



Occupational Safety and Health Standards for Agriculture

2015 Edition



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This industry guide contains the occupational safety and health standards for agriculture, including recordkeeping standards and reporting requirements, as well as general industry standards applicable in agriculture. It is intended to be consistent with all existing OSHA standards; therefore, if an area is considered by the reader to be inconsistent with a standard, then the OSHA standard should be followed.

To obtain additional copies of this guide, or if you have questions about North Carolina occupational safety and health standards or rules, please contact:

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Additional sources of information are listed on the inside back cover of this guide.

The projected cost of the NCDOL OSH program for federal fiscal year 2014–2015 is \$18,237,603. Federal funding provides approximately 29 percent (\$5,302,500) of this fund.



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Foreword

This industry guide contains the occupational safety and health standards for agriculture, including recordkeeping standards and reporting requirements, as well as general industry standards applicable in agriculture.

It is our hope that when reviewing this guide, you will assess your farming operation to identify all potential hazards and take steps to eliminate or protect against these hazards.

The Agricultural Safety and Health Bureau can help you customize safety programs to meet your specific needs. The bureau's safety experts are trained to help you, our N.C. growers, identify and eliminate all hazards. They can show you how taking the time to train your employees, by encouraging discussions with them and rewarding them for excellence, can build trust and foster a safety culture that prevents injuries and illnesses on the job.

In North Carolina, the N.C. Department of Labor enforces the federal Occupational Safety and Health Act through a state plan approved by the U.S. Department of Labor. NCDOL offers many educational programs to the public and produces publications to help inform people about their rights and responsibilities regarding occupational safety and health.

When reading this guide, please remember the mission of the N.C. Department of Labor is greater than just regulatory enforcement. An equally important goal is to help citizens find ways to create safe workplaces. Everyone profits when managers and employees work together for safety. This booklet, like the other educational materials produced by the N.C. Department of Labor, can help.

Josh Dobson
Commissioner of Labor

29 CFR 1928 Standards—Occupational Safety and Health Standards for Agriculture

OSHA has very few standards that are applicable to agriculture. 29 CFR Part 1928 sets forth a few standards in full and lists particular Part 1910 standards that apply to agricultural operations. The General Duty Clause may be used to address hazards not covered by these standards. These applicable standards, and the exemptions that apply, will be covered in this text.

Appropriations Act Exemptions for Farming Operations

Exempt Farming Operations

OSHA is limited by provisions in its Appropriations Act as to which employers it may inspect. Some of the Appropriations Act exemptions and limitations apply to small farming operations. Specifically, OSHA shall not inspect farming operations that have 10 or fewer employees and have had no temporary labor camp (TLC) activity within the prior 12 months.

Non-Exempt Farming Operations

A farming operation with 10 or fewer employees that maintains a temporary labor camp or has maintained a temporary labor camp within the last 12 months is not exempt from inspection.

State Plans States

States such as North Carolina with OSHA-approved state plans may enforce standards on small farms and provide consultation or training, provided that 100 percent state funds are used and the state has an accounting system in place to ensure that no federal or matching state funds are expended on these activities.

Enforcement Guidance for Small Farming Operations

Federal OSHA’s Appropriations Act exempts qualifying small farming operations from enforcement or administration of all rules, regulations, standards or orders under the Occupational Safety and Health Act, including rules affecting consultation and technical assistance or education and training services.

The table, below, provides an at-a-glance reference to OSHA activities under its funding legislation.

OSHA’s Appropriation Act Exemptions for Farming Operations

OSHA Activity	Farming operations with 10 or fewer employees (EEs) and no TLC activity within 12 months.	Farming operations with more than 10 EEs or a farming operation with an active TLC within 12 months.
Programmed Safety Inspections	Not Permitted	Permitted
Programmed Health Inspections	Not Permitted	Permitted
Employee Complaint	Not Permitted	Permitted
Fatality and/or three or more Hospitalizations	Not Permitted	Permitted
Imminent Danger	Not Permitted	Permitted
88.9(3) (whistleblower investigation)	Not Permitted	Permitted

Standards Applicable to Agriculture

OSHA has very few standards that apply to employers engaged in agricultural operations. Activities that take place after harvesting are considered general industry operations and are covered by OSHA’s general industry standards. The standards that do apply are listed below. The book will be arranged in this order.

1. Agricultural Standards (Part 1928)

- a. Roll-over Protective Structures (ROPS) for Tractors (§§1928.51, 1928.52 and 1928.53).
- b. Guarding of Moving Machinery Parts of Farm Field Equipment, Farmstead Equipment, and Cotton Gins (§1928.57).

c. Field Sanitation (§1928.110).

2. General Industry Standards (Part 1910)

- a. Temporary Labor Camps (§1910.142). See also the Migrant Housing Act of North Carolina (N.C. Gen. Stat. Chapter 95, Article 19).
- b. Storage and Handling of Anhydrous Ammonia (§1910.111(a) and (b)).
- c. Logging Operations (§1910.266).
- d. Specifications for Accident Prevention Signs and Tags—Slow-Moving Vehicle Emblem (§1910.145(d)(10)).
- e. Hazard Communication (§1910.1200).
- f. Cadmium (§1910.1027).
- g. Retention of Department of Transportation Markings, Placards and Labels (§1910.1201).
- h. Except to the extent specified above, the standards contained in subparts B through T and Subpart Z of Part 1910 do not apply to agricultural operations.

Definitions

1. Agricultural Operations

This term is not defined in Part 1928. Generally, agricultural operations would include any activities involved in the growing and harvesting of crops, plants, vines, fruit trees, nut trees, ornamental plants, egg production, the raising of livestock (including poultry and fish), as well as livestock products. Agricultural employment is defined in the Migrant Housing Act of North Carolina (see Appendix A in http://www.nclabor.com/ash/ash_blue_book.pdf).¹

The federal Occupational Safety and Health Review Commission has ruled that activities integrally related to core “agricultural operations” are also included within that term. *Darragh Company*, 9 BNA OSHC 1205, (Nos. 77-2555, 77-3074, and 77-3075, 1980) (delivery of feed to chicken farmer by integrator of poultry products is agricultural operation); *Marion Stevens dba Chapman & Stephens Company*, 5 BNA OSHC 1395 (No.13535, 1977) (removal of pipe to maintain irrigation system in citrus grove is agricultural operation). Post-harvest activities not on a farm, such as receiving, cleaning, sorting, sizing, weighing, inspecting, stacking, packaging and shipping produce, are not “agricultural operations.” *J.C. Watson Company*, 22 BNA OSHC 1235 (Nos. 05-0175 and 05-0176, 2008) (employer’s onion packing shed was not an agricultural operation); *J.C. Watson Company v. Solis*, D.C. Cir. 08-1230 (April 17, 2009).

2. Agricultural Employee

Federal OSHA regulation 29 CFR 1975.4(b)(2) states that members of the immediate family of the farm employer are not regarded as employees.

3. Farming Operation

This term is used in OSHA’s Appropriations Act and has been defined in CPL 02-00-051, *Enforcement Exemptions and Limitations Under the Appropriations Act*, dated May 28, 1998, to mean any operation involved in the growing or harvesting of crops, the raising of livestock or poultry, or related activities conducted by a farmer on sites such as farms, ranches, orchards, dairy farms or similar farming operations. These are employers engaged in businesses that have a two-digit Standard Industrial Classification (SIC) of 01 and three-digit North American Industry Classification System (NAICS) of 111 (Agricultural Production—Crops); SIC 02 and NAICS 112 (Agricultural Production—Livestock and Animal Specialties); four-digit SIC 0711 and six-digit NAICS 115112 (Soil Preparation Services); SIC 0721 and NAICS 115112 (Crop Planting, Cultivating, and Protecting); SIC 0722 and NAICS 115113 (Crop Harvesting, Primarily by Machine); SIC 0761 and NAICS 115115 (Farm Labor Contractors and Crew Leaders); and SIC 0762 and NAICS 115116 (Farm Management Services).

¹“Agricultural employment” means employment in any service or activity included within the provisions of Section 3(f) of the Fair Labor Standards Act of 1938, or section 3121(g) of the Internal Revenue Code of 1986; and the handling, planting, drying, packing, packaging, processing, freezing, or grading prior to delivery for storage of any agricultural or horticultural commodity in its unmanufactured state and including the harvesting of Christmas trees, and the harvesting of saltwater crabs. N.C. Gen. Stat. § 95-223(1).

4. Post-Harvesting Processing

This is a term that is used in CPL 02-00-051, *Enforcement Exemptions and Limitations Under the Appropriations Act*, dated May 28, 1998, in discussing enforcement guidance for small farming operations. Generally, post-harvest processing can be thought of as changing the character of the product (canning, making cider or sauces, etc.) or a higher degree of packaging versus field sorting in a shed for size.

General Duty Clause, N.C. Gen. Stat. § 95-129(1)

The General Duty Clause may be used to cite hazards, but it shall be used only where there is no standard that applies to the particular hazard involved, as outlined in 29 CFR 1910.5(f). The General Duty Clause may be applied in situations where a recognized hazard is created in whole or in part by conditions not covered by a standard.

General Duty Requirement. N.C. Gen. Stat. § 95-129(1) requires that “Each employer shall furnish to each of his employees conditions of employment and a place of employment that are free from recognized hazards that are causing or are likely to cause death or serious physical harm to his employees.”

1. Evaluation of Potential N.C. Gen. Stat. § 95-129(1) Situations. In general, Occupational Safety and Health Review Commission and court precedent has established that the following elements are necessary to prove a violation of the general duty clause:
 - a. The employer failed to keep the workplace free of a hazard to which employees of that employer were exposed;
 - b. The hazard was recognized in the industry;
 - c. The hazard was causing or was likely to cause death or serious physical harm; and
 - d. There was a feasible and useful method to correct the hazard.

The General Duty Clause may be applicable to some types of employment that are inherently dangerous. Employers involved in such occupations must take the necessary steps to eliminate or minimize employee exposure to all recognized hazards that are likely to cause death or serious physical harm. These steps include anticipation of hazards that may be encountered, provision of appropriate protective equipment, and prior provision of training, instruction, and necessary equipment. An employer who has failed to take appropriate steps on any of these or similar items and has allowed the hazard to continue to exist may be cited under the General Duty Clause (if not covered under a standard).

N.C. Gen. Stat. § 95-129(1) is to be used only within the guidelines given in the Field Operations Manual of the N.C. Department of Labor.

Pesticides

1. Coverage

- a. Pursuant to the Federal Insecticide, Fungicide and Rodenticide Act (FIFRA), the Environmental Protection Agency (EPA) has jurisdiction over employee protection relating to pesticides (which also includes herbicides, fungicides and rodenticides). In North Carolina, N.C. Department of Agriculture enforces the EPA Worker Protection Standard (WPS) protects employees on farms, forests, nurseries, and greenhouses from occupational exposure to agricultural pesticides. The WPS includes provisions for personal protective equipment, labeling, employee notification, safety training, safety posters, decontamination supplies, emergency assistance and restricted field entry. See 40 CFR Part 170, Worker Protection Standard.
- b. The regulation covers two types of employees:
 - **Pesticide Handlers.** Those who mix, load or apply agricultural pesticides; clean or repair pesticide application equipment; or assist with the application of pesticides in any way.
 - **Agricultural Workers.** Those who perform tasks related to the cultivation and harvesting of plants on farms or in greenhouses, nurseries or forests—such as carrying nursery stock, repotting plants, or watering—related to the production of agricultural plants on an agricultural establishment.
- c. For all pesticide use, including uses not covered by 40 CFR Part 170, it is a violation of FIFRA to use a registered pesticide in a manner inconsistent with its labeling. Thus, OSHA has no authority to issue any citations related to pesticide exposures, pursuant to Section 4(b)(1) of the OSH Act. In the event that a CSHO should encounter any cases of pesticide exposure or the lack of an appropriate pesticide label on containers, a referral shall be made to the local EPA office or to state agencies administering pesticide laws.

- d. EPA also has jurisdiction in non-agriculture situations where pesticides are being applied by pest control companies. This would include, but not be limited to, applications in and around factories, warehouses, office buildings and personal residences. OSHA cannot cite its Hazard Communication Standard in such situations.

State Plan States

Eight of the 22 jurisdictions (21 states and Puerto Rico) that have OSHA-approved state plans covering private sector employment elected not to enforce the Field Sanitation standard in agriculture and the Temporary Labor Camp standard, except with respect to egg, poultry, red meat production and post-harvesting processing of agricultural and horticultural commodities. In the following states, the U.S. Department of Labor, Wage and Hour Division, enforces Field Sanitation and Temporary Labor Camp standards: Alaska, Indiana, Iowa, Kentucky, Minnesota, South Carolina, Utah and Wyoming.

North Carolina and 13 other jurisdictions with OSHA-approved state plans covering private sector employment have retained enforcement authority for the Field Sanitation and Temporary Labor Camp standards in agriculture. The N.C. Department of Labor has chosen to enforce the Temporary Labor Camp Standard through the Migrant Housing Act of North Carolina, passed in 1989 and taking effect in January 1990. In addition, the U.S. Department of Labor enforces the Migrant and Seasonal Worker Act (MSPA) in North Carolina. The other state plan jurisdictions that retained enforcement jurisdiction pertaining to Field Sanitation and Temporary Labor Camp standards are Arizona, California, Hawaii, Maryland, Michigan, Nevada, New Mexico, Oregon, Puerto Rico, Tennessee, Vermont, Virginia and Washington.

Subpart A—General

1928.1 Purpose and scope. This part contains occupational safety and health standards applicable to agricultural operations.

Subpart B—Applicability of Standards

1928.21 Applicable standards in 29 CFR Part 1910.

1928.21(a) The following standards in part 1910 of this Chapter shall apply to agricultural operations:

(a)(1) Temporary labor camps—1910.142;

(a)(2) Storage and handling of anhydrous ammonia—1910.111(a) and (b);

(a)(3) Logging Operations—1910.266;

(a)(4) Slow-moving vehicles—1910.145.

(a)(5) Hazard communication—1910.1200.

(a)(6) Cadmium—1910.1027.

(a)(7) Retention of DOT markings, placards and labels—1910.1201.

(b) Except to the extent specified in paragraph (a) of this section, the standards contained in Subparts B through T and Subpart Z of part 1910 of this title do not apply to agricultural operations.

Subpart C—Roll-Over Protective Structures

1928.51 Roll-over protective structures (ROPS) for tractors, used in agricultural tractors—test procedures and performance requirements.

1928.51(a) Definitions. As used in this subpart—

“Agricultural tractor” means a two or four-wheel drive type vehicle, or track vehicle, of more than 20 engine horsepower, designed to furnish the power to pull, carry, propel, or drive implements that are designed for agriculture. All self-propelled implements are excluded.

“Low profile tractor” means a wheeled tractor possessing the following characteristics:

(a)(1) The front wheel spacing is equal to the rear wheel spacing, as measured from the centerline of each right wheel to the centerline of the corresponding left wheel.

(a)(2) The clearance from the bottom of the tractor chassis to the ground does not exceed 18 inches.

(a)(3) The highest point of the hood does not exceed 60 inches, and

(a)(4) The tractor is designed so that the operator straddles the transmission when seated.

“Tractor weight” includes the protective frame or enclosure, all fuels, and other components required for normal use of the tractor. Ballast shall be added as necessary to achieve a minimum total weight of 110 lb. (50.0 kg.) per maximum power take-off horse power at the rated engine speed or the maximum, gross vehicle weight specified by the manufacturer, whichever is the greatest. From end weight shall be at least 25 percent of the tractor test weight. In case power take-off horsepower is not available, 95 percent of net engine flywheel horsepower shall be used.

1928.51(b) General requirements. Agricultural tractors manufactured after October 25, 1976, shall meet the following requirements:

(b)(1) *Roll-over protective structures (ROPS)*. ROPS shall be provided by the employer for each tractor operated by an employee. Except as provided in paragraph (b)(5) of this section, a ROPS used on wheel-type tractors shall meet the test and performance requirements of 29 CFR 1928.52, 1928.53, or 1926.1002 as appropriate. A ROPS used on track-type tractors shall meet the test and performance requirements of 29 CFR 1926.1001.

(b)(2) Seatbelts.

(b)(2)(i) Where ROPS are required by this section, the employer shall:

(b)(2)(i)(A) Provide each tractor with a seatbelt which meets the requirements of this paragraph;

(b)(2)(i)(B) Ensure that each employee uses such seatbelt while the tractor is moving; and

(b)(2)(i)(C) Ensure that each employee tightens the seatbelt sufficiently to confine the employee to the protected area provided by the ROPS.

(b)(2)(ii) Each seatbelt shall meet the requirements set forth in Society of Automotive Engineer Standard SAE J4C, 1965 Motor Vehicle Seat Belt Assemblies², except as noted hereafter:

(b)(2)(ii)(A) Where a suspended seat is used, the seatbelt shall be fastened to the movable portion of the seat to accommodate a ride motion of the operator.

(b)(2)(ii)(B) The seatbelt anchorage shall be capable of withstanding a static tensile load of 1,000 pounds (453.6 kg) at 45 degrees to the horizontal equally divided between the anchorages. The seat mounting shall be capable of withstanding this load plus a load equal to four times the weight of all applicable seat components applied at 45 degrees to the horizontal in a forward and upward direction. In addition, the seat mounting shall be capable of withstanding a 500 pound (226.8 kg) belt load plus two times the weight of all applicable seat components both applied at 45 degrees to the horizontal in and upward and rearward direction. Floor and seat deformation is acceptable provided there is not structural failure or release of the seat adjusted mechanism or other locking device.

(b)(2)(ii)(C) The seatbelt webbing material shall have a resistance to acids, alkalis, mildew, aging, moisture, and sunlight equal to or better than that of untreated polyester fiber.

(b)(3) Protection from spillage. Batteries, fuel tanks, oil reservoirs, and coolant systems shall be constructed and located or sealed to assure that spillage will not occur which may come in contact with the operator in the event of an upset.

(b)(4) Protection from sharp surfaces. All sharp edges and corners at the operator’s station shall be designed to minimize operator injury in the event of an upset.

(b)(5) Exempted uses. Paragraphs (b)(1) and (b)(2) of this section do not apply to the following uses:

(b)(5)(i) “Low profile” tractors while they are used in orchards, vineyards or hop yards where the vertical clearance requirements would substantially interfere with normal operations, and while their use is incidental to the work performed therein.

(b)(5)(ii) “Low profile” tractors while used inside a farm building or greenhouse in which the vertical clearance is insufficient to allow a ROPS equipped tractor to operate, and while their use is incidental to the work performed therein.

(b)(5)(iii) Tractors while used with mounted equipment which is incompatible with ROPS (*e.g.* cornpickers, cotton strippers, vegetable pickers and fruit harvesters).

²Copies may be obtained from the Society of Automotive Engineers, 400 Commonwealth Drive, Warrendale, Pa. 15096.

(b)(6) Remounting. Where ROPS are removed for any reason, they shall be remounted so as to meet the requirements of this paragraph.

1928.51(c) Labeling. Each ROPS shall have a label, permanently affixed to the structure, which states:

(c)(1) Manufacturer's or fabricator's name and address;

(c)(2) ROPS model number, if any;

(c)(3) Tractor makes, models, or series numbers that the structure is designed to fit; and

(c)(4) That the ROPS model was tested in accordance with the requirements of this subpart.

1928.51(d) Operating instructions. Every employee who operates an agricultural tractor shall be informed of the operating practices contained in Appendix A of this part and of any other practices dictated by the work environment. Such information shall be provided at the time of initial assignment and at least annually thereafter.

1928.52 Protective frames for wheel-type agricultural tractors—test procedures and performance requirements.

1928.52(a) Purpose. The purpose of this section is to establish the test and performance requirements for a protective frame designed for wheel-type agricultural tractors to minimize the frequency and severity of operator injury resulting from accidental upsets. General requirements for the protection of operators are specified in 29 CFR 1928.51.

1928.52(b) Types of tests. All protective frames for wheel-type agricultural tractors shall be of a model that has been tested as follows:

(b)(1) Laboratory test. A laboratory energy-absorption test, either static or dynamic, under repeatable and controlled loading, to permit analysis of the protective frame for compliance with the performance requirements of this standard.

(b)(2) Field-upset test. A field-upset test under controlled conditions, both to the side and rear, to verify the effectiveness of the protective system under actual dynamic conditions. Such testing may be omitted when:

(b)(2)(i) The analysis of the protective-frame static-energy absorption test results indicates that both FER_{is} and FER_{ir} (as defined in paragraph (d)(2)(ii) of this section) exceed 1.15; or

1928.52(b)(2)(ii) The analysis of the protective-frame dynamic-energy absorption test results indicates that the frame can withstand an impact of 15 percent greater than the impact it is required to withstand for the tractor weight as shown in Figure C-7.

1928.52(c) Descriptions.

(c)(1) Protective frame. A protective frame is a structure comprised of uprights mounted to the tractor, extending above the operator's seat. A typical two-post frame is shown in Figure C-1.

(c)(2) Overhead weather shield. When an overhead weather shield is available for attachment to the protective frame, it may be in place during tests provided it does not contribute to the strength of the protective frame.

(c)(3) Overhead falling object protection. When an overhead falling-object protection device is available for attachment to the protective frame, it may be in place during tests provided it does not contribute to the strength of the protective frame.

1928.52(d) Test procedures.

(d)(1) General.

(d)(1)(i) The tractor weight used shall be that of the heaviest tractor model on which the protective frame is to be used.

(d)(1)(ii) Each test required under this section shall be performed on a new protective frame. Mounting connections of the same design shall be used during each such test.

(d)(1)(iii) Instantaneous deflection shall be measured and recorded for each segment of the test; see paragraph (e)(1)(i) of this section for permissible deflections.

(d)(1)(iv) The seat-reference point ("**SRP**") in Figure C-3 is that point where the vertical line that is tangent to the most forward point at the longitudinal seat centerline of the seat back, and the horizontal line that is tangent to the highest point of the seat cushion, intersect in the longitudinal seat section. The seat-reference point shall be determined with the seat unloaded and adjusted to the highest and most rearward position provided for seated operation of the tractor.

(d)(1)(v) When the centerline of the seat is off the longitudinal center, the frame loading shall be on the side with the least space between the centerline of seat and the protective frame.

(d)(1)(vi) Low-temperature characteristics of the protective frame or its material shall be demonstrated as specified in paragraph (e)(1)(ii) of this section.

(d)(1)(vii) Rear input energy tests (static, dynamic, or field-upset) need not be performed on frames mounted to tractors having four driven wheels and more than one-half their unballasted weight on the front wheels.

(d)(1)(viii) Accuracy table:

Measurements	Accuracy
Deflection of the frame, in. (mm)	±5 percent of the deflection measured.
Vertical weight, lb (kg)	±5 percent of the weight measured.
Force applied to the frame, pounds force (newtons).	±5 percent of the force measured.
Dimensions of the critical zone, in. (mm).	±0.5 in. (12.5 mm).

(d)(2) Static test procedure.

(d)(2)(i) The following test conditions shall be met:

(d)(2)(i)(A) The laboratory mounting base shall be the tractor chassis for which the protective frame is designed, or its equivalent;

(d)(2)(i)(B) The protective frame shall be instrumented with the necessary equipment to obtain the required load-deflection data at the locations and directions specified in Figures C-2 and C-3; and

(d)(2)(i)(C) When the protective frame is of a one- or two-upright design, mounting connections shall be instrumented with the necessary equipment to record the required force to be used in paragraph (d)(2)(iii)(E) and (J) of this section. Instrumentation shall be placed on mounting connections before installation load is applied.

(d)(2)(ii) The following definitions shall apply:

W = Tractor weight (see 29 CFR 1928.51(a)) in lb (W' in kg);

E_{is} = Energy input to be absorbed during side loading in ft-lb (E'_{is} in J [joules]);

$E_{is} = 723 + 0.4 W$ ($E'_{is} = 100 + 0.12 W'$);

E_{ir} = Energy input to be absorbed during rear loading in ft-lb (E'_{ir} in J);

$E_{ir} = 0.47 W$ ($E'_{ir} = 0.14 W'$);

L = Static load, lbf [pounds force], (N) [newtons];

D = Deflection under L , in. (mm);

$L-D$ = Static load-deflection diagram;

L_{max} = Maximum observed static load;

Load Limit = Point on a continuous $L-D$ curve where the observed static load is $0.8 L_{max}$ on the down slope of the curve (see Figure C-5);

E_u = Strain energy absorbed by the frame in ft-lb (J); area under the $L-D$ curve;

FER = Factor of energy ratio;

$FER_{is} = E_u E_{is}$;

$FER_{ir} = E_u E_{ir}$;

P_b = Maximum observed force in mounting connection under a static load, L lbf (N);

P_u = Ultimate force capacity of a mounting connection, lbf (N);

FSB = Design margin for a mounting connection; and

$FSB = P_u/P_b$

(d)(2)(iii) The test procedures shall be as follows:

(d)(2)(iii)(A) Apply the rear load according to Figure C-3, and record L and D simultaneously. Rear-load application shall be distributed uniformly on the frame over an area perpendicular to the direction of load application, no greater than 160 sq. in. (1,032 sq. cm) in size, with the largest dimension no greater than 27 in. (686 mm). The load shall be applied to the upper extremity of the frame at the point that is midway between the center of the frame and the inside of the frame upright. When no structural cross member exists at the rear of the frame, a substitute test beam that does not add strength to the frame may be used to complete this test procedure. The test shall be stopped when:

(d)(2)(iii)(A)(1) The strain energy absorbed by the frame is equal to or greater than the required input energy E_{ir} ; or

(d)(2)(iii)(A)(2) Deflection of the frame exceeds the allowable deflection (see paragraph (e)(1)(i) of this section); or

(d)(2)(iii)(A)(3) Frame load limit occurs before the allowable deflection is reached in rear load (see Figure C-5).

(d)(2)(iii)(B) Using data obtained under paragraph (d)(2)(iii)(A) of this section, construct the L-D diagram shown in Figure C-5;

(d)(2)(iii)(C) Calculate E_{ir} ;

(d)(2)(iii)(D) Calculate FER_{ir} ;

(d)(2)(iii)(E) Calculate FSB as required by paragraph (d)(2)(i)(C) of this section;

(d)(2)(iii)(F) Apply the side-load tests on the same frame, and record L and D simultaneously. Side-load application shall be at the upper extremity of the frame at a 90° angle to the centerline of the vehicle. The side load shall be applied to the longitudinal side farthest from the point of rear-load application. Apply side load L as shown in Figure C-2. The test shall be stopped when:

(d)(2)(iii)(F)(1) The strain energy absorbed by the frame is equal to or greater than the required input energy E_{is} ; or

(d)(2)(iii)(F)(2) Deflection of the frame exceeds the allowable deflection (see paragraph (e)(1)(i) of this section); or

(d)(2)(iii)(F)(3) Frame load limit occurs before the allowable deflection is reached in side load (see Figure C-5).

(d)(2)(iii)(G) Using data obtained in paragraph (d)(2)(iii)(F) of this section, construct the L-D diagram as shown in Figure C-5;

(d)(2)(iii)(H) Calculate E_{is} ;

(d)(2)(iii)(I) Calculate FER_{is} ; and

(d)(2)(iii)(J) Calculate FSB as required by paragraph (d)(2)(i)(C) of this section.

(d)(3) *Dynamic test procedure.*

(d)(3)(i) The following test conditions shall be met:

(d)(3)(i)(A) The protective frame and tractor shall be tested at the weight defined by 29 CFR 1928.51(a);

(d)(3)(i)(B) The dynamic loading shall be accomplished by using a 4,410-lb (2,000-kg) weight acting as a pendulum. The impact face of the weight shall be 27 ± 1 in. by 27 ± 1 in. (686 ± 25 mm by 686 ± 25 mm), and shall be constructed so that its center of gravity is within 1.0 in. (25.4 mm) of its geometric center. The weight shall be suspended from a pivot point 18 to 22 ft (5.5 to 6.7 m) above the point of impact on the frame, and shall be conveniently and safely adjustable for height (see Figure C-6);

(d)(3)(i)(C) For each phase of testing, the tractor shall be restrained from moving when the dynamic load is applied. The restraining members shall have strength no less than, and elasticity no greater than, that of 0.50-in. (12.7-mm) steel cable. Points of attachment for the restraining members shall be located an appropriate distance behind the rear axle and in front of the front axle to provide a 15° to 30° angle between a restraining cable and the horizontal. For impact from the rear, the restraining cables shall be located in the plane in which the center of gravity of the pendulum will swing, or alternatively, two sets of symmetrically located cables may be used at lateral locations on the tractor. For impact from the side, restraining cables shall be used as shown in Figures C-8 and C-9;

(d)(3)(i)(D) The front and rear wheel-tread settings, when adjustable, shall be at the position nearest to halfway between the minimum and maximum settings obtainable on the vehicle. When only two settings are obtainable, the minimum setting shall be used. The tires shall have no liquid ballast, and shall be inflated to the maximum operating pressure recommended by the manufacturer. With the specified tire inflation, the restraining cable shall be tightened to

provide tire deflection of 6 to 8 percent of the nominal tire-section width. After the vehicle is restrained properly, a wooden beam no less than 6-in. x 6-in. (150-mm x 150-mm) in cross section shall be driven tightly against the appropriate wheels and clamped. For the test to the side, an additional wooden beam shall be placed as a prop against the wheel nearest to the operator's station, and shall be secured to the base so that it is held tightly against the wheel rim during impact. The length of this beam shall be chosen so that it is at an angle of 25° to 40° to the horizontal when it is positioned against the wheel rim. It shall have a length 20 to 25 times its depth, and a width two to three times its depth (see Figures C-8 and C-9);

(d)(3)(i)(E) Means shall be provided for indicating the maximum instantaneous deflection along the line of impact. A simple friction device is illustrated in Figure C-4;

(d)(3)(i)(F) No repairs or adjustments shall be made during the test; and

(d)(3)(i)(G) When any cables, props, or blocking shift or break during the test, the test shall be repeated.

(d)(3)(ii) H = Vertical height of the center of gravity of a 4,410-lb (2,000-kg) weight in in. (H' in mm). The weight shall be pulled back so that the height of its center of gravity above the point of impact is: $H = 4.92 + 0.00190 W$ ($H' = 125 \pm 0.170 W'$) (see Figure C-7).

(d)(3)(iii) The test procedures shall be as follows:

(d)(3)(iii)(A) The frame shall be evaluated by imposing dynamic loading from the rear, followed by a load to the side on the same frame. The pendulum swinging from the height determined by paragraph (d)(3)(ii) of this section shall be used to impose the dynamic load. The position of the pendulum shall be so selected that the initial point of impact on the frame is in line with the arc of travel of the center of gravity of the pendulum. When a quick-release mechanism is used, it shall not influence the attitude of the block;

(d)(3)(iii)(B) *Impact at rear.* The tractor shall be restrained properly according to paragraphs (d)(3)(i)(C) and (d)(3)(i)(D) of this section. The tractor shall be positioned with respect to the pivot point of the pendulum so that the pendulum is 20° from the vertical prior to impact as shown in Figure C-8. The impact shall be applied to the upper extremity of the frame at the point that is midway between the centerline of the frame and the inside of the frame upright. When no structural cross member exists at the rear of the frame, a substitute test beam that does not add to the strength of the frame may be used to complete the test procedure; and

(d)(3)(iii)(C) *Impact at side.* The blocking and restraining shall conform to paragraphs (d)(3)(i)(C) and (d)(3)(i)(D) of this section. The center point of impact shall be at the upper extremity of the frame at a point most likely to hit the ground first, and at a 90° to the centerline of the vehicle (see Figure C-9). The side impact shall be applied to the longitudinal side farthest from the point of rear impact.

(d)(4) *Field-upset test procedure.*

(d)(4)(i) The following test conditions shall be met:

(d)(4)(i)(A) The tractor shall be tested at the weight defined in 29 CFR 1928.51(a);

(d)(4)(i)(B) The following provisions address soil bank test conditions.

(d)(4)(i)(B)(1) The test shall be conducted on a dry, firm soil bank. The soil in the impact area shall have an average cone index in the 0-in. to 6-in. (0-mm to 152-mm) layer of not less than 150. Cone index shall be determined according to American Society of Agricultural Engineers ("ASAE") recommendation ASAE R313.1-1971 ("Soil cone penetrometer"), as reconfirmed in 1975, which is incorporated by reference. The incorporation by reference was approved by the Director of the Federal Register in accordance with 5 U.S.C. 552(a) and 1 CFR part 51. The path of vehicle travel shall be $12^\circ \pm 2^\circ$ to the top edge of the bank.

(d)(4)(i)(B)(2) ASAE recommendation R313.1-1971, as reconfirmed in 1975, appears in the 1977 Agricultural Engineers Yearbook, or it may be examined at: Any OSHA Regional Office; the OSHA Docket Office, U.S. Department of Labor, 200 Constitution Avenue, NW., Room N-2625, Washington, DC 20210 (telephone: (202) 693-2350 (TTY number: (877) 889-5627)); or the National Archives and Records Administration ("NARA"). (For information on the availability of this material at NARA, telephone (202) 741-6030 or access the NARA Web site at http://www.archives.gov/federal_register/code_of_federal_regulations/ibr_locations.html.) Copies may be purchased from the American Society of Agricultural Engineers, 2950 Niles Road, St. Joseph, MI 49085.

(d)(4)(i)(C) An 18-in. (457-mm) high ramp (see Figure C-10) shall be used to assist in upsetting the vehicle to the side; and

(d)(4)(i)(D) The front and rear wheel-tread settings, when adjustable, shall be at the position nearest to halfway between the minimum and maximum settings obtainable on the vehicle. When only two settings are obtainable, the minimum setting shall be used.

(d)(4)(ii) Field upsets shall be induced to the rear and side as follows:

(d)(4)(ii)(A) Rear upset shall be induced by engine power, with the tractor operating in gear to obtain 3 to 5 mph (4.8 to 8.0 kph) at maximum governed engine rpm by driving forward directly up a minimum slope of $60^\circ \pm 5^\circ$ as shown in Figure C-11, or by an alternative equivalent means. The engine clutch may be used to aid in inducing the upset; and

(d)(4)(ii)(B) To induce side upset, the tractor shall be driven under its own power along the specified path of travel at a minimum speed of 10 mph (16 kph), or at maximum vehicle speed when under 10 mph (16 kph), and over the ramp as described in paragraph (d)(4)(i)(C) of this section.

1928.52(e) Performance requirements.

(e)(1) General requirements.

(e)(1)(i) The frame, overhead weather shield, fenders, or other parts in the operator area may be deformed in these tests, but shall not shatter or leave sharp edges exposed to the operator, or encroach on the dimensions shown in Figures C-2 and C-3, and specified as follows:

d = 2 in. (51 mm) inside of the frame upright to the vertical centerline of the seat;

e = 30 in. (762 mm) at the longitudinal centerline;

f = Not greater than 4 in. (102 mm) to the rear edge of the crossbar, measured forward of the seat-reference point (“SRP”);

g = 24 in. (610 mm) minimum; and

m = Not greater than 12 in. (305 mm), measured from the seat-reference point to the forward edge of the crossbar.

(e)(1)(ii) The protective structure and connecting fasteners must pass the static or dynamic tests described in paragraphs (d)(2), (d)(3), or (d)(4) of this section at a metal temperature of 0 °F (-18 °C) or below, or exhibit Charpy V-notch impact strengths as follows:

10-mm x 10-mm (0.394-in. x 0.394-in.) specimen: 8.0 ft-lb (10.8 J) at -20 °F (-30 °C);

10-mm x 7.5-mm (0.394-in. x 0.296-in.) specimen: 7.0 ft-lb (9.5 J) at -20 °F (-30 °C);

10-mm x 5-mm (0.394-in. x 0.197-in.) specimen: 5.5 ft-lb (7.5 J) at -20 °F (-30 °C); or

10-mm x 2.5-mm (0.394-in. x 0.098-in.) specimen: 4.0 ft-lb (5.5 J) at -20 °F (-30 °C).

Specimens shall be longitudinal and taken from flat stock, tubular, or structural sections before forming or welding for use in the frame. Specimens from tubular or structural sections shall be taken from the middle of the side of greatest dimension, not to include welds.

(e)(2) Static test-performance requirements. In addition to meeting the requirements of paragraph (e)(1) of this section for both side and rear loads, FER_{is} and FER_{ir} , shall be greater than 1.0, and when the ROPS contains one or two upright frames only, FSB shall be greater than 1.3.

(e)(3) Dynamic test-performance requirements. The structural requirements shall be met when the dimensions in paragraph (e)(1) of this section are used in both side and rear loads.

(e)(4) Field-upset test performance requirements. The requirements of paragraph (e)(1) of this section shall be met for both side and rear upsets.

1928.53 Protective enclosures for wheel-type agricultural tractors—test procedures and performance requirements.

1928.53(a) Purpose. The purpose of this section is to establish the test and performance requirements for a protective enclosure designed for wheel-type agricultural tractors to minimize the frequency and severity of operator injury resulting from accidental upset. General requirements for the protection of operators are specified in 29 CFR 1928.51.

1928.53(b) Types of tests. All protective enclosures for wheel-type agricultural tractors shall be of a model that has been tested as follows:

(b)(1) Laboratory test. A laboratory energy-absorption test, either static or dynamic, under repeatable and controlled loading, to permit analysis of the protective enclosure for compliance with the performance requirements of this standard; and

(b)(2) Field-upset test. A field-upset test under controlled conditions, both to the side and rear, to verify the effectiveness of the protective system under actual dynamic conditions. This test may be omitted when:

(b)(2)(i) The analysis of the protective-frame static-energy absorption test results indicates that both FER_{is} and FER_{ir} (as defined in paragraph (d)(2)(ii) of this section) exceed 1.15; or

(b)(2)(ii) The analysis of the protective-frame dynamic-energy absorption test results indicates that the frame can withstand an impact of 15 percent greater than the impact it is required to withstand for the tractor weight as shown in Figure C-7.

1928.53(c) Descriptions. A protective enclosure is a structure comprising a frame and/or enclosure mounted to the tractor. A typical enclosure is shown in Figure C-12.

1928.53(d) Test procedures.

(d)(1) General.

(d)(1)(i) The tractor weight used shall be that of the heaviest tractor model on which the protective enclosure is to be used.

(d)(1)(ii) Each test required under this section shall be performed on a protective enclosure with new structural members. Mounting connections of the same design shall be used during each test.

(d)(1)(iii) Instantaneous deflection shall be measured and recorded for each segment of the test; see paragraph (e)(1)(i) of this section for permissible deflections.

(d)(1)(iv) The seat-reference point (“*SRP*”) in Figure C-14 is that point where the vertical line that is tangent to the most forward point at the longitudinal seat centerline of the seat back, and the horizontal line that is tangent to the highest point of the seat cushion, intersect in the longitudinal seat section. The seat-reference point shall be determined with the seat unloaded and adjusted to the highest and most rearward position provided for seated operations of the tractor.

(d)(1)(v) When the centerline of the seat is off the longitudinal center, the protective-enclosure loading shall be on the side with least space between the centerline of the seat and the protective enclosure.

(d)(1)(vi) Low-temperature characteristics of the protective enclosure or its material shall be demonstrated as specified in paragraph (e)(1)(ii) of this section.

(d)(1)(vii) Rear input energy tests (static, dynamic, or field-upset) need not be performed on enclosures mounted to tractors having four driven wheels and more than one-half their unballasted weight on the front wheels.

(d)(1)(viii) Accuracy table:

Measurements	Accuracy
Deflection of the frame, in. (mm)	±5 percent of the deflection measured.
Vertical weight, lb (kg)	±5 percent of the weight measured.
Force applied to the frame, pounds force (newtons).	±5 percent of the force measured.
Dimensions of the critical zone, in. (mm).	±0.5 in. (12.5 mm).

(d)(1)(ix) When movable or normally removable portions of the enclosure add to structural strength, they shall be placed in configurations that contribute least to structural strength during the test.

(d)(2) Static test procedure.

(d)(2)(i) The following test conditions shall be met:

(d)(2)(i)(A) The laboratory mounting base shall be the tractor chassis for which the protective enclosure is designed, or its equivalent; and

(d)(2)(i)(B) The protective enclosure shall be instrumented with the necessary equipment to obtain the required load-deflection data at the locations and directions specified in Figures C-13 and C-14.

(d)(2)(ii) The following definitions shall apply:

W = Tractor weight (see 29 CFR 1928.51(a)) in lb (W' in kg);

E_{is} = Energy input to be absorbed during side loading in ft-lb (E'_{is} in J [joules]);

$E_{is} = 723 + 0.4 W$ ($E'_{is} = 100 + 0.12 W'$);

E_{ir} = Energy input to be absorbed during rear loading in ft-lb (E'_{ir} in J);

$E_{ir} = 0.47 W$ ($E'_{ir} = 0.14 W'$);

L = Static load, lbf [pounds force], (N) [newtons];

D = Deflection under L , in. (mm);

L - D = Static load-deflection diagram;

L_{max} = Maximum observed static load;

Load Limit = Point on a continuous L - D curve where the observed static load is $0.8 L_{max}$ on the down slope of the curve (see Figure C-5);

E_u = Strain energy absorbed by the protective enclosure in ft-lb (J); area under the L - D curve;

FER = Factor of energy ratio;

$FER_{is} = E_u E_{is}$; and

$FER_{ir} = E_u E_{ir}$.

(d)(2)(iii) The test procedures shall be as follows:

(d)(2)(iii)(A) When the protective-frame structures are not an integral part of the enclosure, the direction and point of load application for both side and rear shall be the same as specified in 29 CFR 1928.52(d)(2);

(d)(2)(iii)(B) When the protective-frame structures are an integral part of the enclosure, apply the rear load according to Figure C-14, and record L and D simultaneously. Rear-load application shall be distributed uniformly on the frame structure over an area perpendicular to the load application, no greater than 160 sq. in. (1,032 sq. cm) in size, with the largest dimension no greater than 27 in. (686 mm). The load shall be applied to the upper extremity of the structure at the point that is midway between the centerline of the protective enclosure and the inside of the protective structure. When no structural cross member exists at the rear of the enclosure, a substitute test beam that does not add strength to the structure may be used to complete this test procedure. The test shall be stopped when:

(d)(2)(iii)(B)(1) The strain energy absorbed by the structure is equal to or greater than the required input energy E_{ir} ; or

(d)(2)(iii)(B)(2) Deflection of the structure exceeds the allowable deflection (see paragraph (e)(1)(i) of this section); or

(d)(2)(iii)(B)(3) The structure load limit occurs before the allowable deflection is reached in rear load (see Figure C-5);

(d)(2)(iii)(C) Using data obtained in paragraph (d)(2)(iii)(B) of this section, construct the L - D diagram for rear loads as shown in Figure C-5;

(d)(2)(iii)(D) Calculate E_{ir} ;

(d)(2)(iii)(E) Calculate FER_{ir} ;

(d)(2)(iii)(F) When the protective-frame structures are an integral part of the enclosure, apply the side load according to Figure C-13, and record L and D simultaneously. Static side-load application shall be distributed uniformly on the frame over an area perpendicular to the direction of load application, and no greater than 160 sq. in. (1,032 sq. cm) in size, with the largest dimension no greater than 27 in. (686 mm). Side-load application shall be at a 90° angle to the centerline of the vehicle. The center of the side-load application shall be located between point k , 24 in. (610 mm) forward of the seat-reference point, and point l , 12 in. (305 mm) rearward of the seat-reference point, to best use the structural strength (see Figure C-13). This side load shall be applied to the longitudinal side farthest from the point of rear-load application. The test shall be stopped when:

(d)(2)(iii)(F)(1) The strain energy absorbed by the structure is equal to or greater than the required input energy E_{is} ; or

(d)(2)(iii)(F)(2) Deflection of the structure exceeds the allowable deflection (see paragraph (e)(1)(i) of this section); or

(d)(2)(iii)(F)(3) The structure load limit occurs before the allowable deflection is reached in side load (see Figure C-5).

(d)(2)(iii)(G) Using data obtained in paragraph (d)(2)(iii)(F) of this section, construct the *L-D* diagram for the side load as shown in Figure C-5;

(d)(2)(iii)(H) Calculate FER_{is} ;

(d)(2)(iii)(I) Calculate FER_{ir} .

(d)(3) *Dynamic test procedure.*

(d)(3)(i) The following test conditions shall be met:

(d)(3)(i)(A) The protective enclosure and tractor shall be tested at the weight defined by 29 CFR 1928.51(a);

(d)(3)(i)(B) The dynamic loading shall be accomplished by using a 4,410-lb (2,000-kg) weight acting as a pendulum. The impact face of the weight shall be 27 ± 1 in. by 27 ± 1 in. (686 ± 25 mm by 686 ± 25 mm), and shall be constructed so that its center of gravity is within 1.0 in. (25.4 mm) of its geometric center. The weight shall be suspended from a pivot point 18 to 22 ft (5.5 to 6.7 m) above the point of impact on the enclosure, and shall be conveniently and safely adjustable for height (see Figure C-6);

(d)(3)(i)(C) For each phase of testing, the tractor shall be restrained from moving when the dynamic load is applied. The restraining members shall have strength no less than, and elasticity no greater than, that of 0.50-in. (12.7-mm) steel cable. Points of attachment for the restraining members shall be located an appropriate distance behind the rear axle and in front of the front axle to provide a 15° to 30° angle between the restraining cable and the horizontal. For impact from the rear, the restraining cables shall be located in the plane in which the center of gravity of the pendulum will swing, or alternatively, two sets of symmetrically located cables may be used at lateral locations on the tractor. For the impact from the side, restraining cables shall be used as shown in Figures C-15 and C-16;

(d)(3)(i)(D) The front and rear wheel-tread settings, when adjustable, shall be at the position nearest to halfway between the minimum and maximum settings obtainable on the vehicle. When only two settings are obtainable, the minimum setting shall be used. The tires shall have no liquid ballast, and shall be inflated to the maximum operating pressure recommended by the manufacturer. With specified tire inflation, the restraining cable shall be tightened to provide tire deflection of 6 to 8 percent of nominal tire section width. After the vehicle is restrained properly, a wooden beam no smaller than 6-in. x 6-in. (150-mm x 150-mm) cross-section shall be driven tightly against the appropriate wheels and clamped. For the test to the side, an additional wooden beam shall be placed as a prop against the wheel nearest the operator's station, and shall be secured to the base so that it is held tightly against the wheel rim during impact. The length of this beam shall be chosen so that it is at an angle of 25° to 40° to the horizontal when it is positioned against the wheel rim. It shall have a length 20 to 25 times its depth, and a width two to three times its depth (see Figures C-15 and C-16);

(d)(3)(i)(E) Means shall be provided for indicating the maximum instantaneous deflection along the line of impact. A simple friction device is illustrated in Figure C-4;

(d)(3)(i)(F) No repairs or adjustments shall be made during the test; and

(d)(3)(i)(G) When any cables, props, or blocking shift or break during the test, the test shall be repeated.

(d)(3)(ii) H = Vertical height of the center of gravity of a 4,410-lb (2,000-kg) weight in in. (H' in mm). The weight shall be pulled back so that the height of its center of gravity above the point of impact is: $H = 4.92 + 0.00190 W$ ($H' = 125 + 0.170 W'$) (see Figure C-7).

(d)(3)(iii) The test procedures shall be as follows:

(d)(3)(iii)(A) The enclosure structure shall be evaluated by imposing dynamic loading from the rear, followed by a load to the side on the same enclosure structure. The pendulum swinging from the height determined by paragraph (d)(3)(ii) of this section shall be used to impose the dynamic load. The position of the pendulum shall be so selected that the initial point of impact on the protective structure is in line with the arc of travel of the center of gravity of the pendulum. When a quick-release mechanism is used, it shall not influence the attitude of the block;

(d)(3)(iii)(B) *Impact at rear.* The tractor shall be restrained properly according to paragraphs (d)(3)(i)(C) and (d)(3)(i)(D) of this section. The tractor shall be positioned with respect to the pivot point of the pendulum so that the pendulum is 20° from the vertical prior to impact as shown in Figure C-15. The impact shall be applied to the upper extremity of the enclosure structure at the point that is midway between the centerline of the enclosure structure and the

inside of the protective structure. When no structural cross member exists at the rear of the enclosure structure, a substitute test beam that does not add to the strength of the structure may be used to complete the test procedure; and

(d)(3)(iii)(C) Impact at side. The blocking and restraining shall conform to paragraphs (d)(3)(i)(C) and (d)(3)(i)(D) of this section. The center point of impact shall be at the upper extremity of the enclosure at a 90° angle to the centerline of the vehicle, and located between a point *k*, 24 in. (610 mm) forward of the seat-reference point, and a point *l*, 12 in. (305 mm) rearward of the seat-reference point, to best use the structural strength (see Figure C-13). The side impact shall be applied to the longitudinal side farthest from the point of rear impact.

(d)(4) Field-upset test procedure.

(d)(4)(i) The following test conditions shall be met:

(d)(4)(i)(A) The tractor shall be tested at the weight defined in 29 CFR 1928.51(a);

(d)(4)(i)(B) The following provisions address soil bank test conditions.

(d)(4)(i)(B)(1) The test shall be conducted on a dry, firm soil bank. The soil in the impact area shall have an average cone index in the 0-in. to 6-in. (0-mm to 152-mm) layer of not less than 150. Cone index shall be determined according to American Society of Agricultural Engineers (“ASAE”) recommendation ASAE R313.1-1971 (“Soil cone penetrometer”), as reconfirmed in 1975, which is incorporated by reference. The incorporation by reference was approved by the Director of the Federal Register in accordance with 5 U.S.C. 552(a) and 1 CFR part 51. The path of vehicle travel shall be $12^\circ \pm 2^\circ$ to the top edge of the bank.

(d)(4)(i)(B)(2) ASAE recommendation R313.1-1971, as reconfirmed in 1975, appears in the 1977 Agricultural Engineers Yearbook, or it may be examined at: Any OSHA Regional Office; the OSHA Docket Office, U.S. Department of Labor, 200 Constitution Avenue, NW., Room N-2625, Washington, DC 20210 (telephone: (202) 693-2350 (TTY number: (877) 889-5627)); or the National Archives and Records Administration (“NARA”). (For information on the availability of this material at NARA, telephone (202) 741-6030 or access the NARA Web site at http://www.archives.gov/federal_register/code_of_federal_regulations/ibr_locations.html.) Copies may be purchased from the American Society of Agricultural Engineers, 2950 Niles Road, St. Joseph, MI 49085.

(d)(4)(i)(C) An 18-in. (457 mm) high ramp (see Figure C-10) shall be used to assist in upsetting the vehicle to the side; and

(d)(4)(i)(D) The front and rear wheel-tread settings, when adjustable, shall be at the position nearest to halfway between the minimum and maximum settings obtainable on the vehicle. When only two settings are obtainable, the minimum setting shall be used.

(d)(4)(ii) Field upsets shall be induced to the rear and side.

(d)(4)(ii)(A) Rear upset shall be induced by engine power, with the tractor operating in gear to obtain 3 to 5 mph (4.8 to 8.0 kph) at maximum governed engine rpm by driving forward directly up a minimum slope of $60^\circ \pm 5^\circ$ as shown in Figure C-11, or by an alternate equivalent means. The engine clutch may be used to aid in inducing the upset; and

(d)(4)(ii)(B) To induce side upset, the tractor shall be driven under its own power along the specified path of travel at a minimum speed of 10 mph (16 kph), or at maximum vehicle speed when under 10 mph (16 kph), and over the ramp as described in paragraph (d)(4)(i)(C) of this section.

1928.53(e) Performance requirements.

(e)(1) General requirements.

(e)(1)(i) The protective enclosure structural members or other parts in the operator area may be deformed in these tests, but shall not shatter or leave sharp edges exposed to the operator. They shall not encroach on a transverse plane passing through points *d* and *f* within the projected area defined by dimensions *d*, *e*, and *g*, or on the dimensions shown in Figures C-13 and C-14, as follows:

d = 2 in. (51 mm) inside of the protective structure to the vertical centerline of the seat;

e = 30 in. (762 mm) at the longitudinal centerline;

f = Not greater than 4 in. (102 mm) measured forward of the seat-reference point (“SRP”) at the longitudinal centerline as shown in Figure C-14;

g = 24 in. (610 mm) minimum;

$h = 17.5$ in. (445 mm) minimum; and
 $j = 2.0$ in. (51 mm) measured from the outer periphery of the steering wheel.

(e)(1)(ii) The protective structure and connecting fasteners must pass the static or dynamic tests described in paragraphs (d)(2), (d)(3), or (d)(4) of this section at a metal temperature of 0 °F (-8 °C) or below, or exhibit Charpy V-notch impact strengths as follows:

10-mm x 10-mm (0.394-in. x 0.394-in.) specimen: 8.0 ft-lb (10.8 J) at -20 °F (-30 °C);
10-mm x 7.5-mm (0.394-in. x 0.296-in.) specimen: 7.0 ft-lb (9.5 J) at -20 °F (-30 °C);
10-mm x 5-mm (0.394-in. x 0.197-in.) specimen: 5.5 ft-lb (7.5 J) at -20 °F (-30 °C); or
10-mm x 2.5-mm (0.394-in. x 0.098-in.) specimen: 4.0 ft-lb (5.5 J) at -20 °F (-30 °C).

Specimens shall be longitudinal and taken from flat stock, tubular, or structural sections before forming or welding for use in the protective enclosure. Specimens from tubular or structural sections shall be taken from the middle of the side of greatest dimension, not to include welds.

(e)(1)(iii) The following provisions address glazing requirements.

(e)(1)(iii)(A) Glazing shall conform to the requirements contained in Society of Automotive Engineers (“SAE”) standard J674-1963 (“Safety glazing materials”), which is incorporated by reference. The incorporation by reference was approved by the Director of the Federal Register in accordance with 5 U.S.C. 552(a) and 1 CFR part 51.

(e)(1)(iii)(B) SAE standard J674-1963 appears in the 1965 SAE Handbook, or it may be examined at: any OSHA Regional Office; the OSHA Docket Office, U.S. Department of Labor, 200 Constitution Avenue, NW., Room N-2625, Washington, DC 20210 (telephone: (202) 693-2350 (TTY number: (877) 889-5627)); or the National Archives and Records Administration (“NARA”). (For information on the availability of this material at NARA, telephone (202) 741-6030 or access the NARA Web site at http://www.archives.gov/federal_register/code_of_federal_regulations/ibr_locations.html.) Copies may be purchased from the Society of Automotive Engineers, 400 Commonwealth Drive, Warrendale, Pennsylvania 15096-0001.

(e)(1)(iv) Two or more operator exits shall be provided and positioned to avoid the possibility of both being blocked by the same accident.

(e)(2) *Static test-performance requirements.* In addition to meeting the requirements of paragraph (e)(1) of this section for both side and rear loads, FERis and FERir shall be greater than 1.0.

(e)(3) *Dynamic test-performance requirements.* The structural requirements shall be met when the dimensions in paragraph (e)(1) of this section are used in both side and rear loads.

(e)(4) *Field-upset test performance requirements.* The requirements of paragraph (e)(1) of this section shall be met for both side and rear upsets.

APPENDICES TO SUBPART C

APPENDIX A—EMPLOYEE OPERATING INSTRUCTIONS

1. Securely fasten your seat belt if the tractor has a ROPS.
2. Where possible, avoid operating the tractor near ditches, embankments, and holes.
3. Reduce speed when turning, crossing slopes, and on rough, slick, or muddy surfaces.
4. Stay off slopes too steep for safe operation.
5. Watch where you are going, especially at row ends, on roads, and around trees.
6. Do not permit others to ride.
7. Operate the tractor smoothly—no jerky turns, starts, or stops.
8. Hitch only to the drawbar and hitch points recommended by tractor manufacturers.
9. When tractor is stopped, set brakes securely and use park lock if available.

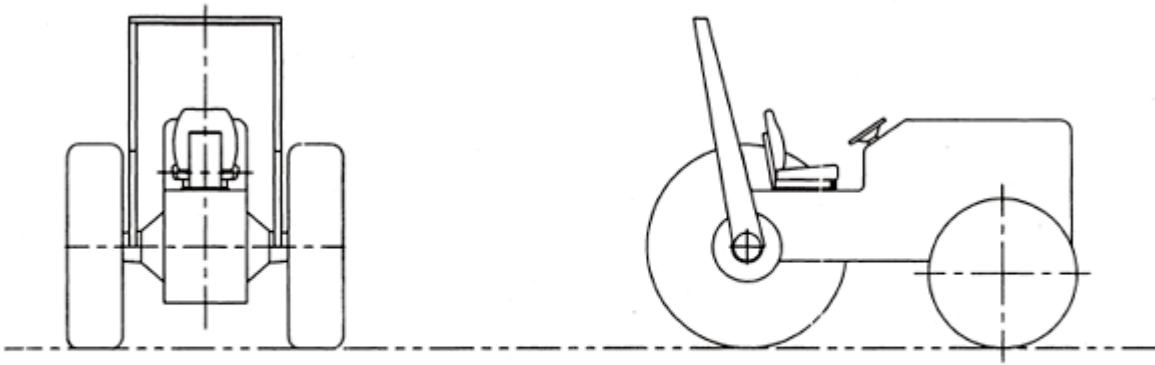


FIGURE C-1 - TRACTOR WITH TYPICAL PROTECTIVE FRAME.

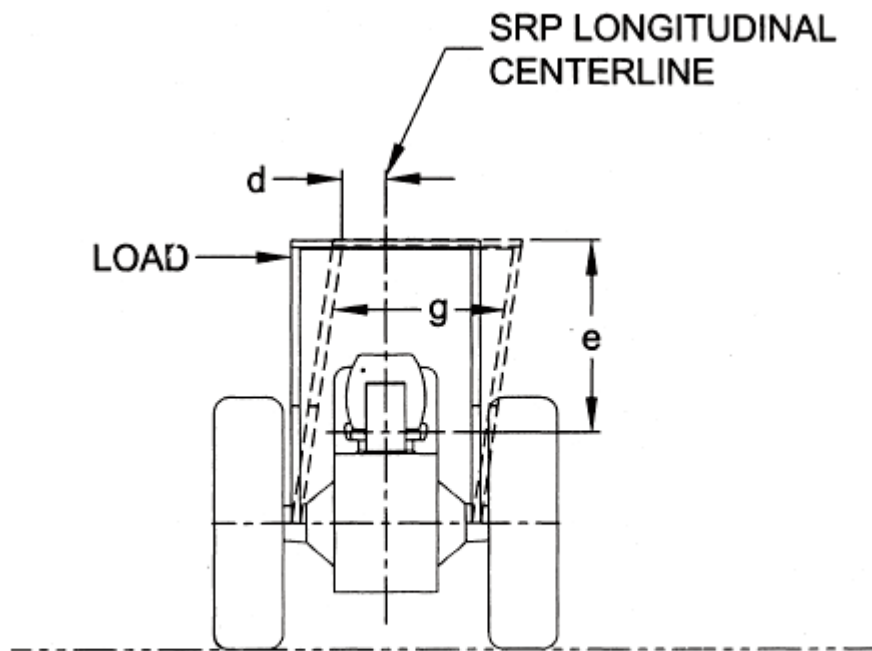


FIGURE C-2 - SIDE LOAD APPLICATION.

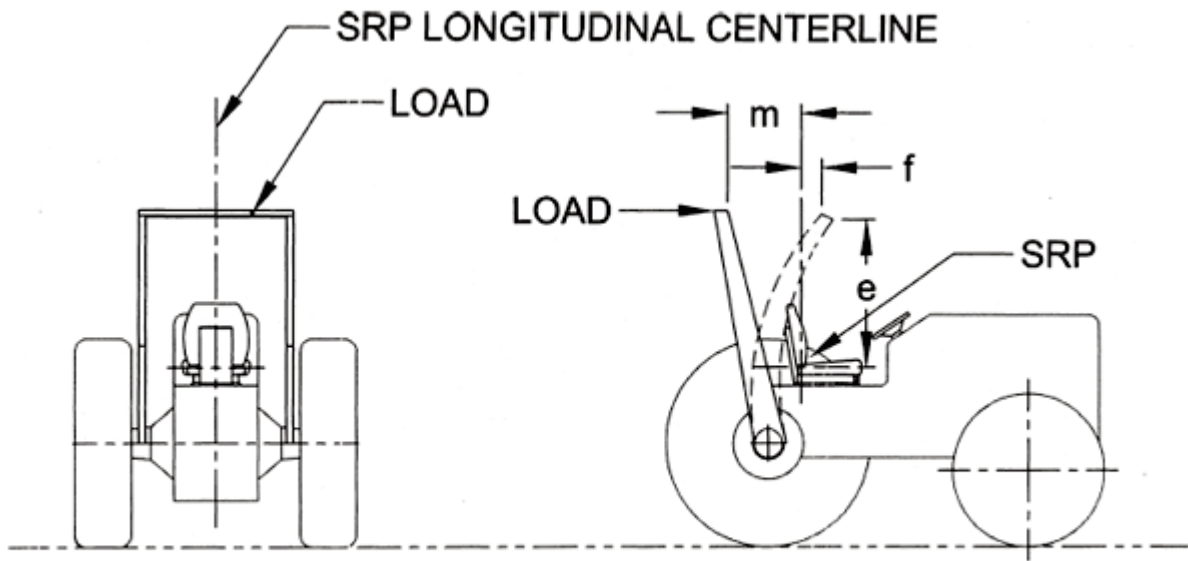


FIGURE C-3 - REAR LOAD APPLICATION.

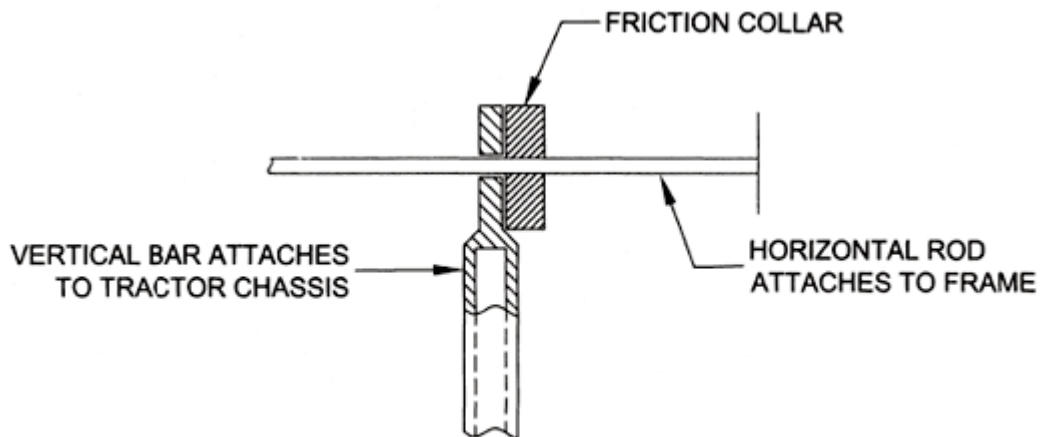


FIGURE C-4 - METHOD OF MEASURING INSTANTANEOUS DEFLECTION.

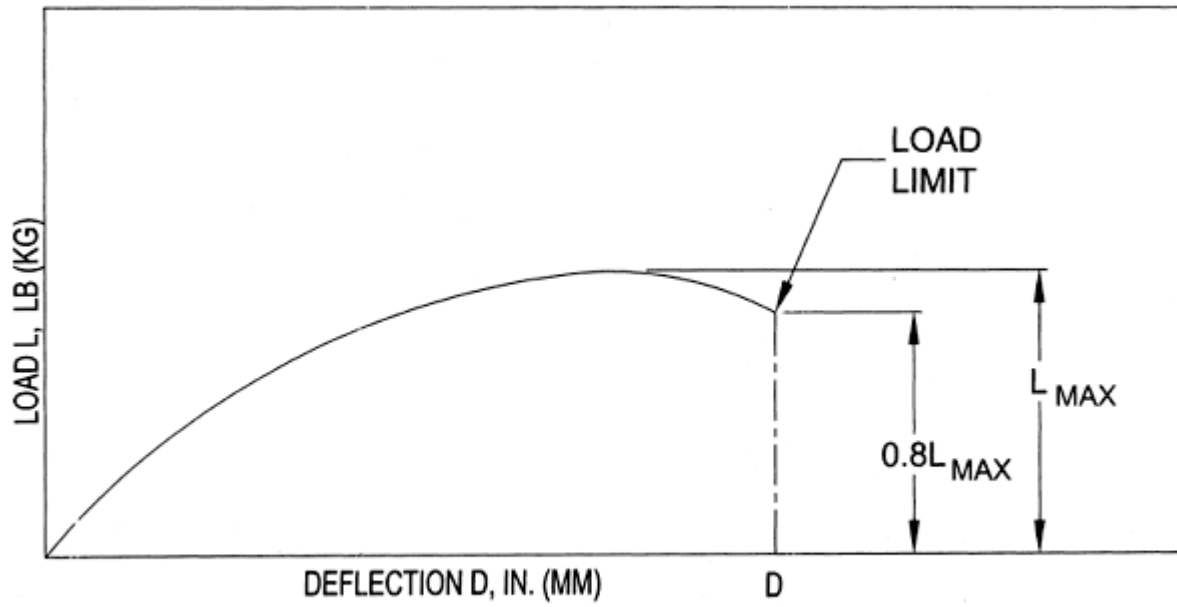


FIGURE C-5 - TYPICAL L-D DIAGRAM.

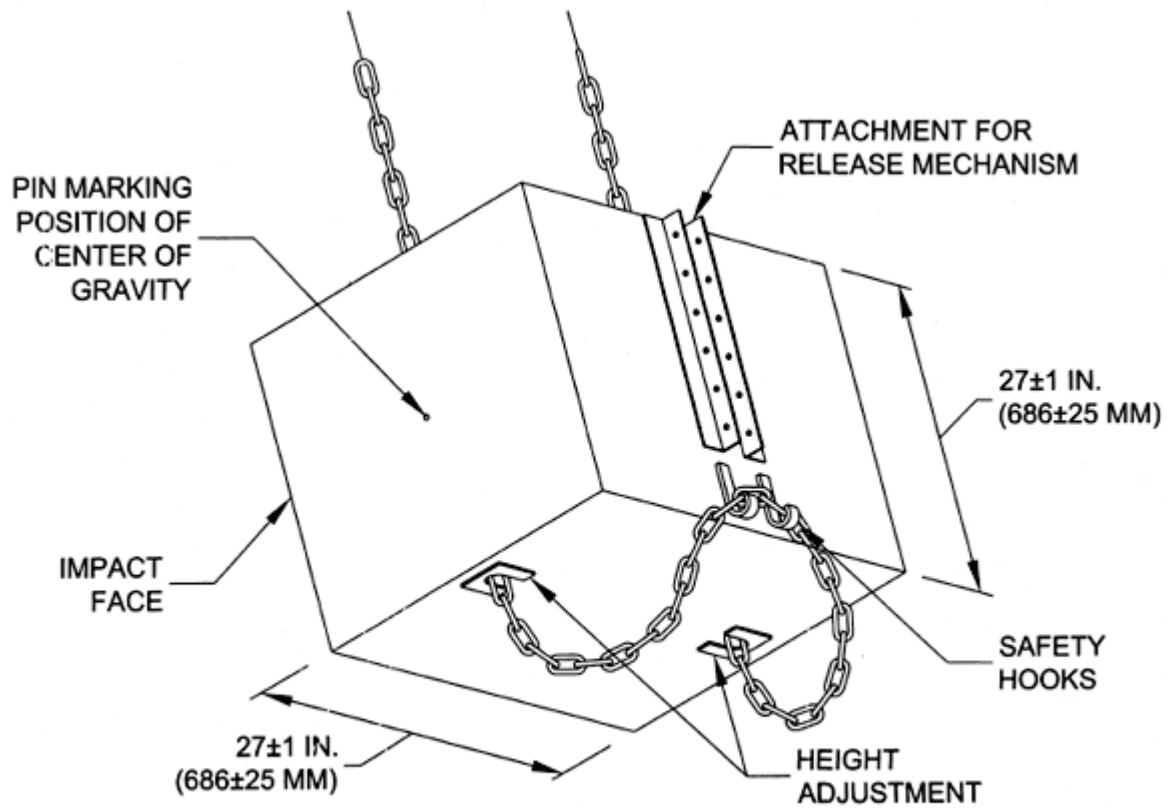
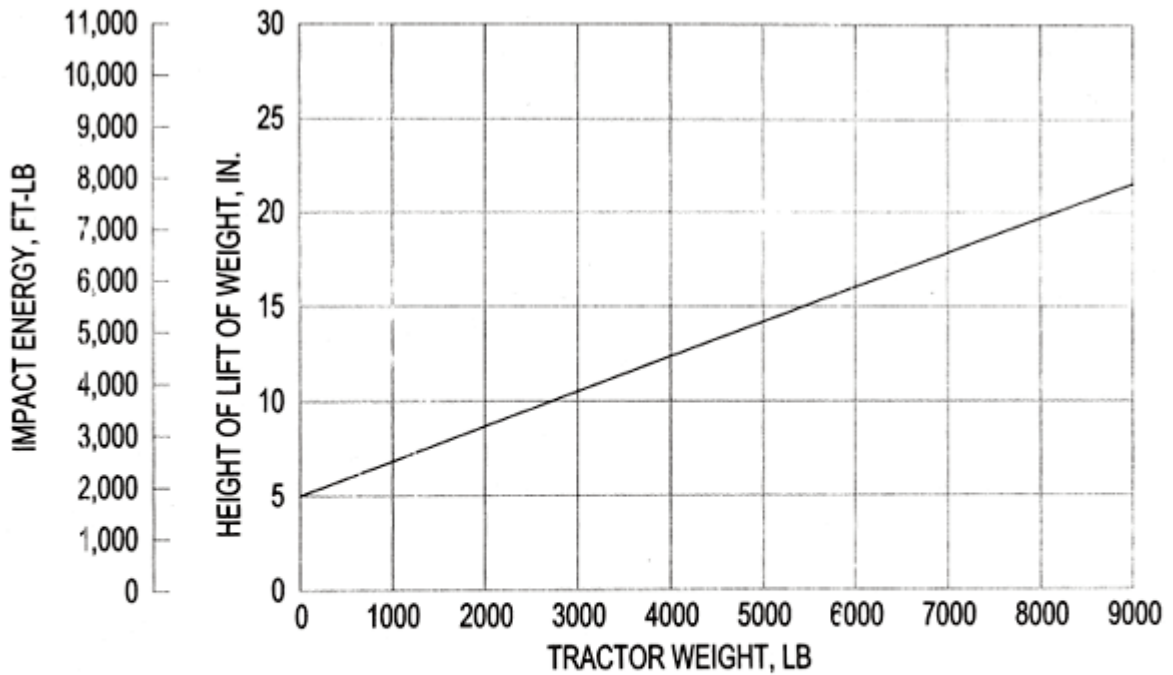


FIGURE C-6 - PENDULUM.



NOTATION OF FORMULAE
 $H=4.92+0.00190W$ or $H'=125+0.107W'$
 W =tractor weight specified by 29 CFR
 1928.51(a) in lbs (W' in kg).

FIGURE C-7 - IMPACT ENERGY AND CORRESPONDING LIFT HEIGHT OF 4,410 LB (2,000 kg) WEIGHT.

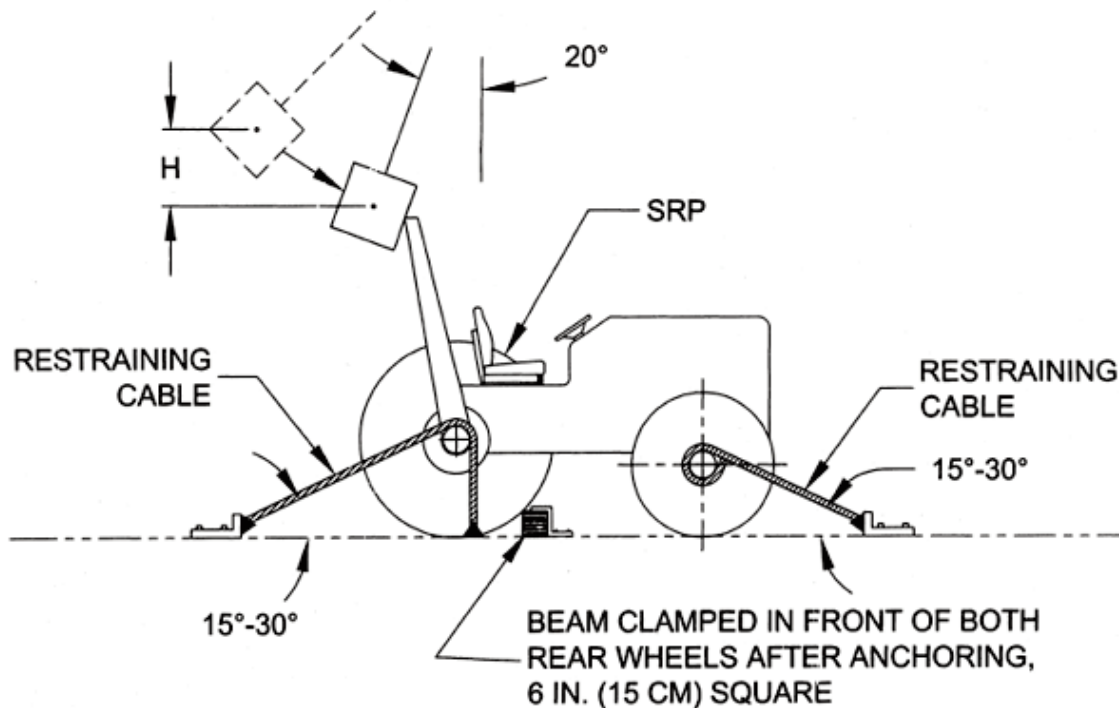


FIGURE C-8 - REAR IMPACT APPLICATION.

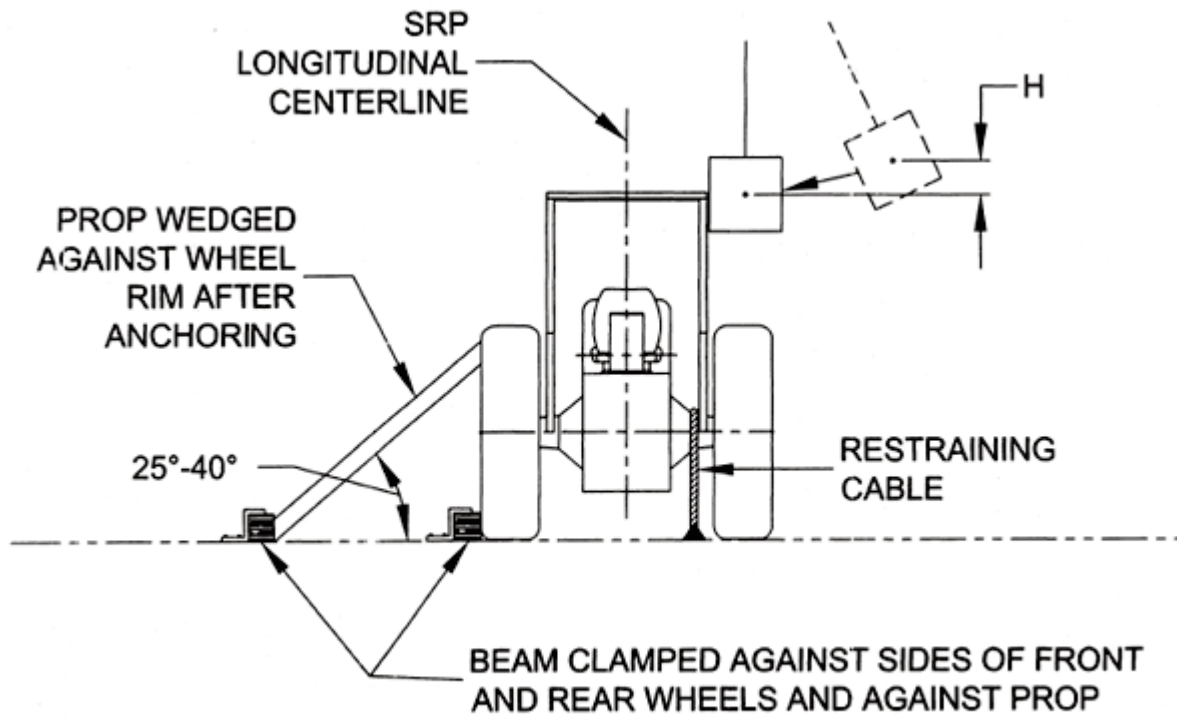


FIGURE C-9 - SIDE IMPACT APPLICATION.

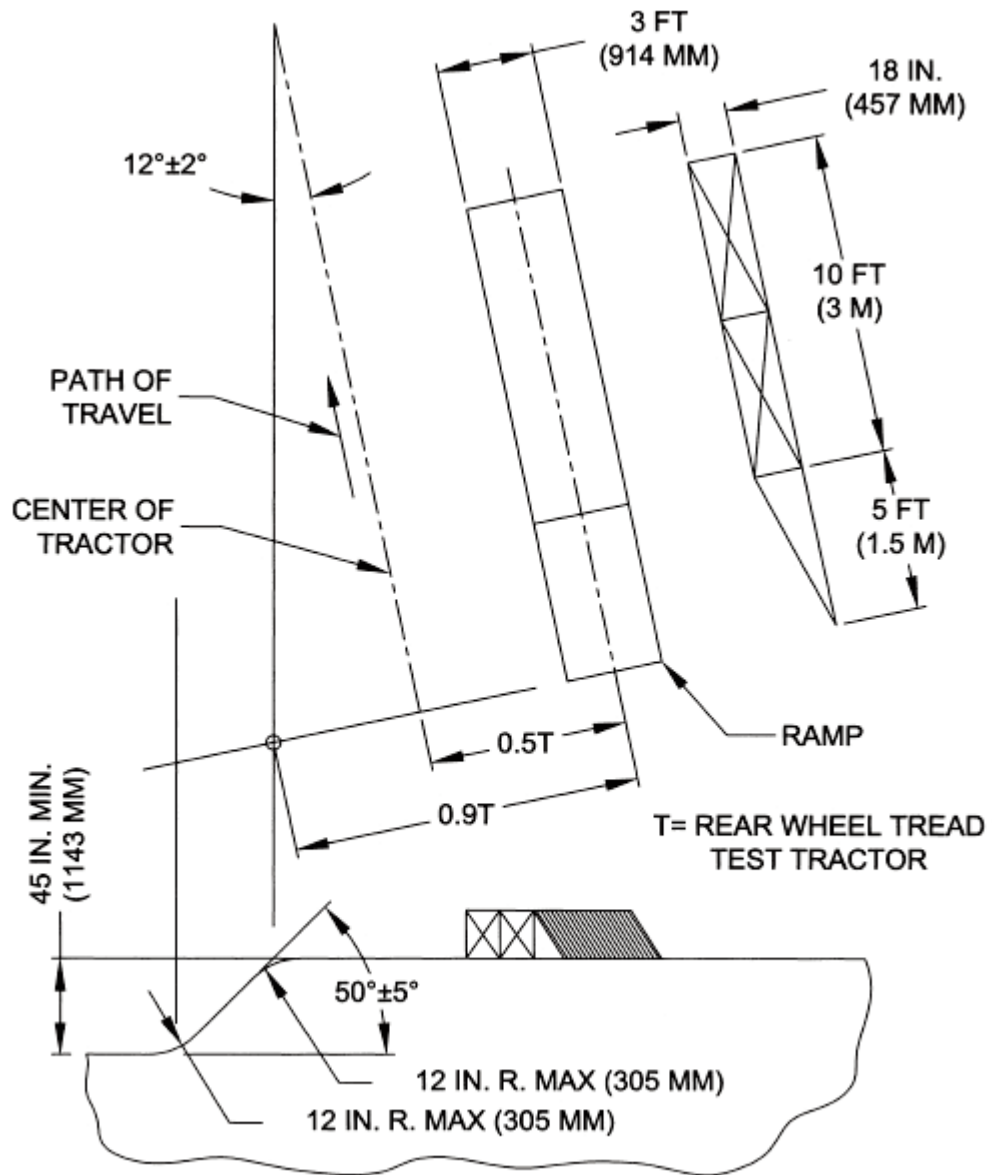


FIGURE C-10 - SIDE OVERTURN BANK AND RAMP.

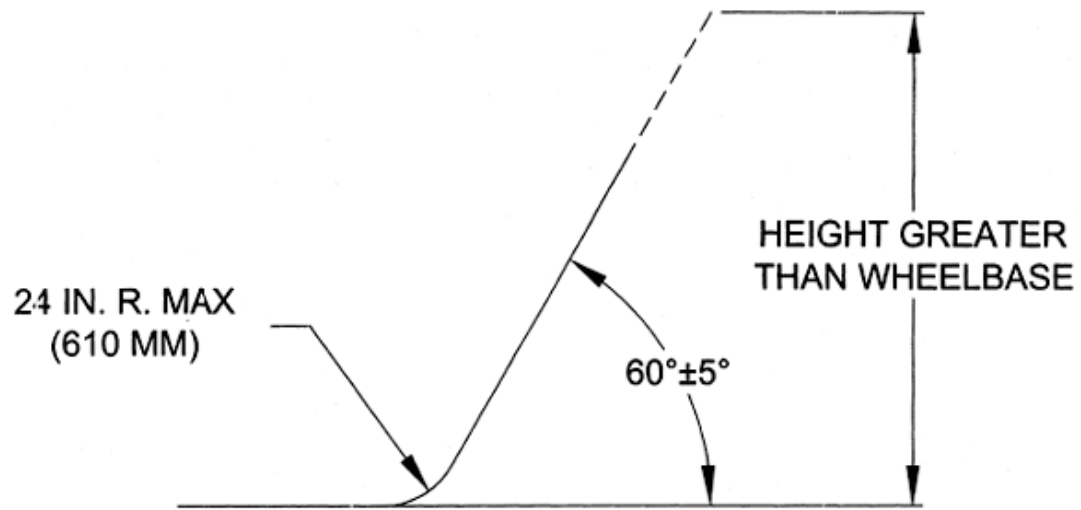


FIGURE C-11 - TYPICAL REAR OVERTURN BANK.

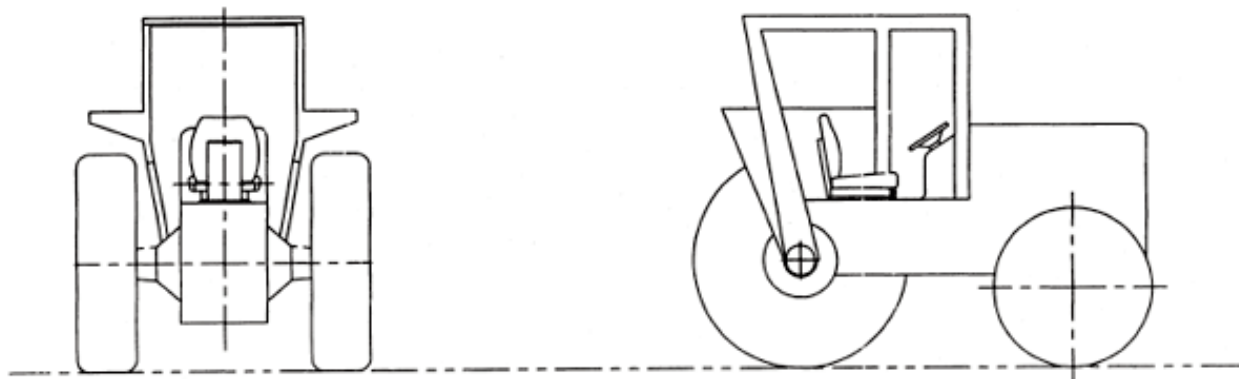


FIGURE C-12 - TRACTOR WITH TYPICAL PROTECTIVE ENCLOSURE.

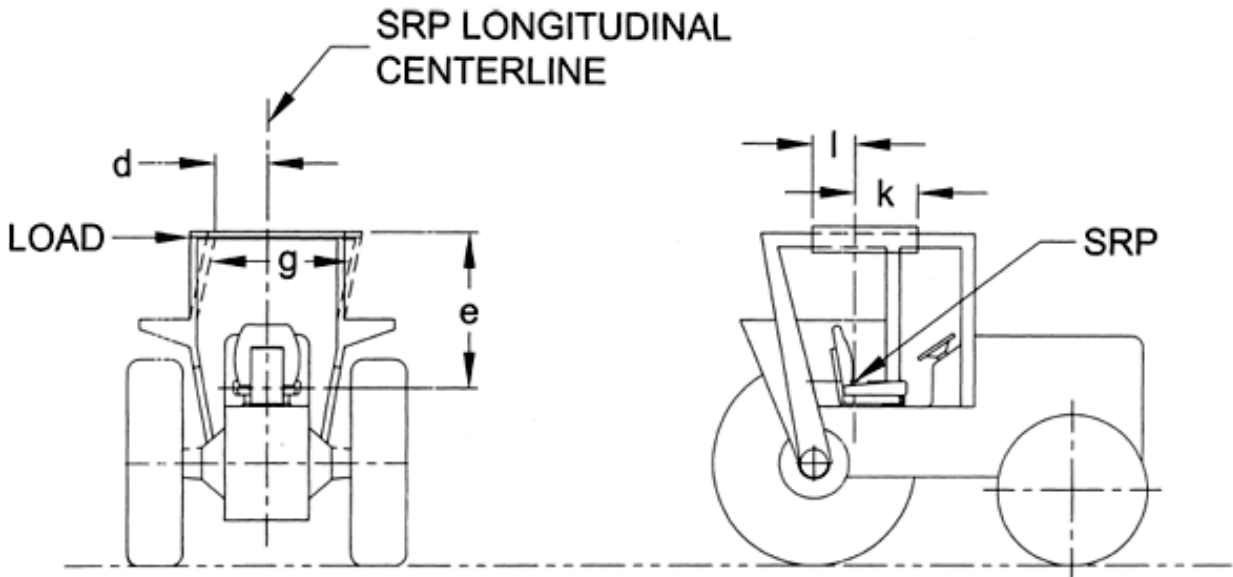


FIGURE C-13 - SIDE LOAD APPLICATION.

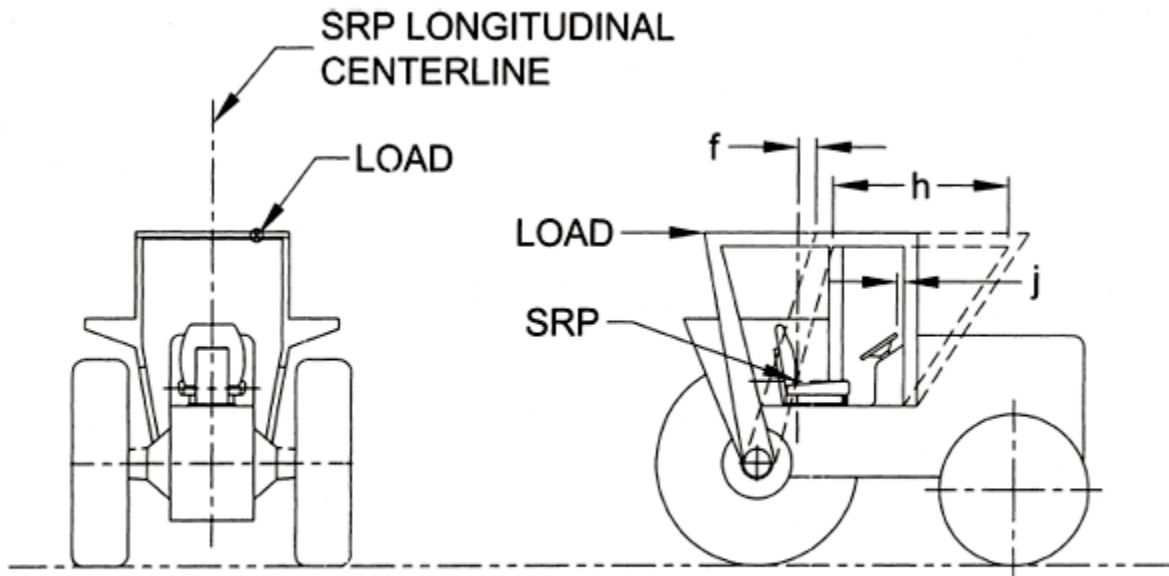


FIGURE C-14 - REAR LOAD APPLICATION.

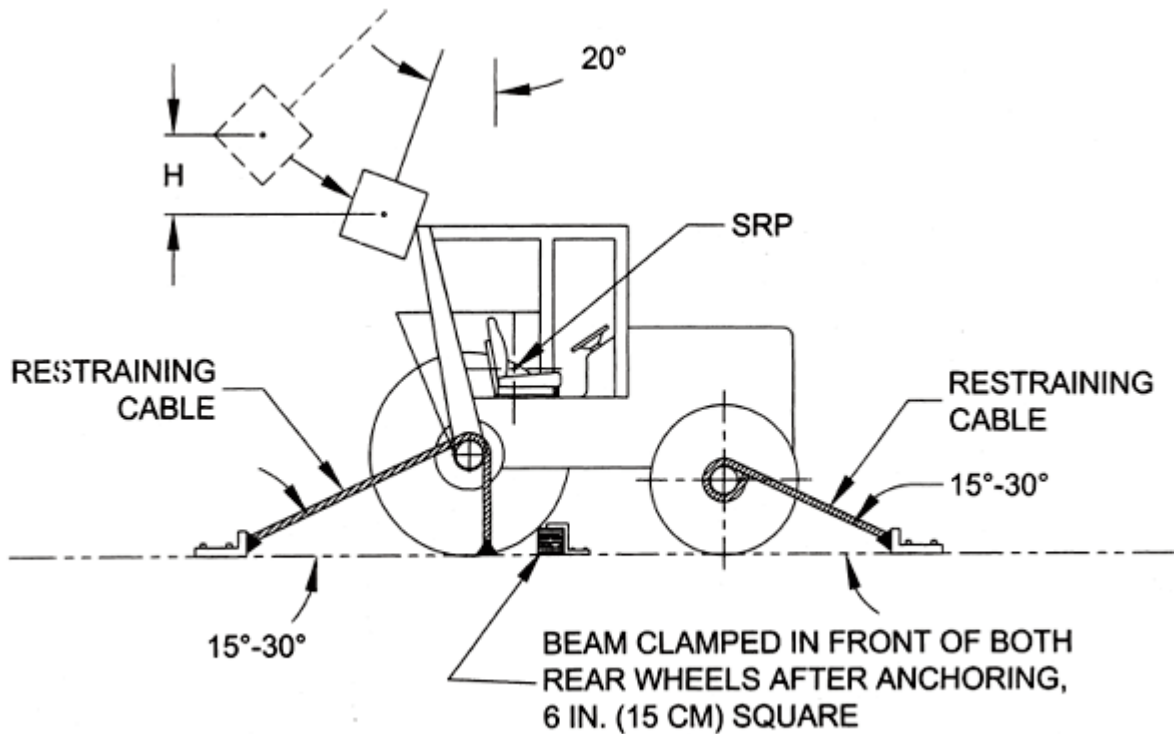


FIGURE C-15 - REAR IMPACT APPLICATION.

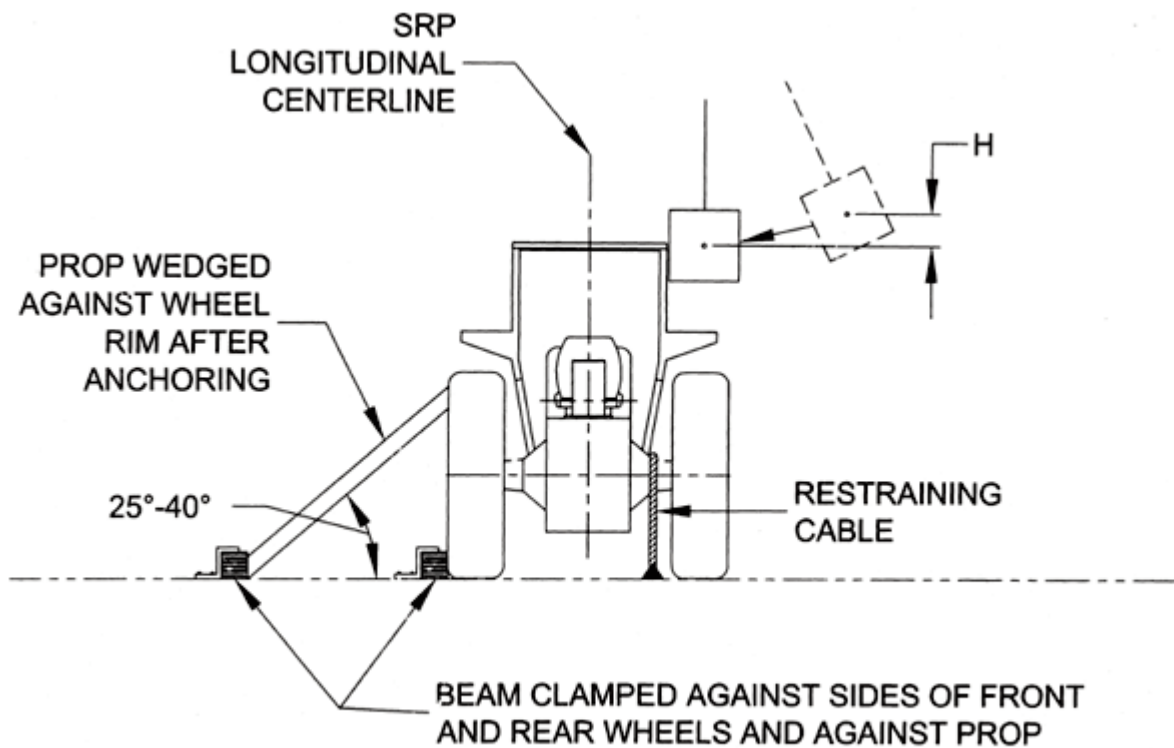


FIGURE C-16 - SIDE IMPACT APPLICATION.

Subpart D—Safety for Agricultural Equipment

1928.57 Guarding of farm field equipment, farmstead equipment, and cotton gins.

1928.57(a) General—

(a)(1) Purpose. The purpose of this section is to provide for the protection of employees from the hazards associated with moving machinery parts of farm field equipment, farmstead equipment, and cotton gins used in any agricultural operation.

(a)(2) Scope. Paragraph (a) of this section contains general requirements which apply to all covered equipment. In addition, paragraph (b) of this section applies to farm field equipment, paragraph (c) of this section applies to farmstead equipment, and paragraph (d) of this section applies to cotton gins.

(a)(3) Application. This section applies to all farm field equipment, farmstead equipment, and cotton gins, except that paragraphs (b)(2), (b)(3), and (b)(4) (ii)(A), and (c)(2), (c)(3), and (c)(4) (ii)(A) do not apply to equipment manufactured before October 25, 1976.

(a)(4) Effective date. This section takes effect on October 25, 1976, except that paragraph (d) of this section is effective on June 30, 1977.

(a)(5) Definitions—

“Cotton gins” are systems of machines which condition seed cotton, separate lint from seed, convey materials, and package lint cotton.

“Farm field equipment” means tractors or implements, including self-propelled implements, or any combination thereof used in agricultural operations.

“Farmstead equipment” means agricultural equipment normally used in a stationary manner. This includes, but is not limited to, materials handling equipment and accessories for such equipment whether or not the equipment is an integral part of a building.

“Ground driven components” are components which are powered by the turning motion of a wheel as the equipment travels over the ground.

A “guard” or “shield” is a barrier designed to protect against employee contact with a hazard created by a moving machinery part.

“Power take-off shafts” are the shafts and knuckles between the tractor, or other power source, and the first gear set, pulley, sprocket, or other components on power take-off shaft driven equipment.

(a)(6) Operating instructions. At the time of initial assignment and at least annually thereafter, the employer shall instruct every employee in the safe operation and servicing of all covered equipment with which he is or will be involved, including at least the following safe operating practices:

(a)(6)(i) Keep all guards in place when the machine is in operation;

(a)(6)(ii) Permit no riders on farm field equipment other than persons required for instruction or assistance in machine operation;

(a)(6)(iii) Stop engine, disconnect the power source, and wait for all machine movement to stop before servicing, adjusting, cleaning, or unclogging the equipment, except where the machine must be running to be properly serviced or maintained, in which case the employer shall instruct employees as to all steps and procedures which are necessary to safely service or maintain the equipment;

(a)(6)(iv) Make sure everyone is clear of machinery before starting the engine, engaging power, or operating the machine;

(a)(6)(v) Lock out electrical power before performing maintenance or service on farmstead equipment.

(a)(7) Methods of guarding. Except as otherwise provided in this subpart, each employer shall protect employees from coming into contact with hazards created by moving machinery parts as follows:

(a)(7)(i) Through the installation and use of a guard or shield or guarding by location;

(a)(7)(ii) Whenever a guard or shield or guarding by location is infeasible, by using a guardrail or fence.

(a)(8) Strength and design of guards.

(a)(8)(i) Where guards are used to provide the protection required by this section, they shall be designed and located to protect against inadvertent contact with the hazard being guarded.

(a)(8)(ii) Unless otherwise specified, each guard and its supports shall be capable of withstanding the force that a 250 pound individual, leaning on or falling against the guard, would exert upon that guard.

(a)(8)(iii) Guards shall be free from burrs, sharp edges, and sharp corners, and shall be securely fastened to the equipment or building.

(a)(9) Guarding by location. A component is guarded by location during operation, maintenance, or servicing when, because of its location, no employee can inadvertently come in contact with the hazard during such operation, maintenance, or servicing. Where the employer can show that any exposure to hazards results from employee conduct which constitutes an isolated and unforeseeable event, the component shall also be considered guarded by location.

(a)(10) Guarding by railings. Guardrails or fences shall be capable of protecting against employees inadvertently entering the hazardous area.

(a)(11) Servicing and maintenance. Whenever a moving machinery part presents a hazard during servicing or maintenance, the engine shall be stopped, the power source disconnected, and all machine movement stopped before servicing or maintenance is performed, except where the employer can establish that:

(a)(11)(i) The equipment must be running to be properly serviced or maintained;

(a)(11)(ii) The equipment cannot be serviced or maintained while a guard or guards otherwise required by this standard are in place; and

(a)(11)(iii) The servicing or maintenance can be safely performed.

1928.57(b) Farm field equipment—

(b)(1) Power take-off guarding.

(b)(1)(i) All power take-off shafts, including rear, mid- or side-mounted shafts, shall be guarded either by a master shield, as provided in paragraph (b)(1)(ii) of this section, or by other protective guarding.

(b)(1)(ii) All tractors shall be equipped with an agricultural tractor master shield on the rear power take-off except where removal of the tractor master shield is permitted by paragraph (b)(1)(iii) of this section. The master shield shall have sufficient strength to prevent permanent deformation of the shield when a 250 pound operator mounts or dismounts the tractor using the shield as a step.

(b)(1)(iii) Power take-off driven equipment shall be guarded to protect against employee contact with positively driven rotating members of the power drive system. Where power take-off driven equipment is of a design requiring removal of the tractor master shield, the equipment shall also include protection from that portion of the tractor power take-off shaft which protrudes from the tractor.

(b)(1)(iv) Signs shall be placed at prominent locations on tractors and power take-off driven equipment specifying that power drive system safety shields must be kept in place.

(b)(2) Other power transmission components.

(b)(2)(i) The mesh or nip-points of all power driven gears, belts, chains, sheaves, pulleys, sprockets, and idlers shall be guarded.

(b)(2)(ii) All revolving shafts, including projections such as bolts, keys, or set screws, shall be guarded, except smooth shaft ends protruding less than one-half the outside diameter of the shaft and its locking means.

(b)(2)(iii) Ground driven components shall be guarded in accordance with paragraphs (b)(2)(i) and (b)(2)(ii) of this section if any employee may be exposed to them while the drives are in motion.

(b)(3) Functional components. Functional components, such as snapping or husking rolls, straw spreaders and choppers, cutterbars, flail rotors, rotary beaters, mixing augers, feed rolls, conveying augers, rotary tillers, and similar units,

which must be exposed for proper function, shall be guarded to the fullest extent which will not substantially interfere with normal functioning of the component.

(b)(4) Access to moving parts.

(b)(4)(i) Guards, shields, and access doors shall be in place when the equipment is in operation.

(b)(4)(ii) Where removal of a guard or access door will expose an employee to any component which continues to rotate after the power is disengaged, the employer shall provide, in the immediate area, the following:

(b)(4)(ii)(A) A readily visible or audible warning of rotation; and

(b)(4)(ii)(B) A safety sign warning the employee to:

(b)(4)(ii)(B)(1) Look and listen for evidence of rotation; and

(b)(4)(ii)(B)(2) Not remove the guard or access door until all components have stopped.

1928.57(c) Farmstead equipment—

(c)(1) Power take-off guarding.

(c)(1)(i) All power take-off shafts, including rear, mid-, or side-mounted shafts, shall be guarded either by a master shield as provided in paragraph (b)(1)(ii) of this section or other protective guarding.

(c)(1)(ii) Power take-off driven equipment shall be guarded to protect against employee contact with positively driven rotating members of the power drive system. Where power take-off driven equipment is of a design requiring removal of the tractor master shield, the equipment shall also include protection from that portion of the tractor power take-off shaft which protrudes from the tractor.

(c)(1)(iii) Signs shall be placed at prominent locations on power take-off driven equipment specifying that power drive system safety shields must be kept in place.

(c)(2) Other power transmission components.

(c)(2)(i) The mesh or nip-points of all power driven gears, belts, chains, sheaves, pulleys, sprockets, and idlers shall be guarded.

(c)(2)(ii) All revolving shafts, including projections such as bolts, keys, or set screws, shall be guarded, with the exception of:

(c)(2)(ii)(A) Smooth shafts and shaft ends (without any projecting bolts, keys or set screws), revolving at less than 10 rpm, on feed handling equipment used on the top surface of materials in bulk storage facilities; and

(c)(2)(ii)(B) Smooth shaft ends protruding less than one-half the outside diameter of the shaft and its locking means.

(c)(3) Functional components.

(c)(3)(i) Functional components, such as choppers, rotary beaters, mixing augers, feed rolls, conveying augers, grain spreaders, stirring augers, sweep augers, and feed augers, which must be exposed for proper function, shall be guarded to the fullest extent which will not substantially interfere with the normal functioning of the component.

(c)(3)(ii) Sweep arm material gathering mechanisms used on the top surface of materials within silo structures shall be guarded. The lower or leading edge of the guard shall be located no more than 12 inches above the material surface and no less than 6 inches in front of the leading edge of the rotating member of the gathering mechanism. The guard shall be parallel to, and extend the fullest practical length of, the material gathering mechanism.

(c)(3)(iii) Exposed auger flighting on portable grain augers shall be guarded with either grating type guards or solid baffle style covers as follows:

(c)(3)(iii)(A) The largest dimensions or openings in grating type guards through which materials are required to flow shall be $4\frac{3}{4}$ inches. The area of each opening shall be no larger than 10 square inches. The opening shall be located no closer to the rotating flighting than $2\frac{1}{2}$ inches.

(c)(3)(iii)(B) Slotted openings in solid baffle style covers shall be no wider than $1\frac{1}{2}$ inches, or closer than $3\frac{1}{2}$ inches to the exposed flighting.

(c)(4) Access to moving parts.

(c)(4)(i) Guards, shields, and access doors shall be in place when the equipment is in operation.

(c)(4)(ii) Where removal of a guard or access door will expose an employee to any component which continues to rotate after the power is disengaged, the employer shall provide, in the immediate area, the following:

(c)(4)(ii)(A) A readily visible or audible warning of rotation; and

(c)(4)(ii)(B) A safety sign warning the employee to:

(c)(4)(ii)(B)(1) Look and listen for evidence of rotation; and

(c)(4)(ii)(B)(2) Not remove the guard or access door until all components have stopped.

(c)(5) Electrical disconnect means.

(c)(5)(i) Application of electrical power from a location not under the immediate and exclusive control of the employee or employees maintaining or servicing equipment shall be prevented by:

(c)(5)(i)(A) Providing an exclusive, positive locking means on the main switch which can be operated only by the employee or employees performing the maintenance or servicing; or

(c)(5)(i)(B) In the case of material handling equipment located in a bulk storage structure, by physically locating on the equipment an electrical or mechanical means to disconnect the power.

(c)(5)(ii) All circuit protection devices, including those which are an integral part of a motor, shall be of the manual reset type, except where:

(c)(5)(ii)(A) The employer can establish that because of the nature of the operation, distances involved, and the count of time normally spent by employees in the area of the affected equipment, use of the manual reset device would be infeasible;

(c)(5)(ii)(B) There is an electrical disconnect switch available to the employee within 15 feet of the equipment upon which maintenance or service is being performed; and

(c)(5)(ii)(C) A sign is prominently posted near each hazardous component which warns the employee that, unless the electrical disconnect switch is utilized, the motor could automatically reset while the employee is working on the hazardous component.

1928.57(d) Cotton ginning equipment—

(d)(1) Power transmission components.

(d)(1)(i) The main drive and miscellaneous drives of gin stands shall be completely enclosed, guarded by location, or guarded by railings (consistent with the requirements of paragraph (a)(7) of this section). Drives between gin stands shall be guarded so as to prevent access to the area between machines.

(d)(1)(ii) When guarded by railings, any hazardous component within 15 horizontal inches of the rail shall be completely enclosed. Railing height shall be approximately 42 inches off the floor, platform, or other working surface, with a midrail between the top-rail and the working surface. Panels made of materials conforming to the requirements in Table D-1, or equivalent, may be substituted for midrails. Guardrails shall be strong enough to withstand at least 200 pounds force on the top-rail.

(d)(1)(iii) Belts guarded by railings shall be inspected for defects at least daily. The machinery shall not be operated until all defective belts are replaced.

Table D-1 Examples of Minimum Requirements for Guard Panel Materials

Material	Clearance from moving part at all points (in inches)	Largest mesh or opening allowable (in inches)	Minimum gage (U.S. standard) or thickness
Woven wire	Under 2	$\frac{3}{8}$	16
	2 to 4	$\frac{1}{2}$	16
	4 to 15	2	12
Expanded Metal	Under 4	$\frac{1}{2}$	18
	4 to 15	2	13
Perforated Metal	Under 4	$\frac{1}{2}$	20
	4 to 15	2	14
Sheet Metal	Under 4		22
	4 to 15		22
Plastic	Under 4		(1)
	4 to 15		(1)

Footnote(1): Tensile strength of 10,000 lb./in(2)

(d)(1)(iv) Pulleys of V-belt drives shall be completely enclosed or guarded by location whether or not railings are present. The open end of the pulley guard shall be not less than 4 inches from the periphery of the pulleys.

(d)(1)(v) Chains and sprockets shall be completely enclosed, except that they may be guarded by location if the bearings are packed or if accessible extension lubrication fittings are used.

(d)(1)(vi) Where complete enclosure of a component is likely to cause a fire hazard due to excessive deposits of lint, only the face section of nip-point and pulley guards is required. The guard shall extend at least 6 inches beyond the rim of the pulley on the in-running and off-running sides of the belt, and at least 2 inches from the rim and face of the pulley in all other directions.

(d)(1)(vii) Projecting shaft ends not guarded by location shall present a smooth edge and end, shall be guarded by non-rotating caps or safety sleeves, and may not protrude more than one-half the outside diameter of the shaft.

(d)(1)(viii) In power plants and power development rooms where access is limited to authorized personnel, guard railings may be used in place of guards or guarding by location. Authorized employees having access to power plants and power development rooms shall be instructed in the safe operation and maintenance of the equipment in accordance with paragraph (a)(6) of this section.

(d)(2) Functional components.

(d)(2)(i) Gin stands shall be provided with a permanently installed guard designed to preclude contact with the gin saws while in motion. The saw blades in the roll box shall be considered guarded by location if they do not extend through the ginning ribs into the roll box when the breast is in the out position.

(d)(2)(ii) Moving saws on lint cleaners which have doors giving access to the saws shall be guarded by fixed barrier guards or their equivalent which prevent direct finger or hand contact with the saws while the saws are in motion.

(d)(2)(iii) An interlock shall be installed on all balers so that the upper gates cannot be opened while the tramper is operating.

(d)(2)(iv) Top panels of burr extractors shall be hinged and equipped with a sturdy positive latch.

(d)(2)(v) All accessible screw conveyors shall be guarded by substantial covers or gratings, or with an inverted horizontally slotted guard of the trough type, which will prevent employees from coming into contact with the screw conveyor. Such guards may consist of horizontal bars spaced so as to allow material to be fed into the conveyor, and supported by arches which are not more than 8 feet apart. Screw conveyors under gin stands shall be considered guarded by location.

(d)(3) Warning device. A warning device shall be installed in all gins to provide an audible signal which will indicate to employees that any or all of the machines comprising the gin are about to be started. The signal shall be of sufficient volume to be heard by employees, and shall be sounded each time before starting the gin.

Subpart I—General Environmental Controls

1928.110 Field Sanitation.

1928.110(a) Scope. This section shall apply to any agricultural establishment where eleven (11) or more employees are engaged on any given day in hand-labor operations in the field.

1928.110(b) Definitions.

Agricultural employer means any person, corporation, association, or other legal entity that:

- [i] Owns or operates an agricultural establishment;
- [ii] Contracts with the owner or operator of an agricultural establishment in advance of production for the purchase of a crop and exercises substantial control over production; or
- [iii] Recruits and supervises employees or is responsible for the management an condition of an agricultural establishment.

Agricultural establishment is a business operation that uses paid employees in the production of food, fiber, or other materials such as seed, seedlings, plants, or parts of plants.

Hand-labor operations means agricultural activities or agricultural operations performed by hand or with hand tools. Except for purposes of paragraph (c)(2)(iii) of this section, “hand labor operations” also include other activities or operations performed in conjunction with hand labor in the field. Some examples of “hand labor operations” are the hand-cultivation, hand-weeding, hand-planting and hand-harvesting of vegetables, nuts, fruits, seedlings or other crops, including mushrooms, and the hand packing of produce into containers, whether done on the ground, on a moving machine or in a temporary packing shed located in the field. “Hand-labor” does not include such activities as logging operations, the care or feeding of livestock, or hand-labor operations in permanent structures (e.g., canning facilities or packing houses).

Handwashing facility means a facility providing either a basin, container, or outlet with an adequate supply of potable water, soap and single-use towels.

Potable water means water that meets the standards for drinking purposes of the State or local authority having jurisdiction, or water that meets the quality standards prescribed by the U.S. Environmental Protection Agency’s National Primary Drinking Water Regulations (40 CFR part 141).

Toilet facility means a fixed or portable facility designed for the purpose of adequate collection and containment of the products of both defecation and urination which is applied with toilet paper adequate to employee needs. Toilet facility includes biological, chemical, flush and combustion toilets and sanitary privies.

1928.110(c) Requirements. Agricultural employers shall provide the following for employees engaged in hand-labor operations in the field, without cost to the employee:

(c)(1) Potable drinking water.

(c)(1)(i) Potable water shall be provided and placed in locations readily accessible to all employees.

(c)(1)(ii) The water shall be suitably cool and in sufficient amounts, taking into account the air temperature, humidity and the nature of the work performed, to meet the needs of all employees.

(c)(1)(iii) The water shall be dispensed in single-use drinking cups or by fountains. The use of common drinking cups or dippers is prohibited.

(c)(2) Toilet and handwashing facilities.

(c)(2)(i) One toilet facility and one handwashing facility shall be provided for each (20) employees or fraction thereof, except as stated in paragraph (c)(2)(v) of this section.

(c)(2)(ii) Toilet facilities shall be adequately ventilated, appropriately screened, have self-closing doors that can be closed and latched from the inside and shall be constructed to insure privacy.

(c)(2)(iii) Toilet and handwashing facilities shall be accessibly located an in close proximity to each other. The facilities shall be located within a one-quarter-mile walk of each hand laborer’s place of work in the field.

(c)(2)(iv) Where due to terrain it is not feasible to locate facilities as required above, the facilities shall be located at the point closest vehicular access.

(c)(2)(v) Toilet and handwashing facilities are not required for employees who perform field work for a period of three (3) hours or less (including transportation time to and from the field) during the day.

(c)(3) Maintenance. Potable drinking water and toilet and handwashing facilities shall be maintained in accordance with appropriate public health sanitation practices, including the following:

(c)(3)(i) Drinking water containers shall be constructed of materials that maintain water quality, shall be refilled daily or more often as necessary, shall be kept covered and shall be regularly cleaned.

(c)(3)(ii) Toilet facilities shall be operational and maintained in clean and sanitary condition.

(c)(3)(iii) Handwashing facilities shall be refilled with potable water as necessary to ensure an adequate supply and shall be maintained in a clean and sanitary condition; and

(c)(3)(iv) Disposal of wastes from facilities shall not cause unsanitary conditions.

(c)(4) Reasonable use. The employer shall notify each employee of the location of the sanitation facilities and water and shall allow each employee reasonable opportunities during the workday to use them. The employer also shall inform each employee of the importance of each of the following good hygiene practices to minimize exposure to the hazards in the field of heat, communicable diseases, retention of urine and agrichemical residues.

(c)(4)(i) Use the water and facilities provided for drinking, handwashing and elimination.

(c)(4)(ii) Drink water frequently and especially on hot days;

(c)(4)(iii) Urinate as frequently as necessary;

(c)(4)(iv) Wash hands both before and after using the toilet; and

(c)(4)(v) Wash hands before eating and smoking.

1928.110(d) Dates—

(d)(1) Effective Date. This standard shall take effect on May 30, 1987.

(d)(2) Startup Dates. Employers must comply with the requirements of paragraphs:

(d)(2)(i) Paragraph (c)(1), to provide potable drinking water, by May 30, 1987;

(d)(2)(ii) Paragraph (c)(2), to provide handwashing and toilet facilities, by July 30, 1987;

(d)(2)(iii) Paragraph (c)(3), to provide maintenance for toilet and handwashing facilities, by July 30, 1987; and

(d)(2)(iv) Paragraph (c)(4), to assure reasonable use, by July 30, 1987.

Recordkeeping Introduction

Maintaining Good Records: The 300 Log and the Purpose of Recordkeeping

Agricultural producers need to maintain good records. You keep records for machinery, records for labor, records for chemicals, records for taxes. You need to have good records of expenses, receipts of payments, financial statements from banks.

Most farmers have a system set up. How the system looks is very individual—some do it on a computer, some with a pencil and paper. Whatever you've chosen, you should follow it rigorously every time a record is to be entered into a computer or a ledger. Keep your records in an order where you are easily able to reference them or use them to review. The payroll needs to be in a specific order, such an order that will make it easier for you to review it if an employee of yours comes up to you asking for a raise or maybe a copy of his or her W-2. You should not only be concerned with your taxes but also theirs.

The OSHA 300 Log is used to classify work-related injuries and illnesses and to note the extent and severity of each case. If you employed 10 or fewer employees at all times during the previous year, you do not need to keep OSH injury and illness records. When an accident or injury occurs, the form is used to record specific details about what happened and how it happened. The summary—a separate form (otherwise known as the Form 300A)—shows the totals for the year in each category. At the end of the year, covered employers must post the summary in a visible location so that employees are aware of the injuries and illnesses occurring in their workplace. Employers must keep an OSHA log for each establishment or site. Companies with multiple locations must keep a separate log and summary for each physical location that is expected to be in operation for one year or longer.

OSHA's Form 300A (Rev. 01/2004)

Summary of Work-Related Injuries and Illnesses

Year 20__

U.S. Department of Labor
Occupational Safety and Health Administration

Form approved OMB no. 1218-0176

All establishments covered by Part 1904 must complete this Summary page, even if no work-related injuries or illnesses occurred during the year. Remember to review the Log to verify that the entries are complete and accurate before completing this summary.

Using the Log, count the individual entries you made for each category. Then write the totals below, making sure you've added the entries from every page of the Log. If you had no cases, write "0."

Employees, former employees, and their representatives have the right to review the OSHA Form 300 in its entirety. They also have limited access to the OSHA Form 301 or its equivalent. See 29 CFR Part 1904.35, in OSHA's recordkeeping rule, for further details on the access provisions for these forms.

Number of Cases			
Total number of deaths	Total number of cases with days away from work	Total number of cases with job transfer or restriction	Total number of other recordable cases
(G)	(H)	(I)	(J)

Number of Days	
Total number of days away from work	Total number of days of job transfer or restriction
(K)	(L)

Injury and Illness Types			
Total number of . . . (M)			
(1) Injuries	(4) Poisonings	(2) Skin disorders	(5) Hearing loss
(3) Respiratory conditions	(6) All other illnesses		

Post this Summary page from February 1 to April 30 of the year following the year covered by the form.

Public reporting burden for this collection of information is estimated to average 50 minutes per response, including time to review the instructions, search and gather the data needed, and complete and review the collection of information. Persons are not required to respond to the collection of information unless it displays a currently valid OMB control number. If you have any comments about these estimates or any other aspects of this data collection, contact: US Department of Labor, OSHA Office of Statistical Analysis, Room N-3644, 200 Constitution Avenue, NW, Washington, DC 20210. Do not send the completed forms to this office.

Establishment information

Your establishment name _____

Street _____

City _____ State _____ ZIP _____

Industry description (e.g., *Manufacture of motor truck trailers*) _____

Standard Industrial Classification (SIC), if known (e.g., 3715) _____

OR

North American Industrial Classification (NAICS), if known (e.g., 336212) _____

Employment information (If you don't have these figures, see the Worksheet on the back of this page to estimate.)

Annual average number of employees _____

Total hours worked by all employees last year _____

Sign here

Knowingly falsifying this document may result in a fine.

I certify that I have examined this document and that to the best of my knowledge the entries are true, accurate, and complete.

Company executive Title

(/ /) - / /
Please Date

What is recordable under OSHA's Recordkeeping Regulation?

- Covered employers must record all work-related fatalities.
- Covered employers must record all work-related injuries and illnesses that result in days away from work, restricted work or transfer to another job, loss of consciousness, or medical treatment beyond first aid (see below for definitions)

- In addition, employers must record significant work-related injury or illness diagnoses by a physician or other licensed health care professional, even if it does not result in death, days away from work, restricted work or job transfer, medical treatment beyond first aid, or loss of consciousness.
- Injuries include cases such as, but not limited to, a cut, fracture, sprain or amputation.
- Illnesses include both acute and chronic illnesses, such as, but not limited to, a skin disease (such as contact dermatitis), respiratory disorder (such as occupational asthma, pneumoconiosis), or poisoning (such as lead poisoning or solvent intoxication).
- OSHA's definition of work-related injuries, illnesses and fatalities are those in which an event or exposure in the work environment either caused or contributed to the condition. In addition, if an event or exposure in the work environment significantly aggravated a pre-existing injury or illness, this is also considered work-related.

What is first-aid for purposes of OSHA recordkeeping?

- Using a nonprescription medication at nonprescription strength (for medications available in both prescription and nonprescription form, a recommendation by a physician or other licensed health care professional to use a nonprescription medication at prescription strength is considered medical treatment for recordkeeping purposes).
- Administering tetanus immunizations (other immunizations, such as hepatitis B vaccine or rabies vaccine, are considered medical treatment).
- Cleaning, flushing or soaking wounds on the surface of the skin.
- Using wound coverings such as bandages, Band-Aids or gauze pads; or using butterfly bandages or Steri-Strips (other wound-closing devices such as sutures or staples are considered medical treatment).
- Using hot or cold therapy.
- Using any nonrigid means of support, such as elastic bandages, wraps or nonrigid back belts (devices with rigid stays or other systems designed to immobilize parts of the body are considered medical treatment for recordkeeping purposes).
- Using temporary immobilization devices while transporting an accident victim (such as splints, slings, neck collars or back boards).
- Drilling of a fingernail or toenail to relieve pressure or draining fluid from a blister.
- Using eye patches.
- Removing foreign bodies from the eye using only irrigation or a cotton swab.
- Removing splinters or foreign material from areas other than the eye by irrigation, tweezers, cotton swabs or other simple means.
- Using finger guards.
- Using massages (physical therapy or chiropractic treatment are considered medical treatment for recordkeeping purposes).
- Drinking fluids for relief of heat stress.

The importance of recordkeeping is a critical part in employer's safety and health efforts for a few reasons:

1. Keeping track of work-related injuries and illnesses will help you prevent them in the future.
2. Using injury and illness data identifies problem areas. The more you know, the better you can identify and correct hazardous workplace conditions.
3. Using accurate records, you will better administer safety and health.

As your awareness increases and improves, your employees' awareness about injuries, illnesses and hazards in the workplace also improves. You are more likely to create safe work practices, and workers are more likely to follow them and to report workplace hazards to you. Recognition of hazards will lead to prevention of injuries if sustained by a health and safety program.

The U.S. Bureau of Labor Statistics (BLS) uses injury and illness records as the source data for the Annual Survey of Occupational Injuries and Illnesses that shows safety and health trends nationwide and industry wide. The category "Agriculture, forestry, fishing and hunting" was one of only two private industry sectors to experience an increase in the rate of injuries and illnesses in 2011 compared to 2010, driven by increases in cases in both the crop production and animal production (primarily dairy cattle and milk production) industries. (<http://www.bls.gov/news.release/osh.nr0.htm>)

Are agricultural employers required to maintain records of injuries and illness that occur on the farm?

If you employed 10 or fewer employees at all times during the previous year, you do not need to keep OSH injury and illness records. Regardless of the number of employees, you must report any workplace incidents that result in a fatality, the in-patient hospitalization of one or more employees, an amputation, or any loss of an eye.

How do I report workplace deaths or workplace incidents that results in in-patient hospitalization of one or more employees, an amputation, or any loss of an eye and is there a time limit

You must report workplace deaths within eight hours by calling the OSH Division at 1-800-625-2267 or 919-779-8560 during working hours (weekdays, 8 a.m. to 5 p.m.). After working hours (5 p.m. to 8 a.m.), weekends or holidays, call State Capitol Police at 919-733-3333. You must report workplace incidents that result in in-patient hospitalization of one or more employees, an amputation, or any loss of an eye within 24 hours by calling the OSH Division at 1-800-625-2267 or 919-779-8560. For any incidents resulting in the hospitalization of two or more employees after working hours, weekends or holidays, call the State Capitol Police at 919-733-3333.

If I am subject to the recording requirements, do I have to record every injury or illness that occurs on my farm?

No, you only need to record those injuries/illnesses that are work-related and meet the general recording criteria. An injury or illness involving death, days away from work, restricted work or transfer to another job, medical treatment beyond first aid, or loss of consciousness.

What about injuries that occur at the labor camp, are those recordable?

If the person was not engaged in a work activity, the injury would not be recordable. Note: Heart attacks resulting in death, regardless of whether they occur at the labor camp or on the farm, must be reported within eight hours.

Do I have to maintain injury and illness records for seasonal workers as well as year-round employees?

Yes, injury and illness records must be maintained for all employees.

What about migrant workers who work for a farm labor contractor (FLC)? Who maintains those records?

Agricultural employers who use the services of an FLC are often considered joint employers with the FLC. Joint employment means that an individual is employed by two or more persons at the same time. Where a joint employment relationship exists, each of the employers must ensure that the requirements of all applicable OSH standards are met. If either party fails to comply with the law, both parties may be held liable. Generally it is the host employer (farmer) who maintains the injury and illness records for all employees.

Are there specific forms that I must use to record injuries and illnesses?

Yes, you must use OSHA 300, 300A, and 301 forms or equivalent forms. The 300 form is called the Log of Work-Related Injuries and Illnesses, the 300-A is the Summary of Work-Related Injuries and Illnesses, and the 301 is called the Injury and Illness Incident Report. Many employers use an insurance form instead of the 301 Incident Report. This is fine as long as the insurance form includes all the information required on the 301.

Where do I get these forms?

You can download these forms at <http://www.nclabor.com/osha/etta/forms/2004forms.pdf> or call 919-807-2923 to request copies. If you maintain a labor camp, you can request copies from the inspector during your pre-occupancy inspection.

How long do I keep these forms?

You must save the forms for five years following the end of the calendar year that these records cover. **Note:** You must post a copy of the annual summary (300A) in a conspicuous place from Feb. 1 until April 30.

Do I have to provide government officials with access to these records?

Yes, when an authorized government representative asks for the records, you must provide copies of the records within four business hours.

29 CFR 1904 Recordkeeping

PART 1904—Recording and Reporting Occupational Injuries and Illnesses

Subpart A—Purpose

1904.0 Purpose

Subpart B—Scope

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1904.2 Partial exemption for establishments in certain industries.

1904.3 Keeping records for more than one agency.

1904 Subpart B App A—Partially Exempt Industries

Subpart C—Recordkeeping Forms and Recording Criteria

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1904.9 Recording criteria for cases involving medical removal under OSHA standards.

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1904.11 Recording criteria for work-related tuberculosis cases.

1904.12 [Removed]

1904.13 1904.28 [Reserved]

1904.29 Forms.

Subpart D—Other OSHA Injury and Illness Recordkeeping Requirements

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1904.43 Summary and posting of the 2001 data.

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1904.45 OMB control numbers under the Paperwork Reduction Act.

Subpart G—Definitions

1904.46 Definitions.

§1904.0 Purpose.

The purpose of this rule (Part 1904) is to require employers to record and report work-related fatalities, injuries and illnesses.

Note to §1904.0: Recording or reporting a work-related injury, illness, or fatality does not mean that the employer or employee was at fault, that an OSHA rule has been violated, or that the employee is eligible for workers' compensation or other benefits.

§1904.1 Partial exemption for employers with 10 or fewer employees.

1904.1(a) Basic requirement.

(a)(1) If your company had ten (10) or fewer employees at all times during the last calendar year, you do not need to keep OSHA injury and illness records unless OSHA or the BLS informs you in writing that you must keep records under § 1904.41 or § 1904.42. However, as required by § 1904.39, all employers covered by the OSH Act must report to OSHA any workplace incident that results in a fatality or the hospitalization of three or more employees.

(a)(2) If your company had more than ten (10) employees at any time during the last calendar year, you must keep OSHA injury and illness records unless your establishment is classified as a partially exempt industry under § 1904.2.

1904(b) Implementation.

(b)(1) *Is the partial exemption for size based on the size of my entire company or on the size of an individual business establishment?* The partial exemption for size is based on the number of employees in the entire company.

(b)(2) *How do I determine the size of my company to find out if I qualify for the partial exemption for size?* To determine if you are exempt because of size, you need to determine your company's peak employment during the last calendar year. If you had no more than 10 employees at any time in the last calendar year, your company qualifies for the partial exemption for size.

1904.2(a) Basic requirement.

(a)(1) If your business establishment is classified in a specific industry group listed in appendix A to this subpart, you do not need to keep OSHA injury and illness records unless the government asks you to keep the records under §§ 1904.41 or 1904.42. However, all employers must report to OSHA any workplace incident that results in an employee's fatality, inpatient hospitalization, amputation, or loss of an eye (see § 1904.39).

(a)(2) If one or more of your company's establishments are classified in a non-exempt industry, you must keep OSHA injury and illness records for all of such establishments unless your company is partially exempted because of size under § 1904.1.

1904.2(b) Implementation.

(b)(1) *Is the partial industry classification exemption based on the industry classification of my entire company or on the classification of individual business establishments operated by my company?* The partial industry classification exemption applies to individual business establishments. If a company has several business establishments engaged in different classes of business activities, some of the company's establishments may be required to keep records, while others may be partially exempt

(b)(2) *How do I determine the correct NAICS code for my company or for individual establishments?* You can determine your NAICS code by using one of three methods, or you may contact your nearest OSHA office or State agency for help in determining your NAICS code:

(b)(2)(i) You can use the search feature at the U.S. Census Bureau NAICS main Web page: <http://www.census.gov/eos/www/naics/>. In the search box for the most recent NAICS, enter a keyword that describes your kind of business. A list of primary business activities containing that keyword and the corresponding NAICS codes will appear. Choose the one that most closely corresponds to your primary business activity, or refine your search to obtain other choices

1904.2(b)(2)(ii) Rather than searching through a list of primary business activities, you may also view the most recent complete NAICS structure with codes and titles by clicking on the link for the most recent NAICS on the U.S. Census Bureau NAICS main Web page: <http://www.census.gov/eos/www/naics/>. Then click on the two-digit Sector code to see all the NAICS codes under that Sector. Then choose the six-digit code of your interest to see the corresponding definition, as well as cross-references and index items, when available.

1904.2(b)(2)(iii) If you know your old SIC code, you can also find the appropriate 2002 NAICS code by using the detailed conversion (concordance) between the 1987 SIC and 2002 NAICS available in Excel format for download at the “Concordances” link at the U.S. Census Bureau NAICS main Web page: <http://www.census.gov/eos/www/naics/>.

(b)(3) How do I determine the Standard Industrial Classification code for my company or for individual establishments? You determine your Standard Industrial Classification (SIC) code by using the Standard Industrial Classification Manual, Executive Office of the President, Office of Management and Budget. You may contact your nearest OSHA office or State agency for help in determining your SIC.

1904.3 If you create records to comply with another government agency’s injury and illness recordkeeping requirements, OSHA will consider those records as meeting OSHA’s Part 1904 recordkeeping requirements if OSHA accepts the other agency’s records under a memorandum of understanding with that agency, or if the other agency’s records contain the same information as this Part 1904 requires you to record. You may contact your nearest OSHA office or State agency for help in determining whether your records meet OSHA’s requirements.

Non-Mandatory Appendix A to Subpart B—Partially Exempt Industries

Employers are not required to keep OSHA injury and illness records for any establishment classified in the following North American Industry Classification System (NAICS) codes, unless they are asked in writing to do so by OSHA, the Bureau of Labor Statistics (BLS), or a state agency operating under the authority of OSHA or the BLS. All employers, including those partially exempted by reason of company size or industry classification, must report to OSHA any employee’s fatality, in-patient hospitalization, amputation, or loss of an eye (see § 1904.39).

NAICS Code	Industry	NAICS Code	Industry
4412	Other Motor Vehicle Dealers.	5122	Sound Recording Industries.
4431	Electronics and Appliance Stores.	5151	Radio and Television Broadcasting.
4461	Health and Personal Care Stores.	5172	Wireless Telecommunications Carriers (except Satellite).
4471	Gasoline Stations.		
4481	Clothing Stores.	5173	Telecommunications Resellers.
4482	Shoe Stores.	5179	Other Telecommunications.
4483	Jewelry, Luggage, and Leather Goods Stores.	5181	Internet Service Providers and Web Search Portals.
4511	Sporting Goods, Hobby, and Musical Instrument Stores.		
4512	Book, Periodical, and Music Stores.	5182	Data Processing, Hosting, and Related Services.
4531	Florists.	5191	Other Information Services.
4532	Office Supplies, Stationery, and Gift Stores.	5211	Monetary Authorities—Central Bank.
4812	Nonscheduled Air Transportation.	5221	Depository Credit Intermediation.
4861	Pipeline Transportation of Crude Oil.	5222	Nondepository Credit Intermediation.
4862	Pipeline Transportation of Natural Gas.	5223	Activities Related to Credit Intermediation.
4869	Other Pipeline Transportation.	5231	Securities and Commodity Contracts Intermediation and Brokerage.
4879	Scenic and Sightseeing Transportation, Other.		
4885	Freight Transportation Arrangement.	5232	Securities and Commodity Exchanges.
5111	Newspaper, Periodical, Book, and Directory Publishers.	5239	Other Financial Investment Activities.
		5241	Insurance Carriers.
5112	Software Publishers.	5242	Agencies, Brokerages, and Other Insurance Related Activities.
5121	Motion Picture and Video Industries.	5251	Insurance and Employee Benefit Funds.

continued on next page

NAICS Code	Industry	NAICS Code	Industry
5259	Other Investment Pools and Funds.	6116	Other Schools and Instruction.
5312	Offices of Real Estate Agents and Brokers.	6117	Educational Support Services.
5331	Lessors of Nonfinancial Intangible Assets (except Copyrighted Works).	6211	Offices of Physicians.
5411	Legal Services.	6212	Offices of Dentists.
5412	Accounting, Tax Preparation, Bookkeeping, and Payroll Services.	6213	Offices of Other Health Practitioners.
5413	Architectural, Engineering, and Related Services.	6214	Outpatient Care Centers.
5414	Specialized Design Services.	6215	Medical and Diagnostic Laboratories.
5415	Computer Systems Design and Related Services	6244	Child Day Care Services.
5416	Management, Scientific, and Technical Consulting Services.	7114	Agents and Managers for Artists, Athletes, Entertainers, and Other Public Figures.
5417	Scientific Research and Development Services.	7115	Independent Artists, Writers, and Performers.
5418	Advertising and Related Services.	7213	Rooming and Boarding Houses.
5511	Management of Companies and Enterprises.	7221	Full-Service Restaurants.
5611	Office Administrative Services.	7222	Limited-Service Eating Places.
5614	Business Support Services.	7224	Drinking Places (Alcoholic Beverages).
5615	Travel Arrangement and Reservation Services.	8112	Electronic and Precision Equipment Repair and Maintenance.
5616	Investigation and Security Services.	8114	Personal and Household Goods Repair and Maintenance.
6111	Elementary and Secondary Schools.	8121	Personal Care Services.
6112	Junior Colleges.	8122	Death Care Services.
6113	Colleges, Universities, and Professional Schools.	8131	Religious Organizations.
6114	Business Schools and Computer and Management Training.	8132	Grantmaking and Giving Services.
6115	Technical and Trade Schools.	8133	Social Advocacy Organizations.
		8134	Civic and Social Organizations.
		8139	Business, Professional, Labor, Political, and Similar Organizations

Note to Subpart C: This Subpart describes the work-related injuries and illnesses that an employer must enter into the OSHA records and explains the OSHA forms that employers must use to record work-related fatalities, injuries, and illnesses.

1904.4(a) Basic requirement. Each employer required by this Part to keep records of fatalities, injuries, and illnesses must record each fatality, injury and illness that:

(a)(1) Is work-related; and

(a)(2) Is a new case; and

(a)(3) Meets one or more of the general recording criteria of § 1904.7 or the application to specific cases of §1904.8 through §1904.12.

1904.4(b) Implementation.

(b)(1) What sections of this rule describe recording criteria for recording work-related injuries and illnesses? The table below indicates which sections of the rule address each topic.

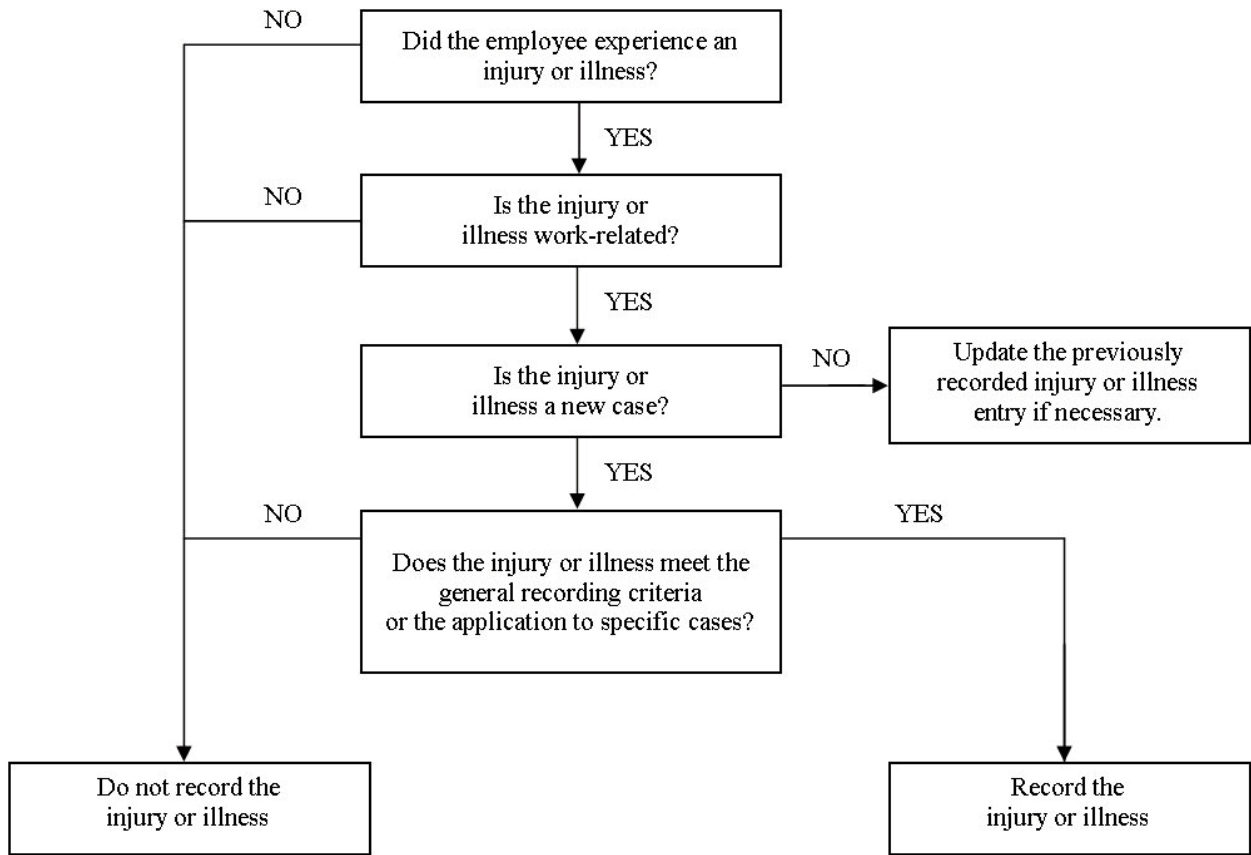
(b)(1)(i) Determination of work-relatedness. See §1904.5.

(b)(1)(ii) Determination of a new case. See §1904.6.

(b)(1)(iii) General recording criteria. See §1904.7.

(b)(1)(iv) Additional criteria. (Needlestick and sharps injury cases, tuberculosis cases, hearing loss cases, medical removal cases, and musculoskeletal disorder cases). See §1904.8 through §1904.12.

(b)(2) How do I decide whether a particular injury or illness is recordable? The decision tree for recording work-related injuries and illnesses below shows the steps involved in making this determination.



1904.5(a) Basic requirement. You must consider an injury or illness to be work-related if an event or exposure in the work environment either caused or contributed to the resulting condition or significantly aggravated a pre-existing injury or illness. Work-relatedness is presumed for injuries and illnesses resulting from events or exposures occurring in the work environment, unless an exception in § 1904.5(b)(2) specifically applies.

1904.5(b) Implementation.

(1b)(1) What is the “work environment”? OSHA defines the work environment as “the establishment and other locations where one or more employees are working or are present as a condition of their employment. The work environment includes not only physical locations, but also the equipment or materials used by the employee during the course of his or her work.”

(b)(2) Are there situations where an injury or illness occurs in the work environment and is not considered work-related? Yes, an injury or illness occurring in the work environment that falls under one of the following exceptions is not work-related, and therefore is not recordable.

1904.5(b)(2)	You are not required to record injuries and illnesses if...
(i)	At the time of the injury or illness, the employee was present in the work environment as a member of the general public rather than as an employee.
(ii)	The injury or illness involves signs or symptoms that surface at work but result solely from a non-work-related event or exposure that occurs outside the work environment.
(iii)	The injury or illness results solely from voluntary participation in a wellness program or in a medical, fitness, or recreational activity such as blood donation, physical examination, flu shot, exercise class, racquetball, or baseball.
(iv)	The injury or illness is solely the result of an employee eating, drinking, or preparing food or drink for personal consumption (whether bought on the employer's premises or brought in). For example if the employee is injured by choking on a sandwich while in the employer's establishment, the case would not be considered work-related.
	Note: If the employee is made ill by ingesting food contaminated by workplace contaminants (such as lead), or gets food poisoning from food supplied by the employer, the case would be considered work-related.
(v)	The injury or illness is solely the result of an employee doing personal tasks (unrelated to their employment) at the establishment outside of the employee's assigned working hours.
(vi)	The injury or illness is solely the result of personal grooming, self medication for a non-work-related condition, or is intentionally self-inflicted.
(vii)	The injury or illness is caused by a motor vehicle accident and occurs on a company parking lot or company access road while the employee is commuting to or from work.
(viii)	The illness is the common cold or flu (Note: contagious diseases such as tuberculosis, brucellosis, hepatitis A, or plague are considered work-related if the employee is infected at work).
(ix)	The illness is a mental illness. Mental illness will not be considered work-related unless the employee voluntarily provides the employer with an opinion from a physician or other licensed health care professional with appropriate training and experience (psychiatrist, psychologist, psychiatric nurse practitioner, etc.) stating that the employee has a mental illness that is work-related.

(b)(3) How do I handle a case if it is not obvious whether the precipitating event or exposure occurred in the work environment or occurred away from work? In these situations, you must evaluate the employee's work duties and environment to decide whether or not one or more events or exposures in the work environment either caused or contributed to the resulting condition or significantly aggravated a pre-existing condition.

(b)(4) How do I know if an event or exposure in the work environment "significantly aggravated" a preexisting injury or illness? A preexisting injury or illness has been significantly aggravated, for purposes of OSHA injury and illness recordkeeping, when an event or exposure in the work environment results in any of the following:

(b)(4)(i) Death, provided that the preexisting injury or illness would likely not have resulted in death but for the occupational event or exposure.

(b)(4)(ii) Loss of consciousness, provided that the preexisting injury or illness would likely not have resulted in loss of consciousness but for the occupational event or exposure.

(b)(4)(iii) One or more days away from work, or days of restricted work, or days of job transfer that otherwise would not have occurred but for the occupational event or exposure.

(b)(4)(iv) Medical treatment in a case where no medical treatment was needed for the injury or illness before the workplace event or exposure, or a change in medical treatment was necessitated by the workplace event or exposure.

(b)(5) Which injuries and illnesses are considered pre-existing conditions? An injury or illness is a preexisting condition if it resulted solely from a non-work-related event or exposure that occurred outside the work environment.

(b)(6) How do I decide whether an injury or illness is work-related if the employee is on travel status at the time the injury or illness occurs? Injuries and illnesses that occur while an employee is on travel status are work-related if, at the time of the injury or illness, the employee was engaged in work activities “in the interest of the employer.” Examples of such activities include travel to and from customer contacts, conducting job tasks, and entertaining or being entertained to transact, discuss, or promote business (work-related entertainment includes only entertainment activities being engaged in at the direction of the employer).

Injuries or illnesses that occur when the employee is on travel status do not have to be recorded if they meet one of the exceptions listed below.

1904.5(b)(6)	If the employee has...	You may use the following to determine if an injury or illness is work-related
(i)	checked into a hotel or motel for one or more days.	When a traveling employee checks into a hotel, motel, or into a other temporary residence, he or she establishes a “home away from home.” You must evaluate the employee’s activities after he or she checks into the hotel, motel, or other temporary residence for their work-relatedness in the same manner as you evaluate the activities of a non-traveling employee. When the employee checks into the temporary residence, he or she is considered to have left the work environment. When the employee begins work each day, he or she re-enters the work environment. If the employee has established a “home away from home” and is reporting to a fixed worksite each day, you also do not consider injuries or illnesses work-related if they occur while the employee is commuting between the temporary residence and the job location.
(ii)	taken a detour for personal reasons.	Injuries or illnesses are not considered work-related if they occur while the employee is on a personal detour from a reasonably direct route of travel (e.g. has taken a side trip for personal reasons).

(b)(7) How do I decide if a case is work-related when the employee is working at home? Injuries and illnesses that occur while an employee is working at home, including work in a home office, will be considered work-related if the injury or illness occurs while the employee is performing work for pay or compensation in the home, and the injury or illness is directly related to the performance of work rather than to the general home environment or setting. For example, if an employee drops a box of work documents and injures his or her foot, the case is considered work-related. If an employee’s fingernail is punctured by a needle from a sewing machine used to perform garment work at home, becomes infected and requires medical treatment, the injury is considered work-related. If an employee is injured because he or she trips on the family dog while rushing to answer a work phone call, the case is not considered work-related. If an employee working at home is electrocuted because of faulty home wiring, the injury is not considered work-related.

1904.6(a) Basic requirement. You must consider an injury or illness to be a “new case” if:

(a)(1) The employee has not previously experienced a recorded injury or illness of the same type that affects the same part of the body, or

(a)(2) The employee previously experienced a recorded injury or illness of the same type that affected the same part of the body but had recovered completely (all signs and symptoms had disappeared) from the previous injury or illness and an event or exposure in the work environment caused the signs or symptoms to reappear.

1904.6(b) Implementation.

(b)(1) When an employee experiences the signs or symptoms of a chronic work-related illness, do I need to consider each recurrence of signs or symptoms to be a new case? No, for occupational illnesses where the signs or symptoms may recur or continue in the absence of an exposure in the workplace, the case must only be recorded once. Examples may include occupational cancer, asbestosis, byssinosis and silicosis.

(b)(2) *When an employee experiences the signs or symptoms of an injury or illness as a result of an event or exposure in the workplace, such as an episode of occupational asthma, must I treat the episode as a new case?* Yes, because the episode or recurrence was caused by an event or exposure in the workplace, the incident must be treated as a new case.

(b)(3) *May I rely on a physician or other licensed health care professional to determine whether a case is a new case or a recurrence of an old case?* You are not required to seek the advice of a physician or other licensed health care professional. However, if you do seek such advice, you must follow the physician or other licensed health care professional's recommendation about whether the case is a new case or a recurrence. If you receive recommendations from two or more physicians or other licensed health care professionals, you must make a decision as to which recommendation is the most authoritative (best documented, best reasoned, or most authoritative), and record the case based upon that recommendation.

1904.7(a) Basic requirement. You must consider an injury or illness to meet the general recording criteria, and therefore to be recordable, if it results in any of the following: death, days away from work, restricted work or transfer to another job, medical treatment beyond first aid, or loss of consciousness. You must also consider a case to meet the general recording criteria if it involves a significant injury or illness diagnosed by a physician or other licensed health care professional, even if it does not result in death, days away from work, restricted work or job transfer, medical treatment beyond first aid, or loss of consciousness.

1904.7(b) Implementation.

(b)(1) *How do I decide if a case meets one or more of the general recording criteria?* A work-related injury or illness must be recorded if it results in one or more of the following:

(b)(1)(i) Death. See § 1904.7(b)(2).

(b)(1)(ii) Days away from work. See § 1904.7(b)(3).

(b)(1)(iii) Restricted work or transfer to another job. See § 1904.7(b)(4).

(b)(1)(iv) Medical treatment beyond first aid. See § 1904.7(b)(5).

(b)(1)(v) Loss of consciousness. See § 1904.7(b)(6).

(b)(1)(vi) A significant injury or illness diagnosed by a physician or other licensed health care professional. See § 1904.7(b)(7).

(b)(2) *How do I record a work-related injury or illness that results in the employee's death?* You must record an injury or illness that results in death by entering a check mark on the OSHA 300 Log in the space for cases resulting in death. You must also report any work-related fatality to OSHA within eight (8) hours, as required by § 1904.39.

(b)(3) *How do I record a work-related injury or illness that results in days away from work?* When an injury or illness involves one or more days away from work, you must record the injury or illness on the OSHA 300 Log with a check mark in the space for cases involving days away and an entry of the number of calendar days away from work in the number of days column. If the employee is out for an extended period of time, you must enter an estimate of the days that the employee will be away, and update the day count when the actual number of days is known.

(b)(3)(i) *Do I count the day on which the injury occurred or the illness began?* No, you begin counting days away on the day after the injury occurred or the illness began.

(b)(3)(ii) *How do I record an injury or illness when a physician or other licensed health care professional recommends that the worker stay at home but the employee comes to work anyway?* You must record these injuries and illnesses on the OSHA 300 Log using the check box for cases with days away from work and enter the number of calendar days away recommended by the physician or other licensed health care professional. If a physician or other licensed health care professional recommends days away, you should encourage your employee to follow that recommendation. However, the days away must be recorded whether the injured or ill employee follows the physician or licensed health care professional's recommendation or not. If you receive recommendations from two or more physicians or other licensed health care professionals, you may make a decision as to which recommendation is the most authoritative, and record the case based upon that recommendation.

(b)(3)(iii) How do I handle a case when a physician or other licensed health care professional recommends that the worker return to work but the employee stays at home anyway? In this situation, you must end the count of days away from work on the date the physician or other licensed health care professional recommends that the employee return to work.

(b)(3)(iv) How do I count weekends, holidays, or other days the employee would not have worked anyway? You must count the number of calendar days the employee was unable to work as a result of the injury or illness, regardless of whether or not the employee was scheduled to work on those day(s). Weekend days, holidays, vacation days or other days off are included in the total number of days recorded if the employee would not have been able to work on those days because of a work-related injury or illness.

(b)(3)(v) How do I record a case in which a worker is injured or becomes ill on a Friday and reports to work on a Monday, and was not scheduled to work on the weekend? You need to record this case only if you receive information from a physician or other licensed health care professional indicating that the employee should not have worked, or should have performed only restricted work, during the weekend. If so, you must record the injury or illness as a case with days away from work or restricted work, and enter the day counts, as appropriate.

(b)(3)(vi) How do I record a case in which a worker is injured or becomes ill on the day before scheduled time off such as a holiday, a planned vacation, or a temporary plant closing? You need to record a case of this type only if you receive information from a physician or other licensed health care professional indicating that the employee should not have worked, or should have performed only restricted work, during the scheduled time off. If so, you must record the injury or illness as a case with days away from work or restricted work, and enter the day counts, as appropriate.

(b)(3)(vii) Is there a limit to the number of days away from work I must count? Yes, you may “cap” the total days away at 180 calendar days. You are not required to keep track of the number of calendar days away from work if the injury or illness resulted in more than 180 calendar days away from work and/or days of job transfer or restriction. In such a case, entering 180 in the total days away column will be considered adequate.

(b)(3)(viii) May I stop counting days if an employee who is away from work because of an injury or illness retires or leaves my company? Yes, if the employee leaves your company for some reason unrelated to the injury or illness, such as retirement, a plant closing, or to take another job, you may stop counting days away from work or days of restriction/job transfer. If the employee leaves your company because of the injury or illness, you must estimate the total number of days away or days of restriction/job transfer and enter the day count on the 300 Log.

(b)(3)(ix) If a case occurs in one year but results in days away during the next calendar year, do I record the case in both years? No, you only record the injury or illness once. You must enter the number of calendar days away for the injury or illness on the OSHA 300 Log for the year in which the injury or illness occurred. If the employee is still away from work because of the injury or illness when you prepare the annual summary, estimate the total number of calendar days you expect the employee to be away from work, use this number to calculate the total for the annual summary, and then update the initial log entry later when the day count is known or reaches the 180-day cap.

(b)(4) How do I record a work-related injury or illness that results in restricted work or job transfer? When an injury or illness involves restricted work or job transfer but does not involve death or days away from work, you must record the injury or illness on the OSHA 300 Log by placing a check mark in the space for job transfer or restriction and an entry of the number of restricted or transferred days in the restricted workdays column.

(b)(4)(i) How do I decide if the injury or illness resulted in restricted work? Restricted work occurs when, as the result of a work-related injury or illness:

(b)(4)(i)(A) You keep the employee from performing one or more of the routine functions of his or her job, or from working the full workday that he or she would otherwise have been scheduled to work; or

(b)(4)(i)(B) A physician or other licensed health care professional recommends that the employee not perform one or more of the routine functions of his or her job, or not work the full workday that he or she would otherwise have been scheduled to work.

(b)(4)(ii) What is meant by “routine functions”? For recordkeeping purposes, an employee’s routine functions are those work activities the employee regularly performs at least once per week.

(b)(4)(iii) Do I have to record restricted work or job transfer if it applies only to the day on which the injury occurred or the illness began? No, you do not have to record restricted work or job transfers if you, or the physician or other licensed health care professional, impose the restriction or transfer only for the day on which the injury occurred or the illness began.

(b)(4)(iv) If you or a physician or other licensed health care professional recommends a work restriction, is the injury or illness automatically recordable as a “restricted work” case? No, a recommended work restriction is recordable only if it affects one or more of the employee’s routine job functions. To determine whether this is the case, you must evaluate the restriction in light of the routine functions of the injured or ill employee’s job. If the restriction from you or the physician or other licensed health care professional keeps the employee from performing one or more of his or her routine job functions, or from working the full workday the injured or ill employee would otherwise have worked, the employee’s work has been restricted and you must record the case.

(b)(4)(v) How do I record a case where the worker works only for a partial work shift because of a work-related injury or illness? A partial day of work is recorded as a day of job transfer or restriction for recordkeeping purposes, except for the day on which the injury occurred or the illness began.

(b)(4)(vi) If the injured or ill worker produces fewer goods or services than he or she would have produced prior to the injury or illness but otherwise performs all of the routine functions of his or her work, is the case considered a restricted work case? No, the case is considered restricted work only if the worker does not perform all of the routine functions of his or her job or does not work the full shift that he or she would otherwise have worked.

(b)(4)(vii) How do I handle vague restrictions from a physician or other licensed health care professional, such as that the employee engage only in “light duty” or “take it easy for a week”? If you are not clear about the physician or other licensed health care professional’s recommendation, you may ask that person whether the employee can do all of his or her routine job functions and work all of his or her normally assigned work shift. If the answer to both of these questions is “Yes,” then the case does not involve a work restriction and does not have to be recorded as such. If the answer to one or both of these questions is “No,” the case involves restricted work and must be recorded as a restricted work case. If you are unable to obtain this additional information from the physician or other licensed health care professional who recommended the restriction, record the injury or illness as a case involving restricted work.

(b)(4)(viii) What do I do if a physician or other licensed health care professional recommends a job restriction meeting OSHA’s definition, but the employee does all of his or her routine job functions anyway? You must record the injury or illness on the OSHA 300 Log as a restricted work case. If a physician or other licensed health care professional recommends a job restriction, you should ensure that the employee complies with that restriction. If you receive recommendations from two or more physicians or other licensed health care professionals, you may make a decision as to which recommendation is the most authoritative, and record the case based upon that recommendation.

(b)(4)(ix) How do I decide if an injury or illness involved a transfer to another job? If you assign an injured or ill employee to a job other than his or her regular job for part of the day, the case involves transfer to another job. Note: This does not include the day on which the injury or illness occurred.

(b)(4)(x) Are transfers to another job recorded in the same way as restricted work cases? Yes, both job transfer and restricted work cases are recorded in the same box on the OSHA 300 Log. For example, if you assign, or a physician or other licensed health care professional recommends that you assign, an injured or ill worker to his or her routine job duties for part of the day and to another job for the rest of the day, the injury or illness involves a job transfer. You must record an injury or illness that involves a job transfer by placing a check in the box for job transfer.

(b)(4)(xi) How do I count days of job transfer or restriction? You count days of job transfer or restriction in the same way you count days away from work, using § 1904.7(b)(3)(i) to (viii), above. The only difference is that, if you permanently assign the injured or ill employee to a job that has been modified or permanently changed in a manner that eliminates the routine functions the employee was restricted from performing, you may stop the day count when the modification or change is made permanent. You must count at least one day of restricted work or job transfer for such cases.

(b)(5) How do I record an injury or illness that involves medical treatment beyond first aid? If a work-related injury or illness results in medical treatment beyond first aid, you must record it on the OSHA 300 Log. If the injury or illness did not involve death, one or more days away from work, one or more days of restricted work, or one or more days of job transfer, you enter a check mark in the box for cases where the employee received medical treatment but remained at work and was not transferred or restricted.

(b)(5)(i) What is the definition of medical treatment? “Medical treatment” means the management and care of a patient to combat disease or disorder. For the purposes of Part 1904, medical treatment does not include:

(b)(5)(i)(A) Visits to a physician or other licensed health care professional solely for observation or counseling;

(b)(5)(i)(B) The conduct of diagnostic procedures, such as x-rays and blood tests, including the administration of prescription medications used solely for diagnostic purposes (*e.g.*, eye drops to dilate pupils); or

(b)(5)(i)(C) “First aid” as defined in paragraph (b)(5)(ii) of this section.

(b)(5)(ii) What is “first aid”? For the purposes of Part 1904, “first aid” means the following:

(b)(5)(ii)(A) Using a non-prescription medication at nonprescription strength (for medications available in both prescription and non-prescription form, a recommendation by a physician or other licensed health care professional to use a non-prescription medication at prescription strength is considered medical treatment for recordkeeping purposes);

(b)(5)(ii)(B) Administering tetanus immunizations (other immunizations, such as Hepatitis B vaccine or rabies vaccine, are considered medical treatment);

(b)(5)(ii)(C) Cleaning, flushing or soaking wounds on the surface of the skin;

(b)(5)(ii)(D) Using wound coverings such as bandages, Band-Aids™, gauze pads, etc.; or using butterfly bandages or Steri-Strips™ (other wound closing devices such as sutures, staples, etc., are considered medical treatment);

(b)(5)(ii)(E) Using hot or cold therapy;

(b)(5)(ii)(F) Using any non-rigid means of support, such as elastic bandages, wraps, non-rigid back belts, etc. (devices with rigid stays or other systems designed to immobilize parts of the body are considered medical treatment for recordkeeping purposes);

(b)(5)(ii)(G) Using temporary immobilization devices while transporting an accident victim (*e.g.*, splints, slings, neck collars, back boards, etc.).

(b)(5)(ii)(H) Drilling of a fingernail or toenail to relieve pressure, or draining fluid from a blister;

(b)(5)(ii)(I) Using eye patches;

(b)(5)(ii)(J) Removing foreign bodies from the eye using only irrigation or a cotton swab;

(b)(5)(ii)(K) Removing splinters or foreign material from areas other than the eye by irrigation, tweezers, cotton swabs or other simple means;

(b)(5)(ii)(L) Using finger guards;

(b)(5)(ii)(M) Using massages (physical therapy or chiropractic treatment are considered medical treatment for recordkeeping purposes); or

(b)(5)(ii)(N) Drinking fluids for relief of heat stress.

(b)(5)(iii) Are any other procedures included in first aid? No, this is a complete list of all treatments considered first aid for Part 1904 purposes.

(b)(5)(iv) Does the professional status of the person providing the treatment have any effect on what is considered first aid or medical treatment? No, OSHA considers the treatments listed in § 1904.7(b)(5)(ii) of this Part to be first aid regardless of the professional status of the person providing the treatment. Even when these treatments are provided by a physician or other licensed health care professional, they are considered first aid for the purposes of Part 1904. Similarly, OSHA considers treatment beyond first aid to be medical treatment even when it is provided by someone other than a physician or other licensed health care professional.

(b)(5)(v) What if a physician or other licensed health care professional recommends medical treatment but the employee does not follow the recommendation? If a physician or other licensed health care professional recommends medical treatment, you should encourage the injured or ill employee to follow that recommendation. However, you must record the case even if the injured or ill employee does not follow the physician or other licensed health care professional’s recommendation.

(b)(6) *Is every work-related injury or illness case involving a loss of consciousness recordable?* Yes, you must record a work-related injury or illness if the worker becomes unconscious, regardless of the length of time the employee remains unconscious.

(b)(7) *What is a “significant” diagnosed injury or illness that is recordable under the general criteria even if it does not result in death, days away from work, restricted work or job transfer, medical treatment beyond first aid, or loss of consciousness?* Work-related cases involving cancer, chronic irreversible disease, a fractured or cracked bone, or a punctured eardrum must always be recorded under the general criteria at the time of diagnosis by a physician or other licensed health care professional.

Note to § 1904.7: OSHA believes that most significant injuries and illnesses will result in one of the criteria listed in § 1904.7(a): death, days away from work, restricted work or job transfer, medical treatment beyond first aid, or loss of consciousness. However, there are some significant injuries, such as a punctured eardrum or a fractured toe or rib, for which neither medical treatment nor work restrictions may be recommended. In addition, there are some significant progressive diseases, such as byssinosis, silicosis, and some types of cancer, for which medical treatment or work restrictions may not be recommended at the time of diagnosis but are likely to be recommended as the disease progresses. OSHA believes that cancer, chronic irreversible diseases, fractured or cracked bones, and punctured eardrums are generally considered significant injuries and illnesses, and must be recorded at the initial diagnosis even if medical treatment or work restrictions are not recommended, or are postponed, in a particular case.

1904.8(a) *Basic requirement.* You must record all work-related needlestick injuries and cuts from sharp objects that are contaminated with another person’s blood or other potentially infectious material (as defined by 29 CFR 1910.1030). You must enter the case on the OSHA 300 Log as an injury. To protect the employee’s privacy, you may not enter the employee’s name on the OSHA 300 Log (see the requirements for privacy cases in paragraphs 1904.29(b)(6) through 1904.29(b)(9)).

1904.8(b) *Implementation.*

(b)(1) *What does “other potentially infectious material” mean?* The term “other potentially infectious materials” is defined in the OSHA Bloodborne Pathogens standard at § 1910.1030(b). These materials include:

(b)(1)(i) Human bodily fluids, tissues and organs, and

(b)(1)(ii) Other materials infected with the HIV or hepatitis B (HBV) virus such as laboratory cultures or tissues from experimental animals.

(b)(2) *Does this mean that I must record all cuts, lacerations, punctures, and scratches?* No, you need to record cuts, lacerations, punctures, and scratches only if they are work-related and involve contamination with another person’s blood or other potentially infectious material. If the cut, laceration, or scratch involves a clean object, or a contaminant other than blood or other potentially infectious material, you need to record the case only if it meets one or more of the recording criteria in § 1904.7.

(b)(3) *If I record an injury and the employee is later diagnosed with an infectious bloodborne disease, do I need to update the OSHA 300 Log?* Yes, you must update the classification of the case on the OSHA 300 Log if the case results in death, days away from work, restricted work, or job transfer. You must also update the description to identify the infectious disease and change the classification of the case from an injury to an illness.

(b)(4) *What if one of my employees is splashed or exposed to blood or other potentially infectious material without being cut or scratched?* Do I need to record this incident? You need to record such an incident on the OSHA 300 Log as an illness if:

(b)(4)(i) It results in the diagnosis of a bloodborne illness, such as HIV, hepatitis B, or hepatitis C; or

(b)(4)(ii) It meets one or more of the recording criteria in § 1904.7.

1904.9(a) *Basic requirement.* If an employee is medically removed under the medical surveillance requirements of an OSHA standard, you must record the case on the OSHA 300 Log.

1904.9(b) Implementation.

(b)(1) How do I classify medical removal cases on the OSHA 300 Log? You must enter each medical removal case on the OSHA 300 Log as either a case involving days away from work or a case involving restricted work activity, depending on how you decide to comply with the medical removal requirement. If the medical removal is the result of a chemical exposure, you must enter the case on the OSHA 300 Log by checking the “poisoning” column.

(b)(2) Do all of OSHA’s standards have medical removal provisions? No, some OSHA standards, such as the standards covering bloodborne pathogens and noise, do not have medical removal provisions. Many OSHA standards that cover specific chemical substances have medical removal provisions. These standards include, but are not limited to, lead, cadmium, methylene chloride, formaldehyde, and benzene.

(b)(3) Do I have to record a case where I voluntarily removed the employee from exposure before the medical removal criteria in an OSHA standard are met? No, if the case involves voluntary medical removal before the medical removal levels required by an OSHA standard, you do not need to record the case on the OSHA 300 Log.

1904.10(a) Basic requirement. If an employee’s hearing test (audiogram) reveals that the employee has experienced a work-related Standard Threshold Shift (STS) in hearing in one or both ears, and the employee’s total hearing level is 25 decibels (dB) or more above audiometric zero (averaged at 2000, 3000, and 4000 Hz) in the same ear(s) as the STS, you must record the case on the OSHA 300 Log.

1904.10(b) Implementation.

(b)(1) What is a Standard Threshold Shift? A Standard Threshold Shift, or STS, is defined in the occupational noise exposure standard at 29 CFR 1910.95(g)(10)(i) as a change in hearing threshold, relative to the baseline audiogram for that employee, of an average of 10 decibels (dB) or more at 2000, 3000, and 4000 hertz (Hz) in one or both ears.

(b)(2) How do I evaluate the current audiogram to determine whether an employee has an STS and a 25-dB hearing level?

(b)(2)(i) STS. If the employee has never previously experienced a recordable hearing loss, you must compare the employee’s current audiogram with that employee’s baseline audiogram. If the employee has previously experienced a recordable hearing loss, you must compare the employee’s current audiogram with the employee’s revised baseline audiogram (the audiogram reflecting the employee’s previous recordable hearing loss case).

(b)(2)(ii) 25-dB loss. Audiometric test results reflect the employee’s overall hearing ability in comparison to audiometric zero. Therefore, using the employee’s current audiogram, you must use the average hearing level at 2000, 3000, and 4000 Hz to determine whether or not the employee’s total hearing level is 25 dB or more.

(b)(3) May I adjust the current audiogram to reflect the effects of aging on hearing? Yes. When you are determining whether an STS has occurred, you may age adjust the employee’s current audiogram results by using Tables F-1 or F-2, as appropriate, in Appendix F of 29 CFR 1910.95. You may not use an age adjustment when determining whether the employee’s total hearing level is 25 dB or more above audiometric zero.

(b)(4) Do I have to record the hearing loss if I am going to retest the employee’s hearing? No, if you retest the employee’s hearing within 30 days of the first test, and the retest does not confirm the recordable STS, you are not required to record the hearing loss case on the OSHA 300 Log. If the retest confirms the recordable STS, you must record the hearing loss illness within seven (7) calendar days of the retest. If subsequent audiometric testing performed under the testing requirements of the § 1910.95 noise standard indicates that an STS is not persistent, you may erase or line-out the recorded entry.

(b)(5) Are there any special rules for determining whether a hearing loss case is work-related? No. You must use the rules in § 1904.5 to determine if the hearing loss is work-related. If an event or exposure in the work environment either caused or contributed to the hearing loss, or significantly aggravated a pre-existing hearing loss, you must consider the case to be work related.

(b)(6) If a physician or other licensed health care professional determines the hearing loss is not work-related, do I still need to record the case? If a physician or other licensed health care professional determines that the hearing loss is not work-related or has not been significantly aggravated by occupational noise exposure, you are not required to consider the case work-related or to record the case on the OSHA 300 Log.

(b)(7) How do I complete the 300 Log for a hearing loss case? When you enter a recordable hearing loss case on the OSHA 300 Log, you must check the 300 Log column for hearing loss. (Note: § 1904.10(b)(7) is effective beginning January 1, 2004.) 1904.11(a) Basic requirement. If any of your employees has been occupationally exposed to anyone with a known case of active tuberculosis (TB), and that employee subsequently develops a tuberculosis infection, as evidenced by a positive skin test or diagnosis by a physician or other licensed health care professional, you must record the case on the OSHA 300 Log by checking the “respiratory condition” column.

1904.11(b) Implementation.

(b)(1) Do I have to record, on the Log, a positive TB skin test result obtained at a pre-employment physical? No, you do not have to record it because the employee was not occupationally exposed to a known case of active tuberculosis in your workplace.

(b)(2) (May I line-out or erase a recorded TB case if I obtain evidence that the case was not caused by occupational exposure?) Yes, you may line-out or erase the case from the Log under the following circumstances:

(b)(2)(i) The worker is living in a household with a person who has been diagnosed with active TB;

(b)(2)(ii) The Public Health Department has identified the worker as a contact of an individual with a case of active TB unrelated to the workplace; or

(b)(2)(iii) A medical investigation shows that the employee’s infection was caused by exposure to TB away from work, or proves that the case was not related to the workplace TB exposure.

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1904.29(a) Basic requirement. You must use OSHA 300, 300-A, and 301 forms, or equivalent forms, for recordable injuries and illnesses. The OSHA 300 form is called the Log of Work-Related Injuries and Illnesses, the 300-A is the Summary of Work-Related Injuries and Illnesses, and the OSHA 301 form is called the Injury and Illness Incident Report.

1904.29(b) Implementation.

(b)(1) What do I need to do to complete the OSHA 300 Log? You must enter information about your business at the top of the OSHA 300 Log, enter a one or two line description for each recordable injury or illness, and summarize this information on the OSHA 300-A at the end of the year.

(b)(2) What do I need to do to complete the OSHA 301 Incident Report? You must complete an OSHA 301 Incident Report form, or an equivalent form, for each recordable injury or illness entered on the OSHA 300 Log.

(b)(3) How quickly must each injury or illness be recorded? You must enter each recordable injury or illness on the OSHA 300 Log and 301 Incident Report within seven (7) calendar days of receiving information that a recordable injury or illness has occurred.

(b)(4) What is an equivalent form? An equivalent form is one that has the same information, is as readable and understandable, and is completed using the same instructions as the OSHA form it replaces. Many employers use an insurance form instead of the OSHA 301 Incident Report, or supplement an insurance form by adding any additional information required by OSHA.

(b)(5) May I keep my records on a computer? Yes, if the computer can produce equivalent forms when they are needed, as described under §§ 1904.35 and 1904.40, you may keep your records using the computer system.

(b)(6) Are there situations where I do not put the employee’s name on the forms for privacy reasons? Yes, if you have a “privacy concern case,” you may not enter the employee’s name on the OSHA 300 Log. Instead, enter “privacy case” in the space normally used for the employee’s name. This will protect the privacy of the injured or ill employee when another employee, a former employee, or an authorized employee representative is provided access to the OSHA 300 Log under § 1904.35(b)(2). You must keep a separate, confidential list of the case numbers and employee names for your privacy concern cases so you can update the cases and provide the information to the government if asked to do so.

(b)(7) How do I determine if an injury or illness is a privacy concern case? You must consider the following injuries or illnesses to be privacy concern cases:

(b)(7)(i) An injury or illness to an intimate body part or the reproductive system;

(b)(7)(ii) An injury or illness resulting from a sexual assault;

(b)(7)(iii) Mental illnesses;

(b)(7)(iv) HIV infection, hepatitis, or tuberculosis;

(b)(7)(v) Needlestick injuries and cuts from sharp objects that are contaminated with another person's blood or other potentially infectious material (see § 1904.8 for definitions); and

(b)(7)(vi) Other illnesses, if the employee voluntarily requests that his or her name not be entered on the log.

(b)(8) *May I classify any other types of injuries and illnesses as privacy concern cases?* No, this is a complete list of all injuries and illnesses considered privacy concern cases for Part 1904 purposes.

(b)(9) *If I have removed the employee's name, but still believe that the employee may be identified from the information on the forms, is there anything else that I can do to further protect the employee's privacy?* Yes, if you have a reasonable basis to believe that information describing the privacy concern case may be personally identifiable even though the employee's name has been omitted, you may use discretion in describing the injury or illness on both the OSHA 300 and 301 forms. You must enter enough information to identify the cause of the incident and the general severity of the injury or illness, but you do not need to include details of an intimate or private nature. For example, a sexual assault case could be described as "injury from assault," or an injury to a reproductive organ could be described as "lower abdominal injury."

(b)(10) *What must I do to protect employee privacy if I wish to provide access to the OSHA Forms 300 and 301 to persons other than government representatives, employees, former employees or authorized representatives?* If you decide to voluntarily disclose the Forms to persons other than government representatives, employees, former employees or authorized representatives (as required by §§ 1904.35 and 1904.40), you must remove or hide the employees' names and other personally identifying information, except for the following cases. You may disclose the Forms with personally identifying information only:

(b)(10)(i) to an auditor or consultant hired by the employer to evaluate the safety and health program;

(b)(10)(ii) to the extent necessary for processing a claim for workers' compensation or other insurance benefits; or

(b)(10)(iii) to a public health authority or law enforcement agency for uses and disclosures for which consent, an authorization, or opportunity to agree or object is not required under Department of Health and Human Services Standards for Privacy of Individually Identifiable Health Information, 45 CFR 164.512.

1904.30(a) Basic requirement. You must keep a separate OSHA 300 Log for each establishment that is expected to be in operation for one year or longer.

1904.30(b) Implementation.

(b)(1) *Do I need to keep OSHA injury and illness records for short-term establishments (i.e., establishments that will exist for less than a year)?* Yes, however, you do not have to keep a separate OSHA 300 Log for each such establishment. You may keep one OSHA 300 Log that covers all of your short-term establishments. You may also include the short-term establishments' recordable injuries and illnesses on an OSHA 300 Log that covers short-term establishments for individual company divisions or geographic regions.

(b)(2) *May I keep the records for all of my establishments at my headquarters location or at some other central location?* Yes, you may keep the records for an establishment at your headquarters or other central location if you can:

(b)(2)(i) Transmit information about the injuries and illnesses from the establishment to the central location within seven (7) calendar days of receiving information that a recordable injury or illness has occurred; and

(b)(2)(ii) Produce and send the records from the central location to the establishment within the time frames required by § 1904.35 and § 1904.40 when you are required to provide records to a government representative, employees, former employees or employee representatives.

(b)(3) *Some of my employees work at several different locations or do not work at any of my establishments at all. How do I record cases for these employees?* You must link each of your employees with one of your establishments, for recordkeeping purposes. You must record the injury and illness on the OSHA 300 Log of the injured or ill employee's establishment, or on an OSHA 300 Log that covers that employee's short-term establishment.

(b)(4) *How do I record an injury or illness when an employee of one of my establishments is injured or becomes ill while visiting or working at another of my establishments, or while working away from any of my establishments?* If the injury or illness occurs at one of your establishments, you must record the injury or illness on the OSHA 300 Log of the establishment at which the injury or illness occurred. If the employee is injured or becomes ill and is not at one of your establishments, you must record the case on the OSHA 300 Log at the establishment at which the employee normally works.

1904.31(a) *Basic requirement.* You must record on the OSHA 300 Log the recordable injuries and illnesses of all employees on your payroll, whether they are labor, executive, hourly, salary, part-time, seasonal, or migrant workers. You also must record the recordable injuries and illnesses that occur to employees who are not on your payroll if you supervise these employees on a day-to-day basis. If your business is organized as a sole proprietorship or partnership, the owner or partners are not considered employees for recordkeeping purposes.

1904.31(b) *Implementation.*

(b)(1) *If a self-employed person is injured or becomes ill while doing work at my business, do I need to record the injury or illness?* No, self-employed individuals are not covered by the OSH Act or this regulation.

(b)(2) *If I obtain employees from a temporary help service, employee leasing service, or personnel supply service, do I have to record an injury or illness occurring to one of those employees?* You must record these injuries and illnesses if you supervise these employees on a day-to-day basis.

(b)(3) *If an employee in my establishment is a contractor's employee, must I record an injury or illness occurring to that employee?* If the contractor's employee is under the day-to-day supervision of the contractor, the contractor is responsible for recording the injury or illness. If you supervise the contractor employee's work on a day-to-day basis, you must record the injury or illness.

(b)(4) *Must the personnel supply service, temporary help service, employee leasing service, or contractor also record the injuries or illnesses occurring to temporary, leased or contract employees that I supervise on a day-to-day basis?* No, you and the temporary help service, employee leasing service, personnel supply service, or contractor should coordinate your efforts to make sure that each injury and illness is recorded only once: either on your OSHA 300 Log (if you provide day-to-day supervision) or on the other employer's OSHA 300 Log (if that company provides day-to-day supervision).

1904.32(a) *Basic requirement.* At the end of each calendar year, you must:

(a)(1) Review the OSHA 300 Log to verify that the entries are complete and accurate, and correct any deficiencies identified;

(a)(2) Create an annual summary of injuries and illnesses recorded on the OSHA 300 Log;

(a)(3) Certify the summary; and

(a)(4) Post the annual summary.

1904.32(b) *Implementation.*

(b)(1) *How extensively do I have to review the OSHA 300 Log entries at the end of the year?* You must review the entries as extensively as necessary to make sure that they are complete and correct.

(b)(2) *How do I complete the annual summary?* You must:

(b)(2)(i) Total the columns on the OSHA 300 Log (if you had no recordable cases, enter zeros for each column total); and

(b)(2)(ii) Enter the calendar year covered, the company's name, establishment name, establishment address, annual average number of employees covered by the OSHA 300 Log, and the total hours worked by all employees covered by the OSHA 300 Log.

(b)(2)(iii) If you are using an equivalent form other than the OSHA 300-A summary form, as permitted under § 1904.6(b)(4), the summary you use must also include the employee access and employer penalty statements found on the OSHA 300-A Summary form.

(b)(3) *How do I certify the annual summary?* A company executive must certify that he or she has examined the OSHA 300 Log and that he or she reasonably believes, based on his or her knowledge of the process by which the information was recorded, that the annual summary is correct and complete.

(b)(4) Who is considered a company executive? The company executive who certifies the log must be one of the following persons:

(b)(4)(i) An owner of the company (only if the company is a sole proprietorship or partnership);

(b)(4)(ii) An officer of the corporation;

(b)(4)(iii) The highest ranking company official working at the establishment; or

(b)(4)(iv) The immediate supervisor of the highest ranking company official working at the establishment.

(b)(5) How do I post the annual summary? You must post a copy of the annual summary in each establishment in a conspicuous place or places where notices to employees are customarily posted. You must ensure that the posted annual summary is not altered, defaced or covered by other material.

(b)(6) When do I have to post the annual summary? You must post the summary no later than February 1 of the year following the year covered by the records and keep the posting in place until April 30.

1904.33(a) Basic requirement. You must save the OSHA 300 Log, the privacy case list (if one exists), the annual summary, and the OSHA 301 Incident Report forms for five (5) years following the end of the calendar year that these records cover.

1904.33(b) Implementation.

(b)(1) Do I have to update the OSHA 300 Log during the five-year storage period? Yes, during the storage period, you must update your stored OSHA 300 Logs to include newly discovered recordable injuries or illnesses and to show any changes that have occurred in the classification of previously recorded injuries and illnesses. If the description or outcome of a case changes, you must remove or line out the original entry and enter the new information.

(b)(2) Do I have to update the annual summary? No, you are not required to update the annual summary, but you may do so if you wish.

(b)(3) Do I have to update the OSHA 301 Incident Reports? No, you are not required to update the OSHA 301 Incident Reports, but you may do so if you wish.

1904.34 If your business changes ownership, you are responsible for recording and reporting work-related injuries and illnesses only for that period of the year during which you owned the establishment. You must transfer the Part 1904 records to the new owner. The new owner must save all records of the establishment kept by the prior owner, as required by § 1904.33 of this Part, but need not update or correct the records of the prior owner.

1904.35(a) Basic requirement. Your employees and their representatives must be involved in the recordkeeping system in several ways.

(a)(1) You must inform each employee of how he or she is to report an injury or illness to you.

(a)(2) You must provide limited access to your injury and illness records for your employees and their representatives.

1904.35(b) Implementation.

(b)(1) What must I do to make sure that employees report work-related injuries and illnesses to me?

(b)(1)(i) You must set up a way for employees to report work-related injuries and illnesses promptly; and

(b)(1)(ii) You must tell each employee how to report work-related injuries and illnesses to you.

(b)(2) Do I have to give my employees and their representatives access to the OSHA injury and illness records? Yes, your employees, former employees, their personal representatives, and their authorized employee representatives have the right to access the OSHA injury and illness records, with some limitations, as discussed below.

(b)(2)(i) Who is an authorized employee representative? An authorized employee representative is an authorized collective bargaining agent of employees.

(b)(2)(ii) Who is a “personal representative” of an employee or former employee? A personal representative is:

(b)(2)(ii)(A) Any person that the employee or former employee designates as such, in writing; or

(b)(2)(ii)(B) The legal representative of a deceased or legally incapacitated employee or former employee.

(b)(2)(iii) *If an employee or representative asks for access to the OSHA 300 Log, when do I have to provide it?* When an employee, former employee, personal representative, or authorized employee representative asks for copies of your current or stored OSHA 300 Log(s) for an establishment the employee or former employee has worked in, you must give the requester a copy of the relevant OSHA 300 Log(s) by the end of the next business day.

(b)(2)(iv) *May I remove the names of the employees or any other information from the OSHA 300 Log before I give copies to an employee, former employee, or employee representative?* No, you must leave the names on the 300 Log. However, to protect the privacy of injured and ill employees, you may not record the employee's name on the OSHA 300 Log for certain "privacy concern cases," as specified in paragraphs 1904.29(b)(6) through 1904.29(b)(9).

(b)(2)(v) *If an employee or representative asks for access to the OSHA 301 Incident Report, when do I have to provide it?*

(b)(2)(v)(A) When an employee, former employee, or personal representative asks for a copy of the OSHA 301 Incident Report describing an injury or illness to that employee or former employee, you must give the requester a copy of the OSHA 301 Incident Report containing that information by the end of the next business day.

(b)(2)(v)(B) When an authorized employee representative asks for a copies of the OSHA 301 Incident Reports for an establishment where the agent represents employees under a collective bargaining agreement, you must give copies of those forms to the authorized employee representative within 7 calendar days. You are only required to give the authorized employee representative information from the OSHA 301 Incident Report section titled "Tell us about the case." You must remove all other information from the copy of the OSHA 301 Incident Report or the equivalent substitute form that you give to the authorized employee representative.

(b)(2)(vi) *May I charge for the copies?* No, you may not charge for these copies the first time they are provided. However, if one of the designated persons asks for additional copies, you may assess a reasonable charge for retrieving and copying the records.

1904.36 Section 11(c) of the Act prohibits you from discriminating against an employee for reporting a work-related fatality, injury or illness. That provision of the Act also protects the employee who files a safety and health complaint, asks for access to the Part 1904 records, or otherwise exercises any rights afforded by the OSH Act.

1904.37(a) *Basic requirement.* Some States operate their own OSHA programs, under the authority of a State Plan approved by OSHA. States operating OSHA-approved State Plans must have occupational injury and illness recording and reporting requirements that are substantially identical to the requirements in this Part (see 29 CFR 1902.3(k), 29 CFR 1952.4 and 29 CFR 1956.10(i)).

1904.37(b) *Implementation.*

(b)(1) State-Plan States must have the same requirements as Federal OSHA for determining which injuries and illnesses are recordable and how they are recorded.

(b)(2) For other Part 1904 provisions (for example, industry exemptions, reporting of fatalities and hospitalizations, record retention, or employee involvement), State-Plan State requirements may be more stringent than or supplemental to the Federal requirements, but because of the unique nature of the national recordkeeping program, States must consult with and obtain approval of any such requirements.

(b)(3) Although State and local government employees are not covered Federally, all State-Plan States must provide coverage, and must develop injury and illness statistics, for these workers. State Plan recording and reporting requirements for State and local government entities may differ from those for the private sector but must meet the requirements of paragraphs 1904.37(b)(1) and (b)(2).

(b)(4) A State-Plan State may not issue a variance to a private sector employer and must recognize all variances issued by Federal OSHA.

(b)(5) A State Plan State may only grant an injury and illness recording and reporting variance to a State or local government employer within the State after obtaining approval to grant the variance from Federal OSHA.

1904.38(a) *Basic requirement.* If you wish to keep records in a different manner from the manner prescribed by the Part 1904 regulations, you may submit a variance petition to the Assistant Secretary of Labor for Occupational Safety and Health, U.S. Department of Labor, Washington, DC 20210. You can obtain a variance only if you can show that your alternative recordkeeping system:

- (a)(1) Collects the same information as this Part requires;
- (a)(2) Meets the purposes of the Act; and
- (a)(3) Does not interfere with the administration of the Act.

1904.38(b) Implementation.

(b)(1) *What do I need to include in my variance petition?* You must include the following items in your petition:

- (b)(1)(i) Your name and address;
- (b)(1)(ii) A list of the State(s) where the variance would be used;
- (b)(1)(iii) The address(es) of the business establishment(s) involved;
- (b)(1)(iv) A description of why you are seeking a variance;
- (b)(1)(v) A description of the different recordkeeping procedures you propose to use;
- (b)(1)(vi) A description of how your proposed procedures will collect the same information as would be collected by this Part and achieve the purpose of the Act; and
- (b)(1)(vii) A statement that you have informed your employees of the petition by giving them or their authorized representative a copy of the petition and by posting a statement summarizing the petition in the same way as notices are posted under § 1903.2(a).

(b)(2) *How will the Assistant Secretary handle my variance petition?* The Assistant Secretary will take the following steps to process your variance petition.

- (b)(2)(i) The Assistant Secretary will offer your employees and their authorized representatives an opportunity to submit written data, views, and arguments about your variance petition.
- (b)(2)(ii) The Assistant Secretary may allow the public to comment on your variance petition by publishing the petition in the Federal Register. If the petition is published, the notice will establish a public comment period and may include a schedule for a public meeting on the petition.
- (b)(2)(iii) After reviewing your variance petition and any comments from your employees and the public, the Assistant Secretary will decide whether or not your proposed recordkeeping procedures will meet the purposes of the Act, will not otherwise interfere with the Act, and will provide the same information as the Part 1904 regulations provide. If your procedures meet these criteria, the Assistant Secretary may grant the variance subject to such conditions as he or she finds appropriate.
- (b)(2)(iv) If the Assistant Secretary grants your variance petition, OSHA will publish a notice in the Federal Register to announce the variance. The notice will include the practices the variance allows you to use, any conditions that apply, and the reasons for allowing the variance.

(b)(3) *If I apply for a variance, may I use my proposed recordkeeping procedures while the Assistant Secretary is processing the variance petition?* No, alternative recordkeeping practices are only allowed after the variance is approved. You must comply with the Part 1904 regulations while the Assistant Secretary is reviewing your variance petition.

(b)(4) *If I have already been cited by OSHA for not following the Part 1904 regulations, will my variance petition have any effect on the citation and penalty?* No, in addition, the Assistant Secretary may elect not to review your variance petition if it includes an element for which you have been cited and the citation is still under review by a court, an Administrative Law Judge (ALJ), or the OSH Review Commission.

(b)(5) *If I receive a variance, may the Assistant Secretary revoke the variance at a later date?* Yes, the Assistant Secretary may revoke your variance if he or she has good cause. The procedures revoking a variance will follow the same process as OSHA uses for reviewing variance petitions, as outlined in paragraph 1904.38(b)(2). Except in cases of willfulness or where necessary for public safety, the Assistant Secretary will:

- (b)(5)(i) Notify you in writing of the facts or conduct that may warrant revocation of your variance; and
- (b)(5)(ii) Provide you, your employees, and authorized employee representatives with an opportunity to participate in the revocation procedures.

1904.39(a) Basic requirement.

1904.39(a)(1) Within eight (8) hours after the death of any employee as a result of a work-related incident, you must report the fatality to the Occupational Safety and Health Administration (OSHA), U.S. Department of Labor.

1904.39(a)(2) Within twenty-four (24) hours after the in-patient hospitalization of one or more employees or an employee's amputation or an employee's loss of an eye, as a result of a work-related incident, you must report the in-patient hospitalization, amputation, or loss of an eye to OSHA.

1904.39(a)(3) You must report the fatality, inpatient hospitalization, amputation, or loss of an eye using one of the following methods:

1904.39(a)(3)(i) By telephone or in person to the OSHA Area Office that is nearest to the site of the incident.

1904.39(a)(3)(ii) By telephone to the OSHA toll-free central telephone number, 1-800-321-OSHA (1-800-321-6742).

1904.39(a)(3)(iii) By electronic submission using the reporting application located on OSHA's public Web site at www.osha.gov.

1904.39(b) Implementation.

1904.39(b)(1) *If the Area Office is closed, may I report the fatality, in-patient hospitalization, amputation, or loss of an eye by leaving a message on OSHA's answering machine, faxing the Area Office, or sending an email?* No, if the Area Office is closed, you must report the fatality, in-patient hospitalization, amputation, or loss of an eye using either the 800 number or the reporting application located on OSHA's public Web site at www.osha.gov.

1904.39(b)(2) *What information do I need to give to OSHA about the in-patient hospitalization, amputation, or loss of an eye?* You must give OSHA the following information for each fatality, in-patient hospitalization, amputation, or loss of an eye:

1904.39(b)(2)(i) The establishment name;

1904.39(b)(2)(ii) The location of the work-related incident;

1904.39(b)(2)(iii) The time of the work-related incident;

1904.39(b)(2)(iv) The type of reportable event (i.e., fatality, in-patient hospitalization, amputation, or loss of an eye);

1904.39(b)(2)(v) The number of employees who suffered a fatality, in-patient hospitalization, amputation, or loss of an eye;

1904.39(b)(2)(vi) The names of the employees who suffered a fatality, in-patient hospitalization, amputation, or loss of an eye;

1904.39(b)(2)(vii) Your contact person and his or her phone number; and

1904.39(b)(2)(viii) A brief description of the workrelated incident.

1904.39(b)(3) *Do I have to report the fatality, inpatient hospitalization, amputation, or loss of an eye if it resulted from a motor vehicle accident on a public street or highway?* If the motor vehicle accident occurred in a construction work zone, you must report the fatality, in-patient hospitalization, amputation, or loss of an eye. If the motor vehicle accident occurred on a public street or highway, but not in a construction work zone, you do not have to report the fatality, inpatient hospitalization, amputation, or loss of an eye to OSHA. However, the fatality, in-patient hospitalization, amputation, or loss of an eye must be recorded on your OSHA injury and illness records, if you are required to keep such records.

1904.39(b)(4) *Do I have to report the fatality, inpatient hospitalization, amputation, or loss of an eye if it occurred on a commercial or public transportation system?* No, you do not have to report the fatality, in-patient hospitalization, amputation, or loss of an eye to OSHA if it occurred on a commercial or public transportation system (e.g., airplane, train, subway, or bus). However, the fatality, in-patient hospitalization, amputation, or loss of an eye must be recorded on your OSHA injury and illness records, if you are required to keep such records.

1904.39(b)(5) *Do I have to report a work-related fatality or in-patient hospitalization caused by a heart attack?* Yes, your local OSHA Area Office director will decide whether to investigate the event, depending on the circumstances of the heart attack.

1904.39(b)(6) *What if the fatality, in-patient hospitalization, amputation, or loss of an eye does not occur during or right after the work-related incident?* You must only report a fatality to OSHA if the fatality occurs within thirty (30) days of the work-related incident. For an in-patient hospitalization, amputation, or loss of an eye, you must only report the event to OSHA if it occurs within twenty-four (24) hours of the work-related incident. However, the fatality, in-patient hospitalization, amputation, or loss of an eye must be recorded on your OSHA injury and illness records, if you are required to keep such records.

1904.39(b)(7) *What if I don't learn about a reportable fatality, in-patient hospitalization, amputation, or loss of an eye right away?* If you do not learn about a reportable fatality, in-patient hospitalization, amputation, or loss of an eye at the time it takes place, you must make the report to OSHA within the following time period after the fatality, in-patient hospitalization, amputation, or loss of an eye is reported to you or to any of your agent(s): Eight (8) hours for a fatality, and twenty-four (24) hours for an in-patient hospitalization, an amputation, or a loss of an eye.

1904.39(b)(8) *What if I don't learn right away that the reportable fatality, in-patient hospitalization, amputation, or loss of an eye was the result of a work-related incident?* If you do not learn right away that the reportable fatality, in-patient hospitalization, amputation, or loss of an eye was the result of a work-related incident, you must make the report to OSHA within the following time period after you or any of your agent(s) learn that the reportable fatality, in-patient hospitalization, amputation, or loss of an eye was the result of a work-related incident: Eight (8) hours for a fatality, and twenty-four (24) hours for an inpatient hospitalization, an amputation, or a loss of an eye.

1904.39(b)(9) *How does OSHA define "in-patient hospitalization"?* OSHA defines inpatient hospitalization as a formal admission to the in-patient service of a hospital or clinic for care or treatment.

1904.39(b)(10) *Do I have to report an in-patient hospitalization that involves only observation or diagnostic testing?* No, you do not have to report an in-patient hospitalization that involves only observation or diagnostic testing. You must only report to OSHA each inpatient hospitalization that involves care or treatment.

1904.39(b)(11) *How does OSHA define "amputation"?* An amputation is the traumatic loss of a limb or other external body part. Amputations include a part, such as a limb or appendage, that has been severed, cut off, amputated (either completely or partially); fingertip amputations with or without bone loss; medical amputations resulting from irreparable damage; amputations of body parts that have since been reattached. Amputations do not include avulsions, enucleations, degloving, scalping, severed ears, or broken or chipped teeth.

1904.40(a) *Basic requirement.* When an authorized government representative asks for the records you keep under Part 1904, you must provide copies of the records within four (4) business hours.

1904.40(b) *Implementation.*

(b)(1) *What government representatives have the right to get copies of my Part 1904 records?* The government representatives authorized to receive the records are:

(b)(1)(i) A representative of the Secretary of Labor conducting an inspection or investigation under the Act;

(b)(1)(ii) A representative of the Secretary of Health and Human Services (including the National Institute for Occupational Safety and Health—NIOSH) conducting an investigation under section 20(b) of the Act, or

(b)(1)(iii) A representative of a State agency responsible for administering a State plan approved under section 18 of the Act.

(b)(2) *Do I have to produce the records within four (4) hours if my records are kept at a location in a different time zone?* OSHA will consider your response to be timely if you give the records to the government representative within four (4) business hours of the request. If you maintain the records at a location in a different time zone, you may use the business hours of the establishment at which the records are located when calculating the deadline.

1904.41(a) *Basic requirement.* If you receive OSHA's annual survey form, you must fill it out and send it to OSHA or OSHA's designee, as stated on the survey form. You must report the following information for the year described on the form:

(a)(1) the number of workers you employed;

(a)(2) the number of hours worked by your employees; and

(a)(3) the requested information from the records that you keep under Part 1904.

1904.41(b) Implementation.

(b)(1) Does every employer have to send data to OSHA? No, each year, OSHA sends injury and illness survey forms to employers in certain industries. In any year, some employers will receive an OSHA survey form and others will not. You do not have to send injury and illness data to OSHA unless you receive a survey form.

(b)(2) How quickly do I need to respond to an OSHA survey form? You must send the survey reports to OSHA, or OSHA's designee, by mail or other means described in the survey form, within 30 calendar days, or by the date stated in the survey form, whichever is later.

(b)(3) Do I have to respond to an OSHA survey form if I am normally exempt from keeping OSHA injury and illness records? Yes, even if you are exempt from keeping injury and illness records under § 1904.1 to § 1904.3, OSHA may inform you in writing that it will be collecting injury and illness information from you in the following year. If you receive such a letter, you must keep the injury and illness records required by § 1904.5 to § 1904.15 and make a survey report for the year covered by the survey.

(b)(4) Do I have to answer the OSHA survey form if I am located in a State-Plan State? Yes, all employers who receive survey forms must respond to the survey, even those in State-Plan States.

(b)(5) Does this section affect OSHA's authority to inspect my workplace? No, nothing in this section affects OSHA's statutory authority to investigate conditions related to occupational safety and health.

1904.42(a) Basic requirement. If you receive a Survey of Occupational Injuries and Illnesses Form from the Bureau of Labor Statistics (BLS), or a BLS designee, you must promptly complete the form and return it following the instructions contained on the survey form.

1904.42(b) Implementation.

(b)(1) Does every employer have to send data to the BLS? No, each year, the BLS sends injury and illness survey forms to randomly selected employers and uses the information to create the Nation's occupational injury and illness statistics. In any year, some employers will receive a BLS survey form and others will not. You do not have to send injury and illness data to the BLS unless you receive a survey form.

(b)(2) If I get a survey form from the BLS, what do I have to do? If you receive a Survey of Occupational Injuries and Illnesses Form from the Bureau of Labor Statistics (BLS), or a BLS designee, you must promptly complete the form and return it, following the instructions contained on the survey form.

(b)(3) Do I have to respond to a BLS survey form if I am normally exempt from keeping OSHA injury and illness records? Yes, even if you are exempt from keeping injury and illness records under § 1904.1 to § 1904.3, the BLS may inform you in writing that it will be collecting injury and illness information from you in the coming year. If you receive such a letter, you must keep the injury and illness records required by § 1904.5 to § 1904.15 and make a survey report for the year covered by the survey.

(b)(4) Do I have to answer the BLS survey form if I am located in a State-Plan State? Yes, all employers who receive a survey form must respond to the survey, even those in State-Plan States.

1904.43–45 [Omitted due to dates.]

1904.46—Definitions

The Act. The Act means the Occupational Safety and Health Act of 1970 (29 U.S.C. 651 *et seq.*). The definitions contained in section 3 of the Act (29 U.S.C. 652) and related interpretations apply to such terms when used in this Part 1904.

Establishment. An establishment is a single physical location where business is conducted or where services or industrial operations are performed. For activities where employees do not work at a single physical location, such as construction; transportation; communications, electric, gas and sanitary services; and similar operations, the establishment is represented by main or branch offices, terminals, stations, etc. that either supervise such activities or are the base from which personnel carry out these activities.

1904.46(1) Can one business location include two or more establishments? Normally, one business location has only one establishment. Under limited conditions, the employer may consider two or more separate businesses that share a single location to be separate establishments. An employer may divide one location into two or more establishments only when:

(1)(i) Each of the establishments represents a distinctly separate business;

(1)(ii) Each business is engaged in a different economic activity;

(1)(iii) No one industry description in the Standard Industrial Classification Manual (1987) applies to the joint activities of the establishments; and

(1)(iv) Separate reports are routinely prepared for each establishment on the number of employees, their wages and salaries, sales or receipts, and other business information. For example, if an employer operates a construction company at the same location as a lumber yard, the employer may consider each business to be a separate establishment.

1904.46(2) *Can an establishment include more than one physical location?* Yes, but only under certain conditions. An employer may combine two or more physical locations into a single establishment only when:

(2)(i) The employer operates the locations as a single business operation under common management;

(2)(ii) The locations are all located in close proximity to each other; and

(2)(iii) The employer keeps one set of business records for the locations, such as records on the number of employees, their wages and salaries, sales or receipts, and other kinds of business information. For example, one manufacturing establishment might include the main plant, a warehouse a few blocks away, and an administrative services building across the street.

1904.46(3) *If an employee telecommutes from home, is his or her home considered a separate establishment?* No, for employees who telecommute from home, the employee's home is not a business establishment and a separate 300 Log is not required. Employees who telecommute must be linked to one of your establishments under § 1904.30(b)(3).

Injury or illness. An injury or illness is an abnormal condition or disorder. Injuries include cases such as, but not limited to, a cut, fracture, sprain, or amputation. Illnesses include both acute and chronic illnesses, such as, but not limited to, a skin disease, respiratory disorder, or poisoning. (Note: Injuries and illnesses are recordable only if they are new, work-related cases that meet one or more of the Part 1904 recording criteria.)

Physician or Other Licensed Health Care Professional. A physician or other licensed health care professional is an individual whose legally permitted scope of practice (i.e., license, registration, or certification) allows him or her to independently perform, or be delegated the responsibility to perform, the activities described by this regulation.

You. "You" means an employer as defined in Section 3 of the Occupational Safety and Health Act of 1970 (29 U.S.C. 652).

General Industry Standards Applicable in Agriculture

29 CFR 1910.111(a) Storage and Handling of Anhydrous Ammonia



NFPA 704 Signal:

- Health: 3
- Flammability: 1
- Reactivity: 0
- Special:

Anhydrous ammonia is used as a crop fertilizer. Anhydrous ammonia is a gaseous form of ammonia. “Anhydrous” comes from the Greek word for “without water.” Ammonia’s chemical structure is NH_3 , meaning it contains one part nitrogen and three parts hydrogen, making it a very desirable fertilizer. Nitrogen is a necessary nutrient for plants. Research shows nitrogen supplied as ammonia is used by crops as effectively as nitrogen from any other source. Anhydrous ammonia's advantages are that it is relatively easy to apply and readily available. Some important facts about anhydrous ammonia include:

- Anhydrous ammonia is compressed into a clear colorless liquid when used as an agricultural fertilizer.
- When anhydrous ammonia comes in contact with any moisture, the ammonia immediately combines with the water. When injected into soil, it turns into a gas and then is absorbed into the soil’s moisture.
- If skin, mucous membranes, respiratory system or eyes come in contact with anhydrous ammonia, the chemical will rapidly dehydrate the organs and cause severe chemical burns. It also can instantly freeze skin if it comes in contact in liquid form. Victims exposed to anhydrous ammonia must be treated with large amounts of water to mitigate damage caused.
- Certain metals such as copper, zinc brass and other alloys should never be used to store anhydrous ammonia or for container valves or other fittings because of its corrosive nature. Containment must be done in special high-strength steel.



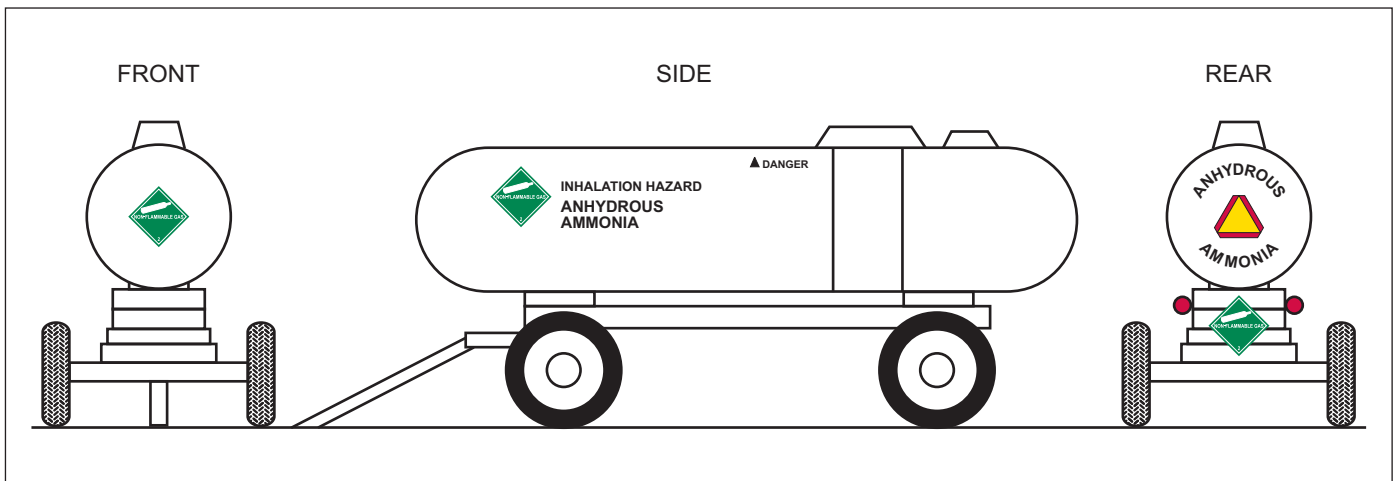
Employees involved in handling anhydrous ammonia, especially during the transfer process, must wear appropriate personal protective equipment (PPE). It is essential that all workers who use anhydrous ammonia wear the appropriate PPE, be equipped with necessary response supplies, and know how to respond in an emergency. Because contact lenses can trap the gas and become fused to the eye, it is recommended that individuals not wear contact lenses while working with anhydrous ammonia.

- Tight-fitting eye protection (splash-proof goggles).
- A face shield is strongly recommended in addition to goggles.
- Chemical-resistant gloves
- Long-sleeved shirt
- Long pants
- Leather work shoes or boots.

29 CFR 1910.111(b)(10)(ii) also states that at least two full-face respirators approved for ammonia must be provided in readily accessible locations at all stationary storage installations. **Remember that employees who may be expected to don these respirators must be included in a formal written respiratory protection program, including respirator training, fit testing and medical evaluations.**

Safety Signage: When operating on a highway, outfit the tank with all required safety markings, including a slow-moving vehicle (SMV) sign.

- The words “Anhydrous Ammonia” must appear on both sides of the tank and on the rear of the tank in letters 4 inches high. The words should be in contrast to the tank so that they can be read easily.
- “Inhalation Hazard” must appear on both sides of the tank in letters 3 inches high.
- A Department of Transportation (DOT) placard number 1005 for nonflammable gas should be placed on the front, back and sides of the tank.



Ammonia is an important component in the illegal manufacturing of methamphetamine. It is commonly stolen by those operating meth labs. Only a few gallons of ammonia are needed to manufacture a large amount of meth, so theft may not be evident. Watch for evidence such as signs of tampering with the tank or valves, footprints, stained soil near the tank, valves that are not tightly closed, items left near the tank such as hoses, duct tape or propane tanks. Placing brightly colored nylon ties on valves will also help to identify when and if valves have been tampered with. Consider using locks on tank valves to prevent theft.

1910.111(a) General.

(a)(1) Scope.

(a)(1)(i) This standard is intended to apply to the design, construction, location, installation, and operation of anhydrous ammonia systems including refrigerated ammonia storage systems.

(a)(1)(ii) This standard does not apply to:

(a)(1)(ii)(a) Ammonia manufacturing plants.

(a)(1)(ii)(b) Refrigeration plants where ammonia is used solely as a refrigerant.

(a)(2) Definitions. As used in this section.

(a)(2)(i) Appurtenances. All devices such as pumps, compressors, safety relief devices, liquid-level gaging devices, valves and pressure gages.

(a)(2)(ii) Cylinder. A container of 1,000 pounds of water capacity or less constructed in accordance with Department of Transportation specifications.

(a)(2)(iii) Code. The Boiler and Pressure Vessel Code, Section VIII, Unfired Pressure Vessels of the American Society of Mechanical Engineers (ASME)—1968.

(a)(2)(iv) Container. Includes all vessels, tanks, cylinders, or spheres used for transportation, storage, or application of anhydrous ammonia.

(a)(2)(v) *DOT*. U.S. Department of Transportation.

(a)(2)(vi) *Design pressure* is identical to the term “Maximum Allowable Working Pressure” used in the Code.

(a)(2)(vii) *Farm vehicle (implement of husbandry)*. A vehicle for use on a farm on which is mounted a container of not over 1,200 gallons water capacity.

(a)(2)(viii) *Filling density*. the percent ratio of the weight of the gas in a container to the weight of water at 60 deg. F. that the container will hold.

(a)(2)(ix) *Gas*. Anhydrous ammonia in either the gaseous or liquefied state.

(a)(2)(x) *Gas masks*. Gas masks must be approved by the National Institute for Occupational Safety and Health (NIOSH) under 42 CFR part 84 for use with anhydrous ammonia.

(a)(2)(xi) *Capacity*. Total volume of the container in standard U.S. gallons.

(a)(2)(xii) *DOT specifications*. Regulations of the Department of Transportation published in 49 CFR Chapter I.

1910.111(b) *Basic rules*. This paragraph applies to all paragraphs of this section unless otherwise noted.

(b)(1) *Approval of equipment and systems*. Each appurtenance shall be approved in accordance with paragraph (b)(1) (i), (ii), (iii), or (iv) of this section.

(b)(1)(i) It was installed before February 8, 1973, and was approved, tested, and installed in accordance with either the provisions of the American National Standard for the Storage and Handling of Anhydrous Ammonia, K61.1, or the Fertilizer Institute Standards for the Storage and Handling of Agricultural Anhydrous Ammonia, M-1, (both of which are incorporated by reference as specified in § 1910.6) in effect at the time of installation; or

(b)(1)(ii) It is accepted, or certified, or listed, or labeled, or otherwise determined to be safe by a nationally recognized testing laboratory; or

(b)(1)(iii) It is a type which no nationally recognized testing laboratory does, or will undertake to, accept, certify, list, label, or determine to be safe; and such equipment is inspected or tested by any Federal, State, municipal, or other local authority responsible for enforcing occupational safety provisions of a Federal, State, municipal or other local law, code, or regulation pertaining to the storage, handling, transport, and use of anhydrous ammonia, and found to be in compliance with either the provisions of the American National Standard for the Storage and Handling of Anhydrous Ammonia, K61.1, or the Fertilizer Institute Standards for the Storage and Handling of Agricultural Anhydrous Ammonia, M-1, in effect at the time of installation; or

(b)(1)(iv) It is a custom-designed and custom-built unit, which no nationally recognized testing laboratory, or Federal, State, municipal or local authority responsible for the enforcement of a Federal, State, municipal, or local law, code or regulation pertaining to the storage, transportation and use of anhydrous ammonia is willing to undertake to accept, certify, list, label or determine to be safe, and the employer has on file a document attesting to its safe condition following the conduct of appropriate tests. The document shall be signed by a registered professional engineer or other person having special training or experience sufficient to permit him to form an opinion as to safety of the unit involved. The document shall set forth the test bases, test data and results, and also the qualifications of the certifying person.

(b)(1)(v) For the purposes of this paragraph (b)(1), the word “listed” means that equipment is of a kind mentioned in a list which is published by a nationally recognized laboratory which makes periodic inspection of the production of such equipment, and states such equipment meets nationally recognized standards or has been tested and found safe for use in a specified manner. “Labeled” means there is attached to it a label, symbol, or other identifying mark of a nationally recognized testing laboratory which, makes periodic inspections of the production of such equipment, and whose labeling indicates compliance with nationally recognized standards or tests to determine safe use in a specified manner. “Certified” means it has been tested and found by a nationally recognized testing laboratory to meet nationally recognized standards or to be safe for use in a specified manner, or is of a kind whose production is periodically inspected by a nationally recognized testing laboratory, and it bears a label, tag, or other record of certification.

(b)(1)(vi) For the purposes of this paragraph (b)(1), refer to 1910.7 for definition of nationally recognized testing laboratory.

(b)(2) *Requirements for construction, original test and requalification of nonrefrigerated containers*.

(b)(2)(i) Containers used with systems covered in paragraphs (c), (f), (g), and (h) of this section shall be constructed and tested in accordance with the Code except that construction under Table UW12 at a basic joint efficiency of under 80 percent is not authorized.

(b)(2)(ii) Containers built according to the Code do not have to comply with Paragraphs UG125 to UG128 inclusive, and Paragraphs UG132 and UG133 of the Code.

(b)(2)(iii) Containers exceeding 36 inches in diameter or 250 gallons water capacity shall be constructed to comply with one or more of the following:

(b)(2)(iii)(a) Containers shall be stress relieved after fabrication in accordance with the Code, or

(b)(2)(iii)(b) Cold-form heads when used, shall be stress relieved, or

(b)(2)(iii)(c) Hot-formed heads shall be used.

(b)(2)(iv) Welding to the shell, head, or any other part of the container subject to internal pressure shall be done in compliance with the Code. Other welding is permitted only on saddle plates, lugs, or brackets attached to the container by the container manufacturer.

(b)(2)(v) Containers used with systems covered in paragraph (e) of this section shall be constructed and tested in accordance with the DOT specifications.

(b)(2)(vi) The provisions of subdivision (i) of this subparagraph shall not be construed as prohibiting the continued use or reinstallation of containers constructed and maintained in accordance with the 1949, 1950, 1952, 1956, 1959, and 1962 editions of the Code or any revisions thereof in effect at the time of fabrication.

(b)(3) *Marking nonrefrigerated containers.*

(b)(3)(i) System nameplates, when required, shall be permanently attached to the system so as to be readily accessible for inspection and shall include markings as prescribed in subdivision (ii) of this subparagraph.

(b)(3)(ii) Each container or system covered in paragraphs (c), (f), (g), and (h) of this section shall be marked as specified in the following:

(b)(3)(ii)(a) With a notation "Anhydrous Ammonia".

(b)(3)(ii)(b) With a marking identifying compliance with the rules of the Code under which the container is constructed.

Under ground: Container and system nameplate. Above ground: Container.

(b)(3)(ii)(c) With a notation whether the system is designed for underground or aboveground installation or both.

(b)(3)(ii)(d) With the name and address of the supplier of the system or the trade name of the system and with the date of fabrication.

Under ground and above ground: System nameplate.

(b)(3)(ii)(e) With the water capacity of the container in pounds at 60 deg. F. or gallons, U.S. Standard.

Under ground: Container and system nameplate. Above ground: Container.

(b)(3)(ii)(f) With the design pressure in pounds per square inch.

Under ground: Container and system nameplate. Above ground: Container.

(b)(3)(ii)(g) With the wall thickness of the shell and heads.

Under ground: Container and system nameplate. Above ground: Container.

(b)(3)(ii)(h) With marking indicating the maximum level to which the container may be filled with liquid anhydrous ammonia at temperatures between 20 deg. F. and 130 deg. F. except on containers provided with fixed level indicators, such as fixed length dip tubes, or containers that are filled with weight. Markings shall be in increments of not more than 20 deg. F.

Above ground and under ground: System nameplate or on liquid-level gaging device.

(b)(3)(ii)(i) With the total outside surface area of the container in square feet.

Under ground: System nameplate. Above ground: No requirement.

(b)(3)(ii)(j) Marking specified on the container shall be on the container itself or on a nameplate permanently attached to it.

(b)(4) *Marking refrigerated containers.* Each refrigerated container shall be marked with nameplate on the outer covering in an accessible place as specified in the following:

(b)(4)(i) With the notation, “Anhydrous Ammonia”.

(b)(4)(ii) With the name and address of the builder and the date of fabrication.

(b)(4)(iii) With the water capacity of the container in gallons, U.S. Standard.

(b)(4)(iv) With the design pressure.

(b)(4)(v) With the minimum temperature in degrees Fahrenheit for which the container was designed.

(b)(4)(vi) The maximum allowable water level to which the container may be filled for test purposes.

(b)(4)(vii) With the density of the product in pounds per cubic foot for which the container was designed.

(b)(4)(viii) With the maximum level to which the container may be filled with liquid anhydrous ammonia.

(b)(5) *Location of containers.*

(b)(5)(i) Consideration shall be given to the physiological effects of ammonia as well as to adjacent fire hazards in selecting the location for a storage container. Containers shall be located outside of buildings or in buildings or sections thereof especially provided for this purpose.

(b)(5)(ii) Permanent storage containers shall be located at least 50 feet from a dug well or other sources of potable water supply, unless the container is a part of a water-treatment installation.

(b)(5)(iii)-(iv) [Reserved]

(b)(5)(v) Storage areas shall be kept free of readily ignitable materials such as waste, weeds, and long dry grass.

(b)(6) *Container appurtenances.*

(b)(6)(i) All appurtenances shall be designed for not less than the maximum working pressure of that portion of the system on which they are installed. All appurtenances shall be fabricated from materials proved suitable for anhydrous ammonia service.

(b)(6)(ii) All connections to containers except safety relief devices, gaging devices, or those fitted with No. 54 drill-size orifice shall have shutoff valves located as close to the container as practicable.

(b)(6)(iii) Excess flow valves where required by these standards shall close automatically at the rated flows of vapor or liquid as specified by the manufacturer. The connections and line including valves and fittings being protected by an excess flow valve shall have a greater capacity than the rated flow of the excess flow valve so that the valve will close in case of failure of the line or fittings.

(b)(6)(iv) Liquid-level gaging devices that require bleeding of the product to the atmosphere and which are so constructed that outward flow will not exceed that passed by a No. 54 drill-size opening need not be equipped with excess flow valves.

(b)(6)(v) Openings from the container or through fittings attached directly on the container to which pressure gage connections are made need not be equipped with excess flow valves if such openings are not larger than No. 54 drill size.

(b)(6)(vi) Excess flow and back pressure check valves where required by the standards in this section shall be located inside of the container or at a point outside as close as practicable to where the line enters the container. In the latter case installation shall be made in such manner that any undue strain beyond the excess flow or back pressure check valve will not cause breakage between the container and the valve.

(b)(6)(vii) Excess flow valves shall be designed with a bypass, not to exceed a No. 60 drill-size opening to allow equalization of pressures.

(b)(6)(viii) All excess flow valves shall be plainly and permanently marked with the name or trademark of the manufacturer, the catalog number, and the rated capacity.

(b)(7) *Piping, tubing, and fittings.*

(b)(7)(i) All piping, tubing, and fittings shall be made of material suitable for anhydrous ammonia service.

(b)(7)(ii) All piping, tubing, and fittings shall be designed for a pressure not less than the maximum pressure to which they may be subjected in service.

(b)(7)(iii) All refrigerated piping shall conform to the Refrigeration Piping Code, American National Standards Institute, B31.5-1966 with addenda B31.1a-1968, which is incorporated by reference as specified in § 1910.6, as it applies to ammonia.

(b)(7)(iv) Piping used on non-refrigerated systems shall be at least American Society for Testing and Materials (ASTM) A-53-69 Grade B Electric Resistance Welded and Electric Flash Welded Pipe, which is incorporated by reference as specified in § 1910.6, or equal. Such pipe shall be at least schedule 40 when joints are welded, or welded and flanged. Such pipe shall be at least schedule 80 when joints are threaded. Threaded connections shall not be back-welded. Brass, copper, or galvanized steel pipe shall not be used.

(b)(7)(v) Tubing made of brass, copper, or other material subject to attack by ammonia shall not be used.

(b)(7)(vi) Cast iron fittings shall not be used but this shall not prohibit the use of fittings made specifically for ammonia service of malleable, nodular, or high strength gray iron meeting American Society for Testing and Materials (ASTM) A47-68, ASTM 395-68, or ASTM A126-66 Class B or C, all of which are incorporated by reference as specified in § 1910.6.

(b)(7)(vii) Joint compounds shall be resistant to ammonia.

(b)(8) *Hose specifications.*

(b)(8)(i) Hose used in ammonia service shall conform to the joint Agricultural Ammonia Institute—Rubber Manufacturers Association Specifications for Anhydrous Ammonia Hose.

(b)(8)(ii) Hose subject to container pressure shall be designed for a minimum working pressure of 350 p.s.i.g. and a minimum burst pressure of 1,750 p.s.i.g. Hose assemblies, when made up, shall be capable of withstanding a test pressure of 500 p.s.i.g.

(b)(8)(iii) Hose and hose connections located on the low-pressure side of flow control of pressure-reducing valves shall be designed for a bursting pressure of not less than 5 times the pressure setting of the safety relief devices protecting that portion of the system but not less than 125 p.s.i.g. All connections shall be so designed and constructed that there will be no leakage when connected.

(b)(8)(iv) Where hose is to be used for transferring liquid from one container to another, “wet” hose is recommended. Such hose shall be equipped with approved shutoff valves at the discharge end. Provision shall be made to prevent excessive pressure in the hose.

(b)(8)(v) On all hose one-half inch outside diameter and larger, used for the transfer of anhydrous ammonia liquid or vapor, there shall be etched, cast, or impressed at 5-foot intervals the following information.

“Anhydrous Ammonia” XXX p.s.i.g. (maximum working pressure), manufacturer’s name or trademark, year of manufacture.

In lieu of this requirement the same information may be contained on a nameplate permanently attached to the hose.

Table H-36

[Minimum required rate of discharge in cubic feet per minute of air at 120 percent of the maximum permitted start to discharge pressure of safety relief valves]

Surface area (sq. ft.)	Flow rate CFM air	Surface area (sq. ft.)	Flow rate CFM air	Surface area (sq. ft.)	Flow rate CFM air
20	258	185	1,600	900	5,850
25	310	190	1,640	950	6,120
30	360	195	1,670	1,000	6,380
35	408	200	1,710	1,050	6,640
40	455	210	1,780	1,100	6,900
45	501	220	1,850	1,150	7,160
50	547	230	1,920	1,200	7,410
55	591	240	1,980	1,250	7,660
60	635	250	2,050	1,300	7,910
65	678	260	2,120	1,350	8,160
70	720	270	2,180	1,400	8,410
75	762	280	2,250	1,450	8,650
80	804	290	2,320	1,500	8,900
85	845	300	2,380	1,550	9,140
90	885	310	2,450	1,600	9,380
95	925	320	2,510	1,650	9,620
100	965	330	2,570	1,700	9,860
105	1,010	340	2,640	1,750	10,090
110	1,050	350	2,700	1,800	10,330
115	1,090	360	2,760	1,850	10,560
120	1,120	370	2,830	1,900	10,800
125	1,160	380	2,890	1,950	11,030
130	1,200	390	2,950	2,000	11,260
135	1,240	400	3,010	2,050	11,490
140	1,280	450	3,320	2,100	11,720
145	1,310	500	3,620	2,150	11,950
150	1,350	550	3,910	2,200	12,180
155	1,390	600	4,200	2,250	12,400
160	1,420	650	4,480	2,300	12,630
165	1,460	700	4,760	2,350	12,850
170	1,500	750	5,040	2,400	13,080
175	1,530	800	5,300	2,450	13,300
180	1,570	850	5,590	2,500	13,520

Surface Area = total outside surface area of container in square feet. When the surface area is not stamped on the nameplate or when the marking is not legible the area can be calculated by using one of the following formulas:

(1) Cylindrical container with hemispherical heads:

Area = overall length in feet times outside diameter in feet times 3.1416.

(2) Cylindrical container with other than hemispherical heads:

Area = (overall length in feet plus 0.3 outside diameter in feet) times outside diameter in feet times 3.1416.

(3) Spherical container:

Area = outside diameter in feet squared times 3.1416.

Flow Rate—CFM Air = cubic feet per minute of air required at standard conditions, 60 deg. F. and atmospheric pressure (14.7 p.s.i.a.).

The rate of discharge may be interpolated for intermediate values of surface area. For containers with total outside surface area greater than 2,500 square feet, the required flow rate can be calculated using the formula: Flow Rate CFM Air=22.11 A(0)(82), where A=outside surface area of the container in square feet.

(b)(9) Safety relief devices.

(b)(9)(i) Every container used in systems covered by paragraphs (c), (f), (g), and (h) of this section shall be provided with one or more safety relief valves of the spring-loaded or equivalent type. The discharge from safety-relief valves shall be vented away from the container upward and unobstructed to the atmosphere. All relief-valve discharge openings shall have suitable rain caps that will allow free discharge of the vapor and prevent entrance of water. Provision shall be made for draining condensate which may accumulate. The rate of the discharge shall be in accordance with the provisions of Table H-36.

(b)(9)(ii) Container safety-relief valves shall be set to start-to-discharge as follows, with relation to the design pressure of the container:

Containers	Minimum (percent)	Maximum (percent)
ASME-U-68, U-69	110	125
ASME-U-200, U-201	95	100
ASME 1959, 1956, 1952, or 1962	95	100
API-ASME	95	100
U.S. Coast Guard	95	100

As required by DOT Regulations.

(b)(9)(iii) Safety relief devices used in systems covered by paragraphs (c), (f), (g), and (h) of this section shall be constructed to discharge at not less than the rates required in paragraph (b)(9)(i) of this section before the pressure is in excess of 120 percent (not including the 10 percent tolerance referred to in paragraph (b)(9)(ii) of this section) of the maximum permitted start-to-discharge pressure setting of the device.

(b)(9)(iv) Safety-relief valves shall be so arranged that the possibility of tampering will be minimized. If the pressure setting adjustment is external, the relief valves shall be provided with means for sealing the adjustment.

(b)(9)(v) Shutoff valves shall not be installed between the safety-relief valves and the container; except, that a shutoff valve may be used where the arrangement of this valve is such as always to afford full required capacity flow through the relief valves.

(b)(9)(vi) Safety-relief valves shall have direct communication with the vapor space of the container.

(b)(9)(vii) Each container safety-relief valve used with systems covered by paragraphs (c), (f), (g), and (h) of this section shall be plainly and permanently marked with the symbol "NH(3)" or "AA"; with the pressure in pounds-per-square-inch gage at which the valve is set to start-to-discharge; with the actual rate of discharge of the valve at its full open position in cubic feet per minute of air at 60 deg. F. and atmospheric pressure; and with the manufacturer's name and catalog number. Example: "NH(3) 250-4050 Air" indicates that the valve is suitable for use on an anhydrous ammonia container, is set to start-to-discharge at a pressure of 250 p.s.i.g., and that its rate of discharge at full open position (subdivisions (ii) and (iii) of this subparagraph) is 4,050 cubic feet per minute of air.

(b)(9)(viii) The flow capacity of the relief valve shall not be restricted by any connection to it on either the upstream or downstream side.

(b)(9)(ix) A hydrostatic relief valve shall be installed between each pair of valves in the liquid ammonia piping or hose where liquid may be trapped so as to relieve into the atmosphere at a safe location.

(b)(10) General.

(b)(10)(i) [Reserved]

(b)(10)(ii) Stationary storage installations must have at least two suitable gas masks in readily-accessible locations. Full-face masks with ammonia canisters that have been approved by NIOSH under 42 CFR part 84 are suitable for emergency action involving most anhydrous ammonia leaks, particularly leaks that occur outdoors. For respiratory protection in concentrated ammonia atmospheres, a self-contained breathing apparatus is required.

(b)(10)(iii) Stationary storage installations shall have an easily accessible shower or a 50-gallon drum of water.

(b)(10)(iv) Each vehicle transporting ammonia in bulk except farm applicator vehicles shall carry a container of at least 5 gallons of water and shall be equipped with a full face mask.

(b)(11) *Charging of containers.*

(b)(11)(i) The filling densities for containers that are not refrigerated shall not exceed the following:

Type of container	Percent by weight	Percent by volume
Aboveground-Uninsulated	56	82
Aboveground-Uninsulated		87.5
Aboveground-Insulated	57	83.5
Underground-Uninsulated	58	85
DOT—In accord with DOT regulations		

(b)(11)(ii) Aboveground uninsulated containers may be charged 87.5 percent by volume provided the temperature of the anhydrous ammonia being charged is determined to be not lower than 30 deg. F. or provided the charging of the container is stopped at the first indication of frost or ice formation on its outside surface and is not resumed until such frost or ice has disappeared.

(b)(12) *Transfer of liquids.*

(b)(12)(i) Anhydrous ammonia shall always be at a temperature suitable for the material of construction and the design of the receiving container.

(b)(12)(ii) The employer shall require the continuous presence of an attendant in the vicinity of the operation during such time as ammonia is being transferred.

(b)(12)(iii) Containers shall be charged or used only upon authorization of the owner.

(b)(12)(iv) Containers shall be gaged and charged only in the open atmosphere or in buildings or areas thereof provided for that purpose.

(b)(12)(v) Pumps used for transferring ammonia shall be those manufactured for that purpose.

(b)(12)(v)(a) Pumps shall be designed for at least 250 p.s.i.g. working pressure.

(b)(12)(v)(b) Positive displacement pumps shall have, installed off the discharged port, a constant differential relief valve discharging into the suction port of the pump through a line of sufficient size to carry the full capacity of the pump at relief valve setting, which setting and installation shall be according to the pump manufacturer's recommendations.

(b)(12)(v)(c) On the discharge side of the pump, before the relief valve line, there shall be installed a pressure gage graduated from 0 to 400 p.s.i.

(b)(12)(v)(d) Plant piping shall contain shutoff valves located as close as practical to pump connections.

(b)(12)(vi) Compressors used for transferring or refrigerating ammonia shall be recommended for ammonia service by the manufacturer.

(b)(12)(vi)(a) Compressors shall be designed for at least 250 p.s.i.g. working pressure.

(b)(12)(vi)(b) Plant piping shall contain shutoff valves located as close as practical to compressor connections.

(b)(12)(vi)(c) A relief valve large enough to discharge the full capacity of the compressor shall be connected to the discharge before any shutoff valve.

(b)(12)(vi)(d) Compressors shall have pressure gages at suction and discharge graduated to at least one and one-half times the maximum pressure that can be developed.

(b)(12)(vi)(e) Adequate means, such as drainable liquid trap, shall be provided on the compressor suction to minimize the entry of liquid into the compressor.

(b)(12)(vii) Loading and unloading systems shall be protected by suitable devices to prevent emptying of the storage container or the container being loaded or unloaded in the event of severance of the hose. Backflow check valves or properly sized excess flow valves shall be installed where necessary to provide such protection. In the event that such valves are not practical, remotely operated shutoff valves may be installed.

(b)(13) *Tank car unloading points and operations.*

(b)(13)(i) Provisions for unloading tank cars shall conform to the applicable recommendations contained in the DOT regulations.

(b)(13)(ii) The employer shall insure that unloading operations are performed by reliable persons properly instructed and given the authority to monitor careful compliance with all applicable procedures.

(b)(13)(iii) Caution signs shall be so placed on the track or car as to give necessary warning to persons approaching the car from open end or ends of siding and shall be left up until after the car is unloaded and disconnected from discharge connections. Signs shall be of metal or other suitable material, at least 12 by 15 inches in size and bear the words "STOP—Tank Car Connected" or "STOP—Men at Work" the word, "STOP," being in letters at least 4 inches high and the other words in letters at least 2 inches high.

(b)(13)(iv) The track of a tank car siding shall be substantially level.

(b)(13)(v) Brakes shall be set and wheels blocked on all cars being unloaded.

(b)(14) *Liquid-level gaging device.*

(b)(14)(i) Each container except those filled by weight shall be equipped with an approved liquid-level gaging device. A thermometer well shall be provided in all containers not utilizing a fixed liquid-level gaging device.

(b)(14)(ii) All gaging devices shall be arranged so that the maximum liquid level to which the container is filled is readily determined.

(b)(14)(iii) Gaging devices that require bleeding of the product to the atmosphere such as the rotary tube, fixed tube, and slip tube devices shall be designed so that the maximum opening of the bleed valve is not larger than No. 54 drill size unless provided with an excess flow valve. (This requirement does not apply to farm vehicles used for the application of ammonia as covered in paragraph (h) of this section.)

(b)(14)(iv) Gaging devices shall have a design pressure equal to or greater than the design pressure of the container on which they are installed.

(b)(14)(v) Fixed tube liquid-level gages shall be designed and installed to indicate that level at which the container is filled to 85 percent of its water capacity in gallons.

(b)(14)(vi) Gage glasses of the columnar type shall be restricted to stationary storage installations. They shall be equipped with shutoff valves having metallic handwheels, with excess-flow valves, and with extra heavy glass adequately protected with a metal housing applied by the gage manufacturer. They shall be shielded against the direct rays of the sun.

(b)(15) [Reserved]

(b)(16) *Electrical equipment and wiring.*

(b)(16)(i) Electrical equipment and wiring for use in ammonia installations shall be general purpose or weather resistant as appropriate.

(b)(16)(ii) Electrical systems shall be installed and maintained in accordance with subpart S of this part.

1910.111(c) *Systems utilizing stationary, nonrefrigerated storage containers.* This paragraph applies to stationary, non-refrigerated storage installations utilizing containers other than those covered in paragraph (e) of this section. Paragraph (b) of this section applies to this paragraph unless otherwise noted.

(c)(1) *Design pressure and construction of containers.* The minimum design pressure for nonrefrigerated containers shall be 250 p.s.i.g.

(c)(2) *Container valves and accessories, filling and discharge connections.*

- (c)(2)(i)** Each filling connection shall be provided with combination back-pressure check valve and excess-flow valve; one double or two single back-pressure check valves; or a positive shutoff valve in conjunction with either an internal back-pressure check valve or an internal excess flow valve.
- (c)(2)(ii)** All liquid and vapor connections to containers except filling pipes, safety relief connections, and liquid-level gaging and pressure gage connections provided with orifices not larger than No. 54 drill size as required in paragraphs (b)(6) (iv) and (v) of this section shall be equipped with excess-flow valves.
- (c)(2)(iii)** Each storage container shall be provided with a pressure gage graduated from 0 to 400 p.s.i. Gages shall be designated for use in ammonia service.
- (c)(2)(iv)** All containers shall be equipped with vapor return valves.
- (c)(3) Safety-relief devices.**
- (c)(3)(i)** Every container shall be provided with one or more safety-relief valves of the spring-loaded or equivalent type in accordance with paragraph (b)(9) of this section.
- (c)(3)(ii)** The rate of discharge of spring-loaded safety relief valves installed on underground containers may be reduced to a minimum of 30 percent of the rate of discharge specified in Table H-36. Containers so protected shall not be uncovered after installation until the liquid ammonia has been removed. Containers which may contain liquid ammonia before being installed underground and before being completely covered with earth are to be considered aboveground containers when determining the rate of discharge requirements of the safety-relief valves.
- (c)(3)(iii)** On underground installations where there is a probability of the manhole or housing becoming flooded, the discharge from vent lines shall be located above the high water level. All manholes or housings shall be provided with ventilated louvers or their equivalent, the area of such openings equaling or exceeding combined discharge areas of safety-relief valves and vent lines which discharge their content into the manhole housing.
- (c)(3)(iv)** Vent pipes, when used, shall not be restricted or of smaller diameter than the relief-valve outlet connection.
- (c)(3)(v)** If desired, vent pipes from two or more safety-relief devices located on the same unit, or similar lines from two or more different units may be run into a common discharge header, provided the capacity of such header is at least equal to the sum of the capacities of the individual discharge lines.
- (c)(4) Reinstallation of containers.**
- (c)(4)(i)** Containers once installed under ground shall not later be reinstalled above ground or under ground, unless they successfully withstand hydrostatic pressure retests at the pressure specified for the original hydrostatic test as required by the code under which constructed and show no evidence of serious corrosion.
- (c)(4)(ii)** Where containers are reinstalled above ground, safety devices or gaging devices shall comply with paragraph (b)(9) of this section and this paragraph respectively for aboveground containers.
- (c)(5) Installation of storage containers.**
- (c)(5)(i)** Containers installed above ground, except as provided in paragraph (c)(5)(v) of this section shall be provided with substantial concrete or masonry supports, or structural steel supports on firm concrete or masonry foundations. All foundations shall extend below the frost line.
- (c)(5)(ii)** Horizontal aboveground containers shall be so mounted on foundations as to permit expansion and contraction. Every container shall be supported to prevent the concentration of excessive loads on the supporting portion of the shell. That portion of the container in contact with foundations or saddles shall be protected against corrosion.
- (c)(5)(iii)** Containers installed under ground shall be so placed that the top of the container is below the frost line and in no case less than 2 feet below the surface of the ground. Should ground conditions make compliance with these requirements impracticable, installation shall be made otherwise to prevent physical damage. It will not be necessary to cover the portion of the container to which manhole and other connections are affixed. When necessary to prevent floating, containers shall be securely anchored or weighted.
- (c)(5)(iv)** Underground containers shall be set on a firm foundation (firm earth may be used) and surrounded with earth or sand well tamped in place. The container, prior to being placed under ground, shall be given a corrosion resisting protective coating. The container thus coated shall be so lowered into place as to prevent abrasion or other damage to the coating.

(c)(5)(v) Containers with foundations attached (portable or semiportable tank containers with suitable steel “runners” or “skids” and commonly known in the industry as “skid tanks”) shall be designed and constructed in accordance with paragraph (c)(1) of this section.

(c)(5)(vi) Secure anchorage or adequate pier height shall be provided against container flotation wherever sufficiently high flood water might occur.

(c)(5)(vii) The distance between underground containers of over 2,000 gallons capacity shall be at least 5 feet.

(c)(6) *Protection of appurtenances.*

(c)(6)(i) Valves, regulating, gaging, and other appurtenances shall be protected against tampering and physical damage. Such appurtenances shall also be protected during transit of containers.

(c)(6)(ii) All connections to underground containers shall be located within a dome, housing, or manhole and with access thereto by means of a substantial cover.

(c)(7) *Damage from vehicles.* Precaution shall be taken against damage to ammonia systems from vehicles.

1910.111(d) *Refrigerated storage systems.* This paragraph applies to systems utilizing containers with the storage of anhydrous ammonia under refrigerated conditions. All applicable rules of paragraph (b) of this section apply to this paragraph unless otherwise noted.

(d)(1) *Design of containers.*

(d)(1)(i) The design temperature shall be the minimum temperature to which the container will be refrigerated.

(d)(1)(ii) Containers with a design pressure exceeding 15 p.s.i.g. shall be constructed in accordance with paragraph (b)(2) of this section, and the materials shall be selected from those listed in API Standard 620, Recommended Rules for Design and Construction of Large, Welded, Low-Pressure Storage Tanks, Fourth Edition, 1970, Tables 2.02, R2.2, R2.2(A), R2.2.1, or R2.3, which are incorporated by reference as specified in § 1910.6.

(d)(1)(iii) Containers with a design pressure of 15 p.s.i.g. and less shall be constructed in accordance with the applicable requirements of API Standard 620 including its Appendix R.

(d)(1)(iv) When austenitic steels or nonferrous materials are used, the Code shall be used as a guide in the selection of materials for use at the design temperature.

(d)(1)(v) The filling density for refrigerated storage containers shall be such that the container will not be liquid full at a liquid temperature corresponding to the vapor pressure at the start-to-discharge pressure setting of the safety-relief valve.

(d)(2) *Installation of refrigerated storage containers.*

(d)(2)(i) Containers shall be supported on suitable noncombustible foundations designed to accommodate the type of container being used.

(d)(2)(ii) Adequate protection against flotation or other water damage shall be provided wherever high flood water might occur.

(d)(2)(iii) Containers for product storage at less than 32 deg. F. shall be supported in such a way, or heat shall be supplied, to prevent the effects of freezing and consequent frost heaving.

(d)(3) *Shutoff valves.* When operating conditions make it advisable, a check valve shall be installed on the fill connection and a remotely operated shutoff valve on other connections located below the maximum liquid level.

(d)(4) *Safety relief devices.*

(d)(4)(i) Safety relief valves shall be set to start-to-discharge at a pressure not in excess of the design pressure of the container and shall have a total relieving capacity sufficient to prevent a maximum pressure in the container of more than 120 percent of the design pressure. Relief valves for refrigerated storage containers shall be self-contained spring-loaded, weight-loaded, or self-contained pilot-operated type.

(d)(4)(ii) The total relieving capacity shall be the larger of:

(d)(4)(ii)(a) Possible refrigeration system upset such as (1) cooling water failure, (2) power failure, (3) instrument air or instrument failure, (4) mechanical failure of any equipment, (5) excessive pumping rates.

(d)(4)(ii)(b) Fire exposure determined in accordance with Compressed Gas Association (CGA) S-1, Part 3, Safety Relief Device Standards for Compressed Gas Storage Containers, 1959,, which is incorporated by reference as specified in § 1910.6, except that “A” shall be the total exposed surface area in square feet up to 25 foot above grade or to the equator of the storage container if it is a sphere, whichever is greater. If the relieving capacity required for fire exposure is greater than that required by (a) of this subdivision, the additional capacity may be provided by weak roof to shell seams in containers operating at essentially atmospheric pressure and having an inherently weak roof-to-shell seam. The weak roof-to-shell seam is not to be considered as providing any of the capacity required in (a) of this subdivision.

(d)(4)(iii) If vent lines are installed to conduct the vapors from the relief valve, the back pressure under full relieving conditions shall not exceed 50 percent of the start-to-discharge pressure for pressure balanced valves or 10 percent of the start-to-discharge pressure for conventional valves. The vent lines shall be installed to prevent accumulation of liquid in the lines.

(d)(4)(iv) The valve or valve installation shall provide weather protection.

(d)(4)(v) Atmospheric storage shall be provided with vacuum breakers. Ammonia gas, nitrogen, methane, or other inert gases can be used to provide a pad.

(d)(5) *Protection of container appurtenances.* Appurtenances shall be protected against tampering and physical damage.

(d)(6) *Reinstallation of refrigerated storage containers.* Containers of such size as to require field fabrication shall, when moved and reinstalled, be reconstructed and reinspected in complete accordance with the requirements under which they were constructed. The containers shall be subjected to a pressure retest and if rerating is necessary, rerating shall be in accordance with applicable requirements.

(d)(7) *Damage from vehicles.* Precaution shall be taken against damage from vehicles.

(d)(8) *Refrigeration load and equipment.*

(d)(8)(i) The total refrigeration load shall be computed as the sum of the following:

(d)(8)(i)(a) Load imposed by heat flow into the container caused by the temperature differential between design ambient temperature and storage temperature.

(d)(8)(i)(b) Load imposed by heat flow into the container caused by maximum sun radiation.

(d)(8)(i)(c) Maximum load imposed by filling the container with ammonia warmer than the design storage temperature.

(d)(8)(ii) More than one storage container may be handled by the same refrigeration system.

(d)(9) *Compressors.*

(d)(9)(i) A minimum of two compressors shall be provided either of which shall be of sufficient size to handle the loads listed in paragraphs (d)(8)(i)(a) and (b) of this section. Where more than two compressors are provided minimum standby equipment equal to the largest normally operating equipment shall be installed. Filling compressors may be used as standby equipment for holding compressors.

(d)(9)(ii) Compressors shall be sized to operate with a suction pressure at least 10 percent below the minimum setting of the safety valve(s) on the storage container and shall withstand a suction pressure at least equal to 120 percent of the design pressure of the container.

(d)(10) *Compressor drives.*

(d)(10)(i) Each compressor shall have its individual driving unit.

(d)(10)(ii) An emergency source of power of sufficient capacity to handle the loads listed in paragraphs (d)(8)(i) (a) and (b) of this section shall be provided unless facilities are available to safely dispose of vented vapors while the refrigeration system is not operating.

(d)(11) *Automatic control equipment.*

(d)(11)(i) The refrigeration system shall be arranged with suitable controls to govern the compressor operation in accordance with the load as evidenced by the pressure in the container(s).

(d)(11)(ii) An emergency alarm system shall be installed to function in the event the pressure in the container(s) rises to the maximum allowable operating pressure.

(d)(11)(iii) An emergency alarm and shutoff shall be located in the condenser system to respond to excess discharge pressure caused by failure of the cooling medium.

(d)(11)(iv) All automatic controls shall be installed in a manner to preclude operation of alternate compressors unless the controls will function with the alternate compressors.

(d)(12) *Separators for compressors.*

(d)(12)(i) An entrainment separator of suitable size and design pressure shall be installed in the compressor suction line of lubricated compression. The separator shall be equipped with a drain and gaging device.

(d)(13) *Condensers.* The condenser system may be cooled by air or water or both. The condenser shall be designed for at least 250 p.s.i.g. Provision shall be made for purging noncondensibles either manually or automatically.

(d)(14) *Receiver and liquid drain.* A receiver shall be provided with a liquid-level control to discharge the liquid ammonia to storage. The receiver shall be designed for at least 250 p.s.i.g. and be equipped with the necessary connections, safety valves, and gaging device.

(d)(15) *Insulation.* Refrigerated containers and pipelines which are insulated shall be covered with a material of suitable quality and thickness for the temperatures encountered. Insulation shall be suitably supported and protected against the weather. Weatherproofing shall be of a type which will not support flame propagation.

1910.111(e) *Systems utilizing portable DOT containers.*

(e)(1) *Conformance.* Cylinders shall comply with DOT specifications and shall be maintained, filled, packaged, marked, labeled, and shipped to comply with 49 CFR chapter I and the marking requirements set forth in § 1910.253(b)(1)(ii).

(e)(2) *Storage.* Cylinders shall be stored in an area free from ignitable debris and in such manner as to prevent external corrosion. Storage may be indoors or outdoors.

(e)(3) *Heat protection.* Cylinders filled in accordance with DOT regulations will become liquid full at 145 deg. F. Cylinders shall be protected from heat sources such as radiant flame and steampipes. Heat shall not be applied directly to cylinders to raise the pressure.

(e)(4) *Protection.* Cylinders shall be stored in such manner as to protect them from moving vehicles or external damage.

(e)(5) *Valve cap.* Any cylinder which is designed to have a valve protection cap shall have the cap securely in place when the cylinder is not in service.

1910.111(f) *Tank motor vehicles for the transportation of ammonia.*

(f)(1) This paragraph applies to containers and pertinent equipment mounted on tank motor vehicles including semi-trailers and full trailers used for the transportation of ammonia. This paragraph does not apply to farm vehicles. For requirements covering farm vehicles, refer to paragraphs (g) and (h) of this section.

Paragraph (b) of this section applies to this paragraph unless otherwise noted. Containers and pertinent equipment for tank motor vehicles for the transportation of anhydrous ammonia, in addition to complying with the requirements of this section, shall also comply with the requirements of DOT.

(f)(2) *Design pressure and construction of containers.*

(f)(2)(i) The minimum design pressure for containers shall be that specified in the regulations of the DOT.

(f)(2)(ii) The shell or head thickness of any container shall not be less than three-sixteenth inch.

(f)(2)(iii) All container openings, except safety relief valves, liquid-level gaging devices, and pressure gages, shall be labeled to designate whether they communicate with liquid or vapor space.

(f)(3) *Container appurtenances.*

(f)(3)(i) All appurtenances shall be protected against physical damage.

(f)(3)(ii) All connections to containers, except filling connections, safety relief devices, and liquid-level and pressure gage connections, shall be provided with suitable automatic excess flow valves, or in lieu thereof, may be fitted with quick-closing internal valves, which shall remain closed except during delivery operations. The control mechanism for such valves may be provided with a secondary control remote from the delivery connections and such control mechanism shall be provided with a fusible section (melting point 208 deg. F. to 220 deg. F.) which will permit the internal valve to close automatically in case of fire.

(f)(3)(iii) Filling connections shall be provided with automatic back-pressure check valves, excess-flow valves, or quick-closing internal valves, to prevent back-flow in case the filling connection is broken. Where the filling and discharge connect to a common opening in the container shell and that opening is fitted with a quick-closing internal valve as specified in paragraph (f)(3)(ii) of this section, the automatic valve shall not be required.

(f)(3)(iv) All containers shall be equipped for spray loading (filling in the vapor space) or with an approved vapor return valve of adequate capacity.

(f)(4) *Piping and fittings.*

(f)(4)(i) All piping, tubing, and fittings shall be securely mounted and protected against damage. Means shall be provided to protect hoses while the vehicle is in motion.

(f)(4)(ii) Fittings shall comply with paragraph (b)(6) of this section. Pipe shall be Schedule 80.

(f)(5) *Safety relief devices.*

(f)(5)(i) The discharge from safety relief valves shall be vented away from the container upward and unobstructed to the open air in such a manner as to prevent any impingement of escaping gas upon the container; loose-fitting rain caps shall be used. Size of discharge lines from safety valves shall not be smaller than the nominal size of the safety-relief valve outlet connection. Suitable provision shall be made for draining condensate which may accumulate in the discharge pipe.

(f)(5)(ii) Any portion of liquid ammonia piping which at any time may be closed at both ends shall be provided with a hydrostatic relief valve.

(f)(6) *Transfer of liquids.*

(f)(6)(i) The content of tank motor vehicle containers shall be determined by weight, by a suitable liquid-level gaging device, or other approved methods. If the content of a container is to be determined by liquid-level measurement, the container shall have a thermometer well so that the internal liquid temperature can be easily determined. This volume when converted to weight shall not exceed the filling density specified by the DOT.

(f)(6)(ii) Any pump, except a constant speed centrifugal pump, shall be equipped with a suitable pressure actuated bypass valve permitting flow from discharge to suction when the discharge pressure rises above a predetermined point. Pump discharge shall also be equipped with a spring-loaded safety relief valve set at a pressure not more than 135 percent of the setting of the bypass valve or more than 400 p.s.i.g., whichever is larger.

(f)(6)(iii) Compressors shall be equipped with manually operated shutoff valves on both suction and discharge connections. Pressure gages of bourdon-tube type shall be installed on the suction and discharge of the compressor before the shutoff valves. The compressor shall not be operated if either pressure gage is removed or is inoperative. A spring-loaded, safety-relief valve capable of discharging to atmosphere the full flow of gas from the compressor at a pressure not exceeding 300 p.s.i.g. shall be connected between the compressor discharge and the discharge shutoff valve.

(f)(6)(iv) Valve functions shall be clearly and legibly identified by metal tags or nameplates permanently affixed to each valve.

(f)(7) [Reserved]

(f)(7)(i) All full trailers shall be firmly and securely attached to the vehicle drawing them by means of suitable drawbars supplemented by a safety chain (or chains) or safety cables.

(f)(7)(ii) Every full trailer or semitrailer shall have a reliable system of brakes, and adequate provision shall be made to operate the brakes from the driver's seat.

(f)(7)(iii) Every full trailer shall be equipped with self-energizing brakes.

(f)(7)(iv) Full trailers shall be so designed that the towed vehicle will follow substantially in the path of the towing vehicle and will not whip or swerve dangerously from side to side.

(f)(7)(v) Where a fifth wheel is employed, it shall be ruggedly designed, securely fastened to both units, and equipped with a positive locking mechanism which will prevent separation of the two units except by manual release.

(f)(8) [Reserved]

(f)(9) *Chock blocks.* At least two chock blocks shall be provided. These blocks shall be placed to prevent rolling of the vehicle whenever it is parked during loading and unloading operations.

(f)(10) *Portable tank containers (skid tanks).* Where portable tank containers are used for farm storage they shall comply with paragraph (c)(1) of this section. When portable tank containers are used in lieu of cargo tanks and are permanently mounted on tank motor vehicles for the transportation of ammonia, they shall comply with the requirements of this paragraph.

1910.111(g) *Systems mounted on farm vehicles other than for the application of ammonia.*

(g)(1) *Application.* This paragraph applies to containers of 1,200 gallons capacity or less and pertinent equipment mounted on farm vehicles (implements of husbandry) and used other than for the application of ammonia to the soil. Paragraph (b) of this section applies to this paragraph unless otherwise noted.

(g)(2) *Design pressure and classification of containers.*

(g)(2)(i) The minimum design pressure for containers shall be 250 p.s.i.g.

(g)(2)(ii) The shell or head thickness of any container shall be not less than three-sixteenths of an inch.

(g)(3) *Mounting containers.*

(g)(3)(i) A suitable “stop” or “stops” shall be mounted on the vehicle or on the container in such a way that the container shall not be dislodged from its mounting due to the vehicle coming to a sudden stop. Back slippage shall also be prevented by proper methods.

(g)(3)(ii) A suitable “hold down” device shall be provided which will anchor the container to the vehicle at one or more places on each side of the container.

(g)(3)(iii) When containers are mounted on four-wheel trailers, care shall be taken to insure that the weight is distributed evenly over both axles.

(g)(3)(iv) When the cradle and the tank are not welded together suitable material shall be used between them to eliminate metal-to-metal friction.

(g)(4) *Container appurtenances.*

(g)(4)(i) All containers shall be equipped with a fixed liquid-level gage.

(g)(4)(ii) All containers with a capacity exceeding 250 gallons shall be equipped with a pressure gage having a dial graduated from 0-400 p.s.i.

(g)(4)(iii) The filling connection shall be fitted with combination back-pressure check valve and excess-flow valve; one double or two single back-pressure check valves; or a positive shutoff valve in conjunction with either an internal back-pressure check valve or an internal excess flow valve.

(g)(4)(iv) All containers with a capacity exceeding 250 gallons shall be equipped for spray loading or with an approved vapor return valve.

(g)(4)(v) All vapor and liquid connections except safety-relief valves and those specifically exempted by paragraph (b)(6)(v) of this section shall be equipped with approved excess-flow valves or may be fitted with quick-closing internal valves which, except during operating periods, shall remain closed.

(g)(4)(vi) Fittings shall be adequately protected from damage by a metal box or cylinder with open top securely fastened to the container or by rigid guards, well braced, welded to the container on both sides of the fittings or by a metal dome. If a metal dome is used, the relief valve shall be properly vented through the dome.

(g)(4)(vii) If a liquid withdrawal line is installed in the bottom of a container, the connections thereto, including hose, shall not be lower than the lowest horizontal edge of the vehicle axle.

(g)(4)(viii) Provision shall be made to secure both ends of the hose while in transit.

(g)(5) *Marking the container.* There shall appear on each side and on the rear end of the container in letters at least 4 inches high, the words, "Caution—Ammonia" or the container shall be marked in accordance with DOT regulations.

(g)(6) *Farm vehicles.*

(g)(6)(i) Farm vehicles shall conform with State regulations.

(g)(6)(ii) All trailers shall be securely attached to the vehicle drawing them by means of drawbars supplemented by suitable safety chains.

(g)(6)(iii) A trailer shall be constructed so that it will follow substantially in the path of the towing vehicle and will not whip or swerve dangerously from side to side.

(g)(6)(iv) All vehicles shall carry a can containing 5 gallons or more of water.

1910.111(h) *Systems mounted on farm vehicles for the application of ammonia.*

(h)(1) This paragraph applies to systems utilizing containers of 250 gallons capacity or less which are mounted on farm vehicles (implement of husbandry) and used for the application of ammonia to the soil. Paragraph (b) of this section applies to this paragraph unless otherwise noted. Where larger containers are used, they shall comply with paragraph (g) of this section.

(h)(2) *Design pressure and classification of containers.*

(h)(2)(i) The minimum design pressure for containers shall be 250 p.s.i.g.

(h)(2)(ii) The shell or head thickness of any container shall not be less than three-sixteenths inch.

(h)(3) *Mounting of containers.* All containers and flow-control devices shall be securely mounted.

(h)(4) *Container valves and accessories.*

(h)(4)(i) Each container shall have a fixed liquid-level gage.

(h)(4)(ii) The filling connection shall be fitted with a combination back-pressure check valve and an excess-flow valve; one double or two single back-pressure check valves; or a positive shutoff valve in conjunction with an internal back-pressure check valve or an internal excess-flow valve.

(h)(4)(iii) The applicator tank may be filled by venting to open air provided the bleeder valve orifice does not exceed seven-sixteenths inch in diameter.

(h)(4)(iv) Regulation equipment may be connected directly to the tank coupling or flange, in which case a flexible connection shall be used between such regulating equipment and the remainder of the liquid withdrawal system. Regulating equipment not so installed shall be flexibly connected to the container shutoff valve.

(h)(4)(v) No excess flow valve is required in the liquid withdrawal line provided the controlling orifice between the contents of the container and the outlet of the shutoff valve does not exceed seven-sixteenths inch in diameter.

29 CFR 1910.142 Temporary Labor Camps

In North Carolina, the Migrant Housing Act of North Carolina is the law governing agricultural migrant housing. Those rules can be found on line at www.ncga.state.nc.us/EnactedLegislation/Statutes/HTML/ByArticle/Chapter_95/Article_19.html

If you provide housing to one or more migrants employed in agriculture on a seasonal basis, you are covered by the Migrant Housing Act of North Carolina. If you own housing used by migrants (whether your employees or not), or if you make arrangements to use someone else's property to house your migrant employees, it is your responsibility to make sure that the housing meets these standards and that the N.C. Department of Labor is notified prior to the migrants moving in. The law excludes from coverage commercial lodging, such as motels open to the general public, and owner-occupied homes. The law covers any other housing in which migrants live—even if that housing is occupied year-round by other farmworkers. The law extends to migrants working in crab processing facilities and migrants cultivating and harvesting Christmas trees. Full explanation of the act, enforced by the N.C. Department of Labor, can be found at www.nclabor.com/ash/ash_blue_book.pdf

The 1910.142 standards for temporary housing can be also applied to housing used as a condition of employment if the employment is temporary housing for those employed in business that is not agriculture, such as construction, mining or logging.

1910.142(a) “Site.”

(a)(1) All sites used for camps shall be adequately drained. They shall not be subject to periodic flooding, nor located within 200 feet of swamps, pools, sink holes, or other surface collections of water unless such quiescent water surfaces can be subjected to mosquito control measures. The camp shall be located so the drainage from and through the camp will not endanger any domestic or public water supply. All sites shall be graded, ditched, and rendered free from depressions in which water may become a nuisance.

(a)(2) All sites shall be adequate in size to prevent overcrowding of necessary structures. The principal camp area in which food is prepared and served and where sleeping quarters are located shall be at least 500 feet from any area in which livestock is kept.

(a)(3) The grounds and open areas surrounding the shelters shall be maintained in a clean and sanitary condition free from rubbish, debris, waste paper, garbage, or other refuse.

(a)(4) [Removed]

1910.142(b) “Shelter.”

(b)(1) Every shelter in the camp shall be constructed in a manner which will provide protection against the elements.

(b)(2) Each room used for sleeping purposes shall contain at least 50 square feet of floor space for each occupant. At least a 7-foot ceiling shall be provided.

(b)(3) Beds, cots, or bunks, and suitable storage facilities such as wall lockers for clothing and personal articles shall be provided in every room used for sleeping purposes. Such beds or similar facilities shall be spaced not closer than 36 inches both laterally and end to end, and shall be elevated at least 12 inches from the floor. If double-deck bunks are used, they shall be spaced not less than 48 inches both laterally and end to end. The minimum clear space between the lower and upper bunk shall be not less than 27 inches. Triple-deck bunks are prohibited.

(b)(4) The floors of each shelter shall be constructed of wood, asphalt, or concrete. Wooden floors shall be of smooth and tight construction. The floors shall be kept in good repair.

(b)(5) All wooden floors shall be elevated not less than 1 foot above the ground level at all points to prevent dampness and to permit free circulation of air beneath.

(b)(6) Nothing in this section shall be construed to prohibit “banking” with earth or other suitable material around the outside walls in areas subject to extreme low temperatures.

(b)(7) All living quarters shall be provided with windows the total of which shall be not less than one-tenth of the floor area. At least one-half of each window shall be so constructed that it can be opened for purposes of ventilation.

(b)(8) All exterior openings shall be effectively screened with 16-mesh material. All screen doors shall be equipped with self-closing devices.

(b)(9) In a room where workers cook, live, and sleep a minimum of 100 square feet per person shall be provided. Sanitary facilities shall be provided for storing and preparing food.

(b)(10) In camps where cooking facilities are used in common, stoves (in ratio of one stove to 10 persons or one stove to two families) shall be provided in an enclosed and screened shelter. Sanitary facilities shall be provided for storing and preparing food.

(b)(11) All heating, cooking, and water heating equipment shall be installed in accordance with State and local ordinances, codes, and regulations governing such installations. If a camp is used during cold weather, adequate heating equipment shall be provided.

1910.142(c) "Water supply."

(c)(1) An adequate and convenient water supply, approved by the appropriate health authority, shall be provided in each camp for drinking, cooking, bathing, and laundry purposes.

(c)(2) A water supply shall be deemed adequate if it is capable of delivering 35 gallons per person per day to the campsite at a peak rate of 2½ times the average hourly demand.

(c)(3) The distribution lines shall be capable of supplying water at normal operating pressures to all fixtures for simultaneous operation. Water outlets shall be distributed throughout the camp in such a manner that no shelter is more than 100 feet from a yard hydrant if water is not piped to the shelters.

(c)(4) Where water under pressure is available, one or more drinking fountains shall be provided for each 100 occupants or fraction thereof. Common drinking cups are prohibited.

1910.142(d) "Toilet facilities."

(d)(1) Toilet facilities adequate for the capacity of the camp shall be provided.

(d)(2) Each toilet room shall be located so as to be accessible without any individual passing through any sleeping room. Toilet rooms shall have a window not less than 6 square feet in area opening directly to the outside area or otherwise be satisfactorily ventilated. All outside openings shall be screened with 16-mesh material. No fixture, water closet, chemical toilet, or urinal shall be located in a room used for other than toilet purposes.

(d)(3) A toilet room shall be located within 200 feet of the door of each sleeping room. No privy shall be closer than 100 feet to any sleeping room, dining room, lunch area, or kitchen.

(d)(4) Where the toilet rooms are shared, such as in multifamily shelters and in barracks type facilities, separate toilet rooms shall be provided for each sex. These rooms shall be distinctly marked "for men" and "for women" by signs printed in English and in the native language of the persons occupying the camp, or marked with easily understood pictures or symbols. If the facilities for each sex are in the same building, they shall be separated by solid walls or partitions extending from the floor to the roof or ceiling.

(d)(5) Where toilet facilities are shared, the number of water closets or privy seats provided for each sex shall be based on the maximum number of persons of that sex which the camp is designed to house at any one time, in the ratio of one such unit to each 15 persons, with a minimum of two units for any shared facility.

(d)(6) Urinals shall be provided on the basis of one unit or 2 linear feet of urinal trough for each 25 men. The floor from the wall and for a distance not less than 15 inches measured from the outward edge of the urinals shall be constructed of materials impervious to moisture. Where water under pressure is available, urinals shall be provided with an adequate water flush. Urinal troughs in privies shall drain freely into the pit or vault and the construction of this drain shall be such as to exclude flies and rodents from the pit.

(d)(7) Every water closet installed on or after August 31, 1971, shall be located in a toilet room.

(d)(8) Each toilet room shall be lighted naturally, or artificially by a safe type of lighting at all hours of the day and night.

(d)(9) An adequate supply of toilet paper shall be provided in each privy, water closet, or chemical toilet compartment.

(d)(10) Privies and toilet rooms shall be kept in a sanitary condition. They shall be cleaned at least daily.

1910.142(e) “Sewage disposal facilities.” In camps where public sewers are available, all sewer lines and floor drains from buildings shall be connected thereto.

1910.142(f) “Laundry, handwashing, and bathing facilities.”

(f)(1) Laundry, handwashing, and bathing facilities shall be provided in the following ratio:

(f)(1)(i) Handwash basin per family shelter or per six persons in shared facilities.

(f)(1)(ii) Shower head for every 10 persons.

(f)(1)(iii) Laundry tray or tub for every 30 persons.

(f)(1)(iv) Slop sink in each building used for laundry, hand washing, and bathing.

(f)(2) Floors shall be of smooth finish but not slippery materials; they shall be impervious to moisture. Floor drains shall be provided in all shower baths, shower rooms, or laundry rooms to remove waste water and facilitate cleaning. All junctions of the curbing and the floor shall be covered. The walls and partitions of shower rooms shall be smooth and impervious to the height of splash.

(f)(3) An adequate supply of hot and cold running water shall be provided for bathing and laundry purposes. Facilities for heating water shall be provided.

(f)(4) Every service building shall be provided with equipment capable of maintaining a temperature of at least 70 deg. F. during cold weather.

(f)(5) Facilities for drying clothes shall be provided.

(f)(6) All service buildings shall be kept clean.

1910.142(g) “Lighting.” Where electric service is available, each habitable room in a camp shall be provided with at least one ceiling-type light fixture and at least one separate floor- or wall-type convenience outlet. Laundry and toilet rooms and rooms where people congregate shall contain at least one ceiling- or wall-type fixture. Light levels in toilet and storage rooms shall be at least 20 foot-candles 30 inches from the floor. Other rooms, including kitchens and living quarters, shall be at least 30 foot-candles 30 inches from the floor.

1910.142(h) “Refuse disposal.”

(h)(1) Fly-tight, rodent-tight, impervious, cleanable or single service containers, approved by the appropriate health authority shall be provided for the storage of garbage. At least one such container shall be provided for each family shelter and shall be located within 100 feet of each shelter on a wooden, metal, or concrete stand.

(h)(2) Garbage containers shall be kept clean.

(h)(3) Garbage containers shall be emptied when full, but not less than twice a week.

1910.142(i) “Construction and operation of kitchens, dining hall, and feeding facilities.”

(i)(1) In all camps where central dining or multiple family feeding operations are permitted or provided, the food handling facilities shall comply with the requirements of the “Food Service Sanitation Ordinance and Code,” Part V of the “Food Service Sanitation Manual,” U.S. Public Health Service Publication 934 (1965), which is incorporated by reference as specified in Sec. 1910.6.

(i)(2) A properly constructed kitchen and dining hall adequate in size, separate from the sleeping quarters of any of the workers or their families, shall be provided in connection with all food handling facilities. There shall be no direct opening from living or sleeping quarters into a kitchen or dining hall.

(i)(3) No person with any communicable disease shall be employed or permitted to work in the preparation, cooking, serving, or other handling of food, foodstuffs, or materials used therein, in any kitchen or dining room operated in connection with a camp or regularly used by persons living in a camp.

1910.142(j) “Insect and rodent control.” Effective measures shall be taken to prevent infestation by and harborage of animal or insect vectors or pests.

1910.142(k) “First aid.”

(k)(1) Adequate first aid facilities approved by a health authority shall be maintained and made available in every labor camp for the emergency treatment of injured persons.

(k)(2) Such facilities shall be in charge of a person trained to administer first aid and shall be readily accessible for use at all times.

1910.142(l) “Reporting communicable disease.”

(l)(1) It shall be the duty of the camp superintendent to report immediately to the local health officer the name and address of any individual in the camp known to have or suspected of having a communicable

(l)(2) Whenever there shall occur in any camp a case of suspected food poisoning or an unusual prevalence of any illness in which fever, diarrhea, sore throat, vomiting, or jaundice is a prominent symptom, it shall be the duty of the camp superintendent to report immediately the existence of the outbreak to the health authority by telegram, telephone, electronic mail or any method that is equally fast.

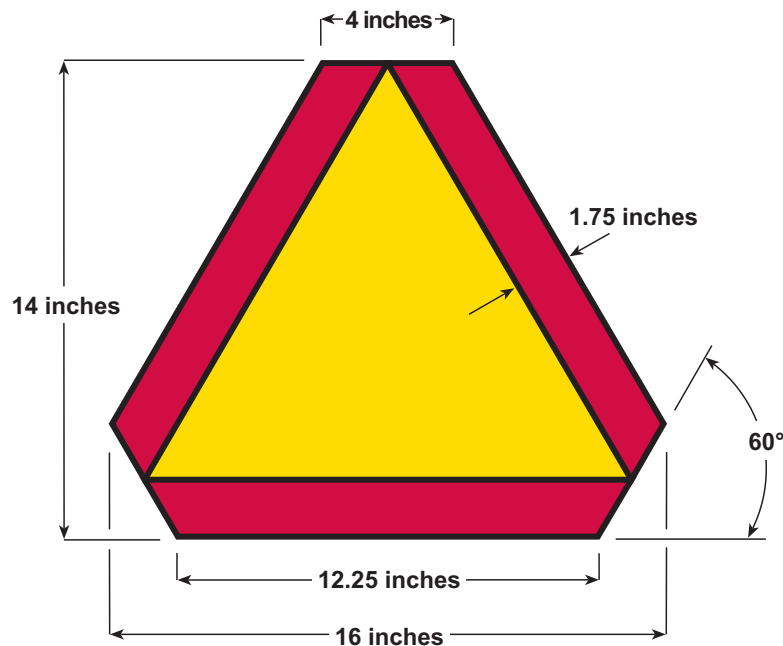
Specifications for Accident Prevention Signs and Tags

1910.145(d)(10)—Slow-moving vehicle emblem

Gold Star Growers have listed driving farm equipment on rural roadways as their No. 1 safety hazard. From the growers' point of view, the cause of roadway safety problems is a combination of factors: the increased lack of respect of other drivers, and the increased speed of other drivers.

The slow-moving sign is not required on farm vehicles by N.C. law, but it is a requirement of OSHA standard 1910.145(d)(10). Farm equipment is legally entitled to travel on most roads in North Carolina (except Interstates). The slow-moving sign is a device to warn others that the vehicle is not capable of operating at the same speed as other motorists. Many tractors currently in use have a top speed of 25 mph.

North Carolina law states that "when the equipment is causing a delay in traffic, the operator shall move the equipment off the paved portion of the highway at the nearest practical location until the vehicles following said equipment have passed." (N.C. Gen. Stat. 20-116(j)(6))



The orange triangle outlined with red reflective tape is a slow-moving vehicle sign, which should be placed with one point of the triangle facing upward on the rear of a slow-moving vehicle. It needs to be placed on the vehicle at a height of 2 feet to 4 feet above the ground. This sign alerts other drivers to the fact that the vehicle bearing the sign may be moving at 25 mph or less on roads where the posted speed limit may be as high as 55 mph.

A study conducted in 1999–2000 focused on farmers' perceptions of roadway safety. A survey was mailed to 1,357 prospective participants throughout North Carolina. Of these, 656 (48.3 percent) North Carolina farmers completed and returned the survey. The study revealed that while the majority of respondents took a number of specific safety measures to ensure their safety while driving their tractor on rural roads, most believed that driving their tractor on rural roads was more dangerous than it was five years previously. Few respondents believed that laws governing tractors on rural roads are well known by urban residents.

While a majority of the respondents would support a law to mandate the use of a slow-moving vehicle (SMV) emblem on the back of slow-moving farm equipment, a majority also believed that a more effective way to mitigate potential crashes would be to ensure that all farm vehicles had blinking or flashing lights, that diamond-shaped caution signs depicting a tractor were posted on roadways with frequent tractor traffic, and that roadway shoulders were created or widened on roads with heavy farm traffic so that tractors could move off the roadway. Only 22 percent of respondents felt safe driving their tractor on rural roadways in North Carolina.

Most respondents felt that the biggest problem with roadway safety was the lack of respect and increased speed of other drivers. Data at that time indicated that in crashes involving farm vehicles, citations were issued to 34 percent of the nonfarm vehicle operators and 24 percent to farm vehicle operators. For those driving nonfarm vehicle who were

deemed at fault, 66 percent were cited for failure to reduce speed. For those driving farm vehicles, the most frequent citation involved the lack of safe movement. Factors in rural road crashes include aggressive driving and/or speeding, which is the primary violation; alcohol, which was a factor in 57 percent of all crashes; and engineering factors, such as two-lane roads and narrower shoulders.¹

When you drive on your local roads, remember that the distance between farm machinery and a car can be reduced in a matter of seconds. A car that is traveling at 55 mph 400 feet behind farm machinery that is travelling 15 mph will take approximately 6 seconds to reach the machinery.

1910.145(a) Scope.

(a)(1) These specifications apply to the design, application, and use of signs or symbols (as included in paragraphs (c) through (e) of this section) intended to indicate and, insofar as possible, to define specific hazards of a nature such that failure to designate them may lead to accidental injury to workers or the public, or both, or to property damage. These specifications are intended to cover all safety signs except those designed for streets, highways, railroads, and marine regulations. These specifications do not apply to plant bulletin boards or to safety posters.

(a)(2) All new signs and replacements of old signs shall be in accordance with these specifications.

1910.145(b) Definitions. As used in this section, the word “sign” refers to a surface on prepared for the warning of, or safety instructions of, industrial workers or members of the public who may be exposed to hazards. Excluded from this definition, however, are news releases, displays commonly known as safety posters, and bulletins used for employee education.

1910.145(c) Classification of signs according to use—

(c)(1) Danger signs.

(c)(1)(i) There shall be no variation in the type of design of signs posted to warn of specific dangers and radiation hazards.

(c)(1)(ii) All employees shall be instructed that danger signs indicate immediate danger and that special precautions are necessary.

(c)(2) Caution signs.

(c)(2)(i) Caution signs shall be used only to warn against potential hazards or to caution against unsafe practices.

(c)(2)(ii) All employees shall be instructed that caution signs indicate a possible hazard against which proper precaution should be taken.

(c)(3) Safety instruction signs. Safety instruction signs shall be used where there is a need for general instructions and suggestions relative to safety measures.

1910.145(d) Sign design—

(d)(1) Design features. All signs shall be furnished with rounded or blunt corners and shall be free from sharp edges, burrs, splinters, or other sharp projections. The ends or heads of bolts or other fastening devices shall be located in such a way that they do not constitute a hazard.

(d)(2) Danger signs. The colors red, black, and white shall be those of opaque glossy samples as specified in Table 1, “Fundamental Specification of Safety Colors for CIE Standard Source ‘C,’ ” of ANSI Z53.1-1967 or in Table 1, “Specification of the Safety Colors for CIE Illuminate C and the CIE 1931, 2° Standard Observer,” of ANSI Z535.1-2006(R2011), incorporated by reference in § 1910.6.

(d)(3) [Reserved]

(d)(4) Caution signs. Standard color of the background shall be yellow; and the panel, black with yellow letters. Any letters used against the yellow background shall be black. The colors shall be those of opaque glossy samples as specified in Table 1 of ANSI Z53.1-1967 or Table 1 of ANSI Z535.1-2006(R2011), incorporated by reference in § 1910.6.

(d)(5) [Reserved]

¹R.C. Luginbuhl, V.C. Jones and R.L. Langley. “Farmers’ Perceptions and Concerns: The Risks of Driving Farm Vehicles on Rural Roadways in North Carolina,” *Journal of Agricultural Safety and Health*, vol. 9, no. 4 (2003): 327–48.

(d)(6) Safety instruction signs. Standard color of the background shall be white; and the panel, green with white letters. Any letters used against the white background shall be black. The colors shall be those of opaque glossy samples as specified in Table 1 of ANSI Z53.1-1967 or in Table 1 of ANSI Z535.1-2006(R2011), incorporated by reference in § 1910.6.

(d)(7)–(9) [Reserved]

(d)(10) Slow-moving vehicle emblem. This emblem (see fig. J-7) consists of a fluorescent yellow-orange triangle with a dark red reflective border. The yellow-orange fluorescent triangle is a highly visible color for daylight exposure. The reflective border defines the shape of the fluorescent color in daylight and creates a hollow red triangle in the path of motor vehicle headlights at night. The emblem is intended as a unique identification for, and it shall be used only on, vehicles which by design move slowly (25 m.p.h. or less) on the public roads. The emblem is not a clearance marker for wide machinery nor is it intended to replace required lighting or marking of slow-moving vehicles. Neither the color film pattern and its dimensions nor the backing shall be altered to permit use of advertising or other markings. The material, location, mounting, etc., of the emblem shall be in accordance with the American Society of Agricultural Engineers Emblem for Identifying Slow-Moving Vehicles, ASAE R276, 1967, or ASAE S276.2 (ANSI B114.1-1971), which are incorporated by reference as specified in Sec. 1910.6.

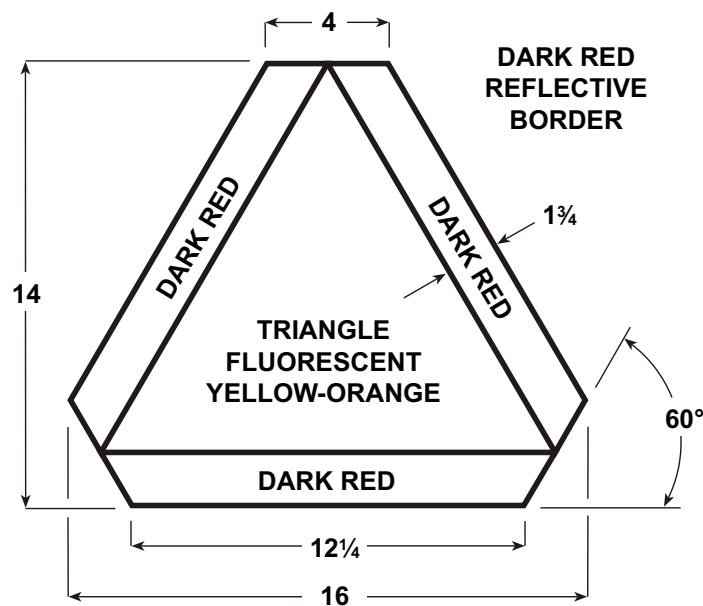


Figure J-7—Slow-Moving Vehicle Emblem

Note: All dimensions are in inches.

1910.145(e) Sign wordings.

(e)(1) [Reserved]

(e)(2) Nature of wording. The wording of any sign should be easily read and concise. The sign should contain sufficient information to be easily understood. The wording should make a positive, rather than negative suggestion and should be accurate in fact.

(e)(3) [Reserved]

(e)(4) Biological hazard signs. The biological hazard warning shall be used to signify the actual or potential presence of a biohazard and to identify equipment, containers, rooms, materials, experimental animals, or combinations thereof, which contain, or are contaminated with, viable hazardous agents. For the purpose of this subparagraph the term “biological hazard,” or “biohazard,” shall include only those infectious agents presenting a risk or potential risk to the well-being of man.

1910.145(f) Accident prevention tags—

(f)(1) Scope and application.

(f)(1)(i) This paragraph (f) applies to all accident prevention tags used to identify hazardous conditions and provide a message to employees with respect to hazardous conditions as set forth in paragraph (f)(3) of this section, or to meet the specific tagging requirements of other OSHA standards.

(f)(1)(ii) This paragraph (f) does not apply to construction, maritime or agriculture.

(f)(2) Definitions.

“Biological hazard” or “BIOHAZARD” means those infectious agents presenting a risk of death, injury or illness to employees.

“Major message” means that portion of a tag’s inscription that is more specific than the signal word and that indicates the specific hazardous condition or the instruction to be communicated to the employee. Examples include: “High Voltage,” “Close Clearance,” “Do Not Start,” or “Do Not Use” or a corresponding pictograph used with a written text or alone.

“Pictograph” means a pictorial representation used to identify a hazardous condition or to convey a safety instruction.

“Signal word” means that portion of a tag’s inscription that contains the word or words that are intended to capture the employee’s immediate attention.

“Tag” means a device usually made of card, paper, pasteboard, plastic or other material used to identify a hazardous condition.

(f)(3) Use. Tags shall be used as a means to prevent accidental injury or illness to employees who are exposed to hazardous or potentially hazardous conditions, equipment or operations which are out of the ordinary, unexpected or not readily apparent. Tags shall be used until such time as the identified hazard is eliminated or the hazardous operation is completed. Tags need not be used where signs, guarding or other positive means of protection are being used.

(f)(4) General tag criteria. All required tags shall meet the following criteria:

(f)(4)(i) Tags shall contain a signal word and a major message.

(f)(4)(i)(A) The signal word shall be either “Danger,” “Caution,” or “Biological Hazard,” “BIOHAZARD,” or the biological hazard symbol.

(f)(4)(i)(B) The major message shall indicate the specific hazardous condition or the instruction to be communicated to the employee.

(f)(4)(ii) The signal word shall be readable at a minimum distance of five feet (1.52 m) or such greater distance as warranted by the hazard.

(f)(4)(iii) The tag’s major message shall be presented in either pictographs, written text or both.

(f)(4)(iv) The signal word and the major message shall be understandable to all employees who may be exposed to the identified hazard.

(f)(4)(v) All employees shall be informed as to the meaning of the various tags used throughout the workplace and what special precautions are necessary.

(f)(4)(vi) Tags shall be affixed as close as safely possible to their respective hazards by a positive means such as string, wire, or adhesive that prevents their loss or unintentional removal.

(f)(5) Danger tags. Danger tags shall be used in major hazard situations where an immediate hazard presents a threat of death or serious injury to employees. Danger tags shall be used only in these situations.

(f)(6) Caution tags. Caution tags shall be used in minor hazard situations where a non-immediate or potential hazard or unsafe practice presents a lesser threat of employee injury. Caution tags shall be used only in these situations.

(f)(7) Warning tags. Warning tags may be used to represent a hazard level between “Caution” and “Danger,” instead of the required “Caution” tag, provided that they have a signal word of “Warning,” an appropriate major message, and otherwise meet the general tag criteria of paragraph (f)(4) of this section.

(f)(8) Biological hazard tags.

(f)(8)(i) Biological hazard tags shall be used to identify the actual or potential presence of a biological hazard and to identify equipment, containers, rooms, experimental animals, or combinations thereof, that contain or are contaminated with hazardous biological agents.

(f)(8)(ii) The symbol design for biological hazard tags shall conform to the design shown below:



Biological Hazard Symbol Configuration

(f)(9) Other tags. Other tags may be used in addition to those required by this paragraph (f), or in other situations where this paragraph (f) does not require tags, provided that they do not detract from the impact or visibility of the signal word and major message of any required tag.

Appendix A—Recommended color coding

While the standard does not specifically mandate colors to be used on accident prevention tags, the following color scheme is recommended by OSHA for meeting the requirements of this section:

“DANGER”—Red, or predominantly red, with lettering or symbols in a contrasting color.

“CAUTION”—Yellow, or predominantly yellow, with lettering or symbols in a contrasting color.

“WARNING”—Orange, or predominantly orange, with lettering or symbols in a contrasting color.

“BIOLOGICAL HAZARD”—Fluorescent orange or orange-red, or predominantly so, with lettering or symbols in a contrasting color.

29 CFR 1910.266 Logging Operations

Tree felling is a dangerous occupation. Nationwide, it is a high hazard occupation, ranking second following fishing. Logging fatalities in the U.S. increased from 59 to 65 from 2010 to 2011. Dangers are obvious when spending most of your days outside with heavy machinery, inclement weather and rugged terrain. If personal protective equipment is missing or faulty, the risks increase. The fatality rate is 104 per 100,000 workers. (Source: Bureau of Labor Statistics)

In North Carolina, logging and arboriculture is viewed as one of the top five hazardous occupations. Logging operations typically involve harvesting large numbers of trees for useable wood. The number of trees being removed on a particular project is an example of the concept of project scale and information that the NCDOL compliance officers shall document in determining whether the Logging operations standard applies. As with all high-hazard occupations, N.C. Department of Labor directs attention to the problem through increased education outreach and compliance inspections.

The first state Special Emphasis Program for logging was initiated in fiscal year 1994 in response to 13 logging fatalities in fiscal year 1993. In fiscal year 2012, due to compliance and education efforts, the total number of fatalities and the fatality rate were both below the baseline total.

Additional information is available on line at the following location:
http://www.nclabor.com/osha/etta/A_to_Z_Topics/Logging.htm

1910.266(a) Table of contents.

This paragraph contains the list of paragraphs and appendices contained in this section.

- a. Table of contents
- b. Scope and application
- c. Definitions
- d. General requirements
 1. Personal protective equipment
 2. First-aid kits
 3. Seat belts
 4. Fire extinguishers
 5. Environmental conditions
 6. Work areas
 7. Signaling and signal equipment
 8. Overhead electric lines
 9. Flammable and combustible liquids
 10. Explosives and blasting agents
- e. Hand and portable powered tools
 1. General requirements
 2. Chain saws
- f. Machines
 1. General requirements
 2. Machine operation
 3. Protective structures
 4. Overhead guards
 5. Machine access
 6. Exhaust systems
 7. Brakes
 8. Guarding
- g. Vehicles
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 2. Manual felling
 3. Bucking and limbing

- 4. Chipping
- 5. Yarding
- 6. Loading and unloading
- 7. Transport
- 8. Storage
- i. Training
- j. Appendices
- Appendix A—Minimum First-aid Supplies
- Appendix B—Minimum First-aid Training
- Appendix C—Corresponding ISO Agreements

1910.266(b) Scope and application.

(b)(1) This standard establishes safety practices, means, methods and operations for all types of logging, regardless of the end use of the wood. These types of logging include, but are not limited to, pulpwood and timber harvesting and the logging of sawlogs, veneer bolts, poles, pilings and other forest products. This standard does not cover the construction or use of cable yarding systems.

(b)(2) This standard applies to all logging operations as defined by this section.

(b)(3) Hazards and working conditions not specifically addressed by this section are covered by other applicable sections of Part 1910.

1910.266(c) Definitions applicable to this section.

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

“Backcut (felling cut).” The final cut in a felling operation.

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

“Buck.” To cut a felled tree into logs.

“Butt.” The bottom of the felled part of a tree.

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

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

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

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

“Debark.” To remove bark from trees or logs.

“Deck.” A stack of trees or logs.

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

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

“Fell (fall).” To cut down trees.

“Feller (faller).” An employee who fells trees.

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

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

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

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

“Limbing.” To cut branches off felled trees.

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

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

“Logging operations.” Operations associated with felling and moving trees and logs from the stump to the point of delivery, such as, but not limited to, marking danger trees and trees/logs to be cut to length, felling, limbing, bucking, debarking, chipping, yarding, loading, unloading, storing, and transporting machines, equipment and personnel to, from and between logging sites.

“Machine.” A piece of stationary or mobile equipment having a self-contained power plant, that is operated off-road and used for the movement of material. Machines include, but are not limited to, tractors, skidders, front-end loaders, scrapers, graders, bulldozers, swing yarders, log stackers, log loaders, and mechanical felling devices, such as tree shears and feller-bunchers. Machines do not include airplanes or aircraft (*e.g.*, helicopters).

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

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

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

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

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

“Snag.” Any standing dead tree or portion thereof.

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

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

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

“Vehicle.” A car, bus, truck, trailer or semi-trailer owned, leased or rented by the employer that is used for transportation of employees or movement of material.

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

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

1910.266(d) “General requirements.”

(d)(1) “Personal protective equipment.”

(d)(1)(i) The employer shall assure that personal protective equipment, including any personal protective equipment provided by an employee, is maintained in a serviceable condition.

(d)(1)(ii) The employer shall assure that personal protective equipment, including any personal protective equipment provided by an employee, is inspected before initial use during each workshift. Defects or damage shall be repaired or the unserviceable personal protective equipment shall be replaced before work is commenced.

(d)(1)(iii) The employer shall provide, at no cost to the employee, and assure that each employee handling wire rope wears, hand protection which provides adequate protection from puncture wounds, cuts and lacerations.

(d)(1)(iv) The employer shall provide, at no cost to the employee, and assure that each employee who operates a chain saw wears leg protection constructed with cut-resistant material, such as ballistic nylon. The leg protection shall cover

the full length of the thigh to the top of the boot on each leg to protect against contact with a moving chain saw. *Exception:* This requirement does not apply when an employee is working as a climber if the employer demonstrates that a greater hazard is posed by wearing leg protection in the particular situation, or when an employee is working from a vehicular mounted elevating and rotating work platform meeting the requirements of 29 CFR 1910.67.

(d)(1)(v) The employer shall assure that each employee wears foot protection, such as heavy-duty logging boots that are waterproof or water repellent, cover and provide support to the ankle. The employer shall assure that each employee who operates a chain saw wears foot protection that is constructed with cut-resistant material which will protect the employee against contact with a running chain saw. Sharp, calk-soled boots or other slip-resistant type boots may be worn where the employer demonstrates that they are necessary for the employee's job, the terrain, the timber type, and the weather conditions, provided that foot protection otherwise required by this paragraph is met.

(d)(1)(vi) The employer shall provide, at no cost to the employee, and assure that each employee who works in an area where there is potential for head injury from falling or flying objects wears head protection meeting the requirements of subpart I of Part 1910.

(d)(1)(vii) The employer shall provide, at no cost to the employee, and assure that each employee wears the following:

(d)(1)(vii)(A) Eye protection meeting the requirements of subpart I of Part 1910 where there is potential for eye injury due to falling or flying objects; and

(d)(1)(vii)(B) Face protection meeting the requirements of subpart I of Part 1910 where there is potential for facial injury such as, but not limited to, operating a chipper. Logger-type mesh screens may be worn by employees performing chain-saw operations and yarding.

Note to paragraph (d)(1)(vii): The employee does not have to wear a separate eye protection device where face protection covering both the eyes and face is worn.

(d)(2) "First-aid kits."

(d)(2)(i) The employer shall provide first-aid kits at each work site where trees are being cut (*e.g.*, felling, buckling, limbing), at each active landing, and on each employee transport vehicle. The number of first-aid kits and the content of each kit shall reflect the degree of isolation, the number of employees, and the hazards reasonably anticipated at the work site.

(d)(2)(ii) At a minimum, each first-aid kit shall contain the items listed in Appendix A at all times.

(d)(2)(iii) The employer also may have the number and content of first-aid kits reviewed and approved annually by a health care provider.

(d)(2)(iv) The employer shall maintain the contents of each first-aid kit in a serviceable condition.

(d)(3) "Seat belts." For each vehicle or machine (equipped with ROPS/FOPS or overhead guards), including any vehicle or machine provided by an employee, the employer shall assure:

(d)(3)(i) That a seat belt is provided for each vehicle or machine operator;

(d)(3)(ii) That each employee uses the available seat belt while the vehicle or machine is being operated;

(d)(3)(iii) That each employee securely and tightly fastens the seat belt to restrain the employee within the vehicle or machine cab;

(d)(3)(iv) That each machine seat belt meets the requirements of the Society of Automotive Engineers Standard SAE J386, June 1985, "Operator Restraint Systems for Off-Road Work Machines", which is incorporated by reference as specified in Sec. 1910.6.

(d)(3)(v) That seat belts are not removed from any vehicle or machine. The employer shall replace each seat belt which has been removed from any vehicle or machine that was equipped with seat belts at the time of manufacture; and

(d)(3)(vi) That each seat belt is maintained in a serviceable condition.

(d)(4) "Fire extinguishers." The employer shall provide and maintain portable fire extinguishers on each machine and vehicle in accordance with the requirements of subpart L of Part 1910.

(d)(5) “Environmental conditions.” All work shall terminate and each employee shall move to a place of safety when environmental conditions, such as but not limited to, electrical storms, strong winds which may affect the fall of a tree, heavy rain or snow, extreme cold, dense fog, fires, mudslides, and darkness, create a hazard for the employee in the performance of the job.

(d)(6) “Work areas.”

(d)(6)(i) Employees shall be spaced and the duties of each employee shall be organized so the actions of one employee will not create a hazard for any other employee.

(d)(6)(ii) Work areas shall be assigned so that trees cannot fall into an adjacent occupied work area. The distance between adjacent occupied work areas shall be at least two tree lengths of the trees being felled. The distance between adjacent occupied work areas shall reflect the degree of slope, the density of the growth, the height of the trees, the soil structure and other hazards reasonably anticipated at that work site. A distance of greater than two tree lengths shall be maintained between adjacent occupied work areas on any slope where rolling or sliding of trees or logs is reasonably foreseeable.

(d)(6)(iii) Each employee performing a logging operation at a logging work site shall work in a position or location that is within visual or audible contact with another employee.

(d)(6)(iv) The employer shall account for each employee at the end of each workshift.

(d)(7) “Signaling and signal equipment.”

(d)(7)(i) Hand signals or audible contact, such as but not limited to, whistles, horns, or radios, shall be utilized whenever noise, distance, restricted visibility, or other factors prevent clear understanding of normal voice communications between employees.

(d)(7)(ii) Engine noise, such as from a chain saw, is not an acceptable means of signaling. Other locally and regionally recognized signals may be used.

(d)(7)(iii) Only a designated person shall give signals, except in an emergency.

(d)(8) “Overhead electric lines.”

(d)(8)(i) Logging operations near overhead electric lines shall be done in accordance with the requirements of 29 CFR 1910.333(c)(3).

(d)(8)(ii) The employer shall notify the power company immediately if a felled tree makes contact with any power line. Each employee shall remain clear of the area until the power company advises that there are no electrical hazards.

(d)(9) “Flammable and combustible liquids.”

(d)(9)(i) Flammable and combustible liquids shall be stored, handled, transported, and used in accordance with the requirements of subpart H of Part 1910.

(d)(9)(ii) Flammable and combustible liquids shall not be transported in the driver compartment or in any passenger-occupied area of a machine or vehicle.

(d)(9)(iii) Each machine, vehicle and portable powered tool shall be shut off during fueling. Diesel-powered machines and vehicles may be fueled while they are at idle, provided that continued operation is intended and that the employer follows safe fueling and operating procedures.

(d)(9)(iv) Flammable and combustible liquids, including chain-saw and diesel fuel, may be used to start a fire, provided the employer assures that in the particular situation its use does not create a hazard for an employee.

(d)(10) “Explosives and blasting agents.”

(d)(10)(i) Explosives and blasting agents shall be stored, handled, transported, and used in accordance with the requirements of subpart H of part 1910.

(d)(10)(ii) Only a designated person shall handle or use explosives and blasting agents.

(d)(10)(iii) Explosives and blasting agents shall not be transported in the driver compartment or in any passenger-occupied area of a machine or vehicle.

1910.266(e) “Hand and portable powered tools.”

(e)(1) “General requirements.”

(e)(1)(i) The employer shall assure that each hand and portable powered tool, including any tool provided by an employee, is maintained in serviceable condition.

(e)(1)(ii) The employer shall assure that each tool, including any tool provided by an employee, is inspected before initial use during each workshift. At a minimum, the inspection shall include the following:

(e)(1)(ii)(A) Handles and guards, to assure that they are sound, tight-fitting, properly shaped, free of splinters and sharp edges, and in place;

(e)(1)(ii)(B) Controls, to assure proper function;

(e)(1)(ii)(C) Chain-saw chains, to assure proper adjustment;

(e)(1)(ii)(D) Chain-saw mufflers, to assure that they are operational and in place;

(e)(1)(ii)(E) Chain brakes and nose shielding devices, to assure that they are in place and function properly;

(e)(1)(ii)(F) Heads of shock, impact-driven and driving tools, to assure that there is no mushrooming;

(e)(1)(ii)(G) Cutting edges, to assure that they are sharp and properly shaped; and

(e)(1)(ii)(H) All other safety devices, to assure that they are in place and function properly.

(e)(1)(iii) The employer shall assure that each tool is used only for purposes for which it has been designed.

(e)(1)(iv) When the head of any shock, impact-driven or driving tool begins to chip, it shall be repaired or removed from service.

(e)(1)(v) The cutting edge of each tool shall be sharpened in accordance with manufacturer’s specifications whenever it becomes dull during the workshift.

(e)(1)(vi) Each tool shall be stored in the provided location when not being used at a work site.

(e)(1)(vii) Racks, boxes, holsters or other means shall be provided, arranged and used for the transportation of tools so that a hazard is not created for any vehicle operator or passenger.

(e)(2) “Chain saws.”

(e)(2)(i) Each chain saw placed into initial service after the effective date of this section shall be equipped with a chain brake and shall otherwise meet the requirements of the ANSI B175.1-1991 “Safety Requirements for Gasoline-Powered Chain Saws”, which is incorporated by reference as specified in Sec. 1910.6. Each chain saw placed into service before the effective date of this section shall be equipped with a protective device that minimizes chain-saw kickback. No chain-saw kickback device shall be removed or otherwise disabled.

(e)(2)(ii) Each gasoline-powered chain saw shall be equipped with a continuous pressure throttle control system which will stop the chain when pressure on the throttle is released.

(e)(2)(iii) The chain saw shall be operated and adjusted in accordance with the manufacturer’s instructions.

(e)(2)(iv) The chain saw shall be fueled at least 10 feet (3 m) from any open flame or other source of ignition.

(e)(2)(v) The chain saw shall be started at least 10 feet (3 m) from the fueling area.

(e)(2)(vi) The chain saw shall be started on the ground or where otherwise firmly supported. Drop starting a chain saw is prohibited.

(e)(2)(vii) The chain saw shall be started with the chain brake engaged.

(e)(2)(viii) The chain saw shall be held with the thumbs and fingers of both hands encircling the handles during operation unless the employer demonstrates that a greater hazard is posed by keeping both hands on the chain saw in that particular situation.

(e)(2)(ix) 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, to have insecure footing, or to relinquish a firm grip on the saw.

(e)(2)(x) Prior to felling any tree, the chain-saw operator shall clear away brush or other potential obstacles which might interfere with cutting the tree or using the retreat path.

(e)(2)(xi) The chain saw shall not be used to cut directly overhead.

(e)(2)(xii) The chain saw shall be carried in a manner that will prevent operator contact with the cutting chain and muffler.

(e)(2)(xiii) The chain saw shall be shut off or the throttle released before the feller starts his retreat.

(e)(2)(xiv) The chain saw shall be shut down or the chain brake shall be engaged whenever a saw is carried further than 50 feet (15.2 m). The chain saw shall be shut down or the chain brake shall be engaged when a saw is carried less than 50 feet if conditions such as, but not limited to, the terrain, underbrush and slippery surfaces, may create a hazard for an employee.

1910.266(f) “Machines.”

(f)(1) “General requirements.”

(f)(1)(i) The employer shall assure that each machine, including any machine provided by an employee, is maintained in serviceable condition.

(f)(1)(ii) The employer shall assure that each machine, including any machine provided by an employee, is inspected before initial use during each workshift. Defects or damage shall be repaired or the unserviceable machine shall be replaced before work is commenced.

(f)(1)(iii) The employer shall assure that operating and maintenance instructions are available on the machine or in the area where the machine is being operated. Each machine operator and maintenance employee shall comply with the operating and maintenance instructions.

(f)(2) “Machine operation.”

(f)(2)(i) The machine shall be started and operated only by a designated person.

(f)(2)(ii) Stationary logging machines and their components shall be anchored or otherwise stabilized to prevent movement during operation.

(f)(2)(iii) The rated capacity of any machine shall not be exceeded.

(f)(2)(iv) To maintain stability, the machine must be operated within the limitations imposed by the manufacturer as described in the operating and maintenance instructions for that machine. on any slope which is greater than the maximum slope recommended by the manufacturer.

(f)(2)(v) Before starting or moving any machine, the operator shall determine that no employee is in the path of the machine.

(f)(2)(vi) The machine shall be operated only from the operator’s station or as otherwise recommended by the manufacturer.

(f)(2)(vii) The machine shall be operated at such a distance from employees and other machines such that operation will not create a hazard for an employee.

(f)(2)(viii) No employee other than the operator shall ride on any mobile machine unless seating, seat belts and other protection equivalent to that provided for the operator are provided.

(f)(2)(ix) No employee shall ride on any load.

(f)(2)(x) Before the operator leaves the operator’s station of a machine, it shall be secured as follows:

(f)(2)(x)(A) The parking brake or brake locks shall be applied;

(f)(2)(x)(B) The transmission shall be placed in the manufacturer’s specified park position; and

(f)(2)(x)(C) Each moving element shall as, but not limited to blades, buckets, saws and shears, shall be lowered to the ground or otherwise secured.

- (f)(2)(xi)** If a hydraulic or pneumatic storage device can move the moving elements such as, but not limited to, blades, buckets, saws and shears, after the machine is shut down, the pressure or stored energy from the element shall be discharged as specified by the manufacturer.
- (f)(2)(xii)** The rated capacity of any vehicle transporting a machine shall not be exceeded.
- (f)(2)(xiii)** The machine shall be loaded, secured and unloaded so that it will not create a hazard for any employee.
- (f)(3)** “Protective structures.”
- (f)(3)(i)** Each tractor, skidder, swing yarder, log stacker, log loader and mechanical felling device, such as tree shears or feller-buncher, placed into initial service after February 9, 1995, shall be equipped with falling object protective structure (FOPS) and/or rollover protective structure (ROPS). The employer shall replace FOPS or ROPS which have been removed from any machine. Exception: This requirement does not apply to machines which are capable of 360 degree rotation.
- (f)(3)(ii)(A)** ROPS shall be tested, installed, and maintained in serviceable condition.
- (f)(3)(ii)(B)** Each machine manufactured after August 1, 1996, shall have ROPS tested, installed, and maintained in accordance with the Society of Automotive Engineers SAE J1040, April 1988, “Performance Criteria for Rollover Protective Structures (ROPS) for Construction, Earthmoving, Forestry, and Mining Machines”, which is incorporated by reference as specified in Sec. 1910.6.
- (f)(3)(iii)** FOPS shall be installed, tested and maintained in accordance with the Society of Automotive Engineers SAE J231, January 1981, “Minimum Performance Criteria for Falling Object Protective Structures (FOPS)”, which is incorporated by reference as specified in Sec. 1910.6.
- (f)(3)(iv)** ROPS and FOPS shall meet the requirements of the Society of Automotive Engineers SAE J397, April 1988, “Deflection Limiting Volume-ROPS/FOPS Laboratory Evaluation”, which is incorporated by reference as specified in Sec. 1910.6.
- (f)(3)(v)** Each protective structure shall be of a size that does not impede the operator’s normal movements.
- (f)(3)(vi)** The overhead covering of each cab shall be of solid material and shall extend over the entire canopy.
- (f)(3)(vii)** Each machine manufactured after August 1, 1996, shall have a cab that is fully enclosed with mesh material with openings no greater than 2 inches (5.08 cm) at its least dimension. The cab may be enclosed with other material(s) where the employer demonstrates such material(s) provides equivalent protection and visibility. Exception: Equivalent visibility is not required for the lower portion of the cab where there are control panels or similar obstructions in the cab, or where visibility is not necessary for safe operation of the machine.
- (f)(3)(viii)** Each machine manufactured on or before August 1, 1996 shall have a cab which meets the requirements specified in paragraph (f)(3)(vii) or a protective canopy for the operator which meets the following requirements:
- (f)(3)(viii)(A)** The protective canopy shall be constructed to protect the operator from injury due to falling trees, limbs, saplings or branches which might enter the compartment side areas and from snapping winch lines or other objects;
- (f)(3)(viii)(B)** The lower portion of the cab shall be fully enclosed with solid material, except at entrances, to prevent the operator from being injured from obstacles entering the cab;
- (f)(3)(viii)(C)** The upper rear portion of the cab shall be fully enclosed with open mesh material with openings of such size as to reject the entrance of an object larger than 2 inches in diameter. It shall provide maximum rearward visibility; and
- (f)(3)(viii)(D)** Open mesh shall be extended forward as far as possible from the rear corners of the cab sides so as to give the maximum protection against obstacles, branches, etc., entering the cab area.
- (f)(3)(ix)** The enclosure of the upper portion of each cab shall allow maximum visibility.
- (f)(3)(x)** When transparent material is used to enclose the upper portion of the cab, it shall be made of safety glass or other material that the employer demonstrates provides equivalent protection and visibility.
- (f)(3)(xi)** Transparent material shall be kept clean to assure operator visibility.
- (f)(3)(xii)** Transparent material that may create a hazard for the operator, such as but not limited to, cracked, broken or scratched safety glass, shall be replaced.

(f)(3)(xiii) Deflectors shall be installed in front of each cab to deflect whipping saplings and branches. Deflectors shall be located so as not to impede visibility and access to the cab.

(f)(3)(xiv) The height of each cab entrance shall be at least 52 inches (1.3 meters) from the floor of the cab.

(f)(3)(xv) Each machine operated near cable yarding operations shall be equipped with sheds or roofs of sufficient strength to provide protection from breaking lines.

(f)(4) “Overhead guards.” Each forklift shall be equipped with an overhead guard meeting the requirements of the American Society of Mechanical Engineers, ASME B56.6-1992 (with addenda), “Safety Standard for Rough Terrain Forklift Trucks”, which is incorporated by reference as specified in Sec. 1910.6.

(f)(5) “Machine access.”

(f)(5)(i) Machine access systems, meeting the specifications of the Society of Automotive Engineers, SAE J185, June 1988, “Recommended Practice for Access Systems for Off-Road Machines’,” which is incorporated by reference as specified in Sec. 1910.6, shall be provided for each machine where the operator or any other employee must climb onto the machine to enter the cab or to perform maintenance.

(f)(5)(ii) Each machine cab shall have a second means of egress.

(f)(5)(iii) Walking and working surfaces of each machine and machine work station shall have a slip resistant surface to assure safe footing.

(f)(5)(iv) The walking and working surface of each machine shall be kept free of waste, debris and any other material which might result in fire, slipping, or falling.

(f)(6) “Exhaust systems.”

(f)(6)(i) The exhaust pipes on each machine shall be located so exhaust gases are directed away from the operator.

(f)(6)(ii) The exhaust pipes on each machine shall be mounted or guarded to protect each employee from accidental contact.

(f)(6)(iii) The exhaust pipes shall be equipped with spark arresters. Engines equipped with turbochargers do not require spark arresters.

(f)(6)(iv) Each machine muffler provided by the manufacturer, or their equivalent, shall be in place at all times the machine is in operation.

(f)(7) “Brakes.”

(f)(7)(i) Service brakes shall be sufficient to stop and hold each machine and its rated load capacity on the slopes over which it is being operated.

(f)(7)(ii) Each machine placed into initial service on or after September 8, 1995 shall also be equipped with: back-up or secondary brakes that are capable of stopping the machine regardless of the direction of travel or whether the engine is running; and parking brakes that are capable of continuously holding a stopped machine stationary.

(f)(8) “Guarding.”

(f)(8)(i) Each machine shall be equipped with guarding to protect employees from exposed moving elements, such as but not limited to, shafts, pulleys, belts on conveyors, and gears, in accordance with the requirements of subpart O of part 1910.

(f)(8)(ii) Each machine used for debarking, limbing and chipping shall be equipped with guarding to protect employees from flying wood chunks, logs, chips, bark, limbs and other material in accordance with the requirements of subpart O of part 1910.

(f)(8)(iii) The guarding on each machine shall be in place at all times the machine is in operation.

1910.266(g) “Vehicles.”

(g)(1) The employer shall assure that each vehicle used to perform any logging operation is maintained in serviceable condition.

(g)(2) The employer shall assure that each vehicle used to perform any logging operation is inspected before initial use during each workshift. Defects or damage shall be repaired or the unserviceable vehicle shall be replaced before work is commenced.

(g)(3) The employer shall assure that operating and maintenance instructions are available in each vehicle. Each vehicle operator and maintenance employee shall comply with the operating and maintenance instructions.

(g)(4) The employer shall assure that each vehicle operator has a valid operator's license for the class of vehicle being operated.

(g)(5) Mounting steps and handholds shall be provided for each vehicle wherever it is necessary to prevent an employee from being injured when entering or leaving the vehicle.

(g)(6) The seats of each vehicle shall be securely fastened.

(g)(7) The requirements of paragraphs (f)(2)(iii), (f)(2)(v), (f)(2)(vii), (f)(2)(x), (f)(2)(xiii), and (f)(7) of this section shall also apply to each vehicle used to transport any employee off public roads or to perform any logging operation, including any vehicle provided by an employee.

1910.266(h) "Tree harvesting."

(h)(1) "General requirements."

(h)(1)(i) Trees shall not be felled in a manner that may create a hazard for an employee, such as but not limited to, striking a rope, cable, power line, or machine.

(h)(1)(ii) The immediate supervisor shall be consulted when unfamiliar or unusually hazardous conditions necessitate the supervisor's approval before cutting is commenced.

(h)(1)(iii) While manual felling is in progress, no yarding machine shall be operated within two tree lengths of trees being manually felled. Exception: This provision does not apply to yarding machines performing tree pulling operations.

(h)(1)(iv) No employee shall approach a feller closer than two tree lengths of trees being felled until the feller has acknowledged that it is safe to do so, unless the employer demonstrates that a team of employees is necessary to manually fell a particular tree.

(h)(1)(v) No employee shall approach a mechanical felling operation closer than two tree lengths of the trees being felled until the machine operator has acknowledged that it is safe to do so.

(h)(1)(vi) Each danger tree shall be felled, removed or avoided. Each danger tree, including lodged trees and snags, shall be felled or removed using mechanical or other techniques that minimize employee exposure before work is commenced in the area of the danger tree. If the danger tree is not felled or removed, it shall be marked and no work shall be conducted within two tree lengths of the danger tree unless the employer demonstrates that a shorter distance will not create a hazard for an employee.

(h)(1)(vii) Each danger tree shall be carefully checked for signs of loose bark, broken branches and limbs or other damage before they are felled or removed. Accessible loose bark and other damage that may create a hazard for an employee shall be removed or held in place before felling or removing the tree.

(h)(1)(viii) Felling on any slope where rolling or sliding of trees or logs is reasonably foreseeable shall be done uphill from, or on the same level as, previously felled trees.

(h)(1)(ix) Domino felling of trees is prohibited.

Note to paragraph (h)(1)(ix): The definition of domino felling does not include the felling of a single danger tree by felling another single tree into it.

(h)(2) "Manual felling."

(h)(2)(i) Before felling is started, the feller shall plan and clear a retreat path. The retreat path shall extend diagonally away from the expected felling line unless the employer demonstrates that such a retreat path poses a greater hazard than an alternate path. Once the backcut has been made the feller shall immediately move a safe distance away from the tree on the retreat path.

(h)(2)(ii) Before each tree is felled, conditions such as, but not limited to, snow and ice accumulation, the wind, the lean of tree, dead limbs, and the location of other trees, shall be evaluated by the feller and precautions taken so a hazard is not created for an employee.

(h)(2)(iii) Each tree shall be checked for accumulations of snow and ice. Accumulations of snow and ice that may create a hazard for an employee shall be removed before felling is commenced in the area or the area shall be avoided.

(h)(2)(iv) When a spring pole or other tree under stress is cut, no employee other than the feller shall be closer than two trees lengths when the stress is released.

(h)(2)(v) An undercut shall be made in each tree being felled unless the employer demonstrates that felling the particular tree without an undercut will not create a hazard for an employee. The undercut shall be of a size so the tree will not split and will fall in the intended direction.

(h)(2)(vi) A backcut shall be made in each tree being felled. The backcut shall leave sufficient hinge wood to hold the tree to the stump during most of its fall so that the hinge is able to guide the tree's fall in the intended direction.

(h)(2)(vii) The backcut shall be above the level of the horizontal facecut in order to provide an adequate platform to prevent kickback. Exception: The backcut may be at or below the horizontal facecut in tree pulling operations.

Note to paragraph (h)(2)(vii): This requirement does not apply to open face felling where two angled facecuts rather than a horizontal facecut are used.

(h)(3) "Limbing and bucking."

(h)(3)(i) Limbing and bucking on any slope where rolling or sliding of trees or logs is reasonably foreseeable shall be done on the uphill side of each tree or log.

(h)(3)(ii) Before bucking or limbing wind-thrown trees, precautions shall be taken to prevent the root wad, butt or logs from striking an employee. These precautions include, but are not limited to, chocking or moving the tree to a stable position.

(h)(4) "Chipping (in-woods locations)."

(h)(4)(i) Chipper access covers or doors shall not be opened until the drum or disc is at a complete stop.

(h)(4)(ii) Infeed and discharge ports shall be guarded to prevent contact with the disc, knives, or blower blades.

(h)(4)(iii) The chipper shall be shut down and locked out in accordance with the requirements of 29 CFR 1910.147 when an employee performs any servicing or maintenance.

(h)(4)(iv) Detached trailer chippers shall be chocked during usage on any slope where rolling or sliding of the chipper is reasonably foreseeable.

1910.266(h)(5) "Yarding."

(h)(5)(i) No log shall be moved until each employee is in the clear.

(h)(5)(ii) Each choker shall be hooked and unhooked from the uphill side or end of the log, unless the employer demonstrates that it is not feasible in the particular situation to hook or unhook the choker from the uphill side. Where the choker is hooked or unhooked from the downhill side or end of the log, the log shall be securely chocked to prevent rolling, sliding or swinging.

(h)(5)(iii) Each choker shall be positioned near the end of the log or tree length.

(h)(5)(iv) Each machine shall be positioned during winching so the machine and winch are operated within their design limits.

(h)(5)(v) No yarding line shall be moved unless the yarding machine operator has clearly received and understood the signal to do so. When in doubt, the yarding machine operator shall repeat the signal and wait for a confirming signal before moving any line.

(h)(5)(vi) No load shall exceed the rated capacity of the pallet, trailer, or other carrier.

(h)(5)(vii) Towed equipment, such as but not limited to, skid pans, pallets, arches, and trailers, shall be attached to each machine or vehicle in such a manner as to allow a full 90 degree turn; to prevent overrunning of the towing machine or vehicle; and to assure that the operator is always in control of the towed equipment.

(h)(5)(viii) The yarding machine or vehicle, including its load, shall be operated with safe clearance from all obstructions that may create a hazard for an employee.

(h)(5)(ix) Each yarded tree shall be placed in a location that does not create a hazard for an employee and an orderly manner so that the trees are stable before bucking or limbing is commenced.

(h)(6) “Loading and unloading.”

(h)(6)(i) The transport vehicle shall be positioned to provide working clearance between the vehicle and the deck.

(h)(6)(ii) Only the loading or unloading machine operator and other personnel the employer demonstrates are essential shall be in the loading or unloading work area during this operation.

(h)(6)(iii) No transport vehicle operator shall remain in the cab during loading and unloading if the logs are carried or moved over the truck cab, unless the employer demonstrates that it is necessary for the operator to do so. Where the transport vehicle operator remains in the cab, the employer shall provide operator protection, such as but not limited to, reinforcement of the cab.

(h)(6)(iv) Each log shall be placed on a transport vehicle in an orderly manner and tightly secured.

(h)(6)(v) The load shall be positioned to prevent slippage or loss during handling and transport.

(h)(6)(vi) Each stake and chock which is used to trip loads shall be so constructed that the tripping mechanism is activated on the side opposite the release of the load.

(h)(6)(vii) Each tie down shall be left in place over the peak log to secure all logs until the unloading lines or other protection the employer demonstrates is equivalent has been put in place. A stake of sufficient strength to withstand the forces of shifting or moving logs, shall be considered equivalent protection provided that the logs are not loaded higher than the stake.

(h)(6)(viii) Each tie down shall be released only from the side on which the unloading machine operates, except as follows:

(h)(6)(viii)(A) When the tie down is released by a remote control device; and

(h)(6)(viii)(B) When the employee making the release is protected by racks, stanchions or other protection the employer demonstrates is capable of withstanding the force of the logs.

(h)(7) “Transport.” The transport vehicle operator shall assure that each tie down is tight before transporting the load. While enroute, the operator shall check and tighten the tie downs whenever there is reason to believe that the tie downs have loosened or the load has shifted.

(h)(8) “Storage.” Each deck shall be constructed and located so it is stable and provides each employee with enough room to safely move and work in the area.

1910.266(i) “Training.”

(i)(1) The employer shall provide training for each employee, including supervisors, at no cost to the employee.

(i)(2) “Frequency.” Training shall be provided as follows:

(i)(2)(i) As soon as possible but not later than the effective date of this section for initial training for each current and new employee;

(i)(2)(ii) Prior to initial assignment for each new employee;

(i)(2)(iii) Whenever the employee is assigned new work tasks, tools, equipment, machines or vehicles; and

(i)(2)(iv) Whenever an employee demonstrates unsafe job performance.

(i)(3) “Content.” At a minimum, training shall consist of the following elements:

(i)(3)(i) Safe performance of assigned work tasks;

(i)(3)(ii) Safe use, operation and maintenance of tools, machines and vehicles the employee uses or operates, including emphasis on understanding and following the manufacturer’s operating and maintenance instructions, warnings and precautions;

(i)(3)(iii) Recognition of safety and health hazards associated with the employee’s specific work tasks, including the use of measures and work practices to prevent or control those hazards;

(i)(3)(iv) Recognition, prevention and control of other safety and health hazards in the logging industry;

(i)(3)(v) Procedures, practices and requirements of the employer’s work site; and

1910.266(i)(3)(vi) The requirements of this standard.

(i)(4) Training of an employee due to unsafe job performance, or assignment of new work tasks, tools, equipment, machines, or vehicles; may be limited to those elements in paragraph (i)(3) of this section which are relevant to the circumstances giving rise to the need for training.

(i)(5) “Portability of training.”

(i)(5)(i) Each current employee who has received training in the particular elements specified in paragraph (i)(3) of this section shall not be required to be retrained in those elements.

(i)(5)(ii) Each new employee who has received training in the particular elements specified in paragraph (i)(3) of this section shall not be required to be retrained in those elements prior to initial assignment.

(i)(5)(iii) The employer shall train each current and new employee in those elements for which the employee has not received training.

(i)(5)(iv) The employer is responsible for ensuring that each current and new employee can properly and safely perform the work tasks and operate the tools, equipment, machines, and vehicles used in their job.

(i)(6) Each new employee and each employee who is required to be trained as specified in paragraph (i)(2) of this section, shall work under the close supervision of a designated person until the employee demonstrates to the employer the ability to safely perform their new duties independently.

(i)(7) “First-aid training.”

(i)(7)(i) The employer shall assure that each employee, including supervisors, receives or has received first-aid and CPR training meeting at least the requirements specified in Appendix B.

(i)(7)(ii) The employer shall assure that each employee’s first-aid and CPR training and/or certificate of training remain current.

(i)(8) All training shall be conducted by a designated person.

(i)(9) The employer shall assure that all training required by this section is presented in a manner that the employee is able to understand. The employer shall assure that all training materials used are appropriate in content and vocabulary to the educational level, literacy, and language skills of the employees being trained.

(i)(10) “Certification of training.”

(i)(10)(i) The employer shall verify compliance with paragraph (i) of this section by preparing a written certification record. The written certification record shall contain the name or other identity of the employee trained, the date(s) of the training, and the signature of the person who conducted the training or the signature of the employer. If the employer relies on training conducted prior to the employee’s hiring or completed prior to the effective date of this section, the certification record shall indicate the date the employer determined the prior training was adequate.

(i)(10)(ii) The most recent training certification shall be maintained.

(i)(11) “Safety and health meetings.” The employer shall hold safety and health meetings as necessary and at least each month for each employee. Safety and health meetings may be conducted individually, in crew meetings, in larger groups, or as part of other staff meetings.

1910.266(j) “Appendices.” Appendices A and B of this section are mandatory. The information contained in Appendix C of this section is informational and is not intended to create any additional obligations not otherwise imposed or to detract from existing regulations.

Note: The note added at the bottom of this standard 1910.266 in the Federal Register of August 9, 1995, has been superseded by the corrections made in the Federal Register of September 8, 1995.

Appendix A—First-aid Kits (Mandatory)

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

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

Appendix B—First-aid and CPR Training (Mandatory)

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

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

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

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

8. Immobilization of injured persons.
9. Handling and transporting injured persons.
10. Treatment of bites, stings, or contact with poisonous plants or animals.

Subpart M Occupational Health 29 CFR 1910.1027 Cadmium

1910.1027(a) “Scope.” This standard applies to all occupational exposures to cadmium and cadmium compounds, in all forms, and in all industries covered by the Occupational Safety and Health Act, except the construction-related industries, which are covered under 29 CFR 1926.63.

1910.1027(b) “Definitions.”

“Action level (AL)” is defined as an airborne concentration of cadmium of 2.5 micrograms per cubic meter of air (2.5 µg/m³), calculated as an 8-hour time-weighted average (TWA).

“Assistant Secretary” means the Assistant Secretary of Labor for Occupational Safety and Health, U.S. Department of Labor, or designee.

“Authorized person” means any person authorized by the employer and required by work duties to be present in regulated areas or any person authorized by the OSH Act or regulations issued under it to be in regulated areas.

“Director” means the Director of the National Institute for Occupational Safety and Health (NIOSH), U.S. Department of Health and Human Services, or designee.

“Employee exposure” and similar language referring to the air cadmium level to which an employee is exposed means the exposure to airborne cadmium that would occur if the employee were not using respiratory protective equipment.

“Final medical determination” is the written medical opinion of the employee’s health status by the examining physician under paragraphs (1)(3)–(12) or, if multiple physician review under paragraph (1)(13) or the alternative physician determination under paragraph (1)(14) is invoked, it is the final, written medical finding, recommendation or determination that emerges from that process.

“High-efficiency particulate air [HEPA] filter” means a filter capable of trapping and retaining at least 99.97 percent of mono-dispersed particles of 0.3 micrometers in diameter.

“Regulated area” means an area demarcated by the employer where an employee’s exposure to airborne concentrations of cadmium exceeds, or can reasonably be expected to exceed the permissible exposure limit (PEL).

“This section” means this cadmium standard.

1910.1027(c) “Permissible Exposure Limit (PEL).” The employer shall assure that no employee is exposed to an airborne concentration of cadmium in excess of five micrograms per cubic meter of air (5 µg/m³), calculated as an eight-hour time-weighted average exposure (TWA).

1910.1027(d) “Exposure Monitoring.”

(d)(1) “General.”

(d)(1)(i) Each employer who has a workplace or work operation covered by this section shall determine if any employee may be exposed to cadmium at or above the action level.

(d)(1)(ii) Determinations of employee exposure shall be made from breathing zone air samples that reflect the monitored employee’s regular, daily 8-hour TWA exposure to cadmium.

(d)(1)(iii) Eight-hour TWA exposures shall be determined for each employee on the basis of one or more personal breathing zone air samples reflecting full shift exposure on each shift, for each job classification, in each work area. Where several employees perform the same job tasks, in the same job classification, on the same shift, in the same work area, and the length, duration, and level of cadmium exposures are similar, an employer may sample a representative fraction of the employees instead of all employees in order to meet this requirement. In representative sampling, the employer shall sample the employee(s) expected to have the highest cadmium exposures.

(d)(2) “Specific.”

(d)(2)(i) Initial monitoring. Except as provided for in paragraphs (d)(2)(ii) and (d)(2)(iii) of this section, the employer shall monitor employee exposures and shall base initial determinations on the monitoring results.

(d)(2)(ii) Where the employer has monitored after September 14, 1991, under conditions that in all important aspects closely resemble those currently prevailing and where that monitoring satisfies all other requirements of this section,

including the accuracy and confidence levels of paragraph (d)(6), the employer may rely on such earlier monitoring results to satisfy the requirements of paragraph (d)(2)(i) of this section.

(d)(2)(iii) Where the employer has objective data, as defined in paragraph (n)(2) of this section, demonstrating that employee exposure to cadmium will not exceed the action level under the expected conditions of processing, use, or handling, the employer may rely upon such data instead of implementing initial monitoring.

(d)(3) “Monitoring Frequency (periodic monitoring).”

(d)(3)(i) If the initial monitoring or periodic monitoring reveals employee exposures to be at or above the action level, the employer shall monitor at a frequency and pattern needed to represent the levels of exposure of employees and where exposures are above the PEL to assure the adequacy of respiratory selection and the effectiveness of engineering and work practice controls. However, such exposure monitoring shall be performed at least every six months. The employer, at a minimum, shall continue these semi-annual measurements unless and until the conditions set out in paragraph (d)(3)(ii) are met.

(d)(3)(ii) If the initial monitoring or the periodic monitoring indicates that employee exposures are below the action level and that result is confirmed by the results of another monitoring taken at least seven days later, the employer may discontinue the monitoring for those employees whose exposures are represented by such monitoring.

(d)(4) “Additional Monitoring.” The employer also shall institute the exposure monitoring required under paragraphs (d)(2)(i) and (d)(3) of this section whenever there has been a change in the raw materials, equipment, personnel, work practices, or finished products that may result in additional employees being exposed to cadmium at or above the action level or in employees already exposed to cadmium at or above the action level being exposed above the PEL, or whenever the employer has any reason to suspect that any other change might result in such further exposure.

(d)(5) “Employee Notification of Monitoring Results.”

(d)(5)(i) The employer must, within 15 working days after the receipt of the results of any monitoring performed under this section, notify each affected employee of these results either individually in writing or by posting the results in an appropriate location that is accessible to employees.

(d)(5)(ii) Wherever monitoring results indicate that employee exposure exceeds the PEL, the employer shall include in the written notice a statement that the PEL has been exceeded and a description of the corrective action being taken by the employer to reduce employee exposure to or below the PEL.

(d)(6) “Accuracy of measurement.” The employer shall use a method of monitoring and analysis that has an accuracy of not less than plus or minus 25 percent ($\pm 25\%$), with a confidence level of 95 percent, for airborne concentrations of cadmium at or above the action level, the permissible exposure limit (PEL), and the separate engineering control air limit (SECAL).

1910.1027(e) “Regulated areas.”

(e)(1) “Establishment.” The employer shall establish a regulated area wherever an employee’s exposure to airborne concentrations of cadmium is, or can reasonably be expected to be in excess of the permissible exposure limit (PEL).

(e)(2) “Demarcation.” Regulated areas shall be demarcated from the rest of the workplace in any manner that adequately establishes and alerts employees of the boundaries of the regulated area.

(e)(3) “Access.” Access to regulated areas shall be limited to authorized persons.

(e)(4) “Provision of respirators.” Each person entering a regulated area shall be supplied with and required to use a respirator, selected in accordance with paragraph (g)(2) of this section.

(e)(5) “Prohibited activities.” The employer shall assure that employees do not eat, drink, smoke, chew tobacco or gum, or apply cosmetics in regulated areas, carry the products associated with these activities into regulated areas, or store such products in those areas.

1910.1027(f) “Methods of compliance.”

(f)(1) “Compliance hierarchy.”

(f)(1)(i) Except as specified in paragraphs (f)(1)(ii), (iii) and (iv) of this section the employer shall implement engineering and work practice controls to reduce and maintain employee exposure to cadmium at or below the PEL, except to the extent that the employer can demonstrate that such controls are not feasible.

(f)(1)(ii) Except as specified in paragraphs (f)(1)(iii) and (iv) of this section, in industries where a separate engineering control air limit (SECAL) has been specified for particular processes (See Table 1), the employer shall implement engineering and work practice controls to reduce and maintain employee exposure at or below the SECAL, except to the extent that the employer can demonstrate that such controls are not feasible.

Table 1
Separate Engineering Control Airborne Limits (SECALs) For Processes In Selected Industries

Industry	Process	SECAL (µg/m ³)
Nickel Cadmium Battery	Plate making, plate preparation	50
	All other processes	15
Zinc/Cadmium Refining*	Cadmium refining, casting, melting, oxide production, sinter plant	50
Pigment Manufacture	Calcine, crushing, milling, blending	50
	All other processes	15
Stabilizers*	Cadmium oxide charging, crushing, drying, blending	50
Lead Smelting*	Sinter plant, blast furnace, baghouse, yard area	50
Plating*	Mechanical plating	15

*Processes in these industries that are not specified in this table must achieve the PEL using engineering controls and work practices as required in f(1)(i) 1910.1027(f)(1)(iii) The requirement to implement engineering and work practice controls to achieve the PEL or, where applicable, the SECAL does not apply where the employer demonstrates the following:

(f)(1)(iii)(A) the employee is only intermittently exposed; and

(f)(1)(iii)(B) the employee is not exposed above the PEL on 30 or more days per year (12 consecutive months).

(f)(1)(iv) Wherever engineering and work practice controls are required and are not sufficient to reduce employee exposure to or below the PEL or, where applicable, the SECAL, the employer nonetheless shall implement such controls to reduce exposures to the lowest levels achievable. The employer shall supplement such controls with respiratory protection that complies with the requirements of paragraph (g) of this section and the PEL.

(f)(1)(v) The employer shall not use employee rotation as a method of compliance.

(f)(2) “Compliance program.”

(f)(2)(i) Where the PEL is exceeded, the employer shall establish and implement a written compliance program to reduce employee exposure to or below the PEL by means of engineering and work practice controls, as required by paragraph (f)(1) of this section. To the extent that engineering and work practice controls cannot reduce exposures to or below the PEL, the employer shall include in the written compliance program the use of appropriate respiratory protection to achieve compliance with the PEL.

(f)(2)(ii) Written compliance programs shall include at least the following:

(f)(2)(ii)(A) A description of each operation in which cadmium is emitted; *e.g.*, machinery used, material processed, controls in place, crew size, employee job responsibilities, operating procedures, and maintenance practices;

(f)(2)(ii)(B) A description of the specific means that will be employed to achieve compliance, including engineering plans and studies used to determine methods selected for controlling exposure to cadmium, as well as, where necessary, the use of appropriate respiratory protection to achieve the PEL;

(f)(2)(ii)(C) A report of the technology considered in meeting the PEL;

(f)(2)(ii)(D) Air monitoring data that document the sources of cadmium emissions;

(f)(2)(ii)(E) A detailed schedule for implementation of the program, including documentation such as copies of purchase orders for equipment, construction contracts, etc.;

(f)(2)(ii)(F) A work practice program that includes items required under paragraphs (h), (i), and (j) of this section;

(f)(2)(ii)(G) A written plan for emergency situations, as specified in paragraph (h) of this section; and

(f)(2)(ii)(H) Other relevant information.

(f)(2)(iii) The written compliance programs shall be reviewed and updated at least annually, or more often if necessary, to reflect significant changes in the employer's compliance status.

(f)(2)(iv) Written compliance programs shall be provided upon request for examination and copying to affected employees, designated employee representatives as well as to the Assistant Secretary, and the Director.

(f)(3) "Mechanical ventilation."

(f)(3)(i) When ventilation is used to control exposure, measurements that demonstrate the effectiveness of the system in controlling exposure, such as capture velocity, duct velocity, or static pressure shall be made as necessary to maintain its effectiveness.

(f)(3)(ii) Measurements of the system's effectiveness in controlling exposure shall be made as necessary within five working days of any change in production, process, or control that might result in a significant increase in employee exposure to cadmium.

(f)(3)(iii) Recirculation of air. If air from exhaust ventilation is recirculated into the workplace, the system shall have a high efficiency filter and be monitored to assure effectiveness.

(f)(3)(iv) Procedures shall be developed and implemented to minimize employee exposure to cadmium when maintenance of ventilation systems and changing of filters is being conducted.

1910.1027(g) *Respiratory protection.*

(g)(1) *General.* For employees who use respirators required by this section, the employer must provide each employee an appropriate respirator that complies with the requirements of this paragraph. Respirators must be used during:

(g)(1)(i) Periods necessary to install or implement feasible engineering and work-practice controls when employee exposure levels exceed the PEL.

(g)(1)(ii) Maintenance and repair activities, and brief or intermittent operations, for which employee exposures exceed the PEL and engineering and work-practice controls are not feasible or are not required.

(g)(1)(iii) Activities in regulated areas specified in paragraph (e) of this section.

(g)(1)(iv) Work operations for which the employer has implemented all feasible engineering and work-practice controls and such controls are not sufficient to reduce employee exposures to or below the PEL.

(g)(1)(v) Work operations for which an employee is exposed to cadmium at or above the action level, and the employee requests a respirator.

(g)(1)(vi) Work operations for which an employee is exposed to cadmium above the PEL and engineering controls are not required by paragraph (f)(1)(ii) of this section.

(g)(1)(vii) Emergencies.

(g)(2) *Respirator program.*

(g)(2)(i) The employer must implement a respiratory protection program in accordance with § 1910.134(b) through (d) (except (d)(1)(iii)), and (f) through (m), which covers each employee required by this section to use a respirator.

(g)(2)(ii) No employees must use a respirator if, based on their most recent medical examination, the examining physician determines that they will be unable to continue to function normally while using a respirator. If the physician determines that the employee must be limited in, or removed from, their current job because of their inability to use a respirator, the limitation or removal must be in accordance with paragraphs (l) (11) and (12) of this section.

(g)(2)(iii) If an employee has breathing difficulty during fit testing or respirator use, the employer must provide the employee with a medical examination in accordance with paragraph (l)(6)(ii) of this section to determine if the employee can use a respirator while performing the required duties.

(g)(3) *Respirator selection.*

(g)(3)(i) Employers must:

(g)(3)(i)(A) Select, and provide to employees, the appropriate respirators specified in paragraph (d)(3)(i)(A) of 29 CFR 1910.134.

(g)(3)(i)(B) Provide employees with full facepiece respirators when they experience eye irritation.

(g)(3)(i)(C) Provide HEPA filters for powered and non-powered air-purifying respirators.

(g)(3)(ii) The employer must provide an employee with a powered air-purifying respirator instead of a negative-pressure respirator when an employee who is entitled to a respirator chooses to use this type of respirator and such a respirator provides adequate protection to the employee.

1910.1027(h) “Emergency situations.” The employer shall develop and implement a written plan for dealing with emergency situations involving substantial releases of airborne cadmium. The plan shall include provisions for the use of appropriate respirators and personal protective equipment. In addition, employees not essential to correcting the emergency situation shall be restricted from the area and normal operations halted in that area until the emergency is abated.

1910.1027(i) “Protective work clothing and equipment.”

(i)(1) “Provision and use.” If an employee is exposed to airborne cadmium above the PEL or where skin or eye irritation is associated with cadmium exposure at any level, the employer shall provide at no cost to the employee, and assure that the employee uses, appropriate protective work clothing and equipment that prevents contamination of the employee and the employee’s garments. Protective work clothing and equipment includes, but is not limited to:

(i)(1)(i) Coveralls or similar full-body work clothing;

(i)(1)(ii) Gloves, head coverings, and boots or foot coverings; and,

(i)(1)(iii) Face shields, vented goggles, or other appropriate protective equipment that complies with 29 CFR 1910.133.

(i)(2) “Removal and storage.”

(i)(2)(i) The employer shall assure that employees remove all protective clothing and equipment contaminated with cadmium at the completion of the work shift and do so only in change rooms provided in accordance with paragraph (j)(1) of this section.

(i)(2)(ii) The employer shall assure that no employee takes cadmium-contaminated protective clothing or equipment from the workplace, except for employees authorized to do so for purposes of laundering, cleaning, maintaining, or disposing of cadmium contaminated protective clothing and equipment at an appropriate location or facility away from the workplace.

(i)(2)(iii) The employer shall assure that contaminated protective clothing and equipment, when removed for laundering, cleaning, maintenance, or disposal, is placed and stored in sealed, impermeable bags or other closed, impermeable containers that are designed to prevent dispersion of cadmium dust.

(i)(2)(iv) The employer shall assure that bags or containers of contaminated protective clothing and equipment that are to be taken out of the change rooms or the workplace for laundering, cleaning, maintenance or disposal shall bear labels in accordance with paragraph (m)(3) of this section.

(i)(3) “Cleaning, replacement, and disposal.”

(i)(3)(i) The employer shall provide the protective clothing and equipment required by paragraph (i)(1) of this section in a clean and dry condition as often as necessary to maintain its effectiveness, but in any event at least weekly. The employer is responsible for cleaning and laundering the protective clothing and equipment required by this paragraph to maintain its effectiveness and is also responsible for disposing of such clothing and equipment.

(i)(3)(ii) The employer also is responsible for repairing or replacing required protective clothing and equipment as needed to maintain its effectiveness. When rips or tears are detected while an employee is working they shall be immediately mended, or the worksuit shall be immediately replaced.

(i)(3)(iii) The employer shall prohibit the removal of cadmium from protective clothing and equipment by blowing, shaking, or any other means that disperses cadmium into the air.

(i)(3)(iv) The employer shall assure that any laundering of contaminated clothing or cleaning of contaminated equipment in the workplace is done in a manner that prevents the release of airborne cadmium in excess of the permissible exposure limit prescribed in paragraph (c) of this section.

(i)(3)(v) The employer shall inform any person who launders or cleans protective clothing or equipment contaminated with cadmium of the potentially harmful effects of exposure to cadmium and that the clothing and equipment should be laundered or cleaned in a manner to effectively prevent the release of airborne cadmium in excess of the PEL.

1910.1027(j) “Hygiene areas and practices.”

(j)(1) “General.” For employees whose airborne exposure to cadmium is above the PEL, the employer shall provide clean change rooms, handwashing facilities, showers, and lunchroom facilities that comply with 29 CFR 1910.141.

(j)(2) “Change rooms.” The employer shall assure that change rooms are equipped with separate storage facilities for street clothes and for protective clothing and equipment, which are designed to prevent dispersion of cadmium and contamination of the employee’s street clothes.

(j)(3) “Showers and handwashing facilities.”

(j)(3)(i) The employer shall assure that employees who are exposed to cadmium above the PEL shower during the end of the work shift.

(j)(3)(ii) The employer shall assure that employees whose airborne exposure to cadmium is above the PEL wash their hands and faces prior to eating, drinking, smoking, chewing tobacco or gum, or applying cosmetics.

(j)(4) “Lunchroom facilities.”

(j)(4)(i) The employer shall assure that the lunchroom facilities are readily accessible to employees, that tables for eating are maintained free of cadmium, and that no employee in a lunchroom facility is exposed at any time to cadmium at or above a concentration of 2.5 µg/m³.

(j)(4)(ii) The employer shall assure that employees do not enter lunchroom facilities with protective work clothing or equipment unless surface cadmium has been removed from the clothing and equipment by HEPA vacuuming or some other method that removes cadmium dust without dispersing it.

1910.1027(k) “Housekeeping.”

(k)(1) All surfaces shall be maintained as free as practicable of accumulations of cadmium.

(k)(2) All spills and sudden releases of material containing cadmium shall be cleaned up as soon as possible.

(k)(3) Surfaces contaminated with cadmium shall, wherever possible, be cleaned by vacuuming or other methods that minimize the likelihood of cadmium becoming airborne.

(k)(4) HEPA-filtered vacuuming equipment or equally effective filtration methods shall be used for vacuuming. The equipment shall be used and emptied in a manner that minimizes the reentry of cadmium into the workplace.

(k)(5) Shoveling, dry or wet sweeping, and brushing may be used only where vacuuming or other methods that minimize the likelihood of cadmium becoming airborne have been tried and found not to be effective.

(k)(6) Compressed air shall not be used to remove cadmium from any surface unless the compressed air is used in conjunction with a ventilation system designed to capture the dust cloud created by the compressed air.

(k)(7) Waste, scrap, debris, bags, containers, personal protective equipment, and clothing contaminated with cadmium and consigned for disposal shall be collected and disposed of in sealed impermeable bags or other closed, impermeable containers. These bags and containers shall be labeled in accordance with paragraph (m) of this section.

1910.1027(l) “Medical surveillance.”

(I)(1) “General.”

(I)(1)(i) “Scope.”

(I)(1)(i)(A) Currently exposed—The employer shall institute a medical surveillance program for all employees who are or may be exposed to cadmium at or above the action level unless the employer demonstrates that the employee is not, and will not be, exposed at or above the action level on 30 or more days per year (twelve consecutive months); and,

(I)(1)(i)(B) Previously exposed—The employer shall also institute a medical surveillance program for all employees who prior to the effective date of this section might previously have been exposed to cadmium at or above the action level by the employer, unless the employer demonstrates that the employee did not prior to the effective date of this section work for the employer in jobs with exposure to cadmium for an aggregated total of more than 60 months.

(I)(1)(ii) To determine an employee’s fitness for using a respirator, the employer shall provide the limited medical examination specified in paragraph (I)(6) of this section.

(I)(1)(iii) The employer shall assure that all medical examinations and procedures required by this standard are performed by or under the supervision of a licensed physician, who has read and is familiar with the health effects section of Appendix A, the regulatory text of this section, the protocol for sample handling and laboratory selection in Appendix F, and the questionnaire of Appendix D. These examinations and procedures shall be provided without cost to the employee and at a time and place that is reasonable and convenient to employees.

(I)(1)(iv) The employer shall assure that the collecting and handling of biological samples of cadmium in urine (CdU), cadmium in blood (CdB), and beta-2 microglobulin in urine (B(2)-M) taken from employees under this section is done in a manner that assures their reliability and that analysis of biological samples of cadmium in urine (CdU), cadmium in blood (CdB), and beta-2 microglobulin in urine (B(2)-M) taken from employees under this section is performed in laboratories with demonstrated proficiency for that particular analyte. (See Appendix F.)

(I)(2) “Initial examination.”

(I)(2)(i) The employer shall provide an initial (preplacement) examination to all employees covered by the medical surveillance program required in paragraph (I)(1)(i) of this section. The examination shall be provided to those employees within 30 days after initial assignment to a job with exposure to cadmium or no later than 90 days after the effective date of this section, whichever date is later.

(I)(2)(ii) The initial (preplacement) medical examination shall include:

(I)(2)(ii)(A) A detailed medical and work history, with emphasis on: past, present, and anticipated future exposure to cadmium; any history of renal, cardiovascular, respiratory, hematopoietic, reproductive, and/or musculo-skeletal system dysfunction; current usage of medication with potential nephrotoxic side-effects; and smoking history and current status; and

(I)(2)(ii)(B) Biological monitoring that includes the following tests:

(I)(2)(ii)(B)(1) Cadmium in urine (CdU), standardized to grams of creatinine (g/Cr);

(I)(2)(ii)(B)(2) Beta-2 microglobulin in urine (B(2)-M), standardized to grams of creatinine (g/Cr), with pH specified, as described in Appendix F; and

(I)(2)(ii)(B)(3) Cadmium in blood (CdB), standardized to liters of whole blood (lwb).

(I)(2)(iii) Recent Examination: An initial examination is not required to be provided if adequate records show that the employee has been examined in accordance with the requirements of paragraph (I)(2)(ii) of this section within the past 12 months. In that case, such records shall be maintained as part of the employee’s medical record and the prior exam shall be treated as if it were an initial examination for the purposes of paragraphs (I)(3) and (4) of this section.

(I)(3) “Actions triggered by initial biological monitoring:”

(I)(3)(i) If the results of the initial biological monitoring tests show the employee’s CdU level to be at or below 3 µg/g Cr, B(2)-M level to be at or below 300 µg/g Cr and CdB level to be at or below 5 µg/lwb, then:

(I)(3)(i)(A) For currently exposed employees, who are subject to medical surveillance under paragraph (I)(1)(i)(A) of this section, the employer shall provide the minimum level of periodic medical surveillance in accordance with the requirements in paragraph (I)(4)(i) of this section; and

- (I)(3)(i)(B)** For previously exposed employees, who are subject to medical surveillance under paragraph (I)(1)(i)(B) of this section, the employer shall provide biological monitoring for CdU, B(2)-M, and CdB one year after the initial biological monitoring and then the employer shall comply with the requirements of paragraph (I)(4)(v).
- (I)(3)(ii)** For all employees who are subject to medical surveillance under paragraph (I)(1)(i), if the results of the initial biological monitoring tests show the level of CdU to exceed 3 µg/g Cr, the level of B(2)-M to exceed 300 µg/g Cr, or the level of CdB to exceed 5 µg/lwb, the employer shall:
- (I)(3)(ii)(A)** Within two weeks after receipt of biological monitoring results, reassess the employee's occupational exposure to cadmium as follows:
- (I)(3)(ii)(A)(1)** Reassess the employee's work practices and personal hygiene;
- (I)(3)(ii)(A)(2)** Reevaluate the employee's respirator use, if any, and the respirator program;
- (I)(3)(ii)(A)(3)** Review the hygiene facilities;
- (I)(3)(ii)(A)(4)** Reevaluate the maintenance and effectiveness of the relevant engineering controls;
- (I)(3)(ii)(A)(5)** Assess the employee's smoking history and status;
- (I)(3)(ii)(B)** Within 30 days after the exposure reassessment, specified in (I)(3)(ii)(A), take reasonable steps to correct any deficiencies found in the reassessment that may be responsible for the employee's excess exposure to cadmium; and,
- (I)(3)(ii)(C)** Within 90 days after receipt of biological monitoring results, provide a full medical examination to the employee in accordance with the requirements of paragraph (I)(4)(ii) of this section. After completing the medical examination, the examining physician shall determine in a written medical opinion whether to medically remove the employee. If the physician determines that medical removal is not necessary, then until the employee's CdU level falls to or below 3 µg/g Cr, B(2)-M level falls to or below 300 µg/g Cr and CdB level falls to or below 5 µg/lwb, the employer shall:
- (I)(3)(ii)(C)(1)** Provide biological monitoring in accordance with paragraph (I)(2)(ii)(B) of this section on a semiannual basis; and
- (I)(3)(ii)(C)(2)** Provide annual medical examinations in accordance with paragraph (I)(4)(ii) of this section.
- (I)(3)(iii)** For all employees who are subject to medical surveillance under paragraph (I)(1)(i), if the results of the initial biological monitoring tests show the level of CdU to be in excess of 15 µg/g Cr, or the level of CdB to be in excess of 15 µg/lwb, or the level of B(2)-M to be in excess of 1,500 µg/g Cr, the employer shall comply with the requirements of paragraphs (I)(3)(ii)(A)-(B) of this section. Within 90 days after receipt of biological monitoring results, the employer shall provide a full medical examination to the employee in accordance with the requirements of paragraph (I)(4)(ii) of this section. After completing the medical examination, the examining physician shall determine in a written medical opinion whether to medically remove the employee. However, if the initial biological monitoring results and the biological monitoring results obtained during the medical examination both show that: CdU exceeds 15 µg/g Cr; or CdB exceeds 15 µg/lwb; or B(2)-M exceeds 1500 µg/g Cr, and in addition CdU exceeds 3 µg/g Cr or CdB exceeds 5 µg/liter of whole blood, then the physician shall medically remove the employee from exposure to cadmium at or above the action level. If the second set of biological monitoring results obtained during the medical examination does not show that a mandatory removal trigger level has been exceeded, then the employee is not required to be removed by the mandatory provisions of this paragraph. If the employee is not required to be removed by the mandatory provisions of this paragraph or by the physician's determination, then until the employee's CdU level falls to or below 3 µg/g Cr, B(2)-M level falls to or below 300 µg/g Cr and CdB level falls to or below 5 µg/lwb, the employer shall:
- (I)(3)(iii)(A)** Periodically reassess the employee's occupational exposure to cadmium;
- (I)(3)(iii)(B)** Provide biological monitoring in accordance with paragraph (I)(2)(ii)(B) of this section on a quarterly basis; and
- (I)(3)(iii)(C)** Provide semiannual medical examinations in accordance with paragraph (I)(4)(ii) of this section.
- (I)(3)(iv)** For all employees to whom medical surveillance is provided, beginning on January 1, 1999, and in lieu of paragraphs (I)(3)(i)-(iii):

(I)(3)(iv)(A) If the results of the initial biological monitoring tests show the employee's CdU level to be at or below 3 µg/g Cr, B(2)-M level to be at or below 300 µg/g Cr and CdB level to be at or below 5 µg/lwb, then for currently exposed employees, the employer shall comply with the requirements of paragraph (I)(3)(i)(A), and for previously exposed employees, the employer shall comply with the requirements of paragraph (I)(3)(i)(B);

(I)(3)(iv)(B) If the results of the initial biological monitoring tests show the level of CdU to exceed 3 µg/g Cr, the level of B(2)-M to exceed 300 µg/g Cr, or the level of CdB to exceed 5 µg/lwb, the employer shall comply with the requirements of paragraphs (I)(3)(ii)(A) through (C); and,

(I)(3)(iv)(C) If the results of the initial biological monitoring tests show the level of CdU to be in excess of 7 µg/g Cr, or the level of CdB to be in excess of 10 µg/lwb, or the level of B(2)-M to be in excess of 750 µg/g Cr, the employer shall: comply with the requirements of paragraphs (I)(3)(ii)(A)-(B); and, within 90 days after receipt of biological monitoring results, provide a full medical examination to the employee in accordance with the requirements of paragraph (I)(4)(ii) of this section. After completing the medical examination, the examining physician shall determine in a written medical opinion whether to medically remove the employee. However, if the initial biological monitoring results and the biological monitoring results obtained during the medical examination both show that: CdU exceeds 7 µg/g Cr; or CdB exceeds 10 µg/lwb; or B(2)-M exceeds 750 µg/g Cr, and in addition CdU exceeds 3 µg/g Cr or CdB exceeds 5 µg/liter of whole blood, then the physician shall medically remove the employee from exposure to cadmium at or above the action level. If the second set of biological monitoring results obtained during the medical examination does not show that a mandatory removal trigger level has been exceeded, then the employee is not required to be removed by the mandatory provisions of this paragraph. If the employee is not required to be removed by the mandatory provisions of this paragraph or by the physician's determination, then until the employee's CdU level falls to or below 3 µg/g Cr, B(2)-M level falls to or below 300 µg/g Cr and CdB level falls to or below 5 µg/lwb, the employer shall: periodically reassess the employee's occupational exposure to cadmium; provide biological monitoring in accordance with paragraph (I)(2)(ii)(B) of this section on a quarterly basis; and provide semiannual medical examinations in accordance with paragraph (I)(4)(ii) of this section.

(I)(4) "Periodic medical surveillance."

(I)(4)(i) For each employee who is covered under paragraph (I)(1)(i)(A), the employer shall provide at least the minimum level of periodic medical surveillance, which consists of periodic medical examinations and periodic biological monitoring. A periodic medical examination shall be provided within one year after the initial examination required by paragraph (I)(2) and thereafter at least biennially. Biological sampling shall be provided at least annually, either as part of a periodic medical examination or separately as periodic biological monitoring.

(I)(4)(ii) The periodic medical examination shall include:

(I)(4)(ii)(A) A detailed medical and work history, or update thereof, with emphasis on: past, present and anticipated future exposure to cadmium; smoking history and current status; reproductive history; current use of medications with potential nephrotoxic side-effects; any history of renal, cardiovascular, respiratory, hematopoietic, and/or musculoskeletal system dysfunction; and as part of the medical and work history, for employees who wear respirators, questions 3-11 and 25-32 in Appendix D;

(I)(4)(ii)(B) A complete physical examination with emphasis on: blood pressure, the respiratory system, and the urinary system;

(I)(4)(ii)(C) A 14 inch by 17 inch, or a reasonably standard sized posterior-anterior chest X-ray (after the initial X-ray, the frequency of chest X-rays is to be determined by the examining physician);

(I)(4)(ii)(D) Pulmonary function tests, including forced vital capacity (FVC) and forced expiratory volume at 1 second (FEV(1));

(I)(4)(ii)(E) Biological monitoring, as required in paragraph (I)(2)(ii)(B);

(I)(4)(ii)(F) Blood analysis, in addition to the analysis required under paragraph (I)(2)(ii)(B), including blood urea nitrogen, complete blood count, and serum creatinine;

(I)(4)(ii)(G) Urinalysis, in addition to the analysis required under paragraph (I)(2)(ii)(B), including the determination of albumin, glucose, and total and low molecular weight proteins;

(I)(4)(ii)(H) For males over 40 years old, prostate palpation, or other at least as effective diagnostic test(s); and

(1)(4)(ii)(I) Any additional tests deemed appropriate by the examining physician.

(1)(4)(iii) Periodic biological monitoring shall be provided in accordance with paragraph (1)(2)(ii)(B).

(1)(4)(iv) If the results of periodic biological monitoring or the results of biological monitoring performed as part of the periodic medical examination show the level of the employee's CdU, B(2)-M, or CdB to be in excess of the levels specified in paragraphs (1)(3)(ii) or (iii); or, beginning on January 1, 1999, in excess of the levels specified in paragraphs (1)(3)(ii) or (iv) of this section, the employer shall take the appropriate actions specified in paragraphs (1)(3)(ii)-(iv) of this section.

(1)(4)(v) For previously exposed employees under paragraph (1)(1)(i)(B):

(1)(4)(v)(A) If the employee's levels of CdU did not exceed 3 µg/g Cr and CdB did not exceed 5 µg/lwb, and B(2)-M did not exceed 300 µg/g Cr in the initial biological monitoring tests, and if the results of the followup biological monitoring required by paragraph (1)(3)(i)(B) of this section one year after the initial examination confirm the previous results, the employer may discontinue all periodic medical surveillance for that employee.

(1)(4)(v)(B) If the initial biological monitoring results for CdU, CdB, or B(2)-M were in excess of the levels specified in (1)(3)(i), but subsequent biological monitoring results required by (1)(3)(ii)-(iv) show that the employee's CdU levels no longer exceed 3 µg/g Cr, CdB levels no longer exceed 5 µg/lwb, and B(2)-M levels no longer exceed 300 µg/g Cr, the employer shall provide biological monitoring for CdU, CdB, and B(2)-M one year after these most recent biological monitoring results. If the results of the followup biological monitoring, specified in this paragraph, confirm the previous results, the employer may discontinue all periodic medical surveillance for that employee.

(1)(4)(v)(C) However, if the results of the follow-up tests specified in (1)(4)(v)(A) or (B) indicate that the level of the employee's CdU, B(2)-M, or CdB exceeds these same levels, the employer is required to provide annual medical examinations in accordance with the provisions of paragraph (1)(4)(ii) until the results of biological monitoring are consistently below these levels or the examining physician determines in a written medical opinion that further medical surveillance is not required to protect the employee's health.

(1)(4)(vi) A routine, biennial medical examination is not required to be provided in accordance with paragraphs (1)(3)(i) and (1)(4) if adequate medical records show that the employee has been examined in accordance with the requirements of paragraph (1)(4)(ii) within the past 12 months. In that case, such records shall be maintained by the employer as part of the employee's medical record, and the next routine, periodic medical examination shall be made available to the employee within two years of the previous examination.

(1)(5) "Actions triggered by medical examinations:"

(1)(5)(i) If the results of a medical examination carried out in accordance with this section indicate any laboratory or clinical finding consistent with cadmium toxicity that does not require employer action under paragraphs (1)(2), (3) or (4) of this section, the employer, within 30 days, shall reassess the employee's occupational exposure to cadmium and take the following corrective action until the physician determines they are no longer necessary:

(1)(5)(i)(A) Periodically reassess: the employee's work practices and personal hygiene; the employee's respirator use, if any; the employee's smoking history and status; the respiratory protection program; the hygiene facilities; and the maintenance and effectiveness of the relevant engineering controls;

(1)(5)(i)(B) Within 30 days after the reassessment, take all reasonable steps to correct the deficiencies found in the reassessment that may be responsible for the employee's excess exposure to cadmium;

(1)(5)(i)(C) Provide semiannual medical reexaminations to evaluate the abnormal clinical sign(s) of cadmium toxicity until the results are normal or the employee is medically removed; and

(1)(5)(i)(D) Where the results of tests for total proteins in urine are abnormal, provide a more detailed medical evaluation of the toxic effects of cadmium on the employee's renal system.

(1)(6) "Examination for respirator use:"

(1)(6)(i) To determine an employee's fitness for respirator use, the employer shall provide a medical examination that includes the elements specified in (1)(6)(A)-(D). This examination shall be provided prior to the employee's being assigned to a job that requires the use of a respirator or no later than 90 days after this section goes into effect, whichever date is later, to any employee without a medical examination within the preceding 12 months that satisfies the requirements of this paragraph.

(1)(6)(i)(A) A detailed medical and work history, or update thereof, with emphasis on: past exposure to cadmium; smoking history and current status; any history of renal, cardiovascular, respiratory, hematopoietic, and/or musculo-skeletal system dysfunction; a description of the job for which the respirator is required; and questions 3-11 and 25-32 in Appendix D;

(1)(6)(i)(B) A blood pressure test;

(1)(6)(i)(C) Biological monitoring of the employee's levels of CdU, CdB and B(2)-M in accordance with the requirements of paragraph (1)(2)(ii)(B), unless such results already have been obtained within the previous 12 months; and

(1)(6)(i)(D) Any other test or procedure that the examining physician deems appropriate.

(1)(6)(ii) After reviewing all the information obtained from the medical examination required in paragraph (1)(6)(i) of this section, the physician shall determine whether the employee is fit to wear a respirator.

(1)(6)(iii) Whenever an employee has exhibited difficulty in breathing during a respirator fit test or during use of a respirator, the employer, as soon as possible, shall provide the employee with a periodic medical examination in accordance with paragraph (1)(4)(ii) to determine the employee's fitness to wear a respirator.

(1)(6)(iv) Where the results of the examination required under paragraph (1)(6)(i), (ii), or (iii) of this section are abnormal, medical limitation or prohibition of respirator use shall be considered. If the employee is allowed to wear a respirator, the employee's ability to continue to do so shall be periodically evaluated by a physician.

(1)(7) "Emergency examinations:"

(1)(7)(i) In addition to the medical surveillance required in paragraphs (1)(2)-(6) of this section, the employer shall provide a medical examination as soon as possible to any employee who may have been acutely exposed to cadmium because of an emergency.

(1)(7)(ii) The examination shall include the requirements of paragraph (1)(4)(ii), with emphasis on the respiratory system, other organ systems considered appropriate by the examining physician, and symptoms of acute overexposure, as identified in Appendix A of this section in paragraphs II(B)(1)-(2) and IV.

(1)(8) "Termination of employment examination:"

(1)(8)(i) At termination of employment, the employer shall provide a medical examination in accordance with paragraph (1)(4)(ii) of this section, including a chest X-ray, to any employee to whom at any prior time the employer was required to provide medical surveillance under paragraphs (1)(1)(i) or (1)(7) of this section. However, if the last examination satisfied the requirements of paragraph (1)(4)(ii) of this standard and was less than six months prior to the date of termination, no further examination is required unless otherwise specified in paragraphs (1)(3) or (1)(5);

(1)(8)(ii) However, for employees covered by paragraph (1)(1)(i)(B), if the employer has discontinued all periodic medical surveillance under (1)(4)(v), no termination of employment medical examination is required.

(1)(9) "Information provided to the physician:" The employer shall provide the following information to the examining physician:

(1)(9)(i) A copy of this standard and appendices;

(1)(9)(ii) A description of the affected employee's former, current, and anticipated duties as they relate to the employee's occupational exposure to cadmium;

(1)(9)(iii) The employee's former, current, and anticipated future levels of occupational exposure to cadmium;

(1)(9)(iv) A description of any personal protective equipment, including respirators, used or to be used by the employee, including when and for how long the employee has used that equipment; and

(1)(9)(v) Relevant results of previous biological monitoring and medical examinations.

(1)(10) "Physician's written medical opinion:"

(1)(10)(i) The employer shall promptly obtain a written, medical opinion from the examining physician for each medical examination performed on each employee. This written opinion shall contain:

(1)(10)(i)(A) The physician's diagnosis for the employee;

(I)(10)(i)(B) The physician's opinion as to whether the employee has any detected medical condition(s) that would place the employee at increased risk of material impairment to health from further exposure to cadmium, including any indications of potential cadmium toxicity;

(I)(10)(i)(C) The results of any biological or other testing or related evaluations that directly assess the employee's absorption of cadmium;

(I)(10)(i)(D) Any recommended removal from, or limitation on the activities or duties of the employee or on the employee's use of personal protective equipment, such as respirators;

(I)(10)(i)(E) A statement that the physician has clearly and carefully explained to the employee the results of the medical examination, including all biological monitoring results and any medical conditions related to cadmium exposure that require further evaluation or treatment, and any limitation on the employee's diet or use of medications.

(I)(10)(ii) The employer promptly shall obtain a copy of the results of any biological monitoring provided by an employer to an employee independently of a medical examination under paragraphs (I)(2) and (I)(4), and, in lieu of a written medical opinion, an explanation sheet explaining those results.

(I)(10)(iii) The employer shall instruct the physician not to reveal orally or in the written medical opinion given to the employer specific findings or diagnoses unrelated to occupational exposure to cadmium.

(I)(11) "Medical Removal Protection (MRP):"

(I)(11)(i) "General."

(I)(11)(i)(A) The employer shall temporarily remove an employee from work where there is excess exposure to cadmium on each occasion that medical removal is required under paragraphs (I)(3), (I)(4), or (I)(6) of this section and on each occasion that a physician determines in a written medical opinion that the employee should be removed from such exposure. The physician's determination may be based on biological monitoring results, inability to wear a respirator, evidence of illness, other signs or symptoms of cadmium-related dysfunction or disease, or any other reason deemed medically sufficient by the physician.

(I)(11)(i)(B) The employer shall medically remove an employee in accordance with paragraph (I)(11) of this section regardless of whether at the time of removal a job is available into which the removed employee may be transferred.

(I)(11)(i)(C) Whenever an employee is medically removed under paragraph (I)(11) of this section, the employer shall transfer the removed employee to a job where the exposure to cadmium is within the permissible levels specified in that paragraph as soon as one becomes available.

(I)(11)(i)(D) For any employee who is medically removed under the provisions of paragraph (I)(11)(i) of this section, the employer shall provide follow-up biological monitoring in accordance with (I)(2)(ii)(B) at least every three months and follow-up medical examinations semi-annually at least every six months until in a written medical opinion the examining physician determines that either the employee may be returned to his/her former job status as specified under (I)(11)(iv)-(v) or the employee must be permanently removed from excess cadmium exposure.

(I)(11)(i)(E) The employer may not return an employee who has been medically removed for any reason to his/her former job status until a physician determines in a written medical opinion that continued medical removal is no longer necessary to protect the employee's health.

(I)(11)(ii) Where an employee is found unfit to wear a respirator under paragraph (I)(6)(ii), the employer shall remove the employee from work where exposure to cadmium is above the PEL.

(I)(11)(iii) Where removal is based on any reason other than the employee's inability to wear a respirator, the employer shall remove the employee from work where exposure to cadmium is at or above the action level.

(I)(11)(iv) Except as specified in paragraph (I)(11)(v), no employee who was removed because his/her level of CdU, CdB and/or B(2)-M exceeded the medical removal trigger levels in paragraphs (I)(3) or (I)(4) may be returned to work with exposure to cadmium at or above the action level until the employee's levels of CdU fall to or below 3 µg/g Cr, CdB falls to or below 5 µg/lwb, and B(2)-M falls to or below 300 µg/g Cr.

(I)(11)(v) However, when in the examining physician's opinion continued exposure to cadmium will not pose an increased risk to the employee's health and there are special circumstances that make continued medical removal an inappropriate remedy, the physician shall fully discuss these matters with the employee, and then in a written determination

may return a worker to his/her former job status despite what would otherwise be unacceptably high biological monitoring results. Thereafter, the returned employee shall continue to be provided with medical surveillance as if he/she were still on medical removal until the employee's levels of CdU fall to or below 3 µg/g Cr, CdB falls to or below 5 µg/lwb, and B(2)-M falls to or below 300 µg/g Cr.

(I)(11)(vi) Where an employer, although not required by (I)(11)(i) thru (iii) of this section to do so, removes an employee from exposure to cadmium or otherwise places limitations on an employee due to the effects of cadmium exposure on the employee's medical condition, the employer shall provide the same medical removal protection benefits to that employee under paragraph (I)(12) as would have been provided had the removal been required under paragraph (I)(11)(i) thru (iii) of this section.

(I)(12) "Medical Removal Protection Benefits (MRPB)."

(I)(12)(i) The employer shall provide MRPB for up to a maximum of 18 months to an employee each time and while the employee is temporarily medically removed under paragraph (I)(11) of this section.

(I)(12)(ii) For purposes of this section, the requirement that the employer provide MRPB means that the employer shall maintain the total normal earnings, seniority, and all other employee rights and benefits of the removed employee, including the employee's right to his/her former job status, as if the employee had not been removed from the employee's job or otherwise medically limited.

(I)(12)(iii) Where, after 18 months on medical removal because of elevated biological monitoring results, the employee's monitoring results have not declined to a low enough level to permit the employee to be returned to his/her former job status:

(I)(12)(iii)(A) The employer shall make available to the employee a medical examination pursuant to this section in order to obtain a final medical determination as to whether the employee may be returned to his/her former job status or must be permanently removed from excess cadmium exposure; and

(I)(12)(iii)(B) The employer shall assure that the final medical determination indicates whether the employee may be returned to his/her former job status and what steps, if any, should be taken to protect the employee's health.

(I)(12)(iv) The employer may condition the provision of MRPB upon the employee's participation in medical surveillance provided in accordance with this section.

(I)(13) "Multiple physician review."

(I)(13)(i) If the employer selects the initial physician to conduct any medical examination or consultation provided to an employee under this section, the employee may designate a second physician to:

(I)(13)(i)(A) Review any findings, determinations, or recommendations of the initial physician; and

(I)(13)(i)(B) Conduct such examinations, consultations, and laboratory tests as the second physician deems necessary to facilitate this review.

(I)(13)(ii) The employer shall promptly notify an employee of the right to seek a second medical opinion after each occasion that an initial physician provided by the employer conducts a medical examination or consultation pursuant to this section. The employer may condition its participation in, and payment for, multiple physician review upon the employee doing the following within fifteen (15) days after receipt of this notice, or receipt of the initial physician's written opinion, whichever is later:

(I)(13)(ii)(A) Informing the employer that he or she intends to seek a medical opinion; and

(I)(13)(ii)(B) Initiating steps to make an appointment with a second physician.

(I)(13)(iii) If the findings, determinations, or recommendations of the second physician differ from those of the initial physician, then the employer and the employee shall assure that efforts are made for the two physicians to resolve any disagreement.

(I)(13)(iv) If the two physicians have been unable to quickly resolve their disagreement, then the employer and the employee, through their respective physicians, shall designate a third physician to:

(l)(13)(iv)(A) Review any findings, determinations, or recommendations of the other two physicians; and

(l)(13)(iv)(B) Conduct such examinations, consultations, laboratory tests, and discussions with the other two physicians as the third physician deems necessary to resolve the disagreement among them.

(l)(13)(v) The employer shall act consistently with the findings, determinations, and recommendations of the third physician, unless the employer and the employee reach an agreement that is consistent with the recommendations of at least one of the other two physicians.

(l)(14) “Alternate physician determination.” The employer and an employee or designated employee representative may agree upon the use of any alternate form of physician determination in lieu of the multiple physician review provided by paragraph (l)(13) of this section, so long as the alternative is expeditious and at least as protective of the employee.

(l)(15) “Information the employer must provide the employee.”

(l)(15)(i) The employer shall provide a copy of the physician’s written medical opinion to the examined employee within two weeks after receipt thereof.

(l)(15)(ii) The employer shall provide the employee with a copy of the employee’s biological monitoring results and an explanation sheet explaining the results within two weeks after receipt thereof.

(l)(15)(iii) Within 30 days after a request by an employee, the employer shall provide the employee with the information the employer is required to provide the examining physician under paragraph (l)(9) of this section.

(l)(16) “Reporting.” In addition to other medical events that are required to be reported on the OSHA Form No. 200, the employer shall report any abnormal condition or disorder caused by occupational exposure to cadmium associated with employment as specified in Chapter (V)(E) of the Reporting Guidelines for Occupational Injuries and Illnesses.

1910.1027(m)(1) “Hazard communication.—general.”

(m)(1)(i) Chemical manufacturers, importers, distributors and employers shall comply with all requirements of the Hazard Communication Standard (HCS) (§ 1910.1200) for cadmium.

(m)(1)(ii) In classifying the hazards of cadmium at least the following hazards are to be addressed: Cancer; lung effects; kidney effects; and acute toxicity effects.

(m)(1)(iii) Employers shall include cadmium in the hazard communication program established to comply with the HCS (§ 1910.1200). Employers shall ensure that each employee has access to labels on containers of cadmium and to safety data sheets, and is trained in accordance with the requirements of HCS and paragraph (m)(4) of this section.

(m)(2) “Warning signs.”

(m)(2)(i) Warning signs shall be provided and displayed in regulated areas. In addition, warning signs shall be posted at all approaches to regulated areas so that an employee may read the signs and take necessary protective steps before entering the area.

(m)(2)(ii) Warning signs required by paragraph (m)(2)(i) of this section shall bear the following legend: DANGER CADMIUM MAY CAUSE CANCER CAUSES DAMAGE TO LUNGS AND KIDNEYS WEAR RESPIRATORY PROTECTION IN THIS AREA AUTHORIZED PERSONNEL ONLY

(m)(2)(iii) The employer shall ensure that signs required by this paragraph (m)(2) are illuminated, cleaned, and maintained as necessary so that the legend is readily visible.

(m)(2)(iv) Prior to June 1, 2016, employers may use the following legend in lieu of that specified in paragraph (m)(2)(ii) of this section: DANGER CADMIUM CANCER HAZARD CAN CAUSE LUNG AND KIDNEY DISEASE AUTHORIZED PERSONNEL ONLY RESPIRATORS REQUIRED IN THIS AREA

(m)(3) “Warning labels.”

(m)(3)(i) Shipping and storage containers containing cadmium or cadmium compounds shall bear appropriate warning labels, as specified in paragraph (m)(1) of this section.

(m)(3)(ii) The warning labels for containers of contaminated protective clothing, equipment, waste, scrap, or debris shall include at least the following information: DANGER CONTAINS CADMIUM MAY CAUSE CANCER CAUSES DAMAGE TO LUNGS AND KIDNEYS AVOID CREATING DUST

(m)(3)(iii) Prior to June 1, 2015, employers may include the following information on shipping and storage containers containing cadmium, cadmium compounds, or cadmium contaminated clothing, equipment, waste, scrap, or debris in lieu of the labeling mstockstill on DSK4VPTVN1PROD with RULES2 VerDate Mar2010 17:19 Mar 23, 2012 Jkt 226001 PO 00000 Frm 00209 Fmt 4701 Sfmt 4700 E:\FR\FM\26MRR2.SGM 26MRR2 17782 Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules and Regulations requirements specified in paragraphs (m)(1)(i) and (m)(3)(ii) of this section: DANGER CONTAINS CADMIUM CANCER HAZARD AVOID CREATING DUST CAN CAUSE LUNG AND KIDNEY DISEASE

(m)(3)(iv) Where feasible, installed cadmium products shall have a visible label or other indication that cadmium is present.

(m)(4) “Employee information and training.”

(m)(4)(i) The employer shall train each employee who is potentially exposed to cadmium in accordance with the requirements of this section. The employer shall institute a training program, ensure employee participation in the program, and maintain a record of the contents of such program.

(m)(4)(ii) Training shall be provided prior to or at the time of initial assignment to a job involving potential exposure to cadmium and at least annually thereafter.

(m)(4)(iii) The employer shall make the training program understandable to the employee and shall assure that each employee is informed of the following:

(m)(4)(iii)(A) The health hazards associated with cadmium exposure, with special attention to the information incorporated in Appendix A to this section;

(m)(4)(iii)(B) The quantity, location, manner of use, release, and storage of cadmium in the workplace and the specific nature of operations that could result in exposure to cadmium, especially exposures above the PEL;

(m)(4)(iii)(C) The engineering controls and work practices associated with the employee’s job assignment;

(m)(4)(iii)(D) The measures employees can take to protect themselves from exposure to cadmium, including modification of such habits as smoking and personal hygiene, and specific procedures the employer has implemented to protect employees from exposure to cadmium such as appropriate work practices, emergency procedures, and the provision of personal protective equipment;

(m)(4)(iii)(E) The purpose, proper selection, fitting, proper use, and limitations of respirators and protective clothing;

(m)(4)(iii)(F) The purpose and a description of the medical surveillance program required by paragraph (l) of this standard;

(m)(4)(iii)(G) The contents of this section and its appendices, and,

(m)(4)(iii)(H) The employee’s rights of access to records under 1910.1020(e) and (g).

(m)(4)(iv) Additional access to information and training program and materials.

(m)(4)(iv)(A) The employer shall make a copy of this section and its appendices readily available without cost to all affected employees and shall provide a copy if requested.

(m)(4)(iv)(B) The employer shall provide to the Assistant Secretary or the Director, upon request, all materials relating to the employee information and the training program.

1910.1027(n) “Recordkeeping.”

(n)(1) “Exposure Monitoring.”

(n)(1)(i) The employer shall establish and keep an accurate record of all air monitoring for cadmium in the workplace.

(n)(1)(ii) This record shall include at least the following information:

(n)(1)(ii)(A) The monitoring date, duration, and results in terms of an 8-hour TWA of each sample taken;

(n)(1)(ii)(B) The name, social security number, and job classification of the employees monitored and of all other employees whose exposures the monitoring is intended to represent;

(n)(1)(ii)(C) A description of the sampling and analytical methods used and evidence of their accuracy;

(n)(1)(ii)(D) The type of respiratory protective device, if any, worn by the monitored employee;

(n)(1)(ii)(E) A notation of any other conditions that might have affected the monitoring results.

(n)(1)(iii) The employer shall maintain this record for at least thirty (30) years, in accordance with 29 CFR 1910.1020.

(n)(2) “Objective data for exemption from requirement for initial monitoring.”

(n)(2)(i) For purposes of this section, objective data are information demonstrating that a particular product or material containing cadmium or a specific process, operation, or activity involving cadmium cannot release dust or fumes in concentrations at or above the action level even under the worst-case release conditions. Objective data can be obtained from an industry-wide study or from laboratory product test results from manufacturers of cadmium-containing products or materials. The data the employer uses from an industry-wide survey must be obtained under workplace conditions closely resembling the processes, types of material, control methods, work practices and environmental conditions in the employer’s current operations.

(n)(2)(ii) The employer shall establish and maintain a record of the objective data for at least 30 years.

(n)(3) “Medical surveillance.”

(n)(3)(i) The employer shall establish and maintain an accurate record for each employee covered by medical surveillance under paragraph (1)(1)(i) of this section.

(n)(3)(ii) The record shall include at least the following information about the employee:

(n)(3)(ii)(A) Name, social security number, and description of the duties;

(n)(3)(ii)(B) A copy of the physician’s written opinions and an explanation sheet for biological monitoring results;

(n)(3)(ii)(C) A copy of the medical history, and the results of any physical examination and all test results that are required to be provided by this section, including biological tests, X-rays, pulmonary function tests, etc., or that have been obtained to further evaluate any condition that might be related to cadmium exposure;

(n)(3)(ii)(D) The employee’s medical symptoms that might be related to exposure to cadmium; and

(n)(3)(ii)(E) A copy of the information provided to the physician as required by paragraph (1)(9)(ii)-(v) of this section.

(n)(3)(iii) The employer shall assure that this record is maintained for the duration of employment plus thirty (30) years, in accordance with 29 CFR 1910.1020.

(n)(4) “Availability.”

(n)(4)(i) Except as otherwise provided for in this section, access to all records required to be maintained by paragraphs (n)(1) through (3) of this section shall be in accordance with the provisions of 29 CFR 1910.1020.

(n)(4)(ii) Within 15 days after a request, the employer shall make an employee’s medical records required to be kept by paragraph (n)(3) of this section available for examination and copying to the subject employee, to designated representatives, to anyone having the specific written consent of the subject employee, and after the employee’s death or incapacitation, to the employee’s family members.

(n)(5) “Transfer of records.” Whenever an employer ceases to do business and there is no successor employer to receive and retain records for the prescribed period or the employer intends to dispose of any records required to be preserved for at least 30 years, the employer shall comply with the requirements concerning transfer of records set forth in 29 CFR 1910.1020(h).

1910.1027(o) “Observation of monitoring.”

(o)(1) “Employee observation.” The employer shall provide affected employees or their designated representatives an opportunity to observe any monitoring of employee exposure to cadmium.

(o)(2) “Observation procedures.” When observation of monitoring requires entry into an area where the use of protective clothing or equipment is required, the employer shall provide the observer with that clothing and equipment and shall assure that the observer uses such clothing and equipment and complies with all other applicable safety and health procedures.

1910.1027(p) “Dates.”

(p)(1) “Effective date.” This section shall become effective December 14, 1992.

(p)(2) “Start-up dates.” All obligations of this section commence on the effective date except as follows:

(p)(2)(i) “Exposure monitoring.” Except for small businesses [nineteen (19) or fewer employees], initial monitoring required by paragraph (d)(2) of this section shall be completed as soon as possible and in any event no later than 60 days after the effective date of this standard. For small businesses, initial monitoring required by paragraph (d)(2) of this section shall be completed as soon as possible and in any event no later than 120 days after the effective date of this standard.

(p)(2)(ii) “Regulated areas.” Except for small business, defined under paragraph (p)(2)(i) above, regulated areas required to be established by paragraph (e) of this section shall be set up as soon as possible after the results of exposure monitoring are known and in any event no later than 90 days after the effective date of this section. For small businesses, regulated areas required to be established by paragraph (e) of this section shall be set up as soon as possible after the results of exposure monitoring are known and in any event no later than 150 days after the effective date of this section.

(p)(2)(iii) “Respiratory protection.” Except for small businesses, defined under paragraph (p)(2)(i) of this section, respiratory protection required by paragraph (g) of this section shall be provided as soon as possible and in any event no later than 90 days after the effective date of this section. For small businesses, respiratory protection required by paragraph (g) of this section shall be provided as soon as possible and in any event no later than 150 days after the effective date of this section.

(p)(2)(iv) “Compliance program.” Written compliance programs required by paragraph (f)(2) of this section shall be completed and available for inspection and copying as soon as possible and in any event no later than 1 year after the effective date of this section.

(p)(2)(v) “Methods of compliance.” The engineering controls required by paragraph (f)(1) of this section shall be implemented as soon as possible and in any event no later than two (2) years after the effective date of this section. Work practice controls shall be implemented as soon as possible. Work practice controls that are directly related to engineering controls to be implemented in accordance with the compliance plan shall be implemented as soon as possible after such engineering controls are implemented.

(p)(2)(vi) “Hygiene and lunchroom facilities.”

(p)(2)(vi)(A) Handwashing facilities, permanent or temporary, shall be provided in accordance with 29 CFR 1910.141(d)(1) and (2) as soon as possible and in any event no later than 60 days after the effective date of this section.

(p)(2)(vi)(B) Change rooms, showers, and lunchroom facilities shall be completed as soon as possible and in any event no later than 1 year after the effective date of this section.

(p)(2)(vii) “Employee information and training.” Except for small businesses, defined under paragraph (p)(2)(i) above, employee information and training required by paragraph (m)(4) of this standard shall be provided as soon as possible and in any event no later than 90 days after the effective date of this standard. For small businesses, employee information and training required by paragraph (m)(4) of this standard shall be provided as soon as possible and in any event no later than 180 days after the effective date of this standard.

(p)(2)(viii) “Medical surveillance.” Except for small businesses, defined under paragraph (p)(2)(i) above, initial medical examinations required by paragraph (l) of this standard shall be provided as soon as possible and in any event no later than 90 days after the effective date of this standard. For small businesses, initial medical examinations required by paragraph (l) of this standard shall be provided as soon as possible and in any event no later than 180 days after the effective date of this standard.

1910.1027(q) Appendices. Except where portions of appendices A, B, D, E, and F to this section are expressly incorporated in requirements of this section, these appendices are purely informational and are not intended to create any additional obligations not otherwise imposed or to detract from any existing obligations.

Note: This standard has appendices that may be found online at www.osha.gov.

29 CFR 1910.1200 Hazard Communication

The Hazard Communication (HazCom) Standard (29 CFR 1910.1200) is a standard that applies to all employers in North Carolina and is enforced by ASH for employers in agriculture. The standard requires employers to inform their employees of all hazards associated with chemicals in the workplace. It requires an evaluation of the chemical hazards and a way for the hazard information to be communicated to employees. The intent is to reduce the occurrence of chemical-source illnesses, injuries and fatalities in the workplace.

This standard is important in agriculture because the majority of agricultural employers spray pesticides and other dangerous chemicals in their fields to protect their crops. Also, hazardous chemicals are often used in a variety of ways to prepare crops for market after harvest. Employees have a right to know what chemicals are present or are likely to be present in their workplace, what hazards are associated with those chemicals and how they can protect themselves from these hazards. This applies whether the employees are applying or handling the chemicals directly or are merely exposed while working in the fields or by some other process where chemicals are known to be present.

1. What are my duties as an employer?

According to the HazCom Standard, an employer is obligated to do four things: (1) create and maintain a written HazCom program that describes how the employer will inform the employees of the potential job hazards, (2) compile and maintain a list of potentially hazardous chemicals that exist in the workplace, (3) maintain warning labels and safety data sheets (SDSs) on each of the chemical hazards, and (4) create and implement a training program that teaches employees how to recognize and protect themselves from the various chemical hazards in the workplace.

2. What should my written Hazard Communications Program include?

It should describe how the criteria specified in the standard will be met for labels, SDSs and employee training. It will contain a list of hazardous chemicals in the workplace (their chemical or common name and location), the methods used to inform employees of the hazards involved with these chemicals, the hazards involved with performing non-routine tasks, and the appropriate protective measures.

The program must be available upon request to employees, employee representatives and NCDOL representatives. It must provide the location of the SDSs, a description of the warning label system, and what to do if the SDS or label is damaged or missing. In addition, if designated employees are responsible for regulating any aspect of the program (such as label maintenance), their name and charge should be explicitly written.

3. What should I include in my chemical list?

Any chemical that has a physical or health hazard associated with it should be included on the hazardous chemicals list. This begins with a physical inventory of all work areas, including field operations, maintenance activities and produce processing processes. If the label lists a physical or health hazard, the chemical should be included.

The list should denote the chemical or common name as it is referenced on the SDS and be kept current.

4. What does the standard say about labeling?

The standard says that hazardous chemical containers must be labeled by the manufacturer and the employer must ensure that the label remains in place and legible.

Labeling systems used for labeling secondary containers should be understandable to all employees, including those who do not speak English as their primary language or those who cannot read. Signs, symbols and colors can be used, provided that the chemical content and associated hazards are clearly understood.

5. What should be included in my training program?

The training program will include instruction on the location and availability of the written HazCom program, the list of hazardous chemicals, and the SDSs. The training must include the methods for detecting the presence or release of a hazardous chemical in the work area (such as monitoring devices, its appearance and odor), an explanation of the physical and health hazards (including the signs and symptoms) and physical and chemical properties of each chemical, and instruction to consult the SDSs for more information.

The training program must include the actions employees should take to protect their safety and health, such as emergency procedures, the use and maintenance of the appropriate personal protective equipment (PPE), and special training for nonroutine tasks. Additionally, with the introduction of a new hazard in the workplace, new training must be given. Having periodic refresher training courses is a good idea.

Further training should include how to read and understand a label, the meaning of the symbols and colors, an understanding of the SDS, and an explanation of the routes of entry. Anyone working in the work area around hazardous chemicals should be given this training.

6. What are the duties required of my employees?

The employees, once trained, have the responsibility of reading and understanding the warning labels before they use any chemical, understanding how to read an SDS, and seeking more information from the SDS or employer if they have questions. They should follow the guidelines written in the Hazcom program, use the PPE provided, and promptly report to a supervisor any observed or potential hazards. Overall, they should use their training and safe work practices at all times while in the workplace.



Specific Standards frequently cited by the Agricultural Safety and Health Bureau include:

- A written hazard communication program must be developed and implemented and maintained at each workplace. It must include information on safety data sheets, labeling, and employee information and training. (29 CFR 1910.1200(e)(1)).
- Employers must have a safety data sheet in the workplace for each hazardous chemical that they use. (29 CFR 1910.1200(g)(1)).
- Employee training must include measures employees can use to protect themselves from these hazards, including emergency procedures and personal protective equipment to be used. (29 CFR 1910.1200(h)(3)).

Pesticide Drift

The Agricultural Safety and Health Bureau receives many questions about pesticide exposure due to drift from spray. The migrant housing regulations do not address the issue of pesticide drift. In North Carolina, the N.C. Department of Agriculture's Structural Pest Control and Pesticides Division enforces the Pesticide Law and Regulations. The division has provided the following answers to the following pesticide-related questions.

I want to build a new migrant labor camp. What distance should it be from fields where I spray pesticides?

The North Carolina Pesticide Law of 1971 has no regulations concerning the siting of structures at an agricultural establishment. A labor camp would be considered a residence and would be protected by the aerial application regulations as stated below. As a practical matter, we would encourage anyone thinking about building such camps to locate them far enough from any fields that will be treated with pesticides to minimize the potential for drift from impacting the property

What are the rules regarding aerial spraying of pesticides and distance from dwellings?

The N.C. Pesticide Law states, “No pesticide shall be deposited by an aircraft within 300 feet of the premises of schools, hospitals, nursing homes, churches, or any building (other than a residence) which is used for business or social activities if either the premises or the building is occupied by people.” It further states, “No pesticide shall be deposited within 100 feet of any residence.” Additionally, “No pesticide shall be deposited by an aircraft on the right-of-way of a public road or within 25 feet of the road, whichever is the greater distance.” Other situations that may arise are covered by the regulation that states, “No pesticide shall be deposited onto any nontarget area in such a manner that is more likely than not that adverse effect will occur.”

What are the rules regarding ground spraying near residences?

Unlike aerial applications, ground spraying equipment may legally spray up to a property line, but care should be made to not allow drift from the target area. Under the Pesticide Law, “No person shall apply a pesticide under such conditions that drift from pesticide(s) particles or vapors results in adverse effect.” Adverse effect is defined in the aerial rule to mean “Personal injury, damage to personal property, damage to real property, damage to the environment or any combination of these.”

Do the rules vary depending on the chemical I am using?

The N.C. Pesticide Law only addresses specific pesticides and “restricted areas” under its aerial application regulations. However, each pesticide’s unique label and labeling addresses particular hazards and gives the precautions needed to be followed.

What about protecting wells and ground water near fields where pesticides are used?

Again, the label of a pesticide will address special concerns about a product. Products that are known to leach easily and/or have been detected in wells have very specific distances as to how close they can be applied to wells and other water sources. If production areas or pesticide use areas are above the well, channel runoff from those areas away from the well. Furthermore, some labels have prohibitions on how close to wells, streams, rivers, natural or impounded lakes and reservoirs pesticides can be mixed and loaded. Best management practices should be implemented to prevent pesticides from moving toward a well. This includes having adequate buffers around a well to prevent runoff or drift to it. Any spills that occur should be cleaned up immediately. Keep an emergency spill response kit near mix/load sites and storage areas so that spills can be cleaned up quickly. Precautions should be taken to prevent people who are not involved in the cleanup and animals from being at the spill site and its vicinity. People involved in the cleanup should be wearing the proper personal protective equipment. If the recovered spilled pesticide cannot be applied to a labeled pesticide site not exceeding the label rate for that site, the material must be disposed of according to federal or state procedures.

If I’m concerned about my family and our well water supply, who could test the water?

Having your well tested for contaminants—including pesticides, bacteria and nitrates—is a good idea, especially if there is a high potential for contamination. Most county health departments will take a sample and send it to the N.C. Department of Health and Human Services for analysis. You need to inform the lab of the specific chemicals you want the water sample tested for. If the N.C. Department of Health and Human Services is unable to analyze for a specific pesticide, you will need to have your sample analyzed by a commercial (private) lab that can analyze for the pesticides that you are concerned about.

My husband uses a lot of chemicals on our farm. How do I need to wash the clothes he uses? Are there special precautions I need to take?

Clothing worn while working with pesticides or suspected of having pesticide residues should be laundered separately from family laundry after each use, using both prerinse and regular washing cycles. Heavily contaminated clothing should be discarded. Ideally, a washing machine dedicated to farm clothing would be the best. In lieu of that, washing the work clothes separately from other clothing and then running the washing machine through a cycle empty may prevent the family’s clothing from being exposed to the pesticides. The proper use of personal protection equipment will also aid in the prevention of contaminated clothes. Any clothing that has been contaminated with pesticides, for example from a spill, should be disposed of properly, because the clothes may expose you and others to excessive residues.

For additional information, or answers to your other pesticide related questions, please feel free to call the NCDA&CS Structural Pest Control and Pesticides Division, 919-733-3556, or email your questions to the division director, Jim Burnette, at james.burnette@ncmail.net.

1910.1200(a) *Purpose.*

(a)(1) The purpose of this section is to ensure that the hazards of all chemicals produced or imported are classified, and that information concerning the classified hazards is transmitted to employers and employees. The requirements of this section are intended to be consistent with the provisions of the United Nations Globally Harmonized System of Classification and Labelling of Chemicals (GHS), Revision 3. The transmittal of information is to be accomplished by means of comprehensive hazard communication programs, which are to include container labeling and other forms of warning, safety data sheets and employee training.

(a)(2) This occupational safety and health standard is intended to address comprehensively the issue of classifying the potential hazards of chemicals, and communicating information concerning hazards and appropriate protective measures to employees, and to preempt any legislative or regulatory enactments of a state, or political subdivision of a state, pertaining to this subject. Classifying the potential hazards of chemicals and communicating information concerning hazards and appropriate protective measures to employees, may include, for example, but is not limited to, provisions for: developing and maintaining a written hazard communication program for the workplace, including lists of hazardous chemicals present; labeling of containers of chemicals in the workplace, as well as of containers of chemicals being shipped to other workplaces; preparation and distribution of safety data sheets to employees and downstream employers; and development and implementation of employee training programs regarding hazards of chemicals and protective measures. Under section 18 of the Act, no state or political subdivision of a state may adopt or enforce any requirement relating to the issue addressed by this Federal standard, except pursuant to a Federally-approved state plan.

1910.1200(b) *Scope and application.*

(b)(1) This section requires chemical manufacturers or importers to classify the hazards of chemicals which they produce or import, and all employers to provide information to their employees about the hazardous chemicals to which they are exposed, by means of a hazard communication program, labels and other forms of warning, safety data sheets, and information and training. In addition, this section requires distributors to transmit the required information to employers. (Employers who do not produce or import chemicals need only focus on those parts of this rule that deal with establishing a workplace program and communicating information to their workers.)

(b)(2) This section applies to any chemical which is known to be present in the workplace in such a manner that employees may be exposed under normal conditions of use or in a foreseeable emergency.

(b)(3) This section applies to laboratories only as follows:

(b)(3)(i) Employers shall ensure that labels on incoming containers of hazardous chemicals are not removed or defaced;

(b)(3)(ii) Employers shall maintain any safety data sheets that are received with incoming shipments of hazardous chemicals, and ensure that they are readily accessible during each workshift to laboratory employees when they are in their work areas;

(b)(3)(iii) Employers shall ensure that laboratory employees are provided information and training in accordance with paragraph (h) of this section, except for the location and availability of the written hazard communication program under paragraph (h)(2)(iii) of this section; and,

(b)(3)(iv) Laboratory employers that ship hazardous chemicals are considered to be either a chemical manufacturer or a distributor under this rule, and thus must ensure that any containers of hazardous chemicals leaving the laboratory are labeled in accordance with paragraph (f) of this section, and that a safety data sheet is provided to distributors and other employers in accordance with paragraphs (g)(6) and (g)(7) of this section.

(b)(4) In work operations where employees only handle chemicals in sealed containers which are not opened under normal conditions of use (such as are found in marine cargo handling, warehousing, or retail sales), this section applies to these operations only as follows:

(b)(4)(i) Employers shall ensure that labels on incoming containers of hazardous chemicals are not removed or defaced;

(b)(4)(ii) Employers shall maintain copies of any safety data sheets that are received with incoming shipments of the sealed containers of hazardous chemicals, shall obtain a safety data sheet as soon as possible for sealed containers of hazardous chemicals received without a safety data sheet if an employee requests the safety data sheet, and shall ensure that the safety data sheets are readily accessible during each work shift to employees when they are in their work area(s); and,

(b)(4)(iii) Employers shall ensure that employees are provided with information and training in accordance with paragraph (h) of this section (except for the location and availability of the written hazard communication program under paragraph (h)(2)(iii) of this section), to the extent necessary to protect them in the event of a spill or leak of a hazardous chemical from a sealed container.

(b)(5) This section does not require labeling of the following chemicals:

(b)(5)(i) Any pesticide as such term is defined in the Federal Insecticide, Fungicide, and Rodenticide Act (7 U.S.C. 136 *et seq.*), when subject to the labeling requirements of that Act and labeling regulations issued under that Act by the Environmental Protection Agency;

(b)(5)(ii) Any chemical substance or mixture as such terms are defined in the Toxic Substances Control Act (15 U.S.C. 2601 *et seq.*), when subject to the labeling requirements of that Act and labeling regulations issued under that Act by the Environmental Protection Agency;

(b)(5)(iii) Any food, food additive, color additive, drug, cosmetic, or medical or veterinary device or product, including materials intended for use as ingredients in such products (*e.g.* flavors and fragrances), as such terms are defined in the Federal Food, Drug, and Cosmetic Act (21 U.S.C. 301 *et seq.*) or the Virus- Serum-Toxin Act of 1913 (21 U.S.C. 151 *et seq.*), and regulations issued under those Acts, when they are subject to the labeling requirements under those Acts by either the Food and Drug Administration or the Department of Agriculture;

(b)(5)(iv) Any distilled spirits (beverage alcohols), wine, or malt beverage intended for nonindustrial use, as such terms are defined in the Federal Alcohol Administration Act (27 U.S.C. 201 *et seq.*) and regulations issued under that Act, when subject to the labeling requirements of that Act and labeling regulations issued under that Act by the Bureau of Alcohol, Tobacco, Firearms and Explosives;

(b)(5)(v) Any consumer product or hazardous substance as those terms are defined in the Consumer Product Safety Act (15 U.S.C. 2051 *et seq.*) and Federal Hazardous Substances Act (15 U.S.C. 1261 *et seq.*) respectively, when subject to a consumer product safety standard or labeling requirement of those Acts, or regulations issued under those Acts by the Consumer Product Safety Commission; and,

(b)(5)(vi) Agricultural or vegetable seed treated with pesticides and labeled in accordance with the Federal Seed Act (7 U.S.C. 1551 *et seq.*) and the labeling regulations issued under that Act by the Department of Agriculture.

(b)(6) This section does not apply to:

(b)(6)(i) Any hazardous waste as such term is defined by the Solid Waste Disposal Act, as amended by the Resource Conservation and Recovery Act of 1976, as amended (42 U.S.C. 6901 *et seq.*), when subject to regulations issued under that Act by the Environmental Protection Agency;

(b)(6)(ii) Any hazardous substance as such term is defined by the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) (42 U.S.C. 9601 *et seq.*) when the hazardous substance is the focus of remedial or removal action being conducted under CERCLA in accordance with Environmental Protection Agency regulations.

(b)(6)(iii) Tobacco or tobacco products;

(b)(6)(iv) Wood or wood products, including lumber which will not be processed, where the chemical manufacturer or importer can establish that the only hazard they pose to employees is the potential for flammability or combustibility (wood or wood products which have been treated with a hazardous chemical covered by this standard, and wood which may be subsequently sawed or cut, generating dust, are not exempted);

(b)(6)(v) Articles (as that term is defined in paragraph (c) of this section);

(b)(6)(vi) Food or alcoholic beverages which are sold, used, or prepared in a retail establishment (such as a grocery store, restaurant, or drinking place), and foods intended for personal consumption by employees while in the workplace;

(b)(6)(vii) Any drug, as that term is defined in the Federal Food, Drug, and Cosmetic Act (21 U.S.C. 301 *et seq.*), when it is in solid, final form for direct administration to the patient (*e.g.*, tablets or pills); drugs which are packaged by the chemical manufacturer for sale to consumers in a retail establishment (*e.g.*, over-the-counter drugs); and drugs intended for personal consumption by employees while in the workplace (*e.g.*, first aid supplies); Cosmetics which are packaged for sale to consumers in a retail establishment, and cosmetics intended for personal consumption by employees while in the workplace;

(b)(6)(ix) Any consumer product or hazardous substance, as those terms are defined in the Consumer Product Safety Act (15 U.S.C. 2051 *et seq.*) and Federal Hazardous Substances Act (15 U.S.C. 1261 *et seq.*) respectively, where the employer can show that it is used in the workplace for the purpose intended by the chemical manufacturer or importer of the product, and the use results in a duration and frequency of exposure which is not greater than the range of exposures that could reasonably be experienced by consumers when used for the purpose intended;

(b)(6)(x) Nuisance particulates where the chemical manufacturer or importer can establish that they do not pose any physical or health hazard covered under this section;

(b)(6)(xi) Ionizing and nonionizing radiation; and,

(b)(6)(xii) Biological hazards.

1910.1200(c) Definitions.

Article means a manufactured item other than a fluid or particle: (i) which is formed to a specific shape or design during manufacture; (ii) which has end use function(s) dependent in whole or in part upon its shape or design during end use; and (iii) which under normal conditions of use does not release more than very small quantities, *e.g.*, minute or trace amounts of a hazardous chemical (as determined under paragraph (d) of this section), and does not pose a physical hazard or health risk to employees.

Assistant Secretary means the Assistant Secretary of Labor for Occupational Safety and Health, U.S. Department of Labor, or designee.

Chemical means any substance, or mixture of substances.

Chemical manufacturer means an employer with a workplace where chemical(s) are produced for use or distribution.

Chemical name means the scientific designation of a chemical in accordance with the nomenclature system developed by the International Union of Pure and Applied Chemistry (IUPAC) or the Chemical Abstracts Service (CAS) rules of nomenclature, or a name that will clearly identify the chemical for the purpose of conducting a hazard classification.

Classification means to identify the relevant data regarding the hazards of a chemical; review those data to ascertain the hazards associated with the chemical; and decide whether the chemical will be classified as hazardous according to the definition of hazardous chemical in this section. In addition, classification for health and physical hazards includes the determination of the degree of hazard, where appropriate, by comparing the data with the criteria for health and physical hazards.

Commercial account means an arrangement whereby a retail distributor sells hazardous chemicals to an employer, generally in large quantities over time and/or at costs that are below the regular retail price.

Common name means any designation or identification such as code name, code number, trade name, brand name or generic name used to identify a chemical other than by its chemical name.

Container means any bag, barrel, bottle, box, can, cylinder, drum, reaction vessel, storage tank, or the like that contains a hazardous chemical. For purposes of this section, pipes or piping systems, and engines, fuel tanks, or other operating systems in a vehicle, are not considered to be containers.

Designated representative means any individual or organization to whom an employee gives written authorization to exercise such employee's rights under this section. A recognized or certified collective bargaining agent shall be treated automatically as a designated representative without regard to written employee authorization.

Director means the Director, National Institute for Occupational Safety and Health, U.S. Department of Health and Human Services, or designee.

Distributor means a business, other than a chemical manufacturer or importer, which supplies hazardous chemicals to other distributors or to employers.

Employee means a worker who may be exposed to hazardous chemicals under normal operating conditions or in foreseeable emergencies. Workers such as office workers or bank tellers who encounter hazardous chemicals only in non-routine, isolated instances are not covered.

Employer means a person engaged in a business where chemicals are either used, distributed, or are produced for use or distribution, including a contractor or subcontractor.

Exposure or exposed means that an employee is subjected in the course of employment to a chemical that is a physical or health hazard, and includes potential (e.g. accidental or possible) exposure. “Subjected” in terms of health hazards includes any route of entry (e.g. inhalation, ingestion, skin contact or absorption.)

Foreseeable emergency means any potential occurrence such as, but not limited to, equipment failure, rupture of containers, or failure of control equipment which could result in an uncontrolled release of a hazardous chemical into the workplace.

Hazard category means the division of criteria within each hazard class, e.g., oral acute toxicity and flammable liquids include four hazard categories. These categories compare hazard severity within a hazard class and should not be taken as a comparison of hazard categories more generally.

Hazard class means the nature of the physical or health hazards, e.g., flammable solid, carcinogen, oral acute toxicity.

Hazard not otherwise classified (HNOC) means an adverse physical or health effect identified through evaluation of scientific evidence during the classification process that does not meet the specified criteria for the physical and health hazard classes addressed in this section. This does not extend coverage to adverse physical and health effects for which there is a hazard class addressed in this section, but the effect either falls below the cut-off value/concentration limit of the hazard class or is under a GHS hazard category that has not been adopted by OSHA (e.g., acute toxicity Category 5).

Hazard statement means a statement assigned to a hazard class and category that describes the nature of the hazard(s) of a chemical, including, where appropriate, the degree of hazard.

Hazardous chemical means any chemical which is classified as a physical hazard or a health hazard, a simple asphyxiant, combustible dust, pyrophoric gas, or hazard not otherwise classified.

Health hazard means a chemical which is classified as posing one of the following hazardous effects: acute toxicity (any route of exposure); skin corrosion or irritation; serious eye damage or eye irritation; respiratory or skin sensitization; germ cell mutagenicity; carcinogenicity; reproductive toxicity; specific target organ toxicity (single or repeated exposure); or aspiration hazard. The criteria for determining whether a chemical is classified as a health hazard are detailed in Appendix A to §1910.1200—Health Hazard Criteria.

Immediate use means that the hazardous chemical will be under the control of and used only by the person who transfers it from a labeled container and only within the work shift in which it is transferred.

Importer means the first business with employees within the Customs Territory of the United States which receives hazardous chemicals produced in other countries for the purpose of supplying them to distributors or employers within the United States.

Label means an appropriate group of written, printed or graphic information elements concerning a hazardous chemical that is affixed to, printed on, or attached to the immediate container of a hazardous chemical, or to the outside packaging.

Label elements means the specified pictogram, hazard statement, signal word and precautionary statement for each hazard class and category.

Mixture means a combination or a solution composed of two or more substances in which they do not react.

Physical hazard means a chemical that is classified as posing one of the following hazardous effects: explosive; flammable (gases, aerosols, liquids, or solids); oxidizer (liquid, solid or gas); self-reactive; pyrophoric (liquid or solid); self-heating; organic peroxide; corrosive to metal; gas under pressure; or in contact with water emits flammable gas. See Appendix B to §1910.1200—Physical Hazard Criteria.

Pictogram means a composition that may include a symbol plus other graphic elements, such as a border, background pattern, or color, that is intended to convey specific information about the hazards of a chemical. Eight pictograms are designated under this standard for application to a hazard category.

Precautionary statement means a phrase that describes recommended measures that should be taken to minimize or prevent adverse effects resulting from exposure to a hazardous chemical, or improper storage or handling.

Produce means to manufacture, process, formulate, blend, extract, generate, emit, or repackage.

Product identifier means the name or number used for a hazardous chemical on a label or in the SDS. It provides a unique means by which the user can identify the chemical. The product identifier used shall permit cross-references to be made among the list of hazardous chemicals required in the written hazard communication program, the label and the SDS.

Pyrophoric gas means a chemical in a gaseous state that will ignite spontaneously in air at a temperature of 130 degrees F (54.4 degrees C) or below.

Responsible party means someone who can provide additional information on the hazardous chemical and appropriate emergency procedures, if necessary.

Safety data sheet (SDS) means written or printed material concerning a hazardous chemical that is prepared in accordance with paragraph (g) of this section.

Signal word means a word used to indicate the relative level of severity of hazard and alert the reader to a potential hazard on the label. The signal words used in this section are “danger” and “warning.” “Danger” is used for the more severe hazards, while “warning” is used for the less severe.

Simple asphyxiant means a substance or mixture that displaces oxygen in the ambient atmosphere, and can thus cause oxygen deprivation in those who are exposed, leading to unconsciousness and death.

Specific chemical identity means the chemical name, Chemical Abstracts Service (CAS) Registry Number, or any other information that reveals the precise chemical designation of the substance.

Substance means chemical elements and their compounds in the natural state or obtained by any production process, including any additive necessary to preserve the stability of the product and any impurities deriving from the process used, but excluding any solvent which may be separated without affecting the stability of the substance or changing its composition.

Trade secret means any confidential formula, pattern, process, device, information or compilation of information that is used in an employer’s business, and that gives the employer an opportunity to obtain an advantage over competitors who do not know or use it. Appendix E to §1910.1200—Definition of Trade Secret, sets out the criteria to be used in evaluating trade secrets.

Use means to package, handle, react, emit, extract, generate as a byproduct, or transfer.

Work area means a room or defined space in a workplace where hazardous chemicals are produced or used, and where employees are present.

Workplace means an establishment, job site, or project, at one geographical location containing one or more work areas.

1910.1200(d) Hazard classification.

(d)(1) Chemical manufacturers and importers shall evaluate chemicals produced in their workplaces or imported by them to classify the chemicals in accordance with this section. For each chemical, the chemical manufacturer or importer shall determine the hazard classes, and, where appropriate, the category of each class that apply to the chemical being classified. Employers are not required to classify chemicals unless they choose not to rely on the classification performed by the chemical manufacturer or importer for the chemical to satisfy this requirement.

(d)(2) Chemical manufacturers, importers or employers classifying chemicals shall identify and consider the full range of available scientific literature and other evidence concerning the potential hazards. There is no requirement to test the chemical to determine how to classify its hazards. Appendix A to § 1910.1200 shall be consulted for classification of health hazards, and Appendix B to § 1910.1200 shall be consulted for the classification of physical hazards.

(d)(3) Mixtures.

(d)(3)(i) Chemical manufacturers, importers, or employers evaluating chemicals shall follow the procedures described in Appendices A and B to Sec. 1910.1200 to classify the hazards of the chemicals, including determinations regarding when mixtures of the classified chemicals are covered by this section.

(d)(3)(ii) When classifying mixtures they produce or import, chemical manufacturers and importers of mixtures may rely on the information provided on the current safety data sheets of the individual ingredients, except where the chemical manufacturer or importer knows, or in the exercise of reasonable diligence should know, that the safety data sheet misstates or omits information required by this section.

(d)(4) Chemical manufacturers, importers and employers evaluating chemicals shall treat the following sources as establishing that a chemical is a carcinogen or potential carcinogen for hazard communication purposes:

(d)(4)(i) National Toxicology Program (NTP), *Annual Report on Carcinogens* (latest edition);

(d)(4)(ii) International Agency for Research on Cancer (IARC) *Monographs* (latest editions); or

(d)(4)(iii) 29 CFR part 1910, subpart Z, Toxic and Hazardous Substances, Occupational Safety and Health Administration.

Note: The *Registry of Toxic Effects of Chemical Substances* published by the National Institute for Occupational Safety and Health indicates whether a chemical has been found by NTP or IARC to be a potential carcinogen.

(d)(5) The chemical manufacturer, importer or employer shall determine the hazards of mixtures of chemicals as follows:

(d)(5)(i) If a mixture has been tested as a whole to determine its hazards, the results of such testing shall be used to determine whether the mixture is hazardous;

(d)(5)(ii) If a mixture has not been tested as a whole to determine whether the mixture is a health hazard, the mixture shall be assumed to present the same health hazards as do the components which comprise one percent (by weight or volume) or greater of the mixture, except that the mixture shall be assumed to present a carcinogenic hazard if it contains a component in concentrations of 0.1 percent or greater which is considered to be a carcinogen under paragraph (d)(4) of this section;

(d)(5)(iii) If a mixture has not been tested as a whole to determine whether the mixture is a physical hazard, the chemical manufacturer, importer, or employer may use whatever scientifically valid data is available to evaluate the physical hazard potential of the mixture; and,

(d)(5)(iv) If the chemical manufacturer, importer, or employer has evidence to indicate that a component present in the mixture in concentrations of less than one percent (or in the case of carcinogens, less than 0.1 percent) could be released in concentrations which would exceed an established OSHA permissible exposure limit or ACGIH Threshold Limit Value, or could present a health risk to employees in those concentrations, the mixture shall be assumed to present the same hazard.

(d)(6) Chemical manufacturers, importers, or employers evaluating chemicals shall describe in writing the procedures they use to determine the hazards of the chemical they evaluate. The written procedures are to be made available, upon request, to employees, their designated representatives, the Assistant Secretary and the Director. The written description may be incorporated into the written hazard communication program required under paragraph (e) of this section.

1910.1200(e) *Written hazard communication program.*

(e)(1) Employers shall develop, implement, and maintain at each workplace, a written hazard communication program which at least describes how the criteria specified in paragraphs (f), (g), and (h) of this section for labels and other forms of warning, safety data sheets, and employee information and training will be met, and which also includes the following:

(e)(1)(i) A list of the hazardous chemicals known to be present using a product identifier that is referenced on the appropriate safety data sheet (the list may be compiled for the workplace as a whole or for individual work areas); and,

(e)(1)(ii) The methods the employer will use to inform employees of the hazards of non-routine tasks (for example, the cleaning of reactor vessels), and the hazards associated with chemicals contained in unlabeled pipes in their work areas.

(e)(2) *Multi-employer workplaces.* Employers who produce, use, or store hazardous chemicals at a workplace in such a way that the employees of other employer(s) may be exposed (for example, employees of a construction contractor working on-site) shall additionally ensure that the hazard communication programs developed and implemented under this paragraph (e) include the following:

(e)(2)(i) The methods the employer will use to provide the other employer(s) on-site access to safety data sheets for each hazardous chemical the other employer(s)' employees may be exposed to while working;

(e)(2)(ii) The methods the employer will use to inform the other employer(s) of any precautionary measures that need to be taken to protect employees during the workplace's normal operating conditions and in foreseeable emergencies; and,

(e)(2)(iii) The methods the employer will use to inform the other employer(s) of the labeling system used in the workplace.

(e)(3) The employer may rely on an existing hazard communication program to comply with these requirements, provided that it meets the criteria established in this paragraph (e).

(e)(4) The employer shall make the written hazard communication program available, upon request, to employees, their designated representatives, the Assistant Secretary and the Director, in accordance with the requirements of 29 CFR 1910.1020 (e).

(e)(5) Where employees must travel between workplaces during a workshift, i.e., their work is carried out at more than one geographical location, the written hazard communication program may be kept at the primary workplace facility.

1910.1200(f) Labels and other forms of warning—

(f)(1) Labels on shipped containers. The chemical manufacturer, importer, or distributor shall ensure that each container of hazardous chemicals leaving the workplace is labeled, tagged, or marked. Hazards not otherwise classified do not have to be addressed on the container. Where the chemical manufacturer or importer is required to label, tag or mark the following information shall be provided:

(f)(1)(i) Product identifier;

(f)(1)(ii) Signal word;

(f)(1)(iii) Hazard statement(s);

(f)(1)(iv) Pictogram(s);

(f)(1)(v) Precautionary statement(s); and,

(f)(1)(vi) Name, address, and telephone number of the chemical manufacturer, importer, or other responsible party.

(f)(2) The chemical manufacturer, importer, or distributor shall ensure that the information provided under paragraphs (f)(1)(i) through (v) of this section is in accordance with Appendix C to § 1910.1200, for each hazard class and associated hazard category for the hazardous chemical, prominently displayed, and in English (other languages may also be included if appropriate).

(f)(3) The chemical manufacturer, importer, or distributor shall ensure that the information provided under paragraphs (f)(1)(ii) through (iv) of this section is located together on the label, tag, or mark.

(f)(4) Solid materials.

(f)(4)(i) For solid metal (such as a steel beam or a metal casting), solid wood, or plastic items that are not exempted as articles due to their downstream use, or shipments of whole grain, the required label may be transmitted to the customer at the time of the initial shipment, and need not be included with subsequent shipments to the same employer unless the information on the label changes;

(f)(4)(ii) The label may be transmitted with the initial shipment itself, or with the safety data sheet that is to be provided prior to or at the time of the first shipment; and,

(f)(4)(iii) This exception to requiring labels on every container of hazardous chemicals is only for the solid material itself, and does not apply to hazardous chemicals used in conjunction with, or known to be present with, the material and to which employees handling the items in transit may be exposed (for example, cutting fluids or pesticides in grains).

(f)(5) Chemical manufacturers, importers, or distributors shall ensure that each container of hazardous chemicals leaving the workplace is labeled, tagged, or marked in accordance with this section in a manner which does not conflict with the requirements of the Hazardous Materials Transportation Act (49 U.S.C. 1801 *et seq.*) and regulations issued under that Act by the Department of Transportation.

(f)(6) Workplace labeling. Except as provided in paragraphs (f)(7) and (f)(8) of this section, the employer shall ensure that each container of hazardous chemicals in the workplace is labeled, tagged or marked with either:

(f)(6)(i) The information specified under paragraphs (f)(1)(i) through (v) of this section for labels on shipped containers; or,

(f)(6)(ii) Product identifier and words, pictures, symbols, or combination thereof, which provide at least general information regarding the hazards of the chemicals, and which, in conjunction with the other information immediately available to employees under the hazard communication program, will provide employees with the specific information regarding the physical and health hazards of the hazardous chemical.

(f)(7) The employer may use signs, placards, process sheets, batch tickets, operating procedures, or other such written materials in lieu of affixing labels to individual stationary process containers, as long as the alternative method identifies the containers to which it is applicable and conveys the information required by paragraph (f)(6) of this section to be on a label. The employer shall ensure the written materials are readily accessible to the employees in their work area throughout each work shift.

(f)(8) The employer is not required to label portable containers into which hazardous chemicals are transferred from labeled containers, and which are intended only for the immediate use of the employee who performs the transfer. For purposes of this section, drugs which are dispensed by a pharmacy to a health care provider for direct administration to a patient are exempted from labeling.

(f)(9) The employer shall not remove or deface existing labels on incoming containers of hazardous chemicals, unless the container is immediately marked with the required information.

(f)(10) The employer shall ensure that workplace labels or other forms of warning are legible, in English, and prominently displayed on the container, or readily available in the work area throughout each work shift. Employers having employees who speak other languages may add the information in their language to the material presented, as long as the information is presented in English as well.

(f)(11) Chemical manufacturers, importers, distributors, or employers who become newly aware of any significant information regarding the hazards of a chemical shall revise the labels for the chemical within six months of becoming aware of the new information, and shall ensure that labels on containers of hazardous chemicals shipped after that time contain the new information. If the chemical is not currently produced or imported, the chemical manufacturer, importer, distributor, or employer shall add the information to the label before the chemical is shipped or introduced into the workplace again.

1910.1200(g) *Safety data sheets.*

(g)(1) Chemical manufacturers and importers shall obtain or develop a safety data sheet for each hazardous chemical they produce or import. Employers shall have a safety data sheet in the workplace for each hazardous chemical which they use.

(g)(2) The chemical manufacturer or importer preparing the safety data sheet shall ensure that it is in English (although the employer may maintain copies in other languages as well), and includes at least the following section numbers and headings, and associated information under each heading, in the order listed (See Appendix D to § 1910.1200—Safety Data Sheets, for the specific content of each section of the safety data sheet):

(g)(2)(i) Section 1, Identification;

(g)(2)(ii) Section 2, Hazard(s) identification;

(g)(2)(iii) Section 3, Composition/information on ingredients;

(g)(2)(iv) Section 4, First-aid measures;

(g)(2)(v) Section 5, Fire-fighting measures;

(g)(2)(vi) Section 6, Accidental release measures;

(g)(2)(vii) Section 7, Handling and storage;

(g)(2)(viii) Section 8, Exposure controls/personal protection;

(g)(2)(ix) Section 9, Physical and chemical properties;

(g)(2)(x) Section 10, Stability and reactivity;

(g)(2)(xi) Section 11, Toxicological information;

(g)(2)(xii) Section 12, Ecological information;

(g)(2)(xiii) Section 13, Disposal considerations;

(g)(2)(xiv) Section 14, Transport information;

(g)(2)(xv) Section 15, Regulatory information; and

(g)(2)(xvi) Section 16, Other information, including date of preparation or last revision.

Note 1 to paragraph (g)(2): To be consistent with the GHS, an SDS must also include the headings in paragraphs (g)(2)(xii) through (g)(2)(xv) in order.

Note 2 to paragraph (g)(2): OSHA will not be enforcing information requirements in sections 12 through 15, as these areas are not under its jurisdiction.

(g)(3) If no relevant information is found for any sub-heading within a section on the safety data sheet, the chemical manufacturer, importer or employer preparing the safety data sheet shall mark it to indicate that no applicable information was found.

(g)(4) Where complex mixtures have similar hazards and contents (i.e. the chemical ingredients are essentially the same, but the specific composition varies from mixture to mixture), the chemical manufacturer, importer or employer may prepare one safety data sheet to apply to all of these similar mixtures.

(g)(5) The chemical manufacturer, importer or employer preparing the safety data sheet shall ensure that the information provided accurately reflects the scientific evidence used in making the hazard classification. If the chemical manufacturer, importer or employer preparing the safety data sheet becomes newly aware of any significant information regarding the hazards of a chemical, or ways to protect against the hazards, this new information shall be added to the safety data sheet within three months. If the chemical is not currently being produced or imported, the chemical manufacturer or importer shall add the information to the safety data sheet before the chemical is introduced into the workplace again.

(g)(6)(i) Chemical manufacturers or importers shall ensure that distributors and employers are provided an appropriate safety data sheet with their initial shipment, and with the first shipment after a safety data sheet is updated;

(g)(6)(ii) The chemical manufacturer or importer shall either provide safety data sheets with the shipped containers or send them to the distributor or employer prior to or at the time of the shipment;

(g)(6)(iii) If the safety data sheet is not provided with a shipment that has been labeled as a hazardous chemical, the distributor or employer shall obtain one from the chemical manufacturer or importer as soon as possible; and,

(g)(6)(iv) The chemical manufacturer or importer shall also provide distributors or employers with a safety data sheet upon request.

(g)(7)(i) Distributors shall ensure that safety data sheets, and updated information, are provided to other distributors and employers with their initial shipment and with the first shipment after a safety data sheet is updated;

(g)(7)(ii) The distributor shall either provide safety data sheets with the shipped containers, or send them to the other distributor or employer prior to or at the time of the shipment;

(g)(7)(iii) Retail distributors selling hazardous chemicals to employers having a commercial account shall provide a safety data sheet to such employers upon request, and shall post a sign or otherwise inform them that a safety data sheet is available;

(g)(7)(iv) Wholesale distributors selling hazardous chemicals to employers over-the-counter may also provide safety data sheets upon the request of the employer at the time of the over-the-counter purchase, and shall post a sign or otherwise inform such employers that a safety data sheet is available;

(g)(7)(v) If an employer without a commercial account purchases a hazardous chemical from a retail distributor not required to have safety data sheets on file (i.e., the retail distributor does not have commercial accounts and does not use the materials), the retail distributor shall provide the employer, upon request, with the name, address, and telephone number of the chemical manufacturer, importer, or distributor from which a safety data sheet can be obtained;

(g)(7)(vi) Wholesale distributors shall also provide safety data sheets to employers or other distributors upon request; and,

(g)(7)(vii) Chemical manufacturers, importers, and distributors need not provide safety data sheets to retail distributors that have informed them that the retail distributor does not sell the product to commercial accounts or open the sealed container to use it in their own workplaces.

(g)(8) The employer shall maintain in the workplace copies of the required safety data sheets for each hazardous chemical, and shall ensure that they are readily accessible during each work shift to employees when they are in their work area(s). (Electronic access and other alternatives to maintaining paper copies of the safety data sheets are permitted as long as no barriers to immediate employee access in each workplace are created by such options.)

(g)(9) Where employees must travel between workplaces during a workshift, i.e., their work is carried out at more than one geographical location, the safety data sheets may be kept at the primary workplace facility. In this situation, the employer shall ensure that employees can immediately obtain the required information in an emergency.

(g)(10) Safety data sheets may be kept in any form, including operating procedures, and may be designed to cover groups of hazardous chemicals in a work area where it may be more appropriate to address the hazards of a process rather than individual hazardous chemicals. However, the employer shall ensure that in all cases the required information is provided for each hazardous chemical, and is readily accessible during each work shift to employees when they are in their work area(s).

(g)(11) Safety data sheets shall also be made readily available, upon request, to designated representatives, the Assistant Secretary, and the Director, in accordance with the requirements of § 1910.1020(e).

1910.1200(h) *Employee information and training.*

(h)(1) Employers shall provide employees with effective information and training on hazardous chemicals in their work area at the time of their initial assignment, and whenever a new chemical hazard the employees have not previously been trained about is introduced into their work area. Information and training may be designed to cover categories of hazards (e.g., flammability, carcinogenicity) or specific chemicals. Chemical-specific information must always be available through labels and safety data sheets.

(h)(2) *Information.* Employees shall be informed of:

(h)(2)(i) The requirements of this section;

(h)(2)(ii) Any operations in their work area where hazardous chemicals are present; and,

(h)(2)(iii) The location and availability of the written hazard communication program, including the required list(s) of hazardous chemicals, and safety data sheets required by this section.

(h)(3) *Training.* Employee training shall include at least:

(h)(3)(i) Methods and observations that may be used to detect the presence or release of a hazardous chemical in the work area (such as monitoring conducted by the employer, continuous monitoring devices, visual appearance or odor of hazardous chemicals when being released, etc.);

(h)(3)(ii) The physical, health, simple asphyxiation, combustible dust, and pyrophoric gas hazards, as well as hazards not otherwise classified, of the chemicals in the work area;

(h)(3)(iii) The measures employees can take to protect themselves from these hazards, including specific procedures the employer has implemented to protect employees from exposure to hazardous chemicals, such as appropriate work practices, emergency procedures, and personal protective equipment to be used; and,

(h)(3)(iv) The details of the hazard communication program developed by the employer, including an explanation of the labels received on shipped containers and the workplace labeling system used by their employer; the safety data sheet, including the order of information and how employees can obtain and use the appropriate hazard information.

1910.1200(i) *Trade secrets.*

(i)(1) The chemical manufacturer, importer, or employer may withhold the specific chemical identity, including the chemical name, other specific identification of a hazardous chemical, or the exact percentage (concentration) of the substance in a mixture, from the safety data sheet, provided that:

(i)(1)(i) The claim that the information withheld is a trade secret can be supported;

(i)(1)(ii) Information contained in the safety data sheet concerning the properties and effects of the hazardous chemical is disclosed;

(i)(1)(iii) The safety data sheet indicates that the specific chemical identity and/or percentage of composition is being withheld as a trade secret; and,

(i)(1)(iv) The specific chemical identity and percentage is made available to health professionals, employees, and designated representatives in accordance with the applicable provisions of this paragraph (i).

(i)(2) Where a treating physician or nurse determines that a medical emergency exists and the specific chemical identity and/or specific percentage of composition of a hazardous chemical is necessary for emergency or first-aid treatment, the chemical manufacturer, importer, or employer shall immediately disclose the specific chemical identity or percentage composition of a trade secret chemical to that treating physician or nurse, regardless of the existence of a written statement of need or a confidentiality agreement. The chemical manufacturer, importer, or employer may require a written statement of need and confidentiality agreement, in accordance with the provisions of paragraphs (i)(3) and (4) of this section, as soon as circumstances permit.

(i)(3) In non-emergency situations, a chemical manufacturer, importer, or employer shall, upon request, disclose a specific chemical identity or percentage composition, otherwise permitted to be withheld under paragraph (i)(1) of this section, to a health professional (i.e. physician, industrial hygienist, toxicologist, epidemiologist, or occupational health nurse) providing medical or other occupational health services to exposed employee(s), and to employees or designated representatives, if:

(i)(3)(i) The request is in writing;

(i)(3)(ii) The request describes with reasonable detail one or more of the following occupational health needs for the information:

(i)(3)(ii)(A) To assess the hazards of the chemicals to which employees will be exposed;

(i)(3)(ii)(B) To conduct or assess sampling of the workplace atmosphere to determine employee exposure levels;

(i)(3)(ii)(C) To conduct pre-assignment or periodic medical surveillance of exposed employees;

(i)(3)(ii)(D) To provide medical treatment to exposed employees;

(i)(3)(ii)(E) To select or assess appropriate personal protective equipment for exposed employees;

(i)(3)(ii)(F) To design or assess engineering controls or other protective measures for exposed employees; and,

(i)(3)(ii)(G) To conduct studies to determine the health effects of exposure. The request explains in detail why the disclosure of the specific chemical identity or percentage composition is essential and that, in lieu thereof, the disclosure of the following information to the health professional, employee, or designated representative, would not satisfy the purposes described in paragraph (i)(3)(ii) of this section:

(i)(3)(iii)(A) The properties and effects of the chemical;

(i)(3)(iii)(B) Measures for controlling workers' exposure to the chemical;

(i)(3)(iii)(C) Methods of monitoring and analyzing worker exposure to the chemical; and,

(i)(3)(iii)(D) Methods of diagnosing and treating harmful exposures to the chemical;

(i)(3)(iv) The request includes a description of the procedures to be used to maintain the confidentiality of the disclosed information; and,

(i)(3)(v) The health professional, and the employer or contractor of the services of the health professional (i.e. downstream employer, labor organization, or individual employee), employee, or designated representative, agree in a written confidentiality agreement that the health professional, employee, or designated representative, will not use the trade secret information for any purpose other than the health need(s) asserted and agree not to release the information under any circumstances other than to OSHA, as provided in paragraph (i)(6) of this section, except as authorized by the terms of the agreement or by the chemical manufacturer, importer, or employer.

(i)(4) The confidentiality agreement authorized by paragraph (i)(3)(iv) of this section:

- (i)(4)(i)** May restrict the use of the information to the health purposes indicated in the written statement of need;
- (i)(4)(ii)** May provide for appropriate legal remedies in the event of a breach of the agreement, including stipulation of a reasonable pre-estimate of likely damages; and,
- (i)(4)(iii)** May not include requirements for the posting of a penalty bond.
- (i)(5)** Nothing in this standard is meant to preclude the parties from pursuing non-contractual remedies to the extent permitted by law.
- (i)(6)** If the health professional, employee, or designated representative receiving the trade secret information decides that there is a need to disclose it to OSHA, the chemical manufacturer, importer, or employer who provided the information shall be informed by the health professional, employee, or designated representative prior to, or at the same time as, such disclosure.
- (i)(7)** If the chemical manufacturer, importer, or employer denies a written request for disclosure of a specific chemical identity or percentage composition, the denial must:
- (i)(7)(i)** Be provided to the health professional, employee, or designated representative, within thirty days of the request;
- (i)(7)(ii)** Be in writing;
- (i)(7)(iii)** Include evidence to support the claim that the specific chemical identity or percent of composition is a trade secret;
- (i)(7)(iv)** State the specific reasons why the request is being denied; and,
- (i)(7)(v)** Explain in detail how alternative information may satisfy the specific medical or occupational health need without revealing the trade secret.
- (i)(8)** The health professional, employee, or designated representative whose request for information is denied under paragraph (i)(3) of this section may refer the request and the written denial of the request to OSHA for consideration.
- (i)(9)** When a health professional, employee, or designated representative refers the denial to OSHA under paragraph (i)(8) of this section, OSHA shall consider the evidence to determine if:
- (i)(9)(i)** The chemical manufacturer, importer, or employer has supported the claim that the specific chemical identity or percentage composition is a trade secret;
- (i)(9)(ii)** The health professional, employee, or designated representative has supported the claim that there is a medical or occupational health need for the information; and,
- (i)(9)(iii)** The health professional, employee or designated representative has demonstrated adequate means to protect the confidentiality.
- (i)(10)(i)** If OSHA determines that the specific chemical identity or percentage composition requested under paragraph (i)(3) of this section is not a “bona fide” trade secret, or that it is a trade secret, but the requesting health professional, employee, or designated representative has a legitimate medical or occupational health need for the information, has executed a written confidentiality agreement, and has shown adequate means to protect the confidentiality of the information, the chemical manufacturer, importer, or employer will be subject to citation by OSHA.
- (i)(10)(ii)** If a chemical manufacturer, importer, or employer demonstrates to OSHA that the execution of a confidentiality agreement would not provide sufficient protection against the potential harm from the unauthorized disclosure of a trade secret, the Assistant Secretary may issue such orders or impose such additional limitations or conditions upon the disclosure of the requested chemical information as may be appropriate to assure that the occupational health services are provided without an undue risk of harm to the chemical manufacturer, importer, or employer.
- (i)(11)** If a citation for a failure to release trade secret information is contested by the chemical manufacturer, importer, or employer, the matter will be adjudicated before the Occupational Safety and Health Review Commission in accordance with the Act’s enforcement scheme and the applicable Commission rules of procedure. In accordance with the Commission rules, when a chemical manufacturer, importer, or employer continues to withhold the information during the contest, the Administrative Law Judge may review the citation and supporting documentation “in camera” or issue appropriate orders to protect the confidentiality of such matters.

(i)(12) Notwithstanding the existence of a trade secret claim, a chemical manufacturer, importer, or employer shall, upon request, disclose to the Assistant Secretary any information which this section requires the chemical manufacturer, importer, or employer to make available. Where there is a trade secret claim, such claim shall be made no later than at the time the information is provided to the Assistant Secretary so that suitable determinations of trade secret status can be made and the necessary protections can be implemented.

(i)(13) Nothing in this paragraph shall be construed as requiring the disclosure under any circumstances of process information which is a trade secret.

1910.1200(j) *Effective dates.*

(j)(1) Employers shall train employees regarding the new label elements and safety data sheets format by December 1, 2013.

(j)(2) Chemical manufacturers, importers, distributors, and employers shall be in compliance with all modified provisions of this section no later than June 1, 2015, except:

(j)(2)(i) After December 1, 2015, the distributor shall not ship containers labeled by the chemical manufacturer or importer unless the label has been modified to comply with paragraph (f)(1) of this section.

(j)(2)(ii) All employers shall, as necessary, update any alternative workplace labeling used under paragraph (f)(6) of this section, update the hazard communication program required by paragraph (h)(1), and provide any additional employee training in accordance with paragraph (h)(3) for newly identified physical or health hazards no later than June 1, 2016.

(j)(3) Chemical manufacturers, importers, distributors, and employers may comply with either §1910.1200 revised as of October 1, 2011, or the current version of this standard, or both during the transition period.

Note: This standard has mandatory and non-mandatory appendices that may be viewed online at www.osha.gov.

29 CFR 1910.1201 Retention of DOT markings, placards and labels

1910.1201(a) Any employer who receives a package of hazardous material which is required to be marked, labeled or placarded in accordance with the U. S. Department of Transportation's Hazardous Materials Regulations (49 CFR Parts 171 through 180) shall retain those markings, labels and placards on the package until the packaging is sufficiently cleaned of residue and purged of vapors to remove any potential hazards.

1910.1201(b) Any employer who receives a freight container, rail freight car, motor vehicle, or transport vehicle that is required to be marked or placarded in accordance with the Hazardous Materials Regulations shall retain those markings and placards on the freight container, rail freight car, motor vehicle or transport vehicle until the hazardous materials which require the marking or placarding are sufficiently removed to prevent any potential hazards.

1910.1201(c) Markings, placards and labels shall be maintained in a manner that ensures that they are readily visible.

1910.1201(d) For non-bulk packages which will not be reshipped, the provisions of this section are met if a label or other acceptable marking is affixed in accordance with the Hazard Communication Standard (29 CFR 1910.1200).

1910.1201(e) For the purposes of this section, the term "hazardous material" and any other terms not defined in this section have the same definition as in the Hazardous Materials Regulations (49 CFR Parts 171 through 180).

Special Emphasis Inspection Program (SEP) for Allegations of Chemical Hazards on Farms

OPN 116E

A. Purpose.

This Operational Procedure Notice (OPN) continues the SEP, initiated on April 1, 1997, for agricultural employers who use pesticides and other farm chemicals. This action is authorized by North Carolina General Statute 95-136.1(b)(3) which mandates the North Carolina Department of Labor (NCDOL) to target for inspection those employers with a high risk for serious or fatal work-related injuries or illnesses.

B. Discussion.

Annual statistics compiled by the Bureau of Labor Statistics have consistently identified agricultural work as an occupation with injury and illness rates above the national average for all industries. Farm workers are commonly exposed to pesticides and other chemicals. As the result of a farm workers death and the concern that this death may have been caused by pesticide exposure, the NCDOL Occupational Safety and Health Division (OSH Division) initiated this SEP to address how the division will respond to complaints regarding hazards from agriculture chemicals.

C. Objectives.

1. The OSH Division initiated this SEP to respond immediately, generally within 24 hours, to instances of alleged chemical exposure affecting farm workers either in the field or at employer provided housing.
2. It is the OSH Division's intent that employees and their representatives are afforded the opportunity to participate in the inspection.

D. Inspection Scope.

1. This inspection program will include all agricultural employers who have employed more than 10 employees during the preceding 12 months or who maintain an active temporary labor camp. (Reference the most current version of CPL 02-00-051)
2. During the inspection, the Agricultural Safety and Health (ASH) Bureau compliance safety and health officer (CSHO) will address activity related to the use and potential exposure to chemicals in the agricultural workplace. The workplace will include employer provided housing. They will reference the requirements of the Field Sanitation Standards and the Occupational Safety and Health Standards for Agriculture, where applicable. The inspection scope may be expanded in accordance with the guidance in NC Field Operations Manual (FOM) Chapter XI, Agricultural Safety and Health Inspections.

E. Inspection Scheduling.

The ASH Bureau will conduct an inspection when a complaint or referral is received.

F. Complaint/Referral Processing.

1. Calls regarding possible exposure to pesticides or other agriculture chemicals will be directed to (919) 779-8560 or 1-800-NCLABOR (625-2267).
2. For determining complaint classification, an advocate for an employee will meet the definition of an employee representative. However, the complaint must be submitted with the knowledge of or on behalf of the employee.
3. Complaints or referrals alleging chemical hazards on farms will be immediately reported to the ASH bureau chief. The ASH bureau chief will immediately assign the inspection to a CSHO.
4. If ASH CSHOs are unable to conduct the inspection in a timely manner, the ASH bureau chief will make a written referral (OSHA-90) to the appropriate OSH Compliance Bureau based on the location of the referral. In this case, OSH compliance will be responsible for conducting the inspection in accordance with this OPN.

5. In addition to information needed for complaint or referral evaluation as contained in NC FOM Chapter IX, Complaints and Referrals, the following additional information will be included in the case file:
- What pesticide or other chemical was the employee exposed to?
 - What is the EPA registration number for the pesticide or other chemicals?
 - How was the employee exposed?
 - Who were the exposed employees?
 - Where did the exposure take place?
 - What time of day did the exposure occur?
 - What other chemicals were used?
 - Were SDSs available?
 - What crop was in the field?
 - How was the pesticide or other chemical used or applied?
 - Who did the application?
 - Were workers trained?
 - What protective clothing was worn?
 - When and where can the CSHO meet the employee off the site?
 - If an advocate filed the complaint, can the CSHO arrange to meet the employee off the site?
 - What is the worker's native language?
 - Is the employee exhibiting symptoms of exposure?
 - Was the employee taken to a health care provider?
 - Who was the health care provider?
 - What health care was provided?

G. Inspection Procedures.

1. The assigned CSHO will initiate the inspection within 24 hours. If this time frame cannot be met, the CSHO will document the reason for delay in the case file.
2. The EPA worker exposure rules for pesticides will be used when appropriate to establish a basis for general duty clause violations.
3. The CSHO investigating the alleged exposure should attempt to meet with the affected worker off the property prior to opening with the employer. If a meeting does not occur, the CSHO will document the reason in the case file.
4. The CSHO will evaluate the procedures used by the employer for the handling and application of chemicals. If adequate procedures are not being used, the employer will be required to implement safe workplace procedures. The procedures will include a hazard assessment to determine the need for personal protective equipment. The assessment will assure the safety and health of employees during future chemical application.
5. If the CSHO cannot address the hazards using OSH Division standards or the general duty clause, the ASH bureau chief will be consulted for a referral to any other agency having jurisdiction.

H. IMIS Coding.

The CSHO will write the word “pesticide” next to block 25c of the OSHA-1 for all inspections conducted as a result of this SEP. In addition, write “migrant” in field 25e. Where applicable, write “program improvement” in field 25f for strategic plan activity.

I. Program Evaluation.

The ASH bureau chief will submit to the director an annual evaluation report relating to this SEP. The report will describe the inspections conducted, including a summary of results and an evaluation of the entire program operation. The evaluation will meet the criteria established in the most current version of CPL 02-00-102 - Procedures for Approval of Local Emphasis Programs.

J. Expiration.

OPN 116D is canceled. This OPN is effective on the date of signature. It will remain in effect until revised or canceled by the director.

Resource Referrals

This book contains occupational safety and health standards for agriculture. Additionally, there is useful information about the available NCDOL Agricultural Safety and Health Bureau's training resources and publications:

www.labor.nc.gov/safety-and-health/agricultural-safety-and-health/publications.

Agricultural wage and hour issues are handled by USDOL in North Carolina. Here is the office contact information.

Raleigh District Office
U.S. Department of Labor
Wage and Hour Division
Somerset Bank Building
4407 Bland Road, Suite 260
Raleigh, NC 27609-6296

Phone:
919-790-2741
1-866-4-USWAGE
(1-866-487-9243)

Richard Blaylock
District Director

Charlotte Area Office
U.S. Department of Labor
Wage and Hour Division
3800 Arco Corporate Drive
Suite 460
Charlotte, NC 28273-3409

Phone:
704-749-3360
1-866-4-USWAGE
(1-866-487-9243)

Caryl Stribling
Assistant District Director

OSH Publications

We provide a variety of OSH publications. These include general industry and construction regulations, industry guides that cover different OSH topics, quick cards, fact sheets and brochures that cover a wide variety of serious safety and health workplace hazards. Some of these are available in Spanish. Workplace labor law posters are available free of charge. To obtain publications, call toll free at 1-800-NC-LABOR (1-800-625-2267) or direct at 919-707-7876. You may view the list of publications and also download many of them at www.labor.nc.gov/safety-and-health/publications. Additional agriculture publications are available at our website, www.labor.nc.gov/safety-and-health/agricultural-safety-and-health/publications, including *The Cultivator*, our informational bulletin.

Occupational Safety and Health (OSH)

Sources of Information

You may call 1-800-NC-LABOR (1-800-625-2267) to reach any division of the N.C. Department of Labor (NCDOL);
or visit the NCDOL home page at www.labor.nc.gov

Occupational Safety and Health Division

Mailing Address:
1101 Mail Service Center
Raleigh, NC 27699-1101
Local Telephone: 919-707-7806 Fax: 919-707-7964

Physical Location:
111 Hillsborough St.
(Old Revenue Building, 3rd Floor)

For information concerning education, training, interpretations of occupational safety and health standards, and OSH recognition programs contact:

Education, Training and Technical Assistance Bureau

Mailing Address:
1101 Mail Service Center
Raleigh, NC 27699-1101
Telephone: 919-707-7876 Fax: 919-707-7965

Physical Location:
111 Hillsborough St.
(Old Revenue Building, 4th Floor)

For information concerning occupational safety and health consultative services contact:

Consultative Services Bureau

Mailing Address:
1101 Mail Service Center
Raleigh, NC 27699-1101
Telephone: 919-707-7846 Fax: 919-707-7966

Physical Location:
111 Hillsborough St.
(Old Revenue Building, 3rd Floor)

For information concerning migrant housing inspections and other related activities contact:

Agricultural Safety and Health Bureau

Mailing Address:
1101 Mail Service Center
Raleigh, NC 27699-1101
Telephone: 919-707-7820 Fax: 919-707-7967

Physical Location:
111 Hillsborough St.
(Old Revenue Building, 2nd Floor)

For information concerning occupational safety and health compliance contact:

Safety and Health Compliance District Offices

Raleigh District Office (3801 Lake Boone Trail, Suite 300, Raleigh, NC 27607)
Telephone: 919-779-8570 Fax: 919-420-7966

Asheville District Office (204 Charlotte Highway, Suite B, Asheville, NC 28803-8681)
Telephone: 828-299-8232 Fax: 828-299-8266

Charlotte District Office (901 Blairhill Road, Suite 200, Charlotte, NC 28217-1578)
Telephone: 704-665-4341 Fax: 704-665-4342

Winston-Salem District Office (4964 University Parkway, Suite 202, Winston-Salem, NC 27106-2800)
Telephone: 336-776-4420 Fax: 336-767-3989

Wilmington District Office (1200 N. 23rd St., Suite 205, Wilmington, NC 28405-1824)
Telephone: 910-530-6840 Fax: 910-251-2654

****To make an OSH Complaint, OSH Complaint Desk: 919-779-8560*

For statistical information concerning program activities contact:

Planning, Statistics and Information Management Bureau

Mailing Address:
1101 Mail Service Center
Raleigh, NC 27699-1101
Telephone: 919-707-7838 Fax: 919-707-7969

Physical Location:
111 Hillsborough St.
(Old Revenue Building, 2nd Floor)

For information about safety videos, labor-related books or electronic resources contact:

N.C. Department of Labor Library

Mailing Address:
1101 Mail Service Center
Raleigh, NC 27699-1101
Telephone: 919-707-7880 Fax: 919-707-7963

Physical Location:
111 Hillsborough St.
(Old Revenue Building, 5th Floor)

N.C. Department of Labor (Other than OSH)

1101 Mail Service Center
Raleigh, NC 27699-1101
Telephone: 919-707-7766 Fax: 919-733-6197