work.

5.6 Vehicles

5.6.1 The items contained in section 5.1 shall always be included in the review of this section. **(See 16 VAC 25-60-120). Damaged vehicles shall be removed from service and tagged until repaired or discarded.**

5.6.2 A steel bulkhead or equivalent protective devices shall be provided to protect workers from load shifts in vehicles carrying logs or other material.

5.6.3 Load ~~securement~~ **securing** procedures shall be followed to prevent accidental shifting or discharge of logs or other materials from the vehicle during transport.

5.6.4 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.

5.6.5 To avoid the hazard of spontaneous combustion or the generation of undesirable odors, wood chips ~~should~~ shall not be left in vehicles for extended periods.

5.7 Log Loaders, Knucklebooms, Cranes, and Related Hoists

5.7.1 The items contained in section 5.1 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.**

5.7.2 Log loaders, cranes, and related hoisting equipment shall be inspected in accordance with applicable ~~standards~~ 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 ~~should~~ shall be available to the crew.

5.7.3 Operators of hoisting equipment shall be trained and shall maintain a minimum approach distance from energized conductors in accordance with [section 4] Table 1 or 2, **or §§59.1-406 to -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 (section 4, Electrical Hazards).

5.7.4 The crane operator shall be familiar with the potential hazards encountered and operational techniques used in tree work.

5.7.5 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.

5.7.6 Operators of hoisting equipment shall remain at the controls while a load is lifted, suspended, or lowered.

5.7.7 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 (~~Annex~~ Appendix E) shall be available to the crew.

All workers shall be kept clear of loads about to be lifted and of suspended loads.

5.7.8 Riding the load line of a crane while it is under load tension shall be prohibited, except for circumstances outlined in subsection 5.7.9.11.

5.7.9 **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:

5.7.9.1 ~~The person specifically responsible for the work shall authorize the use of a crane for hoisting an arborist into position only when he or she has determined that it is the safest, most practical way to perform the work or gain access to the tree.~~

5.7.9.2 The qualified crane operator , the signal person, and 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. ~~If the work involves a signal person and/or arborist being lifted, these persons shall participate in the review as well.~~ A job briefing shall be done before any work begins, in accordance with subsection 3.1.4.

5.7.9.3 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.

5.7.9.4 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 percent 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.

5.7.9.5 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.

5.7.9.6 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 ten times the maximum intended load. The required design factor is achieved by taking the current safety factor of 3.5 and applying 50 percent de-rating of the crane capacity

5.7.9.7 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 ~~should~~ shall be used to control blind picks. The crew members shall know and follow hand signals for standard crane operations (~~Annex~~ Appendix G).

5.7.9.8 The crane operator shall remain at the controls when the qualified arborist is attached to the crane and during lifting and lowering operations.

5.7.9.9 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 ~~should~~ shall be avoided. The crane shall be operated so that lowering is power controlled.

5.7.9.10 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.

5.7.9.11 The qualified arborist shall be detached from the crane any time it comes under load tension.

EXCEPTION

~~When it has been determined that all reasonably possible alternate methods are inaccessible and attachment to the subject tree would create a greater safety risk due to its hazardous condition, the qualified crane operator and the qualified arborist shall allow the qualified arborist to remain attached to the crane when it is under load. Possible alternate methods include, but are not limited to,~~

- ~~(a) the qualified arborist securing to the tree and detaching from the crane before it comes under load;~~
- ~~(b) using a second crane;~~
- ~~(c) using an aerial lift device; or~~
- ~~(d) using an adjacent tree.~~

~~5.7.9.12 When the qualified arborist is attached to the crane while it is under load, the total weight shall not exceed 50 percent of the load capacity for the radius and configuration of the crane.~~

5.8 Specialized Units

5.8.1 The items contained in section 5.1 shall always be included in the review of this section.

5.8.2 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.

5.8.3 ~~Towing equipment for brush hogs and similar implements should be equipped with a deadman control. When deadman controls are not available, the worker shall disengage the power source to the rotary or cutter head before dismounting.~~ **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.

5.9 Equipment-Mounted Winches

5.9.1 The items contained in section 5.1 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.

5.9.2 Operators shall wear the appropriate personal protective equipment during winch operations, including eye and head protection.

5.9.3 The winch cable/synthetic line shall be inspected daily for broken or worn strands, bird caging, and major kinks, and other defects. Damaged cables shall ~~be taken out of service.~~ be removed from service and tagged until repaired or discarded.

5.9.4 Cable hooks and attachment points shall be inspected for damage. Damaged hooks or attachment assemblies shall ~~be taken out of service.~~ be removed from service and tagged until repaired or discarded.

5.9.5 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.

5.9.6 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.

5.9.7 All winch operators shall be properly trained and be aware of the inherent dangers associated with winch operations.

5.9.8 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.

5.9.9 Winch systems and cables shall be used only as intended and instructed by the manufacturer.

5.9.10 The winch shall never be used with personnel, including the operator, within the span of the winch cable and the winch.

5.9.11 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.

5.9.12 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.

5.9.13 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.

5.9.14 The operator shall ensure that the vehicle supporting the winch is secured to avoid unintended movement.

5.9.15 The operator shall ensure that all rigging points comply with section 8.4, Rigging.

5.9.16 To ensure precise communication, an effective means of communication shall be established and used with all workers involved in the winching operations (see subsection 8.4.11).

6 PORTABLE POWER HAND TOOLS

6.1 General

6.1.1 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.**

6.1.2 Manufacturers' operating and safety instructions shall be followed ~~unless modified by this standard.~~ (See 16 VAC 25-60-120).

6.1.3 ~~Communications shall be established among arborists working aloft, either in a tree or from an aerial device, and arborists and other workers on the ground, before starting or otherwise using any portable power hand tools. The command "stand clear" from aloft and response "all clear" from the ground are terms that may be used for this purpose. Pre-arranged, two-way hand signals may also be used. Arborists and other workers returning to the work area shall be acknowledged by arborists aloft.~~ **Before starting or otherwise using any portable power tools, a communication system shall be established in accordance with the requirements in section 8.2.1.**

6.2 Portable Electric Power Tools

6.2.1 The items contained in section 6.1 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.**

6.2.2 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.

6.2.3 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; or
- (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.

6.2.4 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.**

6.2.5 Arborists and other workers shall

(a) prevent cords from becoming entangled, damaged, or cut by blades and bits;

(b) ~~avoid laying~~ **not lay** extension cords in water; and

(c) support electric power tools and supply cords by a **tool lanyard** or separate line, ~~as appropriate to the work,~~ when used aloft.

6.3 Chain Saws

6.3.1 The items contained in section 6.1 shall always be included in the review of this section. **Damaged chain saws shall be removed from service and tagged until repaired or discarded.**

6.3.2 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.

6.3.3 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).

6.3.4 Secure footing shall be maintained when starting the chain saw.

6.3.5 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.

6.3.6 Chain-saw engines shall be started and operated only when other arborists and workers are clear of the **swing radius of the** chain saw.

6.3.7 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.

6.3.8 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.

6.3.9 Chain-saw mufflers and spark arresters (if the latter are provided) shall be maintained in good condition.

6.3.10 The chain brake shall be engaged, or the engine shut off, before setting a chain saw down.

6.3.11 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.

6.3.12 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.

6.4 Powered Pole Tools and Backpack Power Units

6.4.1 The items contained in section 6.1 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.**

6.4.2 Only workers operating the equipment shall be within 10 feet (3.05 m) of the cutting head of a brush saw during operations.

6.4.3 Power units shall be equipped with a readily accessible, quick shutoff switch.

6.4.4 Operators shall observe the position of all other workers in the vicinity while the equipment is running.

6.4.5 Engines shall be stopped for all cleaning, refueling, adjustments, and repairs to the saw or engine, except where manufacturers' procedures require otherwise.

6.4.6 Powered pole tools with poles made of metal or other conductive material shall not be used in operations where electrical hazards exist.

7 HAND TOOLS AND LADDERS

7.1 General

7.1.1 Correct hand tools and equipment shall be selected for the job.

7.1.2 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 ~~not be used.~~ **be removed from service and tagged until repaired or discarded.**

7.1.3 Workers shall maintain a safe working distance from other workers when using hand tools and equipment.

7.1.4 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.

7.1.5 Arborist climbing lines or **handlines** ~~should~~ **shall** be used for raising and lowering hand tools and equipment. Arborists ~~should~~ **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.

7.1.6 Hand tools and equipment shall be properly stored or placed in plain sight out of the immediate work area when not in use.

7.2 Cant Hooks, Cant Dogs, Peaveys, and Tongs

7.2.1 The items contained in section 7.1 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.**

7.2.2 **Cant hooks** ~~should~~ **shall** be firmly set before applying force.

7.2.3 Points of hooks shall be at least 2 inches (5 cm) long and kept sharp.

7.2.4 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.

7.3 Wedges, Chisels, and Gouges

7.3.1 The items contained in section 7.1 shall always be included in the review of this section.

7.3.2 **Wedges**, chisels, and gouges shall be inspected for cracks and flaws before use. Tools with damaged heads shall ~~not be used.~~ **be removed from service and tagged until repaired or discarded.**

7.3.3 Wedges and chisels shall be properly pointed and tempered.

7.3.4 Eye protection shall be used during impact operations.

7.3.5 Only wood, plastic, or soft-metal wedges shall be used while operating chain saws.

7.3.6 Wood-handled chisels ~~should~~ **shall** be protected with a ferrule on the striking end.

7.3.7 Wood, rubber, or high-impact plastic **mauls**, sledges, or hammers ~~should~~ **shall** be used when striking wood-handled chisels or gouges.

7.4 Chopping Tools

7.4.1 The items contained in section 7.1 shall always be included in the review of this section. **Damaged chopping tools shall be removed from service and tagged until repaired or discarded.**

7.4.2 **Chopping tools** ~~should~~ **shall** not be used while working aloft.

7.4.3 Chopping tools shall not be used as wedges or used to drive metal wedges.

7.4.4 Chopping tools shall be swung away from the feet, legs, and body, using the minimum force practical for function and control.

7.4.5 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.

7.5 Ladders

7.5.1 The items contained in section 7.1 shall always be included in the review of this section.

7.5.2 **Ladders** made of metal or other conductive material shall not be used where electrical hazards exist. Only wooden ladders (constructed in accordance with ANSI A14.1) 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 16 VAC 25-90-1910.25.**

7.5.3 Metal ladders used where no electrical hazard exists shall conform to ANSI A14.2 , **and be used in accordance with 16 VAC 25-90-1910.26.**

7.5.4 All ladders shall be inspected before use and removed from service if found defective, **and tagged until repaired or discarded.**

7.5.5 Cleats, metal points, skid-resistant feet, lashing, or other effective means of securing the ladder shall be used ~~when there is danger of slipping.~~

7.5.6 Ladders shall not be used as bridges or inclined planes to load or handle logs or other material.

7.5.7 Ladders shall be supported while in storage to prevent sagging. Except when on mobile equipment, ladders ~~should~~ **shall** be stored under suitable cover, protected from the weather, and kept in a dry location away from excessive heat.

7.5.8 The third, or hinged, leg of a **tripod/orchard ladder** shall be braced or fastened when on hard or slick surfaces.

7.5.9 All ladders shall be used in accordance to the manufacturers' ~~recommendations~~ **specifications and limitations** and shall not be altered in a way that contradicts those ~~recommendations~~ **specifications and limitations.**

8 WORK PROCEDURES

8.1 Ropes and Arborist Climbing Equipment

8.1.1 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 safely 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.

8.1.2 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 subsection 4.2.4.

8.1.3 Climbing lines used in a **split-tail system and split-tails** ~~[NEED DEFINITIONS]~~ 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.

8.1.4 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.**

8.1.5 Arborist saddles and lanyards used for work positioning shall be identified by the manufacturer as suitable for tree climbing.

8.1.6 Arborist saddles and lanyards used for work positioning shall not be altered in a manner that would compromise the integrity of the equipment.

8.1.7 Hardware used in the manufacture of arborist saddles shall meet the hardware material, strength, and testing requirements outlined in ANSI 359.1.

8.1.8 Arborist climbing lines shall have a minimum diameter of ~~1/2 inch (12.7 mm)~~ 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 percent at a load of 540 pounds (2.402 kN). Arborist climbing lines shall be identified by the manufacturer as suitable for tree climbing.

8.1.9 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.

EXCEPTION

~~In arboricultural operations not subject to regulations that supersede Z133.1, a line of not less than 7/16 inch (11 mm) diameter may be used, provided the employer can demonstrate it does not create a safety hazard for the arborist and the arborist has been instructed in its use. The strength and elongation ratings of the line selected shall meet or exceed that of 1/2 inch (12.7 mm) arborist climbing line.~~

8.1.9 **Prusik loops**, split-tails, and work-positioning lanyards used in a climbing system shall meet the minimum strength standards for arborist climbing lines.

8.1.10 **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).

8.1.11 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.

8.1.12 Splicing shall be done in accordance with cordage manufacturers' specifications.

8.1.13 All load-bearing components of the climbing system shall meet the minimum standards for arborist climbing equipment.

8.1.14 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.

EXCEPTION

The arborist climbing line may be used to raise and lower tools.

8.1.15 Rope ends shall be finished in a manner to prevent raveling.

8.1.16 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.

8.1.17 Arborist climbing lines shall never be left in trees unattended.

8.1.18 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.

8.1.19 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 or she has returned to the ground. The arborist shall be secured when repositioning the climbing line.

8.1.20 While ascending a ladder to gain access to a tree, the arborist shall not work from or leave the ladder until he or she is tied in or otherwise secured.

~~8.1.21 Hands and feet should shall be placed on separate limbs, if possible, and three points of contact should shall be maintained with the tree while climbing.~~

8.1.22 A **false crotch** ~~[NEED BETTER DEFINITION]~~ and/or **false crotch redirect** ~~[NEED DEFINITION]~~ may be used at the discretion of the arborist in lieu of a natural crotch.

8.1.23 The tie-in position ~~should~~ shall be ~~well above the work area so such~~ that the arborist will not be

subjected to an uncontrolled pendulum swing in the event of a slip.

8.1.24 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**.

8.2 Pruning and Trimming

8.2.1 **Voice communications** ~~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. Pre-arranged, 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.

8.2.2 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.

8.2.3 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.

8.2.4 Pole tools used in line-clearance operations shall be constructed with fiberglass reinforced plastic (FRP) or wooden poles meeting the requirements of **OSHA 16 VAC 25-90-1910.269.**

8.2.5 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.**

8.2.6 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.

8.2.7 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.

8.2.8 Cut branches shall not be left in trees upon completion of work.

8.3 Cabling

8.3.1 Arborists and other workers on the ground shall not stand under the work area of a tree when a cabling system is being installed.

8.3.2 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.

8.3.3 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.

8.3.4. When removing a cable from a tree, a block and tackle or come-along system shall be installed before removing the existing cable.

8.3.5. When installing a replacement cable, the replacement cable shall be fully installed before removing the outdated cable.

8.4 Rigging

8.4.1 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.**

8.4.2 The number of connecting links used for connecting components of a rigging system shall be minimized when possible. ~~Care shall be taken to ensure that connecting~~ **Connecting** links **shall** interface properly and **be** in compliance with manufacturers' **specifications and limitations (reference 16 VAC 26-60-120)** ~~recommendations.~~

8.4.3 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.

8.4.4 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.**

8.4.5 ~~When the potential exists for~~ **To avoid confusion between** rigging equipment ~~to be confused with~~ **and** climbing equipment, the equipment shall be clearly marked to indicate their different purposes.

8.4.6 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.

8.4.7 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.

8.4.8 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.

8.4.9 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.

8.4.10 ~~Prior to the start of removal/rigging operations, a communication system shall be established in accordance with the requirements in section 8.2.1. Arborists working aloft (either climbing the tree or from an aerial device) shall establish a communication system with arborists and other workers on the ground.~~

~~8.4.11 A method of verbal/visual communication shall be discussed and established during the job briefing, prior to the start of removal/rigging operations. The verbal/visual communication system shall use an established command and response system (see example) or pre-arranged, two-way hand signals. The communication method shall be clearly understood and used during all rigging operations.~~

Example

~~Command: Stand clear!~~

~~Response: All Clear!, Underneath!, or No!~~

8.4.12 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.

8.4.13 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.**

8.4.14 Taglines or other means may be used to help control and handle suspended loads.

8.4.15 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.

8.4.16 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.

8.4.17 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** ~~[NEED DEFINITION]~~ are one possible means of preventing splitting.

8.5 Tree Removal

8.5.1 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 ~~should~~ **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.

8.5.2 Work plans for removal operations shall be communicated to all workers in a job briefing before commencing work.

8.5.3 Workers not directly involved in the removal operation shall be clear of the work area, ~~where practicable~~, beyond the length of the tree, unless a team of workers is necessary to remove a particular tree.

8.5.4 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.

8.5.5 When it is necessary to shorten or remove branches before removing the tree, the arborist shall ~~attempt to~~ determine whether the tree can withstand the strain of the lowering procedures. If not, other means of removing the tree ~~should~~ **shall** be considered **and used**.

8.5.6 The crew leader shall determine the number of workers necessary for tree removal operations.

8.5.7 The crew leader shall develop a work plan so that operations do not conflict with each other, thereby creating a hazard.

8.5.8 Climbing spurs shall have gaffs of a type and length compatible for the tree being climbed.

8.5.9 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.

8.5.10 **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.

8.5.11 Workers returning to the work area shall not enter until the chain-saw operator has acknowledged that it is safe to do so.

8.5.12 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.

8.5.13 ~~Workers not directly involved in~~ **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.

EXCEPTION

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 practicable**.

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 arborist. Such activities are covered by 16 VAC 25-90-1910.266.

8.5.14 Notches shall be used on all trees and trunks greater than 5 inches (12.7 cm) in diameter at breast height.

8.5.15 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.

8.5.15.1 The notch cut used shall be a **conventional notch**, an **open-face notch**, or a **Humboldt notch**.

8.5.15.2 Notches shall be 45 degrees or greater and large enough to guide the fall of the tree or trunk to prevent splitting.

8.5.15.3 Notch depth ~~should~~ **shall** not exceed one-third the diameter of the tree.

8.5.15.4 The back cut shall not penetrate into the predetermined hinge area.

8.5.16 With a conventional notch or Humboldt notch, the back cut shall be 1 to 2 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 ~~should~~ **shall** be at the same level as the apex of the notch.

8.5.17 The two cuts that form the notch shall not cross at the point where they meet.

8.5.18 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 section 8.2.1**. 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 ~~should~~ **shall** be maintained with the tree or trunk until it is on the ground.

8.5.19 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.

8.5.20 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.

8.6 Brush Removal and Chipping

8.6.1 Traffic control around the jobsite shall be established prior to the start of chipping operations along roads and highways (see section 3.2, Traffic Control Around the Jobsite).

8.6.2 Brush and logs shall not be allowed to create hazards in the work areas.

8.6.3 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.

8.6.4 Personal protective equipment shall be worn when in the immediate area of chipping operations in accordance with section 3.4, Personal Protective Equipment, of this ~~standard~~ **regulation**.

8.6.5 Training shall be provided in the proper operation, feeding, starting, and shutdown procedures for the chipper being used.

8.6.6 Maintenance shall be performed only by those persons authorized by the employer and trained to perform such operations.

8.6.7 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 ~~should~~ **shall** be fed **in accordance with the manufacturer’s instructions from the curbside whenever practical unless doing so would present a greater hazard of injury to workers.**

8.6.8 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 [Annex Appendix C](#), General Safety Procedures That Apply to All Tree Work).

8.6.9 Foreign material, such as stones, nails, sweepings, and rakings, shall not be fed into chippers.

8.6.10 Small branches shall be fed into chippers with longer branches or by being pushed with a long stick.

8.6.11 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.

8.6.12 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.

8.6.13 When feeding a chipper during roadside operations, the operator shall do so in a manner that prevents him or her from stepping into traffic or being pushed into traffic by the material that is being fed into the chipper.

8.6.14 When using a winch in chipper operations, the operator shall ensure that the winch cable is properly stored before initiating chipper operations.

8.6.15 Refer to section 5.3, Brush Chippers, for additional information.

8.7 Limbing and Bucking

8.7.1 Work plans for limbing and **bucking** operations shall be communicated to all workers in a job briefing before work begins.

8.7.2 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.

8.7.3 Chain saws ~~should~~ shall be operated away from the vicinity of the legs and feet. Natural barriers, such as limbs between the saw and the body, ~~should~~ 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.

8.7.4 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.

8.7.5 Trees, limbs, or saplings under tension shall be considered hazardous. Appropriate cutting techniques and precautions shall be followed.

8.7.6 Wedges ~~should~~ shall be used as necessary to prevent binding of the guide bar or chain when bucking trunks of trees.

8.7.7 Cant hooks or peaveys ~~should~~ **shall** be used as an aid in rolling large or irregular logs to complete bucking.

8.7.8 If mechanized equipment is to be used, the equipment operator shall establish an effective means of communication with other workers (see subsection 8.4.11).

8.7.9 Workers shall not approach mechanized equipment operations until the equipment operator has acknowledged that it is safe to do so.

8.8 Pesticide Application

8.8.1 The applicator shall follow label instructions in regard to pesticide applications.

8.8.2 The applicator shall follow pesticide label instructions in regard to laundering his or her clothing.

8.8.3 The applicator ~~should shower or bathe~~ **shall comply with the manufacturer's instructions with regard to showering or bathing** at the end of each workday.

8.8.4 The employer shall provide a clean water source at the worksite, which ~~may~~ **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.

8.8.5 The applicator shall not direct a solid spray column into contact with electrical conductors.

ANNEX Appendix A

(Informative)

~~Glossary of Terms for ANSI Z133.1~~

Definitions

aerial device: Any one of the following types of vehicle-mounted apparatus used to elevate personnel to jobsites above ground:

- extensible boom platform
- aerial ladder
- articulating boom platform
- vertical tower
- a combination of any of the above, as defined in ANSI A92.2

anti-two block device: 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: The point at which two saw cuts meet to form a notch.

applicator: A qualified person engaged in the application of materials such as, but not limited to, pesticides, growth regulators, and fertilizers.

approved: Acceptable to the federal, state, or local jurisdiction having enforcement authority.

arboriculture: The art, science, technology, and business of utility, commercial, and municipal tree care.

arborist: An individual engaged in the profession of arboriculture.

arborist climbing line: A line designated to support the climber while aloft in a tree or attached to a crane, constructed according to specifications outlined in subsection 8.1.8.

arborist saddle: 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: A mechanical device used for climbing rope.

authorized: Designated by the entity that has care, custody, and control of the unit.

back cut: The cut made in a tree limb or trunk on the side opposite the intended direction of fall.

belay: Roping technique, managed by the ground person, to safeguard the arborist while climbing.

brush hog: A heavy-duty rotary mower, normally pulled by a farm-type tractor, used for cutting and mulching brush.

bucket: A basket-type platform approximately 4 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: The act of sawing trees, limbs, or both, into smaller sections once they are on the ground.

cant hook: 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: 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.

~~**certified arborist:** A professional arborist having a minimum of three years' full time experience working in the arboricultural industry and who has passed the International Society of Arboriculture exam for certified arborists.~~

chopping tool: 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: 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.

conventional notch: 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 (see drawing).

crew leader: The qualified arborist designated as the individual in charge of a specific job or group of workers.

crotch: (n.) Branch union; the angle formed by two branches in the tree. (v.) To place a line through a branch union.

~~**damaged:** 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: Acronym for diameter at breast height; diameter of a tree measured at 4.5 feet (1.3 m) above ground.

deadman control: A safety switch, electrical or mechanical, that deactivates the equipment's function when released by the operator.

dielectric: Nonconductive of electrical current.

direct contact: A direct contact is made when any part of the body touches or contacts an energized electrical conductor.

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

drop-starting: 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: 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: 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 ~~standard~~ **regulation**, shall be followed.

electrical system owner/operator: An organization that operates or controls the transmission and/or distribution of electric power through electrical conductors.

electric supply: 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: 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: 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: ~~A system, other than a natural crotch, used to support an arborist climbing line. [NEED MORE DETAILED DEFINITION]~~ 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: 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: 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: 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: The point at which the rope surface of the climber's hitch rubs against the climbing line.

good working condition: 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: Any undesirable current path from a current-carrying conductor to ground.

guarded: 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: 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: The removal or displacement of soil using pressurized air or water.

Humboldt notch: 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 (see drawing). A Humboldt cut is usually reserved for larger trees on steep slopes.

indirect contact: 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: 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.

kilovolt, kV (Tables 1 and 2): 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: The measurement of force, abbreviated as kN. Equal to 224.8 pounds. Example: 24.02 kilonewtons equals 5,400 pounds.

ladder: 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: 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: 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: 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; 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 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: **The of 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: 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: A heavy-handled hammer, sometimes made with a single edge; used to drive wedges or split wood.

minimum approach distance: Safe working distances from overhead electrical conductors as defined in Tables 1 and 2 of this **standard regulation**.

open-face notch: 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 (see drawing).

outrigger: Built-in device used to stabilize cranes, aerial devices, and similar equipment.

phase: 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): The electric potential (voltage) between a conductor and ground.

phase to phase: The electrical potential (voltage) between two conductors, each having its own electric potential relative to ground.

primary conductor: 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: 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 loop: 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.

Prusik knot: A sliding friction knot, as in a work-positioning lanyard.

qualified arborist: 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: 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: 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: 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: 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: 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: 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): Made firm or tight; fastened. Example: The load is secured to the truck.

secured (person): 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, (a) being tied in, (b) using a work-

positioning lanyard, (c) being on belay, and (d) ascending the arborist climbing line using the footlock technique while utilizing a Prusik loop or ascenders.

shall: As used in this ~~standard~~ regulation, denotes a mandatory requirement.

should: As used in this ~~standard~~ regulation, denotes an advisory recommendation.

snap hook: Commonly called a self-locking or double-locking rope snap. The locking type (required by this ~~standard~~ 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: 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: 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: 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: Any knot suitable for rope termination; includes, but is not limited to, double fisherman's loop (scaffold hitch), anchor hitch, and buntline hitch.

tied in: 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: Short line or strap used to secure a tool while working aloft.

tripod/orchard ladder: 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: Not guarded from approach or contact with electrical conductors.

volt: 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: 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: 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: An individual involved in an arboricultural operation, such as ground operations, equipment operations, and removal operations.

working load: 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: The working load that must not be exceeded for a particular application as established by a regulatory or standards-setting agency (see *working load* under Additional Terms, below).

workline: Rope used for lifting, lowering, or guiding limbs or equipment, or both, into or out of the tree.

work-positioning system: 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 or her to work with both hands free.

Additional Terms [INSERTED THESE INTO DEFINITIONS SECTION ABOVE]

~~**ascender:** A mechanical device used for climbing rope.~~

~~**belay:** Roping technique, managed by the ground person, to safeguard the arborist while climbing.~~

~~**dbh:** Acronym for diameter at breast height; diameter of a tree measured at 4.5 feet (1.3 m) above ground.~~

~~**electric supply:** 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:** 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:** 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 for rigging:** 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.~~

~~**footlock:** 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:** The point at which the rope surface of the climber's hitch rubs against the climbing line.~~

~~**guarded:** 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*.~~

~~**Prusik knot:** A sliding friction knot, as in a work-positioning lanyard.~~

~~**unguarded:** Not guarded from approach or contact with electrical conductors.~~

~~**working load:** 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)~~

~~**work-positioning system:** 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 or her to work with both hands free.~~

ANNEX Appendix B

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~~ ~~standard or annex~~.

B.1 GENERAL REQUIREMENTS

Specific training in the area of individual expertise and work required of a qualified line-clearance arborist or qualified arborist ~~should~~ **shall** be provided by the employer and documentation of training retained on file for the duration of employment.

B.1.1 Introduction and employer/employee responsibilities.

B.1.2 Employee orientation, to include

- job description appropriate to job assignment (qualified line-clearance arborist or qualified arborist)
- introduction to immediate supervisor and crew members
- familiarization with appropriate personal protective clothing and equipment and its proper use and maintenance
- familiarization with equipment
- introduction to company policies, procedures, and safe work practices
- safe work practices as related to job assignments
- written acknowledgment by employee that he or she has participated in such training

B.1.3 Line-clearance or tree care pruning techniques appropriate to job assignments, as follows:

B.1.3.1 Provide education and training in accordance with prevailing national standards for utility pruning. Refer to recommended resources in ~~Annex~~ ~~Appendix~~ D for further information.

B.1.3.2 Provide education and training in accordance with prevailing local, state, or regional standards for utility pruning, as well as those specified by utility contracts.

B.1.3.3 Provide tree knowledge for line-clearance or tree care techniques appropriate to job assignments.

B.1.3.4 Provide education and training relative to predominant tree species within geographic area, such as identification, growth habits, structure, and wood strength.

B.1.3.5 Provide education and training for recognition and evaluation of potentially hazardous conditions related to tree structure. Refer to recommended resources in Annex D.

B.2 GENERAL SAFETY

B.2.1 OSHA VOSH standard regulations

Familiarize employees with the requirements of ~~federal and/or state OSHA VOSH standards regulations~~ as applicable to employee job assignments. Refer to recommended resources in ~~Annex Appendix~~ D.

B.2.2 American National Standards

Familiarize employees with the requirements in ANSI Z133.1 as applicable to employee job assignments. Refer to additional recommended standards in ~~Annex Appendix~~ D.

B.2.3 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.

B.2.4 Electrical Hazards

Provide education and training in the recognition and avoidance of electrical hazards applicable to employee job assignments (line clearance or tree care).

B.2.5 Emergency Conditions

Provide education and training in the proper procedures for safely performing work in emergency conditions applicable to employee job assignments.

B.2.6 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.

B.3 PERSONAL SAFETY

B.3.1 Personal Protective Equipment

Provide personal protective equipment as required for applicable job assignments, and instruct employees in its proper use, fit, life, and maintenance.

B.3.2 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 [Annex Appendix F](#), Aerial Rescue Flowchart).

B.3.3 Prevention of Back and Other Injuries

Provide education and training in the techniques required to avoid back and other injuries applicable to job assignments.

B.3.4 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.

B.4 EQUIPMENT SAFETY

B.4.1 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 [16 VAC 25-60-120](#)). Such training shall be appropriate to employee job assignments.

B.4.2 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.

B.4.3 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.

B.4.4 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.

B.5 OPERATIONAL SAFETY

B.5.1 Climbing Techniques

Provide education and training in climbing techniques as appropriate to employee job assignments.

B.5.2 Rigging and Tree Removal

B.5.2.1 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.5.2.2 Provide education and training in the identification and removal of hazard trees. Such training shall be appropriate to employee job assignments.

B.5.3 Hazard Communications

Provide education and training necessary to comply with federal and state regulations appropriate to employee job assignments.

B.5.4 Pesticide Use

Provide education and training necessary to comply with federal and state regulations appropriate to employee job assignments.

ANNEX APPENDIX C

Informative

General Safety Procedures That Apply to All Tree Work

C.1 LIFTING

Before lifting any weight, workers ~~should~~ shall

- (a) be sure there is a clear path available if the weight is to be carried from one place to another;
- (b) decide exactly how the object should be grasped to avoid sharp edges, splinters, splinters, or other factors that might cause injury;
- (c) make a preliminary lift to be sure the load can be safely handled;
- (d) place feet solidly on the walking surface;
- (e) crouch as close to the load as possible, with legs bent at an angle of about 90 degrees;
- (f) lift with the legs, not the back, keeping the weight as close to the body as possible; and
- (g) use additional workers or material-handling equipment when necessary.

C.2 CONTROL OF HAZARDOUS ENERGY

When a worker, hereafter referred to as the “authorized person,” is doing mechanical work, precautions must be 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 ~~the Occupational Safety and Health Administration (OSHA)~~ VOSH may be obtained by consulting ~~29 CFR 16 VAC 25-90-1910.147.~~ or by writing to the Department of Labor, ~~OSHA, 200 Constitution Avenue NW, Washington, DC 20210.~~

The following is a sample procedure.

Sequence for Securing Equipment (Sample)

1. 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.
2. The authorized person shall refer to the manufacturer's manual for proper procedures (as needed).
3. If equipment is in an operational mode, it shall be shut down by normal procedures.
4. Rotating parts, such as chipper blades, shall be stopped before maintenance or repair. Keyed ignition systems must be in working order.
5. 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 ~~may~~ shall be disconnected.
6. The power takeoff ~~should~~ shall be disengaged before beginning service or repair tasks, such as hose replacement. All hydraulic tools ~~should~~ shall be disconnected before equipment is adjusted or serviced.
7. An employee shall never attempt to stop a hydraulic leak with his or her body.
8. 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.
9. Before proceeding with maintenance or repair, the authorized person shall ensure that equipment is isolated and will not operate.
10. 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.
11. When the engine must be running for tuning or adjustment, special care must be given to moving parts.

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:

1. 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.
2. Ensure that all guards are in place and employees are in the clear.
3. Confirm that controls are in neutral.
4. Reconnect key, cable, or plug wires.
5. Notify affected employees that equipment is ready to return to service.

ANNEX APPENDIX D

Informative

Additional Resources

D.1 APPLICABLE AMERICAN NATIONAL STANDARDS

Fall protection systems for construction and demolition operations (A10.32-2004)
Gasoline-powered chain saws (B175.1-2000)
High-visibility safety apparel and head wear (107-2004)
Mast-climbing work platforms (A92.9-1993)
Occupational and educational eye and face protection devices (Z87.1-2003)
Personal fall arrest systems, subsystems, and components (Z359.1-1992 [R1999])
Portable metal ladders (A14.2-2002)
Portable reinforced plastic ladders (A14.5-1992)
Portable wood ladders (A14.1-2000)
Protective headgear for industrial workers (Z89.1-2003)
Respiratory protection (Z88.2-1991)
Tree care operations—tree, shrub, and other woody plant maintenance (A300)
Vehicle-mounted elevating and rotating aerial devices (A92.2-2002)
Workplace floor and wall openings, stairs, and railing systems (A1264.1-1995 [R2002])

D.2 CORDAGE INSTITUTE ROPE STANDARDS

The Cordage Institute, www.ropecord.com

D.3 APPLICABLE ~~VOSH FEDERAL REGULATIONS (U.S. DEPARTMENT OF LABOR/OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION~~ and U.S. DEPARTMENT OF LABOR/FEDERAL MOTOR CARRIER SAFETY ADMINISTRATION

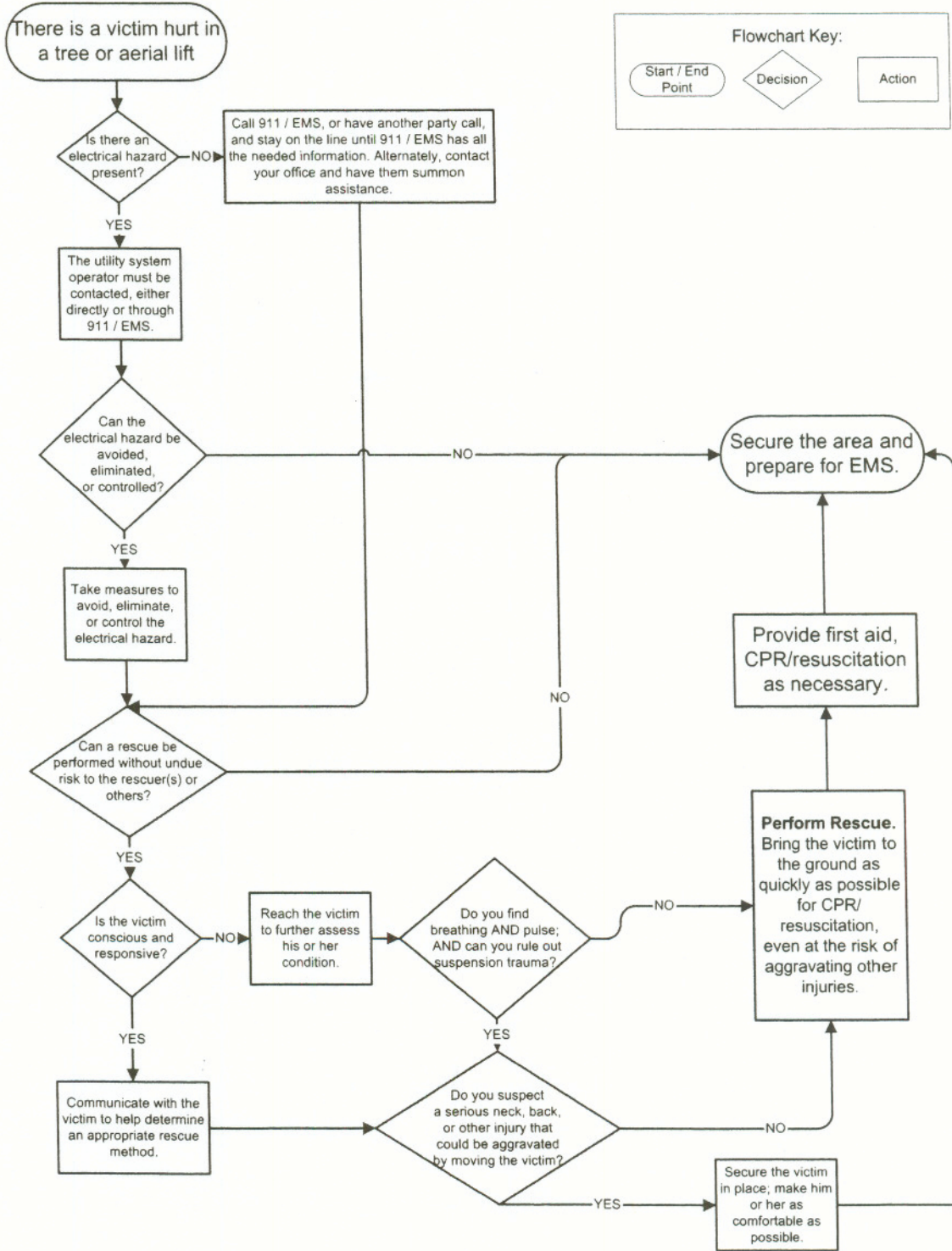
Electric Power Generation, Transmission, and Distribution (~~29 CFR 1910.269~~), 16 VAC 25-90-1910.269
General Industry (~~29 CFR 1910~~), 16 VAC 25-90-1910
Hazard Communication (~~29 CFR 1915.1200~~), 16 VAC 25-90-1910.1200
Medical Services and First Aid (~~29 CFR 1910.151~~), 16 VAC 25-95 [PROPOSED REGULATION]
Occupational Noise Exposure (~~29 CFR 1910.95~~), 16 VAC 25-90-1910.95
Personal Protective Equipment (~~29 CFR 1910.132-136~~), 16 VAC 25-90-1910.132 to -136
Electrical - Safety-Related Work Practices (~~29 CFR 1910.331-335~~), 16 VAC 25-90-1910.331 to -335
Telecommunication (~~29 CFR 1910.268~~), 16 VAC 25-90-1910.268
Transportation (49 CFR, Subchapter B, Federal Motor Carrier Safety Regulations)

ANNEX E
(Informative)
Weight of Green Logs

Species	Weight, lb per ft ³	Weight of a 1-ft section, based on average diameter							
		10"	12"	14"	16"	18"	20"	22"	24"
Alder, red	46	25	36	49	64	81	100	121	144
Ash, green	47	25	37	50	66	83	102	124	148
Ash, Oregon	48	26	38	51	67	85	104	126	150
Ash, white	48	26	38	51	67	85	104	126	150
Aspen, quaking	43	23	34	46	60	76	94	114	135
Baldcypress	51	28	40	54	71	90	111	135	160
Basswood	42	23	33	45	59	74	92	111	132
Beech	54	29	42	58	75	95	118	142	169
Birch, paper	50	27	39	53	70	88	109	132	157
Cedar, incense	45	25	35	48	63	79	98	119	141
Cedar, western red	28	15	22	30	39	49	61	74	88
Cherry, black	45	25	35	48	63	79	98	119	141
Chinaberry	50	27	39	53	70	88	109	132	157
Cottonwood	49	27	38	52	68	86	107	129	154
Elm, American	54	29	42	58	75	95	118	142	169
Fir, Douglas-	39	21	30	41	55	69	85	103	122
Fir, noble	29	16	23	31	41	51	63	77	91
Fir, white	47	25	37	50	66	83	102	124	148
Gum, black	45	25	35	48	63	79	98	119	141
Gum, red (<i>Eucalyptus</i>)	50	27	39	53	70	88	109	132	157
Hackberry	50	27	39	53	70	88	109	132	157
Hemlock, eastern	49	27	38	52	68	86	107	129	154
Hemlock, western	41	22	32	43	57	72	89	108	129
Hickory, shagbark	64	35	50	68	89	113	140	169	201
Horsechestnut	41	22	32	43	57	72	89	108	129
Larch	51	28	40	54	71	90	111	135	160
Locust, black	58	32	45	62	81	102	126	153	182
Locust, honey	61	33	48	65	85	108	133	161	192
Maple, red	50	27	39	53	70	88	109	132	157
Maple, silver	45	25	35	48	63	79	98	119	141
Maple, sugar	56	31	44	60	78	99	122	148	176
Oak, California black	66	36	51	70	92	116	144	174	207
Oak, English	52	28	41	55	72	92	113	137	163
Oak, live	76	41	60	81	106	134	166	200	238
Oak, pin	64	35	50	68	89	113	140	169	201
Oak, post	63	34	49	67	88	111	137	166	198
Oak, red	63	34	49	67	88	111	137	166	198
Oak, scarlet	64	35	50	68	89	113	140	169	201
Oak, white	62	34	48	66	86	109	135	163	194
Pecan	61	33	48	65	85	108	133	161	192
Persimmon	63	34	49	67	88	111	137	166	198

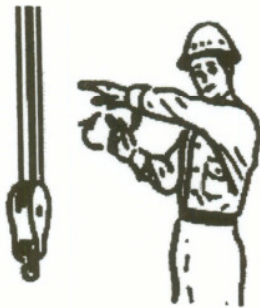
Species	Weight, lb per ft ³	<u>Weight of a 1-ft section, based on average diameter</u>							
		10"	12"	14"	16"	18"	20"	22"	24"
Pine, eastern white	36	20	28	38	50	64	78	95	113
Pine, loblolly	53	29	41	56	74	93	116	140	166
Pine, lodgepole	39	21	30	41	55	69	85	103	122
Pine, longleaf	55	30	43	58	77	97	120	145	173
Pine, ponderosa	46	25	36	49	64	81	100	121	144
Pine, slash	58	32	45	62	81	102	126	153	182
Pine, sugar	52	28	41	55	72	92	113	137	163
Pine, western white	36	20	28	38	50	64	78	95	113
Poplar, yellow	38	21	30	40	53	67	83	99	119
Redwood, coast	50	27	39	53	70	88	109	132	157
Spruce, red	34	19	27	36	47	60	74	90	106
Spruce, Sitka	32	17	25	34	45	56	70	84	100
Sweetgum	55	30	43	58	77	97	120	145	173
Sycamore	52	28	41	55	72	92	113	137	163
Walnut, black	58	32	45	62	81	102	126	153	182
Willow	32	17	25	34	45	56	70	84	100

ANNEX F (Informative) Aerial Rescue Flowchart

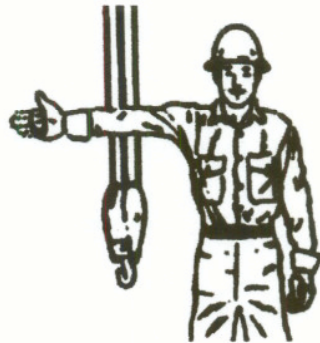


ANNEX G
(Informative)
Hand Signal Chart for Crane Operations

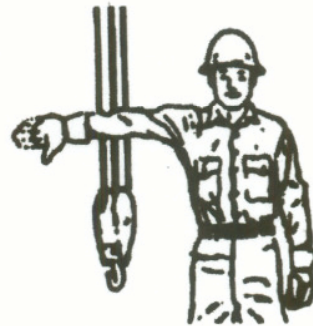
From DOE-STD-1090-2004



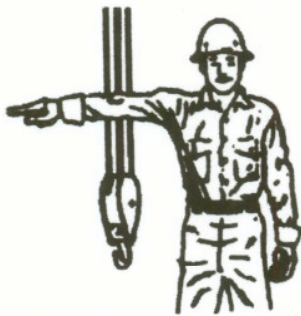
MOVE SLOWLY. Use one hand to give any motion signal and place other hand motionless above the hand giving the motion signal. (Hoist slowly shown as example.)



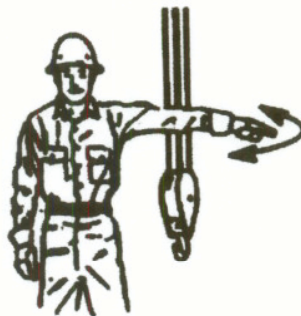
RAISE THE BOOM AND LOWER THE LOAD. With arm extended, thumb pointing up, flex fingers in and out as long as load movement is desired.



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.



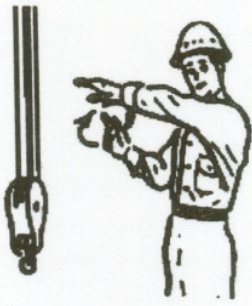
SWING. Extend arm, point with finger in direction of swing of boom.



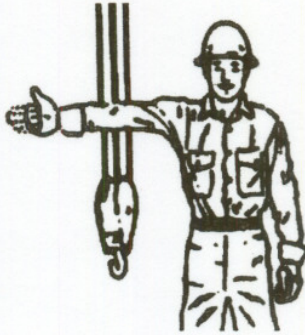
STOP. Extend arm, palm down; move arm back and forth horizontally.



EMERGENCY STOP. Both arms extended, palms down, move arms back and forth



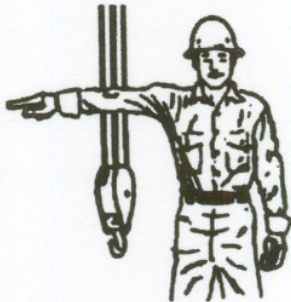
MOVE SLOWLY. Use one hand to give any motion signal and place other hand motionless above the hand giving the motion signal. (Hoist slowly shown as example.)



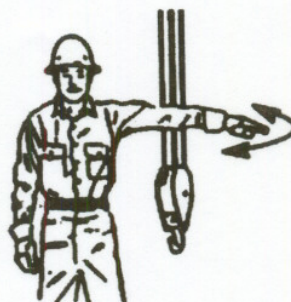
RAISE THE BOOM AND LOWER THE LOAD. With arm extended, thumb pointing up, flex fingers in and out as long as load movement is desired.



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.



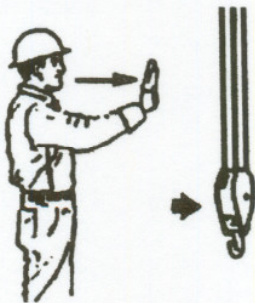
SWING. Extend arm, point with finger in direction of swing of boom.



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.



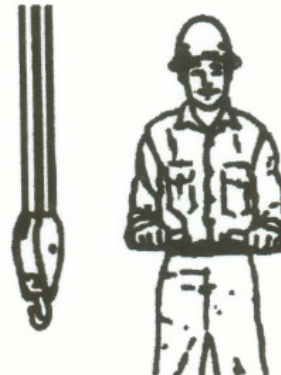
TRAVEL (Both Tracks). Use both fists in front of body, making a circular motion about each other, indicating direction of travel, forward or backward (for land cranes only).



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.

