

## SUBCHAPTER 07F - STANDARDS

### SECTION .0100 - GENERAL INDUSTRY STANDARDS

#### **13 NCAC 07F .0101 GENERAL INDUSTRY**

The provisions for the Occupational Safety and Health Standards for General Industry, Title 29 of the Code of Federal Regulations Part 1910 promulgated as of October 10, 2024; and exclusive of subsequent amendments, are incorporated by reference except as modified or amended in 13 NCAC 07F .0103.

*History Note:* Authority G.S. 95-131; 95-133; 150B-21.6;  
*Eff. August 2, 1993;*  
*Temporary Amendment Eff. August 16, 1993, for a period of 180 days or until the permanent rule becomes effective, whichever is sooner;*  
*Amended Eff. April 1, 1996; January 1, 1996; September 6, 1995; April 1, 1995;*  
*Temporary Amendment Eff. April 1, 1996;*  
*Amended Eff. September 1, 1996; June 3, 1996;*  
*Temporary Amendment Expired January 26, 1997;*  
*Amended Eff. August 13, 2007; November 22, 2006; May 30, 2006; November 14, 2005; April 14, 2005; September 17, 2004; June 30, 2004; September 4, 2003; July 1, 2003; October 1, 2001; November 14, 2000; September 3, 1999; February 22, 1999; October 8, 1998; July 1, 1998; April 8, 1998; October 15, 1997; March 7, 1997; February 28, 1997; February 11, 1997;*  
*Recodified Items (1) - (4) to Rules .0103 - .0106 Eff. December 17, 2007;*  
*Amended Eff. October 8, 2014; November 18, 2013; June 18, 2013; February 5, 2013; June 11, 2012; October 31, 2011; July 1, 2010; November 12, 2009; October 15, 2009; April 23, 2009; April 17, 2008; February 13, 2008;*  
*Pursuant to G.S. 150B-21.3A rule is necessary without substantive public interest Eff. March 1, 2016;*  
*Amended Eff. January 8, 2021; September 23, 2020; April 10, 2020; February 14, 2020; October 7, 2019; June 3, 2019; December 12, 2018; November 7, 2018; July 1, 2017; May 1, 2017; September 2, 2016; April 22, 2016;*  
*Amended Eff. July 21, 2021 as an emergency temporary standard;*  
*Amended Eff. March 4, 2022 (expiration of emergency temporary standard);*  
*Amended Eff. January 1, 2025; September 1, 2022.*

#### **13 NCAC 07F .0102 LIFE SAFETY CODE**

*History Note:* Authority G.S. 95-131;  
*Eff. April 1, 1992;*  
*Recodified from 13 NCAC 07C .0107 Eff. August 2, 1993;*  
*Amended Eff. July 1, 1998;*  
*Repealed Eff. December 1, 2005.*

#### **13 NCAC 07F .0103 HAZARDOUS MATERIALS**

Subpart H - Hazardous Materials, 29 CFR 1910.120, Hazardous waste operations and emergency response, 1910.120(q)(6) is amended by adding a new level of training:

- "(vi) First responder operations plus level. First responders at operations plus level are individuals who respond to hydrocarbon fuel tank leaks where the leaking tanks contain a hydrocarbon fuel which is used to propel the vehicle on which the tank is located. Only those vehicles designed for highway use or those used for industrial, agricultural or construction purposes are covered. First responders at the operations plus level shall have received at least training equal to first responder operations level and, in addition, shall receive training or have had sufficient experience to objectively demonstrate competency in the following areas and the employer shall so certify:
  - (a) Know how to select and use proper specialized personal protective equipment provided to the first responder at operations plus level;
  - (b) Understand basic hazardous materials terms as they pertain to hydrocarbon fuels;

- (c) Understand hazard and risk assessment techniques that pertain to gasoline, diesel fuel, propane and other hydrocarbon fuels;
- (d) Be able to perform control, containment, or confinement operations for gasoline, diesel fuel, propane and other hydrocarbon fuels within the capabilities of the available resources and personal protective equipment; and
- (e) Understand and know how to implement decontamination procedures for hydrocarbon fuels."

*History Note:* Authority G.S. 95-131; 95-133; 150B-21.6;  
*Recodified From* 13 NCAC 07F .0101(1) *Eff. December 17, 2007;*  
*Pursuant to* G.S. 150B-21.3A *rule is necessary without substantive public interest Eff. March 1, 2016.*

#### **13 NCAC 07F .0104 PERSONAL PROTECTIVE EQUIPMENT**

*History Note:* Authority G.S. 95-131; 95-133; 150B-21.6;  
*Recodified from* 13 NCAC 07F .0101(2) *Eff. December 17, 2007;*  
*Repealed Eff. May 15, 2008.*

#### **13 NCAC 07F .0105 SPECIAL INDUSTRIES**

*History Note:* Authority G.S. 95-131; 95-133; 150B-21.6;  
*Recodified from* 13 NCAC 07F .0101(3) *Eff. December 17, 2007;*  
*Expired Eff. April 1, 2016 pursuant to G.S. 150B-21.3A.*

#### **13 NCAC 07F .0106 TOXIC AND HAZARDOUS SUBSTANCES**

*History Note:* Authority G.S. 95-131; 95-133; 150B-21.6;  
*Recodified from* 13 NCAC 07F .0101(4) *Eff. December 17, 2007;*  
*Repealed Eff. May 1, 2009.*

### **SECTION .0200 - CONSTRUCTION STANDARDS**

#### **13 NCAC 07F .0201 CONSTRUCTION**

The provisions for the Occupational Safety and Health Standards for Construction, Title 29 of the Code of Federal Regulations Part 1926 promulgated as of January 1, 2025, and exclusive of subsequent amendments, are incorporated by reference except as modified or amended in 13 NCAC 07F .0202 through .0207.

*History Note:* Authority G.S. 95-131;  
*Eff. August 2, 1993;*  
*Amended Eff. April 14, 2005; March 14, 2005; September 17, 2004; July 1, 2003; December 11, 2002; August 1, 2002; January 18, 2002; September 1, 2000; February 22, 1999; October 8, 1998; July 1, 1998; April 8, 1998; March 7, 1997; February 11, 1997; September 1, 1996; February 1, 1996; January 1, 1996; October 1, 1995; September 6, 1995;*  
*Item (5): Subpart U-Blasting and Use of Explosives, was recodified to Rules - .0701-.0716 Eff. August 3, 2005;*  
*Amended Eff. November 22, 2006; August 24, 2006; May 30, 2006;*  
*Recodified Items (1) - (6) to Rules .0202 - .0207 Eff. December 17, 2007;*  
*Amended Eff. October 2, 2015; November 20, 2014; October 8, 2014; November 18, 2013; November 8, 2013; June 18, 2013; February 5, 2013; June 11, 2012; October 31, 2011; November 8, 2010; August 19, 2010; July 1, 2010; April 23, 2009; February 13, 2008;*  
*Pursuant to G.S. 150B-21.3A rule is necessary without substantive public interest Eff. March 1, 2016;*  
*Amended Eff. December 1, 2025, October 1, 2025; September 1, 2022; March 8, 2021; February 1, 2021; September 23, 2020; February 14, 2020; October 7, 2019; May 3, 2019; May 1, 2018; July 1, 2017; September 2, 2016.*

## **13 NCAC 07F .0202 GENERAL SAFETY AND HEALTH PROVISIONS**

Subpart C -- General Safety and Health Provisions -- Personal protective equipment, 1926.28(a) is amended to read as follows: "(a) The employer is responsible for requiring the wearing of appropriate personal protective equipment (as described in 1926.28) in all operations where there is an exposure to hazardous conditions or where this part indicates the need for using such equipment to reduce the hazards to the employees."

*History Note: Authority G.S. 95-131; 150B-21.6;*

*Recodified from 13 NCAC 07F .0201(1) Eff. December 17, 2007;*

*Pursuant to G.S. 150B-21.3A rule is necessary without substantive public interest Eff. March 1, 2016.*

## **13 NCAC 07F .0203 OCCUPATIONAL HEALTH AND ENVIRONMENTAL CONTROLS**

Subpart D -- Occupational Health and Environmental Controls:

Addition to 29 CFR 1926.54, Nonionizing radiation, after subpart (a) to read:

"(a1) This standard shall apply to all direct or reflected laser equipment except unmodified Class I equipment maintained in accordance with the manufacturer's recommendations. Class I equipment is defined as intrinsically safe lasers having less than 0.001 milliwatt power and lasers which cannot create eye damage if viewed accidentally or which present no direct ocular hazard, diffuse ocular hazard or fire hazards."

*History Note: Authority G.S. 95-131; 150B-21.6;*

*Recodified from 13 NCAC 07F .0201(2) Eff. December 17, 2007;*

*Pursuant to G.S. 150B-21.3A rule is necessary without substantive public interest Eff. March 1, 2016.*

## **13 NCAC 07F .0204 PERSONAL PROTECTIVE AND LIFE SAVING EQUIPMENT**

Subpart E --Personal Protective and Life Saving Equipment -- addition of (g) to 1926.104 Safety belts, lifelines, and lanyards, as follows:

"(g) Snaphooks shall be a locking type designed and used to prevent disengagement of the snaphook keeper by the connected member. Locking type snaphooks have self-closing, self-locking keepers which remain closed and locked until unlocked and pressed open for connection or disconnection."

*History Note: Authority G.S. 95-131; 150B-21.6;*

*Recodified From 13 NCAC 07F .0201(3) Eff. December 17, 2007;*

*Pursuant to G.S. 150B-21.3A rule is necessary without substantive public interest Eff. March 1, 2016.*

## **13 NCAC 07F .0205 STEEL ERECTION**

Subpart R—Steel Erection – additions and amendments to 29 CFR 1926.750 Scope, through 1926.754 Structural steel assembly, are applicable as follows:

"Section 1926.750 Scope:

(b)(1) Steel erection activities include hoisting, laying out, placing, connecting, welding, burning, guying, bracing, bolting, plumbing and rigging structural steel, steel joists, bridge steel girders and metal buildings; installing metal decking and moving point-to-point while performing these activities.

(b)(2) There may be activities that occur during and are part of steel erection where conventional fall protection methods may not offer adequate protection for employees. The employer shall establish and determine when to implement employee fall protection measures as described in 1926.760 or the more protective measures described in 1926.502 "Fall Protection Systems Criteria and Practices". Where non-traditional steel or iron workers (employees not meeting requirements of 1926.761(c)) are engaged in leading edge work activities six (6) feet or more above lower levels, those employees shall be protected from falling by guardrail systems, personal fall arrest systems or safety nets. Such leading edge work activities include off loading, stacking, laying out and fastening steel floor decking and metal and non-metal roof decking; positioning and securing exterior curtain

walls, window walls, exterior siding systems; and moving from point to point while performing these activities.

**1926.754(c)(1)Tripping hazards.**

Employees shall be protected from falls due to tripping hazards created by shear connectors (*including headed steel studs, steel bars or steel lugs*), reinforcing bars, deformed anchors, or threaded studs attached to the top flanges of beams, joists or beam attachments. Such protection from falls may be accomplished by any of the following:

- (1) Not welding or applying shear connectors that project vertically or horizontally across the top flange of a member until the metal decking or other walking/working surface is installed (field-installed shear connectors).
- (2) Providing all employees that are exposed to falling hazards greater than six feet with a suitable fall protection system, as defined in 1926.32(s), including guardrail systems, personal fall arrest systems, or safety nets.
- (3) Covering shop or pre-installed connectors that project vertically from or horizontally across the top flange of the member with a temporary decking, metal or wood box until the metal decking, or other walking/working surface, is installed or until final construction covers the shear connectors.

*History Note: Authority G.S. 95-131; 150B-21.6;*

*Recodified from 13 NCAC 07F .0201(4) Eff. December 17, 2007;*

*Amended Eff. June 1, 2010;*

*Pursuant to G.S. 150B-21.3A rule is necessary without substantive public interest Eff. March 1, 2016.*

**13 NCAC 07F .0206 POWER TRANSMISSION AND DISTRIBUTION**

*History Note: Authority G.S. 95-131; 150B-21.6;*

*Recodified from 13 NCAC 07F .0201(5) Eff. December 17, 2007;*

*Repealed Eff. March 1, 2015.*

**13 NCAC 07F .0207 TOXIC AND HAZARDOUS SUBSTANCES**

Subpart Z -- Toxic and Hazardous Substances -- incorporation of the existing standard for Bloodborne Pathogens, 29 CFR 1910.1030, excluding subparagraph (e) HIV and HBV Research Laboratories and Production Facilities, into the Safety & Health Regulations for Construction at 29 CFR 1926.1130. Final rule as published in 56 FR (December 6, 1991) pages 64175 - 64182, including Appendix A -- Hepatitis B Vaccine Declination (Mandatory) -- with corrections as published in 57 FR (July 1, 1992) page 29206, and with the following revision to the definition of Occupational Exposure under subsection (b) Definitions:

"Occupational Exposure means reasonably anticipated skin, eye, mucous membrane, or parenteral contact with blood or other potentially infectious materials that may result from the performance of collateral first aid duties by an employee in the areas of construction, alteration, or repair, including painting and decorating."

*History Note: Authority G.S. 95-131; 150B-21.6;*

*Recodified from 13 NCAC 07F .0201(6) Eff. December 17, 2007;*

*Pursuant to G.S. 150B-21.3A rule is necessary without substantive public interest Eff. March 1, 2016.*

**SECTION .0300 - AGRICULTURE STANDARDS**

**13 NCAC 07F .0301 AGRICULTURE**

The provisions for the Occupational Safety and Health Standards for Agriculture, Title 29 of the Code of Federal Regulations Part 1928, promulgated as of June 8, 2011, and exclusive of subsequent amendments, are incorporated by reference as modified or amended in 13 NCAC 07F .0302.

*History Note: Authority G.S. 95-131; 150B-21.6;*

*Eff. August 2, 1993;*

*Amended Eff. August 24, 2006; May 30, 2006; July 1, 2003; July 1, 1998; September 1, 1996; April 1, 1995; November 1, 1994; August 1, 1994; September 24, 1993;*

*Item Recodified to 13 NCAC 07F .0302 Eff. December 17, 2007;  
Amended Eff. October 31, 2011;  
Pursuant to G.S. 150B-21.3A rule is necessary without substantive public interest Eff. March 1, 2016.*

### **13 NCAC 07F .0302 GENERAL ENVIRONMENTAL CONTROLS**

Subpart I - General Environmental Controls - 29 CFR 1928.110, Field Sanitation, the scope shall not be limited to any specific number of employees.

*History Note: Authority G.S. 95-131; 150B-21.6;*

*Recodified from 13 NCAC 07F .0301 Eff. December 17, 2007;*

*Pursuant to G.S. 150B-21.3A rule is necessary without substantive public interest Eff. March 1, 2016.*

### **SECTION .0400 - SHOPS FABRICATING STRUCTURALSTEEL AND STEEL PLATE**

Editor's Note: 13 NCAC 7F .0401 - .0426 recodified from 13 NCAC 7C .0201 - .0226 Eff. August 2, 1993.

<b>13 NCAC 07F .0401</b>	<b>GENERAL REQUIREMENTS</b>
<b>13 NCAC 07F .0402</b>	<b>DEFINITIONS APPLICABLE TO THIS STANDARD</b>
<b>13 NCAC 07F .0403</b>	<b>COLOR CODING AND WARNING SIGNS FOR PHYSICAL HAZARDS</b>
<b>13 NCAC 07F .0404</b>	<b>PERSONAL PROTECTIVE EQUIPMENT</b>
<b>13 NCAC 07F .0405</b>	<b>LIGHTING</b>
<b>13 NCAC 07F .0406</b>	<b>VENTILATION</b>
<b>13 NCAC 07F .0407</b>	<b>CLEANERS AND SOLVENTS</b>
<b>13 NCAC 07F .0408</b>	<b>IONIZING RADIATION</b>
<b>13 NCAC 07F .0409</b>	<b>GENERAL REQUIREMENTS FOR ALL MACHINES AND EQUIPMENT</b>
<b>13 NCAC 07F .0410</b>	<b>CRANES: DERRICKS: AND HOISTS</b>
<b>13 NCAC 07F .0411</b>	<b>MATERIAL HANDLING DEVICES</b>
<b>13 NCAC 07F .0412</b>	<b>SLINGS AND ALLOY-STEEL CHAINS</b>
<b>13 NCAC 07F .0413</b>	<b>MOBILE EQUIPMENT</b>
<b>13 NCAC 07F .0414</b>	<b>JACKS: LEVER: RATCHET: SCREW: AND HYDRAULIC</b>
<b>13 NCAC 07F .0415</b>	<b>PORTABLE POWER AND HAND TOOLS</b>
<b>13 NCAC 07F .0416</b>	<b>ELECTRICAL</b>
<b>13 NCAC 07F .0417</b>	<b>HANDLING AND STORING MATERIAL</b>
<b>13 NCAC 07F .0418</b>	<b>HANDLING MATERIAL FROM A RAILROAD CAR</b>
<b>13 NCAC 07F .0419</b>	<b>UNLOADING MATERIAL FROM A TRUCK</b>
<b>13 NCAC 07F .0420</b>	<b>REAMING AND DRILLING</b>
<b>13 NCAC 07F .0421</b>	<b>RIVETING</b>
<b>13 NCAC 07F .0422</b>	<b>BOLTING</b>
<b>13 NCAC 07F .0423</b>	<b>MANUAL ABRASIVE BLASTING</b>
<b>13 NCAC 07F .0424</b>	<b>PAINTING</b>
<b>13 NCAC 07F .0425</b>	<b>GALVANIZING AND PICKLING OPERATIONS</b>
<b>13 NCAC 07F .0426</b>	<b>SOURCE OF STANDARDS</b>

*History Note: Authority G.S. 95-131;*

*Eff. February 1, 1976;*

*Readopted Eff. September 30, 1977;*

*Amended Eff. July 1, 1998; May 1, 1994;*

*Repealed Eff. December 1, 2010.*

### **SECTION .0500 - MARITIME STANDARDS**

#### **13 NCAC 07F .0501 SHIPYARD EMPLOYMENT**

(a) The provisions for the Occupational Safety and Health Standards for Shipyard Employment, Title 29 of the Code of Federal Regulations Part 1915 promulgated as of October 4, 2021, and exclusive of subsequent amendments, are incorporated by reference.

(b) The provisions of 29 CFR 1915 shall apply only to public sector employees of local governments or of the State of North Carolina.

*History Note: Authority G.S. 95-131; 150B-21.6;*

*Eff. December 1, 1993;*

*Amended Eff. June 18, 2013; February 5, 2013; June 11, 2012; October 31, 2011; July 1, 2010; October 15, 2009; April 23, 2009; February 13, 2008; May 2, 2007; November 22, 2006; May 30, 2006; April 14, 2005; March 14, 2005; July 1, 2003; February 22, 1999; October 8, 1998; July 1, 1998; October 15, 1997; March 7, 1997; February 11, 1997; September 1, 1996; January 1, 1996; September 6, 1995; May 1, 1995; February 1, 1995;*

*Pursuant to G.S. 150B-21.3A rule is necessary without substantive public interest Eff. March 1, 2016;*

*Amended Eff. September 1, 2022; February 1, 2021; September 23, 2020; February 14, 2020; October 7, 2019; July 1, 2017; September 2, 2016.*

### **13 NCAC 07F .0502 MARINE TERMINALS**

(a) The provisions of the Occupational Safety and Health Regulations for Marine Terminals, Title 29 of the Code of Federal Regulations Part 1917, promulgated as of March 25, 2016, and exclusive of subsequent amendments are incorporated by reference.

(b) The provisions of 29 CFR 1917 shall apply only to public sector employees of local governments or of the State of North Carolina.

*History Note: Authority G.S. 95-131; 150B-21.6;*

*Eff. December 1, 1993;*

*Amended Eff. October 8, 2014; February 5, 2013; October 31, 2011; October 15, 2009; April 23, 2009; February 13, 2008; May 30, 2006; July 1, 2003; December 7, 2000; February 22, 1999; July 1, 1998; October 15, 1997; November 1, 1994; August 1, 1994;*

*Pursuant to G.S. 150B-21.3A rule is necessary without substantive public interest Eff. March 1, 2016;*

*Amended Eff. September 2, 2016.*

### **SECTION .0600 – COMMUNICATION TOWER STANDARDS**

#### **13 NCAC 07F .0601 SCOPE AND APPLICATION**

(a) The rules in this Section contain requirements for policies, procedures, and safe work practices to protect employees throughout North Carolina from the hazards of working on communication towers during construction, alteration, repair, operation, inspection, and maintenance activities.

(b) A communication tower is defined as any tower over six feet in height that is used primarily as an antenna or to host one or more antennas. Where the communication tower is affixed to another structure, such as an electrical transmission tower, church steeple, building rooftop, or water tower, the applicable part of any controlling regulation for protection of employees (e.g., 29 CFR 1910.268, 29 CFR 1910.269 and 29 CFR 1926 Subpart V for transmission towers) shall apply up to the point of access to the communication tower. Thereafter, the provisions of this Section shall apply.

(c) The rules in this Section shall not apply to communication towers that are mounted on motor vehicles.

*History Note: Authority G.S. 95-131;*

*Eff. February 1, 2005;*

*Pursuant to G.S. 150B-21.3A rule is necessary without substantive public interest Eff. March 1, 2016.*

#### **13 NCAC 07F .0602 DEFINITIONS**

In addition to the definitions set forth in 29 CFR Part 1910 and 29 CFR Part 1926, the following definitions apply throughout the rules in this Section:

(1) Acceptable Conditions for Access mean the conditions that must exist before the employer grants permission for construction, alteration, repair or maintenance work to be performed on a communication tower. These conditions include the following:

- (a) Work under the control of a work safety program meeting the requirements of the Rules in this Section; and,
- (b) Work where an accumulation of snow, ice or other slippery material is not present, except as necessary for the inspection or removal of such material;
- (c) Notwithstanding the prohibitions outlined in Sub-item (1)(b) of this Rule, if tower emergency maintenance work must be performed where there is an accumulation of snow, ice or other slippery material, the employer shall implement safe work practices (equipment, practices and procedures) that address the hazards known to be associated with tower work to minimize the associated risk to employees while working on the tower structure and the support structure to which it is affixed, where applicable.

(2) Climbing Facility means a component specifically designed or provided to permit access to the tower structure, such as a fixed ladder, step bolt, or other structural member.

(3) Competent Person means a person who is trained to identify existing and predictable hazards in the surroundings or working conditions that are hazardous or dangerous to employees, and who has authorization from his employer to take prompt corrective measures to eliminate them, including halting the work as required by the rules in this Section.

(4) Elevated (High Angle) Rescue means the process by which methods and equipment are utilized in order to gain access to and egress from the location of an injured employee(s) on the tower structure, and lower both the injured employee(s) and the rescuer(s) to the ground safely.

(5) Fall Protection Equipment means the personal equipment that employees utilize in conjunction with 100% fall protection systems, including connectors, body belts or body harnesses, lanyards and deceleration devices.

(6) Ladder Safety System means an assembly of components whose function is to arrest the fall of a user, including the carrier and its associated attachment elements (e.g., brackets, fasteners), the safety sleeve, and the body support and connectors, wherein the carrier is permanently attached to the climbing face of the ladder or immediately adjacent to the structure.

(7) One-Hundred Percent (100%) Fall Protection means each employee exposed to fall hazards above six (6) feet while ascending, descending, or moving point to point, must be protected by fall protection, as described in 13 NCAC 07F .0605(c), at all times.

(8) Qualified Climber means a person who has, by virtue of knowledge, training, and experience, been deemed qualified in writing by his employer to perform tower work.

(9) Qualified Person means a person possessing a degree, certificate, professional standing, or knowledge, training, and experience in the field of communication tower work, and who has demonstrated to his employer his ability to resolve problems relating to the subject matter, the work, or the project.

(10) Safety Sleeve means the part of a ladder safety system consisting of the moving component with locking mechanism that travels on the carrier and makes the connection between the carrier and the body support.

(11) Site means the communication tower and the surrounding land or property where tower work is being performed.

(12) Step Bolt means a bolt or rung attached at intervals along a structural member and used for foot placement during climbing or standing.

(13) Tower Construction means the building of a new tower or structure, or the installation of new equipment on an existing tower or structure.

(14) Tower Emergency Maintenance Work means the repair, restoration or replacement of any pre-existing device installed on the tower in the interest of public safety, such as, aviation signaling devices and equipment used to transmit or receive broadcast signals.

(15) Tower Inspection means the procedure in which an employee(s) climb(s) or ride(s) the structure's elevator to visually inspect the tower for potential problems, and test for tower plumbness and guy cable tension.

(16) Tower Maintenance Work means the replacement in kind of any device on an existing tower, the repair of existing equipment, and painting.

*History Note:* Authority G.S. 95-131;  
Eff. February 1, 2005;  
Amended Eff. December 1, 2006;  
Pursuant to G.S. 150B-21.3A rule is necessary without substantive public interest Eff. March 1, 2016.

### **13 NCAC 07F .0603 EMPLOYER RESPONSIBILITIES**

- (a) The employer shall require employees to adhere to acceptable conditions for access, as defined by 13 NCAC 07F .0602(1), prior to climbing the tower at heights above six feet.
- (b) The employer shall ensure that at least two employees, including at least one competent person, are on site at all times when employees are exposed to fall hazards above six feet, provided however, an employer shall not be required to have more than two employees on site at any given time.
- (c) A competent person shall visually inspect the tower base for damage, deterioration, structural deficiencies and functionality of safety features and anchorages before employees are allowed to climb the tower at heights above six feet. Additionally, the employer shall ensure that the tower is visually inspected for these items, as it is ascended, to the elevation point where work is being performed.

*History Note:* Authority G.S. 95-131;  
Eff. February 1, 2005;  
Pursuant to G.S. 150B-21.3A rule is necessary without substantive public interest Eff. March 1, 2016.

### **13 NCAC 07F .0604 HAZARD IDENTIFICATION AND ASSESSMENT**

- (a) In addition to the inspections required by 13 NCAC 07F .0603(c) and 13 NCAC 07F .0605(b), the employer shall conduct a hazard assessment to identify, assess, and control employee exposure to hazards as required by the rules in this Section and any other applicable state or federal statutes, rules or regulations.
- (b) The employer shall perform and document the hazard assessments required by this Rule:
  - (1) Initially and daily for each site prior to permitting employees to climb the structure; and
  - (2) When safety and health information or change in workplace conditions indicates that a new or increased hazard may be present.
- (c) The hazard assessments required by this Rule shall:
  - (1) Be performed by a competent person;
  - (2) Evaluate new equipment, materials, and processes for hazards before they are introduced into the workplace; and
  - (3) Identify meteorological conditions that could affect work at heights above six feet on a tower, such as wind, rain, snow or ice.
- (d) If hazards are identified, the employer shall assess the severity of identified hazards and implement means to control such hazards, including providing employees with personal protective equipment (PPE) designed to control the identified hazards and ensuring the proper use of the PPE by the employees.

*History Note:* Authority G.S. 95-131;  
Eff. February 1, 2005;  
Pursuant to G.S. 150B-21.3A rule is necessary without substantive public interest Eff. March 1, 2016.

### **13 NCAC 07F .0605 FALL PROTECTION**

- (a) General. Prior to employees climbing the tower at heights above six feet, the employer shall ensure that 100% fall protection systems compatible with the tasks assigned are provided, used, and maintained. The rules in this Section shall not require the retrofitting of communication towers; provided, that employees who are exposed to fall hazards above six feet while performing work on communication towers are protected from such hazards by means of a 100% fall protection system.
- (b) Pre-Climb Planning and Inspection. In addition to the criteria for pre-climb planning and inspection included in Paragraph (g) of this Rule, the employer shall ensure that the following items occur prior to employees climbing the tower at heights above six (6) feet:
  - (1) All climbing jobs shall be planned by a competent person;

- (2) All climbing facilities shall be visually inspected daily at the tower base by a competent person for rust, corrosion, deterioration, or other hazards. Additionally, the employer shall ensure that the climbing facilities are visually inspected for these items, as it is ascended, to the elevation point where work is being performed. If any such hazard is identified during this inspection, employees shall not use the climbing facility until such hazards are abated;
- (3) A competent person shall ensure that all fall protection equipment is inspected prior to each use for wear, damage, defect or other deterioration by employees who have been trained in accordance with 13 NCAC 07F .0609. Defective equipment shall be identified as defective and immediately removed from service;
- (4) Components of a fall protection system and the fall protection equipment utilized by employees shall be compatible with one another and shall be utilized in accordance with the manufacturer's recommendations; and
- (5) The employer shall ensure that the planning and inspections are performed and documented. The documentation shall be maintained on site while work is being performed, and thereafter by the employer at its place of business. The documentation shall include the date of the planning and inspection, the name of the competent person performing the planning and inspection, and the site location.

(c) Fall Protection Systems. In order to comply with the requirements of Subparagraph (a)(1) of this Rule, the employer may permit employees to utilize the 100% fall protection systems described in Paragraphs (d) through (g) of this Rule. If the fall protection systems described therein are not present on the tower, the employer shall not permit employees to climb the tower at heights above six feet unless:

- (1) an alternative means of 100% fall protection is utilized that is at least as effective as the fall protection systems described in Paragraphs (d) through (g) of this Rule;
- (2) an alternative means of access to the work area is utilized such as an aerial lift or elevated work platform; or
- (3) the employer can demonstrate that the requirements for a fall protection plan under Paragraph (i) of this Rule have been met.

(d) Guardrail Systems. The employer shall ensure that guard rail systems and their components that are utilized by employees as a means of 100% fall protection conform to the criteria in 29 CFR 1926.502(b).

(e) Personal Fall Arrest Systems (PFAS). The employer shall ensure that personal fall arrest systems and their components that are utilized by employees as a means of 100% fall protection conform to the criteria in 29 CFR 1926.502(d), and are utilized according to the manufacturer's recommendations. When utilized by employees as an anchorage as part of a PFAS, the employer shall ensure that step bolts and the attachment point to the structure are designed to meet the requirements of an approved anchorage in accordance with 29 CFR 1926.502(d), and are designed to ensure the connector will not slip off the end of the step bolt.

(f) Positioning Device System. The employer shall ensure that positioning device systems and their components that are utilized by employees as a means of 100% fall protection conform to the criteria in 29 CFR 1926.502(e).

(g) Ladder Safety Systems. The employer shall ensure that, in addition to the applicable criteria in 29 CFR 1926, Subpart X, ladder safety systems and related support systems for fixed ladders that are utilized by employees as a means of 100% fall protection conform to the following criteria:

- (1) Prior to climbing the structure, the employer shall ensure that the employee(s) have tested the ladder safety system for proper operation and that all components utilized with the ladder safety system are compatible;
- (2) To perform the test required by Subparagraph (g)(1) of this Rule, the employee(s) shall:
  - (A) Approach the ladder at the base and connect to the functional safety climb system;
  - (B) Climb to a height less than six feet;
  - (C) Forcibly engage the device without letting go of the ladder;
  - (D) If the device functions as intended, the employee(s) shall begin the ascension;
  - (E) If the device does not function properly, the employee(s) shall immediately descend the structure and shall not utilize the device until it functions properly; and
- (3) If a ladder is obstructed, inhibiting the effective use of the ladder safety system, an alternative means of 100% fall protection shall be utilized that is at least as effective as the types of fall protection described by this Rule.

(h) Fall Protection Plan. This Paragraph applies when employees are working on a structure where no adequate tie-off anchorage point(s) exist, the fall protection systems described in Paragraph (c) of this Rule are not feasible or create a greater hazard, and the work can not be completed utilizing an alternative means of access to the work area

such as an aerial lift or elevated work platform. If an employer demonstrates the foregoing conditions are present, then in addition to the criteria in 29 CFR 1926.502(k), the employer shall conform to the following provisions:

- (1) The employer shall ensure that each employee under the fall protection plan has been trained as a qualified climber;
- (2) The fall protection plan shall be made available and communicated to exposed employee(s) prior to the employee(s) beginning work, and such communication shall be documented; and
- (3) The fall protection plan shall identify each location on the tower structure where fall protection methods as described in Paragraph (c) of this Rule cannot be used. As soon as adequate tie-off anchorage points or other fall protection systems can be established, the employer shall utilize any of the fall protection systems described in Paragraph (c) of this Rule.

(i) Emergency and Rescue Procedures.

- (1) The employer shall establish procedures for rescue of employees in the event of an emergency, which shall include whether the employer will designate its own employees to perform the rescue procedures or whether the employer will designate a third-party to perform the rescue procedures. The procedures shall be documented and available for review by the Deputy Commissioner of Labor for Occupational Safety and Health or his designee, upon request.
- (2) Employer to Perform Rescue Procedures. An employer whose employees have been designated to provide elevated (high angle) rescue and emergency services shall take the following measures:
  - (A) Ensure at least two trained and designated rescue employees are on site when employees are working at heights over six feet on the tower, provided however, where there are only two employees on site, then an employer may comply with the requirements of this Part if one employee is a trained and designated rescue employee and one employee has been employed for less than nine months and has received documented orientation from the employer outlining steps to take in an emergency;
  - (B) Ensure that personal protective equipment (PPE) and high angle rescue equipment needed to conduct elevated rescues are provided, used and maintained by the designated rescue employees;
  - (C) Train designated rescue employees so they are proficient in the use and maintenance of PPE and high angle rescue equipment needed to conduct elevated rescues; and
  - (D) Train designated rescue employees to perform assigned rescue duties to ensure that they become competent to perform such duties, including conducting simulated rescue operations at least once every 12 months.
- (3) Third-Party to Perform Rescue Procedures. An employer who designates a third-party rescue and emergency service to provide elevated (high angle) rescue and emergency services shall take the following measures:
  - (A) Obtain verification from the third-party rescue team or service that it is able to respond to a rescue summons in a timely manner;
  - (B) Obtain verification from the third-party rescue team or service that it is proficient with rescue-related tasks and equipment as they relate to rescuing climbers from elevated heights on communication structures;
  - (C) Select a rescue team or service from those evaluated that has verified it has the capability to reach the victim(s) and is equipped for and capable of performing the needed rescue services;
  - (D) Provide the selected rescue team or service with contact information regarding all towers/structures from which rescue may be necessary so that the rescue service can develop appropriate rescue plans and practice rescue operations as it deems necessary; and
  - (E) Inform the selected rescue team or service, prior to the first day on which employee(s) perform work at heights over six feet on the tower, of the site and location of the tower(s) to be climbed; the hazard(s) identified on the site; the number of employees that will climb the tower(s); the height(s) at which employee(s) will be working; the name(s) and telephone number(s) for any employer contact(s); and, any other information that is requested by the rescue team or service.

(j) First Aid/CPR Training and Supplies. In addition to the requirements of 29 CFR 1910.151 and 29 CFR 1926.50, the employer shall ensure that at least two employees on site are trained and hold current certifications in basic first aid and cardiopulmonary resuscitation (CPR) issued by the American Red Cross or any other organization whose

standards are equivalent to the American Red Cross; provided, however, where there are only two employees on site, then an employer may comply with the requirements of this Paragraph if one employee is trained and holds current certifications in basic first aid and CPR and one employee has been designated by the employer as a probationary employee and has been employed for less than six months.

*History Note: Authority G.S. 95-131; Eff. September 2, 2005; Temporary Amendment Eff. October 31, 2006; Amended Eff. February 1, 2007; Pursuant to G.S. 150B-21.3A rule is necessary without substantive public interest Eff. March 1, 2016.*

### **13 NCAC 07F .0606 NON-IONIZING RADIATION**

(a) General. Employers shall ensure that employees performing work on communication towers are not exposed to Radio Frequency (RF) Electromagnetic Fields in excess of the Federal Communications Commission (FCC) maximum permissible exposure (MPE) limits for exposure as prescribed in 47 CFR 1.1310.

(b) Protection from Radiation Exposure.

- (1) Employees shall not enter areas where RF exposure levels are above the general population/uncontrolled MPE's described in 47 CFR 1.1310 unless they understand the potential for exposure and can exercise control over the exposure.
- (2) Control Procedures. Prior to employees performing work in areas on a communication tower where RF exposure levels exceed the occupational/controlled MPE values stated in 47 CFR 1.1310, the employer shall enact and enforce written control procedures that provide for the reduction, elimination, avoidance or protection from such RF levels. These written control procedures shall include the following:
  - (A) Reducing the transmitter power to a level that ensures RF exposure levels in areas where employees are working do not exceed the occupational/controlled MPE values stated in 47 CFR 1.1310, and that the transmitter power level is not increased until all employees have ceased working in those areas. If this method is chosen, the transmitter power shall be locked out and tagged out at the reduced level by a competent person in accordance with 29 CFR 1910.147. Prior to removing lock out/tag out devices and restoring the original transmitter power level, all employees shall be notified and the work area shall be checked to ensure that all employees have been safely positioned and removed;
  - (B) If the transmitter power level in areas where employees are working cannot be reduced and maintained at a level that ensures RF exposure levels do not exceed the occupational/controlled MPE values stated in 47 CFR 1.1310, the transmitter power shall be locked out and tagged out by a competent person in accordance with 29 CFR 1910.147. Prior to removing lock out/tag out devices and restoring the transmitter power level, all employees shall be notified and the work area shall be checked to ensure that all employees have been safely positioned and removed;
  - (C) If the transmitter power level can not be reduced or eliminated, an employer may permit its employees to access areas where the occupational/controlled MPE values stated in 47 CFR 1.1310 are exceeded if it implements engineering or administrative controls that comply with the FCC's regulations concerning such exposure, including limiting the duration of the exposure and utilizing monitoring equipment, RF protective clothing and other related PPE; or
  - (D) If an employer cannot ensure that the conditions in Parts (A), (B) or (C), of this Subparagraph, are met, employees shall not be permitted to access areas where RF exposure levels exceed the occupational/controlled MPE values stated in 47 CFR 1.1310.

(c) Use of Controls. Prior to commencing work on a communication tower, a competent person shall assess potential RF hazards of areas which may be accessed by employees in the course of their work, and post temporary signage to indicate areas where the RF hazard exceeds the general population/uncontrolled MPE limits for exposure set forth in 47 CFR 1.1310. Temporary signage shall remain in place while work is performed and the hazard exists.

(d) RF Safety Program. When employees are exposed to RF fields in excess of the general population/uncontrolled MPE limits established in 47 CFR 1.1310 as a consequence of their employment, the employer shall develop,

implement, and maintain a written safety and health program with site specific procedures and elements based on the electromagnetic radiation hazards present, in accordance with 13 NCAC 07F .0609(g).

*History Note: Authority G.S. 95-131;*

*Eff. July 28, 2006;*

*Pursuant to G.S. 150B-21.3A rule is necessary without substantive public interest Eff. March 1, 2016.*

## **13 NCAC 07F .0607 HOISTS AND GIN POLES**

(a) Hoists. Hoists used during the construction, alteration, repair, maintenance, or demolition of communication towers shall meet the following requirements:

- (1) All hoists shall meet the requirements set forth in this rule, 29 CFR 1910, Subpart N, and 29 CFR 1926, Subpart N, where applicable.
- (2) All hoists shall meet applicable requirements for design, construction, installation, testing, inspection, maintenance, and operation as prescribed by the manufacturer, or a licensed professional engineer.
- (3) Employers shall maintain at the work site the operating manual developed by the manufacturer for the specific make and model hoist being used, as well as documentation for any inspection, testing, and operator training certification required by the rules in this Section,
- (4) An employer shall not operate or permit to be operated a hoist that the employer knows, or reasonably should know, will expose his employee(s) to an unsafe condition which is likely to result in personal injury or property damage.

(b) Gin Poles.

- (1) Rigging Equipment.
  - (A) Wire rope, slings, chains, shackles, turnbuckles, links, hooks, sheaves, rotating rooster heads, blocks, and hoists, used in a gin pole lifting arrangement shall meet the manufacturer's safe working load limits. In addition, each component shall have a nominal breaking strength of no less than five times the static load applied. Consideration for end fitting losses and actual positioning of connecting parts shall be given;
  - (B) Lugs or other devices for lifting or attaching the gin pole in position shall be designed with load and resistance factors appropriate for their intended use;
  - (C) Only alloy chains marked by the manufacturer with an 8, T, or an A, rated for lifting, shall be used;
  - (D) Only quenched and tempered hooks and shackles shall be used. The manufacturer's load rating shall be stamped on the product; and
  - (E) The breaking strength of the sheave shall equal or exceed the breaking strength of the wire rope intended for the sheave.
- (2) Gin Pole Use.
  - (A) A user's gin pole load chart shall be provided for each pole;
  - (B) Any special engineered pick, which is outside of the load chart, shall only be allowed at the direction of a licensed professional engineer. Monitoring and measuring conditions, as specified by a licensed professional engineer, shall be provided and used during all special engineered picks;
  - (C) Modifications or repairs of a gin pole shall be made with like or similar materials to meet or exceed the original specifications. Modifications or repairs shall be recertified by a licensed professional engineer; and
  - (D) There shall be a mechanism in place to prevent the gin pole from tipping during the jumping process.
- (3) Wire Rope. Wire rope used for rigging shall be as follows:
  - (A) Compatible with the sheaves of the rooster head and hoisting blocks;
  - (B) Lubricated in accordance to manufacturer specifications to prevent corrosion and wear;
  - (C) End connections shall be terminated per industry and manufacturer's specifications;
  - (D) Wedge sockets shall have a minimum tail length of one rope lay with a properly torqued clip attached to prevent accidental disengagement; and

(E) Flemish eyes shall contain heavy duty thimbles of appropriate size for the wire rope diameter, and shall have a minimum tail length of one rope lay secured with a properly torqued clip at its end.

(4) Inspections.

(A) Gin poles shall have a documented inspection annually by a qualified person;

(B) In addition to the annual inspection, the employer shall designate a competent person who shall visually inspect the gin pole and rigging prior to each use, and during use, to make sure it is in safe operating condition. Any deficiencies shall be repaired before use continues;

(C) During each inspection, the qualified or competent person shall inspect the legs and bracing members for bends or distortion;

(D) During each inspection, the qualified or competent person shall inspect the straightness tolerances for the overall assembly (including leg and bracing members);

(E) During each inspection, the qualified or competent person shall visually inspect the welds for quality, deformation, cracks, rust, or pitting or loss of cross sectional area;

(F) During each inspection, the qualified or competent person shall inspect the members for excessive rust or pitting or loss of cross sectional area;

(G) During each inspection, the qualified or competent person shall inspect the sling attachment points for distortion, wear, cracks, and rust;

(H) During each inspection, the qualified or competent person shall ensure that proper bolts are utilized and all associated hardware is in good condition;

(I) During each inspection, the qualified or competent person shall inspect side plates on rooster heads for distortion or other damage;

(J) During each inspection, the qualified or competent person shall inspect all attachment hardware, including rigging and parts such as cables, slings, and sling attachment points, shackles, hooks, and sockets for wear, distortion, cracks, and rust; and

(K) During each inspection, the qualified or competent person shall ensure that all problems identified during the inspection are corrected before placing the gin pole into service.

*History Note:* Authority G.S. 95-131;

*Eff. April 1, 2005;*

*Pursuant to G.S. 150B-21.3A rule is necessary without substantive public interest Eff. March 1, 2016.*

### **13 NCAC 07F .0608 RECORD KEEPING**

In order to fulfill responsibilities under the provisions of the rules in this Section, the employer shall, upon request, provide the Deputy Commissioner of Labor for Occupational Safety and Health or his designee access to the following records:

(1) Training Records. All material related to the employer's training and education program, pursuant to 13 NCAC 07F .0609.

(2) Medical Records and Non-Ionizing Radiation Exposure Records. All medical records (in accordance to 29 CFR 1910.1020(d)(1)(i)) and material related to each analysis using exposure or medical records (in accordance with 29 CFR 1910.1020(d)(1)(iii)).

(3) Equipment Inspections and Testing Records. All material related to the modification, repair, test, calibration or maintenance service of all equipment.

*History Note:* Authority G.S. 95-131;

*Eff. February 1, 2005;*

*Pursuant to G.S. 150B-21.3A rule is necessary without substantive public interest Eff. March 1, 2016.*

### **13 NCAC 07F .0609 TRAINING**

(a) In order for employees to work at heights above six feet on a communication tower, they must be approved for such work by a qualified person.

(b) Competency of the Trainer. Training of employees in communication tower work shall be performed by or under the supervision of a qualified person.

(c) Written Work Procedures.

- (1) The employer's written work procedures shall be provided to employees as part of their training.
- (2) Pictures and symbols may be used as a means of instruction if employee understanding is improved using this method.
- (3) Manufacturers' operating manuals for personnel hoisting systems satisfy the requirement for operating procedures for the respective equipment, or can serve as the basis for these procedures.

(d) Hazardous Materials Training. Employees required to handle or use flammable liquids, gases, or toxic materials shall be instructed in the safe handling and use of these materials and made aware of the specific requirements contained in 29 CFR 1926.55 and 29 CFR 1910.1200, as applicable.

(e) Fall Protection Training.

- (1) The employer shall provide a training program for each employee who might be exposed to fall hazards.
- (2) The program shall enable each employee to recognize the hazards of falling and shall train each employee in the procedures to be followed in order to minimize these hazards.
- (3) The employer shall ensure that each employee has been trained by or under the supervision of a qualified person in the following areas:
  - (A) The nature of fall hazards in the work area;
  - (B) The correct procedures for erecting, maintaining, disassembling, and inspecting the fall protection systems to be used;
  - (C) The correct procedures for inspecting fall protection equipment for wear, damage, defect or deterioration;
  - (D) Climbing safety procedures;
  - (E) The use and operation of the fall protection systems utilized by the employer, as described in 13 NCAC 07F .0605(c);
  - (F) The role of each employee in any safety monitoring system being used;
  - (G) The correct procedures for the handling and storage of equipment and materials and the erection of overhead protection;
  - (H) The role of employees in fall protection plans; and
  - (I) The compatibility of fall protection equipment and fall protection systems.

(f) Hoist Operator Training. The employer shall maintain documentation that the hoist operator has practical training on the hoist he is operating. Training of hoist operators shall meet the requirements of 29 CFR 1910.179 and 29 CFR 1926, Subpart N.

(g) RF Training.

- (1) All employees exposed in excess of the general population/uncontrolled MPE limits stated in 47 CFR 1.1310 shall receive RF hazard awareness training by or under the supervision of a qualified person in the following areas:
  - (A) MPE Limits for occupational/controlled exposure;
  - (B) Recognition of RF exposure sources in communication tower work;
  - (C) Proper use and interpretation of RF exposure;
  - (D) Work procedures to avoid excessive RF exposure;
  - (E) Proper use of RF protective clothing and other related PPE;
  - (F) Symptoms and health issues related to RF exposure; and,
  - (G) RF exposure first-aid procedures.
- (2) Employers shall ensure that each affected employee who works in an electromagnetic energy environment with potential RF exposure in excess of the general population/uncontrolled MPE limits stated in 47 CFR 1.1310 has access to and understands the specific site information related to the RF energy and RF fields present at each individual site.

(h) Retraining. Unless stated otherwise in this Rule, when the employer or qualified person has reason to believe that any employee who has already been trained does not have the understanding and skill required to safely perform the work assigned, the employer shall retrain each such employee. Circumstances where retraining is required include situations where:

- (1) Changes in the workplace render previous training obsolete;
- (2) Changes in the types of fall protection systems or equipment to be used render previous training obsolete; or
- (3) Inadequacies in an employee's knowledge or use of fall protection systems or equipment indicate that the employee has not retained the requisite understanding or skill.

(i) Training Records.

- (1) The employer shall certify that each employee has been trained by preparing a certification record which includes:
  - (A) The identity of the person trained;
  - (B) The signature of the employer or the qualified person who conducted the training; and
  - (C) The date that training was completed.
- (2) A copy of the training lesson plan for each topic of instruction shall be maintained by the employer.
- (3) The certification record shall be prepared at the completion of the training required by this Rule and shall be maintained for the duration of the employee's employment.
- (4) The most current certification record shall be kept available for review by the Deputy Commissioner of Labor for Occupational Safety and Health or his designee, upon request.
- (5) An employer may accept training records or certificates for previous training if the employer verifies that all training and knowledge is current and applicable to the new employee's job duties.

*History Note:* Authority G.S. 95-131;

*Eff. February 1, 2005;*

*Pursuant to G.S. 150B-21.3A rule is necessary without substantive public interest Eff. March 1, 2016.*

## **SECTION .0700 – BLASTING AND USE OF EXPLOSIVES**

### **13 NCAC 07F .0701 BLASTING AND USE OF EXPLOSIVES**

The provisions of Subpart U of Title 29, Part 1926 of the Code of Federal Regulations promulgated as of March 7, 2005, and exclusive of subsequent amendments, are incorporated by reference except as modified or amended in 13 NCAC 07F .0701 through .0716.

*History Note:* Authority G.S. 95-131;

*Recodified from 13 NCAC 07F .0201 Eff. August 3, 2005;*

*Pursuant to G.S. 150B-21.3A rule is necessary without substantive public interest Eff. March 1, 2016.*

### **13 NCAC 07F .0702 DEFINITIONS**

Additions and amendments to 29 CFR 1926.914 Definitions apply throughout the Rules in this Section as follows:

- (a) "American Table of Distances" (also known as Quantity Distance Tables) – the current edition of the American Table of Distances for Storage of Explosives approved by the Institute of the Makers of Explosives.
- (b) "Approved storage facility" means – A facility for the storage of explosive materials conforming to the requirements of the Rules in this Section and covered by a license or permit issued under authority of the Bureau of Alcohol, Tobacco and Firearms. (See 27 CFR Part 55.)
- (c) "Blast area" – The area within the influence of flying debris, gases, and concussion from an explosion that may cause injury to property or persons.
- (e) "Blasting agent" – A blasting agent is a mixture consisting of a fuel and oxidizer used for blasting where the finished (mixed) product cannot be detonated with a No. 8 test blasting cap when confined.
- (j) "Detonator" – Blasting caps, electric blasting caps, electric delay blasting caps, and non-electric delay blasting caps.
- (k) "Electric detonator" – A detonator designed for and capable of detonation by means of an electric current.
- (l) "Electric blasting circuitry"
  - (1) Bus wire. – An expendable wire, used in parallel or series, in parallel circuits, to which are connected the leg wires of electric detonators.
  - (2) Connecting wire. – An insulated expendable wire used between electric detonators and the leading wires or between the bus wire and the leading wires.
  - (3) Lead wire. – An insulated wire used between the electric power source and the electric detonator circuit.

- (4) Permanent firing line. – A permanently mounted insulated wire used between the electric power source and the electric detonator circuit.
- (m) "Electric delay detonators" – Detonators designed to detonate at a predetermined period of time after energy is applied to the ignition system.
- (n) "Explosives"
  - (1) Any chemical compound, mixture, or device, the primary or common purpose of which is to function by explosion; that is, with substantially instantaneous release of gas and heat, unless such compound, mixture or device is otherwise specifically classified by the U.S. Department of Transportation (USDOT).
  - (2) Any material designated as a Class 1 Explosive by the USDOT. Under the USDOT classification system, Class 1 materials are divided into the following six divisions:

Division 1.1 - Mass exploding (Formerly Class A)

Division 1.2 - Projection hazard (Formerly Class A or B)

Division 1.3 - Fire hazard, minor blast or projection hazard (Formerly Class B)

Division 1.4 - Minor explosion hazard, not mass detonating (Formerly Class C)

Division 1.5 - Insensitive explosives, very little probability of initiation or transition from burning to detonation during transport. (Formerly Blasting Agent).

Division 1.6 - Insensitive articles which do not mass detonate. (No commercial explosives in this division)

- (p) "Magazine" – Any container, building or structure, other than an explosives manufacturing building, used for the storage of explosives.
- (s) "Non-electric delay detonator" – A detonator with an integral delay element in conjunction with and capable of being detonated by a detonation impulse or signal from miniaturized detonating cord or shock tube.
- (v) "Safety fuse" – A flexible cord containing an internal burning medium by which fire is conveyed at a continuous and uniform rate for the purpose of firing detonators.
- (x) "Stemming" – An inert incombustible material or device used to confine or separate explosives in a drill hole, or to cover explosives in mud-capping.
- (z) "Water-based explosives" – Explosive materials that contain substantial quantities of water in their formulation. They may be bulk or packaged products and may be cap sensitive or non cap sensitive (blasting agents). Examples of water-based explosives include emulsions, slurries and water gels.
- (bb) "Appropriate authorities" or "Authorities having jurisdiction" – local, State and federal law enforcement authorities required to be notified by law or permit or the Rules in this Section.
- (cc) "Blaster-in-Charge" – The person who meets the qualifications contained in §1926.901 and who is authorized to oversee the blasting operations and to use explosives for blasting purposes.
- (dd) "Blast site" – The area where explosive material is handled during loading, including the perimeter formed by loaded blast holes, and 50 feet (15.2 meters) in all directions from loaded holes. A minimum distance of 30 feet (9.1 meters) may replace the 50 feet (15.2 meters) if the perimeter of loaded holes is demarcated with a barrier. The 50 feet (15.2 meters) and alternative 30 feet (9.1 meters) requirements also apply in all directions along the full depth of the holes. In underground mines, 15 feet of solid rib or pillar may be substituted for the 50 feet distance.
- (ee) "Shock tube" – A small diameter plastic tube used for initiating detonators. Shock tube contains a limited amount of reactive material so that the energy transmitted through the tube by means of detonation wave is guided through, and confined within, the walls of the tube.
- (ff) "Blasting operation" – Any work or activities associated with the use of explosives on a blast site.
- (gg) "Attended" – Presence of an individual or continuous monitoring to prevent unauthorized entry or access.

*History Note:* Authority G.S. 95-131;

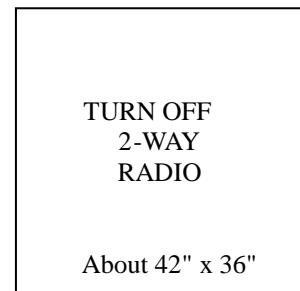
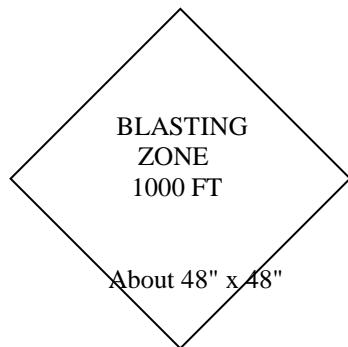
*Recodified from 13 NCAC 07F .0201 Eff. August 3, 2005;*

*Pursuant to G.S. 150B-21.3A rule is necessary without substantive public interest Eff. March 1, 2016.*

## **13 NCAC 07F .0703 GENERAL PROVISIONS**

Additions and amendments to 29 CFR 1926.900 General Provisions apply throughout the Rules in this Section as follows:

- (a) The employer shall permit only persons qualified pursuant to §1926.901 to handle and use explosives. A blaster shall be in charge of each blasting operation; hereafter, referred to as the Blaster-in-Charge.
- (b) Smoking, firearms, sparks, open flame or heat producing devices shall be prohibited where explosives are being stored, handled, transported or used. Exception: This does not apply to devices specifically designed to initiate detonation, which by their nature produce heat or sparks. See 1926.901(b).
- (c) All explosives shall be accounted for at all times. Explosives not being used and not attended shall be kept in a magazine or container that meets the U.S. Bureau of Alcohol, Tobacco and Firearms (hereafter, ATF) storage and access requirements contained in 27 CFR Part 55, which is incorporated herein by reference, including any subsequent amendments and editions. Each employer shall maintain an inventory and use record of all explosives in that employer's possession. The employer, or employer authorized person, shall comply with all applicable local, State and federal laws and regulations requiring notification of any loss, theft, or unauthorized entry into a magazine or container.
- (g) Original containers, ATF Type 2, Type 3, Type 4 or Type 5 magazines or Institute of Makers of Explosives (hereafter, IME) - 22 containers, shall be used for taking detonators and other explosives from storage magazines to the blast site.
- (h) In proximity to people, a structure, railway, highway or any other installation, the blaster shall take additional precautions to control the throw of fragments and to prevent bodily injury to employees and people not working directly on the blasting operation. Such additional precautions shall be taken in the loading, delaying, initiation and confinement of each blast and shall include confinement with mats or with mats and other methods.
- (i) All blast site employees shall follow the directions of the Blaster-in-Charge. All blast site employees shall use and adhere to every precaution to ensure employee safety including, but not limited to, visual and audible warning signals, flags, or barricades.
- (k) Precautions shall be taken to prevent accidental discharge of electric detonators from current induced by radar, radio transmitters including 2-way radios and mobile telephones, lightning, adjacent powerlines, dust storms, or other sources of extraneous electricity. These precautions shall include:
  - (1) See Section 1926.906(a) and (b).
  - (2) At the approach and progress of an electric storm, blasting operations shall be suspended and personnel removed to an area safe from concussion (shock wave), flying material, or gases from an explosion.
  - (3) The prominent display of adequate signs, warning against the use of mobile radio transmitters, (e.g., telephones and 2-way radios) on all roads within 1,000 feet of electric blasting operations. If adherence to the 1,000-foot distance would create an operational handicap, then a competent person (as defined in 29 CFR 1926 Subparts L and P) shall be consulted to evaluate the particular situation, and alternative provisions may be made which are designed to prevent any premature firing of electric detonators. A description of any such alternatives shall be reduced to writing and shall be certified by the competent person consulted as meeting the purposes of this subdivision. The description shall be maintained at the construction during the duration of the work, and shall be available for inspection by representatives of the Commissioner of Labor.
  - (ii) Examples of signs which would meet the requirements of paragraphs (i) and (k)(3) of this section are the following:



- (4) Ensuring that mobile transmitters including telephones and 2-way radios which are less than 100 feet away from electric detonators, in other than original containers, shall be de-energized and effectively prevented from operating, (e.g., locked);
- (5) The Blaster-in-Charge shall comply with the recommendations of IME with regard to blasting in the vicinity of radio transmitters as stipulated in Safety Guide for the Prevention of Radio Frequency Radiation Hazards in the Use of Commercial Electric Detonators (Blasting Caps), IME Safety Library Publication No. 20, 2000, which is incorporated herein by reference, including any subsequent amendments and editions.
- (l) Empty boxes and associated paper and fiber packing materials, which have previously contained explosives, shall not be used for any purpose, other than that associated with the blasting operation. Such boxes, paper and packing materials shall be disposed of in a manner that prevents reuse and does not constitute a hazard. Disposal may include but shall not be limited to burning. The method used for disposal shall comply with all applicable local, State or federal laws.
- (n) Delivery and issue of explosives shall only be made by and to authorized persons (as defined in 27 CFR Part 55) and into magazines or temporary storage or handling areas that meet the ATF storage requirements contained in 27 CFR Part 55.
- (o) Blasting operations in the proximity of overhead power lines, communication lines, utility services, or other services and structures shall not commence until the operators or owners have been notified and measures for safe control have been taken.
- (q) All loading and firing shall be directed and supervised by the Blaster-in-Charge.
- (r) All blasts shall be fired under the control of a blaster, with an initiation system in accordance with manufacturer's recommendations. All blasts shall be fired in accordance with the manufacturer's recommendations.
- (s) Buildings used for the mixing of blasting agents or water-based explosives shall conform to the requirements of this section.
  - (3) All fuel oil storage facilities shall be separated from the mixing plant and located in such a manner that in case of tank rupture, the oil will be contained and will not drain toward the mixing plant building.
  - (4) The building shall be adequately ventilated to prevent explosive or hazardous substance hazards.
  - (5) Heating units may be used in the building if they do not depend on combustion processes, and are properly designed and located to prevent explosive or other hazards. All direct sources of heat shall be provided exclusively from units located outside the mixing building.
  - (6) All internal-combustion engines used for electric power generation shall be located outside the mixing plant building, or shall be isolated by a firewall and shall be properly ventilated to prevent explosive or exhaust gas hazards to employees. The exhaust systems on all such engines shall be located so any heat or spark generated or emitted cannot be a hazard to any materials in or adjacent to the plant.
- (t) See .900(s).
  - (1) See .900(s)(1).
  - (2) See .900(s)(2).
  - (3) See .900(s)(3).
  - (4) See .900(s)(4).
  - (5) See .900(s)(5).
  - (6) See .900(s)(6).
- (u) To guard against unauthorized entry or initiation of a blast, a blast site shall be attended if loading is suspended or loaded holes are awaiting firing. Additionally, the blast site shall be barricaded, posted, and flagged as necessary to prevent unauthorized access.
- (v) No one shall carry explosives or explosives detonating materials (e.g., blasting caps, detonators, fuse, primers) of any kind on his or her person. This does not prohibit hand-carrying or passing such materials when a hole is being loaded.

*History Note:*

*Authority G.S. 95-131;*

*Recodified from 13 NCAC 07F .0201 Eff. August 3, 2005;*

*Pursuant to G.S. 150B-21.3A rule is necessary without substantive public interest Eff. March 1, 2016.*

### **13 NCAC 07F .0704 BLASTER QUALIFICATIONS**

Additions and amendments to 29 CFR 1926.901 Blaster Qualifications apply throughout the Rules in this Section as follows:

- (a) Blasters shall be able to understand and give written and oral orders.
- (b) Blasters and others authorized to handle or transport explosive materials or conduct blast site activities shall be in sufficiently good physical condition to perform the work safely and not be addicted to, or under the influence of, narcotics, intoxicants, or similar types of drugs.
- (c) Blasters shall be qualified, by reason of training, knowledge, or experience, in the field of transporting, storing, handling, and use of explosives, and have a working knowledge of State, federal and local laws and regulations which pertain to explosives.
- (d) Blasters shall be required by the employer to furnish evidence satisfactory to the employer of competency in handling explosives and performing in a safe manner the type of blasting that will be required.
- (e) Blasters shall be knowledgeable in the use of each type of blasting method used.
- (f) Pursuant to 29 CFR 1926.21(b), the employer shall instruct each employee in the recognition and avoidance of unsafe conditions and the regulations applicable to the employee's work and work environment.

*History Note: Authority G.S. 95-131;*

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### **13 NCAC 07F .0705 SURFACE TRANSPORTATION OF EXPLOSIVES**

Additions and amendments to 29 CFR 1926.902 Surface Transportation of Explosives apply throughout the Rules in this Section as follows:

- (a) Surface transportation of explosives and blasting agents shall be in accordance with applicable U.S. Department of Transportation (hereafter, DOT) regulations. Where DOT regulations do not normally apply (e.g., off-road vehicles), compliance shall be in accordance with either the directly related DOT regulation or 1926.902(b) through 1926.902(1), as applicable. Where DOT regulations do not exist, 1926.902(b) through 1926.902(l) apply.
- (b) Motor vehicles or conveyances transporting explosives shall only be driven by, and be in the charge of, a licensed driver. The driver shall be familiar with the local, State, and Federal regulations governing the transportation of explosives.
- (d) Explosives, blasting agents, and blasting supplies shall not be transported with other materials or cargoes. Blasting caps and detonators shall not be transported in the same vehicle with other explosives unless the provisions of the IME Safety Publication No. 22, "Recommendations for the Safe Transportation of Detonators in a Vehicle with other Explosive Materials," which is incorporated herein by reference including subsequent amendments and editions, are followed.
- (f) When explosives are transported by a vehicle with an open body, an ATF Type 2, ATF Type 3, IME 22 or original manufacturer's container shall be securely attached to the vehicle to contain the cargo.
- (h) Every motor vehicle or conveyance used for transporting explosives shall be marked or placarded on both sides, the front, and the rear with the word "Explosives" in red letters, not less than 4 inches in height, on white background. The motor vehicle or conveyance may also display, in such a manner that it will be readily visible from all directions, a red flag 18 inches by 30 inches, with the word "Explosives" painted, stamped, or sewed thereon, in white letters, at least 6 inches in height.
- (i) Each vehicle used for transportation of explosives shall be equipped with a fully charged fire extinguisher, in good condition (as described in 29 CFR 1926.150). An extinguisher, approved by a nationally recognized testing laboratory, of not less than 10-ABC rating will meet the minimum requirement. The driver shall be trained in the use of the extinguisher on the vehicle.

- (j) Motor vehicles or conveyances carrying explosives or blasting agents, shall not be taken inside a garage or shop for repairs or servicing.
- (l) In order to prevent explosives hazards, explosive materials shall be transported to the storage or blast site without delay.

*History Note:* Authority G.S. 95-131;  
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### **13 NCAC 07F .0706 UNDERGROUND TRANSPORTATION OF EXPLOSIVES**

Additions and amendments to 29 CFR 1926.903 Underground Transportation of Explosives apply throughout the Rules in this Section as follows:

- (a) In order to prevent explosives hazards, all explosives or blasting agents in transit underground shall be taken to the place of use or storage without delay.
- (b) The quantity of explosives or blasting agents taken to an underground loading area shall not exceed the amount estimated by the Blaster-in-Charge to be necessary for the blast.
- (h) Vehicles containing explosive material shall be occupied only by persons necessary for handling the explosive material while in transit.
- (m) Any powder car or conveyance used for transporting explosives or blasting agents shall bear a reflecting sign on each side with the word "Explosives". The sign's letters shall be a minimum of 4 inches in height and shall be on a background of sharply contrasting color.
- (n) Compartments for transporting detonators and explosives in the same car or conveyance shall meet IME-22 container specifications or shall be physically separated by a distance of 24 inches or by a solid partition at least 6 inches thick.
- (q) Explosives or blasting agents, not in original containers, shall be placed in a nonconductive, closed container when transported manually.

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### **13 NCAC 07F .0707 STORAGE OF EXPLOSIVES AND BLASTING AGENTS**

Additions and amendments to 29 CFR 1926.904 Storage of Explosives and Blasting Agents apply throughout the Rules in this Section as follows:

- (a) Explosives and blasting agents shall be stored in magazines or containers that meet the applicable provisions of the regulations contained in 27 CFR Part 55, Commerce in Explosives.
- (b) Blasting caps and other detonators shall not be stored in the same magazine or container with other explosives or blasting agents. Surplus primers shall be disassembled and components stored separately.
- (c) Smoking and open flames shall not be permitted within 50 feet of explosive, detonators, or blasting agents storage.
- (d) No explosives or blasting agents shall be permanently stored in any underground operation until the operation has at least two modes of exit.
- (e) Permanent underground explosive materials storage shall be at least 300 feet from any shaft, edit, or active underground working area.
- (f) Permanent underground explosive materials storage containing detonators shall not be located closer than 50 feet to any storage containing other explosives or blasting agents.

*History Note:* Authority G.S. 95-131;  
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### **13 NCAC 07F .0708 LOADING OF EXPLOSIVES OR BLASTING AGENTS**

Additions and amendments to 29 CFR 1926.905 Loading of Explosives or Blasting Agents apply throughout the Rules in this Section as follows:

- (a) Procedures that permit safe and efficient loading shall be established by the Blaster-in-Charge or the employer before loading is started.
- (b) Drill holes shall be sufficiently large to admit easy insertion of the cartridges of explosives.
- (c) Tamping shall be done only with non-metal, non-sparking tamping poles without exposed metal parts, except that nonsparking metal connectors may be used for jointed poles. Violent tamping shall be prohibited. The primer shall never be tamped.
- (d) No holes shall be loaded except those to be fired in the next round of blasting. After loading, remaining explosives and detonators shall be promptly moved to a safe location and attended or stored pursuant to ATF storage requirements contained in 27 CFR Part 55.
- (e) Drilling shall not be started until all visible butts of old holes are examined for unexploded charges, and if any are found, they shall be disposed of in accordance with 1926.911, before work proceeds.
- (h) Machines, personnel and tools not required for the blasting operation shall be removed from the blast site before explosives are removed from storage or transportation vehicles. Blasting operation related vehicles or equipment shall not be driven over, or near enough to, explosive material or initiation systems to come into contact with the explosive material or initiation systems. Equipment not needed for the final blast shall not be operated within 50 feet of loaded holes.
- (i) During loading the only activity permitted within the blast site shall be that required to successfully and safely load the hole.
- (j) Power lines and portable electric cables for equipment being used shall be kept a safe distance from explosives or blasting agents. The blaster shall assure that cables in the proximity of loaded holes are deenergized and locked out. Additionally, when using electric detonators, the provisions of 1926.906(b) apply.
- (k) Holes shall be checked prior to loading to determine depth and conditions. Only those holes determined by the Blaster-in-Charge to be satisfactory shall be loaded.
- (l) When loading a line of holes with more than one loading crew, the crews shall be separated by practical distance consistent with safe and efficient operation and supervision of crews.
- (m) No explosive shall be loaded or used underground in the presence of combustible gases or combustible dusts, unless the work is performed in accordance with the Mine Safety and Health Administration (MSHA) standards at 30 CFR 75 related to such environments, which are incorporated herein by reference, including subsequent amendments and editions, and unless the explosives have been approved as permissible explosives for use in gassy or dusty environments by MSHA.
- (n) No explosives other than those in IME Fume Class 1 shall be used. However, explosives complying with the requirements of IME Fume Class 2 and IME Fume Class 3 may be used if adequate ventilation has been provided to prevent explosive or hazardous substance hazards to employees.
- (q) A bore hole shall never be sprung when there is a risk of a premature detonation of a loaded hole.
- (s) Areas in which loading is suspended or loaded holes are awaiting firing shall be attended, and barricaded, posted, or flagged as needed to guard against unauthorized entry or initiation.
- (t) The blaster shall keep an accurate, up-to-date record of explosives, blasting agents, and blasting supplies used in each blast and shall keep an accurate running inventory of all explosives and blasting agents in the blaster's custody.
- (u) When loading blasting agents pneumatically over electric detonators, semiconductive delivery hose shall be used and the equipment shall be bonded and grounded.
- (v) Primers shall be made up just before their time of use and at the point of use.
- (w) Holes shall not be drilled in a manner that disturbs or intersects a loaded hole.

*History Note:*

*Authority G.S. 95-131;*

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*Pursuant to G.S. 150B-21.3A rule is necessary without substantive public interest Eff. March 1, 2016.*

## **13 NCAC 07F .0709 INITIATION OF EXPLOSIVE CHARGES-ELECTRIC BLASTING**

Additions and amendments to 29 CFR 1926.906 Initiation of Explosive Charges-Electric Blasting apply throughout the Rules in this Section as follows:

- (a) Electric detonators shall not be used where sources of extraneous electricity make the use of electric detonators dangerous. Except during testing, electric detonator leg wires shall be kept short-circuited (shunted) until they are connected into the circuit for firing.
- (b) If the presence of extraneous electricity is possible, the blaster shall conduct a stray current survey. No holes shall be loaded using electric detonators until the danger of extraneous electricity is eliminated.
- (c) In any single blast using electric detonators, all detonators shall be of the same style or function, and of the same manufacture.
- (d) Electric initiation shall be carried out by using blasting machines or power circuits in accordance with the manufacturer's recommendations.
- (e) When firing a circuit of electric detonators, an adequate quantity of delivered current must be available, in accordance with the manufacturer's recommendations.
- (h) When firing electrically, the insulation on all firing lines shall be in good condition and shall be adequate to prevent voltage leaks.
- (i) A power circuit used for firing electric detonators shall not be grounded.
- (k) In underground operations there shall be a "lightning" gap of at least 15 feet in the firing system ahead of the main firing switch; that is, between this switch and the source of power. This gap shall be bridged by a flexible jumper cord just before firing the blast.
- (n) When firing with blasting machines, the connections shall be made as recommended by the manufacturer of the electric detonators used.
- (o) The number of electric detonators connected to a blasting machine shall not be in excess of its rated capacity. A series circuit shall contain no more detonators than the limits recommended by the manufacturer of the electric detonators in use.
- (p) A blaster shall be in charge of the blasting machines.
- (q) A blaster shall test blasting circuits for:
  - (1) Continuity of electric detonator in the blast hole prior to stemming and connection of the blasting line.
  - (2) Resistance of individual series or the resistance of multiple balanced series to be connected in parallel prior to their connection to the blasting line.
  - (3) Continuity of blasting lines prior to the connection of electric detonator series.
  - (4) Total blasting circuit resistance prior to connecting to the power source. A blasting galvanometer, or other instrument specifically designed for testing blasting circuits, shall be used to conduct these tests.
- (r) Whenever the possibility exists that a leading line or blasting wire might be thrown over a live power line by the force of an explosion, the total length of wires shall be kept too short to hit the lines, or the wires shall be securely anchored to the ground. If neither of these requirements can be satisfied, a nonelectric system shall be used.
- (s) The blaster shall assure that all connections are made from the bore hole back to the source of firing current, and that the leading wires remain shorted, except during testing, and not connected to the blasting machine or other source of current until the blast is to be fired. Only the blaster, or a qualified person (as described in 1926.900(a) and 1926.901) under the direct control of the blaster, shall make lead wire connections or fire the shot.

*History Note:* Authority G.S. 95-131;

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## **13 NCAC 07F .0710 USE OF SAFETY FUSE**

Additions and amendments to 29 CFR 1926.907 Use of Safety Fuse apply throughout the Rules in this Section as follows:

- (a) A safety fuse that has been hammered or injured in any way shall not be used.

- (d) Only a cap crimper shall be used for attaching blasting caps to safety fuse. Crimpers shall be kept in good repair and accessible for use.
- (h) Safety fuses of at least the following minimum lengths shall be used:
  - (1) At least a 36-inch length for 40-second-per-foot safety fuse and
  - (2) At least a 48-inch length for 30-second-per-foot safety fuse.
- (i) At least two people shall be present when multiple cap and fuse blasting is done by hand lighting methods.

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Pursuant to G.S. 150B-21.3A rule is necessary without substantive public interest Eff. March 1, 2016.

### **13 NCAC 07F .0711 USE OF DETONATING CORD AND SHOCK TUBE**

Additions and amendments to 29 CFR 1926.908 Use of Detonating Cord and Shock Tube apply throughout the Rules in this Section as follows:

- (a) A detonating cord consistent with the type and physical condition of the bore hole and stemming and the type of explosives shall be used.
- (b) Detonating cord shall be handled and used in the same manner as other explosives.
- (d) Detonating cord shall be handled and used with care to avoid damaging or severing the cord during and after loading and hooking-up. Shock tube shall never be pulled, stretched, kinked, twisted, mashed or abused in any way which could cause the tube to break or otherwise malfunction.
- (e) Detonating cord connections, shock tube connections and splices shall be competent and positive in accordance with the manufacturer's recommendations. Knot-type or other cord-to-cord connections shall be made only with detonating cord in which the explosive core is dry. Down-the-hole shock tube splices are prohibited.
- (g) All detonating cord connections, shock tube connections and splices shall be inspected before firing the blast.
- (h) When detonating cord or shock tube millisecond-delay connectors or short-interval-delay electric detonators are used with detonating cord or shock tube, the practice shall conform strictly to the manufacturer's recommendations.
- (i) When connecting a detonator to detonating cord or shock tube, the detonator shall be taped or otherwise attached securely along the side or the end of the detonating cord, with the end of the detonator containing the explosive charge pointed in the direction in which the detonation is to proceed.
- (k) Shock tube shall not be connected to the initiation device until the blast is to be fired.

*History Note:* Authority G.S. 95-131;  
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Pursuant to G.S. 150B-21.3A rule is necessary without substantive public interest Eff. March 1, 2016.

### **13 NCAC 07F .0712 FIRING THE BLAST**

Additions and amendments to 29 CFR 1926.909 Firing the Blast apply throughout the Rules in this Section as follows:

- (a) The Blaster-in-Charge shall establish a code of blasting signals and all blast site employees shall familiarize themselves with and conform to the code. As a minimum, the code shall:
  - (1) contain audible pre-blast and audible all clear signals, and
  - (2) contain an emergency method for guards, flagmen, or other authorized employees to signal "do not fire", and
  - (3) prohibit sounding of the all clear signal until the blaster has checked the blast site for misfires. Table U-1 is an example of a code of blasting signals that would meet these requirements. Further, the Blaster-in-Charge shall require the placement of Danger signs and posting of the blasting signals when personnel not associated with the blasting operation are within the blast area.

- (b) Before a blast is fired, the Blaster-in-Charge shall make certain that all surplus explosives are in an area meeting the ATF explosive storage requirements contained in 27 CFR 55 and that all persons are at a safe distance, or under sufficient cover.
- (c) Flagmen shall be safely stationed on highways which pass through the blast area so as to stop traffic during blasting.
- (d) The Blaster-in-Charge shall fix the time of blasting.
- (e) Before firing an underground blast, warning shall be given, and all possible entries into the blast area, and any entrances to any working place where a drift, raise, or other opening is about to hole through, shall be carefully guarded to prevent entry into the area. The Blaster-in-Charge shall make sure that all surplus employees have been removed from the blast area and that all personnel are out of the blast area.

*History Note:* Authority G.S. 95-131.

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#### **13 NCAC 07F .0713 INSPECTION AFTER BLASTING**

Additions and amendments to 29 CFR 1926.910 Inspection After Blasting apply throughout the Rules in this Section as follows:

- (b) Sufficient time shall be allowed, not less than 15 minutes in tunnels, for the smoke and fumes to dissipate before returning to the blast site. Subsequently, the blaster shall inspect the blast site and surrounding rubble for signs of misfires. If a misfire is found, employee access to the blast area shall be controlled pursuant to 1926.911. Where fumes, fire, or dust are a potential hazard (e.g., in tunnels), the muck pile shall be wetted down prior to general employees returning to the blast site.

*History Note:* Authority G.S. 95-131;

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*Pursuant to G.S. 150B-21.3A rule is necessary without substantive public interest Eff. March 1, 2016.*

#### **13 NCAC 07F .0714 MISFIRES**

Additions and amendments to 29 CFR 1926.911 Misfires apply throughout the Rules in this Section as follows:

- (a) If a misfire is found, the Blaster-in-Charge shall invoke sufficient safeguards to exclude all employees from the potential blast area.
- (b) No work shall be done except that necessary to remove the hazard of the misfire. Only those employees necessary to do the work shall enter the potential blast area. Only the Blaster-in-Charge, and the absolute minimum number of competent, personnel (as defined in 29 CFR 1926 Subparts Land P), necessary to assess the situation shall approach the hole to inspect the misfire.
- (c) The Blaster-in-Charge shall determine the safest steps for removing the hazard of the misfire. During development and implementation of these steps, the Blaster-in-Charge shall comply with the manufacturer's recommendations. Further, the guidelines of the Safety in the Transportation, Storage, Handling and Use of Explosive Materials, IME Safety Library Publication No. 17, which is incorporated herein by reference, including any subsequent amendments and editions, shall be utilized.
- (d) If there are any misfires while using safety fuse and blasting cap, all employees shall remain out of the potential blast area for at least 30 minutes. If electric detonators, shock tube, gas tube or detonating cord systems or materials were used and a misfire occurred, the waiting period may be reduced to 15 minutes. In either case, the Blaster-in-Charge shall assess the circumstances and invoke a safe waiting period before allowing any personnel to enter the potential blast area. All lines shall be carefully traced and a search made for unexploded charges.
- (e) No drilling, digging, or picking shall be permitted until all misfires have been detonated or the Blaster-in-Charge approves the work.

*History Note:* Authority G.S. 95-131;

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*Pursuant to G.S. 150B-21.3A rule is necessary without substantive public interest Eff. March 1, 2016.*

### **13 NCAC 07F .0715 UNDERWATER BLASTING**

Additions and amendments to 29 CFR 1926.912 Underwater Blasting apply throughout the Rules in this Section as follows:

- (a) In underwater blasting, no shot shall be fired without the approval of the Blaster-in-Charge.
- (c) Only water-resistant detonators and detonating cords shall be used for all marine blasting. Loading shall be done through a nonsparking loading tube when tube is necessary.
- (d) No blast shall be fired while any vessel under way is closer than 1,500 feet to the blast site. Those on board vessels or craft moored or anchored within 1,500 feet shall be notified before a blast is fired. Note: The warning signals and personnel safety provisions of 1926.909 also apply.
- (g) The storage and handling of explosives aboard vessels used in underwater blasting operations shall be in accordance with the provisions of this Standard on handling and storing explosives.
- (h) Prior to firing the blast, the blaster shall determine the method(s) that will be used for detecting misfires and take preparatory steps (e.g., noting obvious indications of misfire, attaching float(s) that will be released by the firing, staging underwater cameras, or other appropriate means). Misfires shall be handled in accordance with the requirements of 1926.911.

*History Note: Authority G.S. 95-131;*

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### **13 NCAC 07F .0716 BLASTING IN EXCAVATION WORK UNDER COMPRESSED AIR**

Additions and amendments to 29 CFR 1926.913 Blasting in Excavation Work Under Compressed Air apply throughout the Rules in this Section as follows:

- (b) When detonators or explosives are brought into an air lock, the only employees who shall be permitted to enter the airlock are the powderman, blaster, lock tender and the employees necessary for carrying the detonators or explosives. No other material, supplies, or equipment shall be locked through with the explosives.
- (d) See 1926.900(a) and 1926.901.
- (f) The explosives suitable for use in wet holes shall be water-resistant and shall be IME Fume Class 1.

*History Note: Authority G.S. 95-131;*

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## **SECTION .0900 - CRANES AND DERRICKS STANDARDS**

### **13 NCAC 07F .0901 SCOPE**

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*Temporary Adoption Eff. October 1, 2009;*

*Eff. September 1, 2010;*

*Temporary Repeal Eff. November 8, 2010;*

*Repealed Eff. February 1, 2011.*

#### **13 NCAC 07F .0902 INCORPORATION BY REFERENCE**

#### **13 NCAC 07F .0903 DEFINITIONS**

#### **13 NCAC 07F .0904 OPERATOR QUALIFICATION AND CERTIFICATION**

#### **13 NCAC 07F .0905 SIGNAL PERSON QUALIFICATION**

#### **13 NCAC 07F .0906 MAINTENANCE AND REPAIR EMPLOYEE QUALIFICATION**

#### **13 NCAC 07F .0907 TRAINING**

13 NCAC 07F .0908	<b>FALL PROTECTION</b>
13 NCAC 07F .0909	<b>DESIGN, CONSTRUCTION AND TESTING</b>
13 NCAC 07F .0910	<b>EQUIPMENT WITH A RATED HOISTING/LIFTING CAPACITY OF 2,000 POUNDS OR LESS</b>
13 NCAC 07F .0911	<b>EQUIPMENT MODIFICATIONS</b>
13 NCAC 07F .0912	<b>ASSEMBLY AND DISASSEMBLY OF EQUIPMENT</b>
13 NCAC 07F .0913	<b>POWER LINE SAFETY</b>
13 NCAC 07F .0914	<b>WIRE ROPE</b>
13 NCAC 07F .0915	<b>INSPECTIONS</b>
13 NCAC 07F .0916	<b>OPERATION OF EQUIPMENT</b>
13 NCAC 07F .0917	<b>OPERATIONAL AIDS</b>
13 NCAC 07F .0918	<b>SAFETY DEVICES</b>
13 NCAC 07F .0919	<b>SIGNALS</b>
13 NCAC 07F .0920	<b>HOISTING PERSONNEL</b>
13 NCAC 07F .0921	<b>TOWER CRANES</b>
13 NCAC 07F .0922	<b>DERRICKS</b>
13 NCAC 07F .0923	<b>FLOATING CRANES/DERRICKS AND LAND CRANES/DERRICKS ON BARGES</b>
13 NCAC 07F .0924	<b>OVERHEAD &amp; GANTRY CRANES</b>
13 NCAC 07F .0925	<b>DEDICATED PILE DRIVERS</b>
13 NCAC 07F .0926	<b>SIDEBOOM CRANES</b>
13 NCAC 07F .0927	<b>OPERATOR CERTIFICATION – WRITTEN EXAMINATION – TECHNICAL KNOWLEDGE CRITERIA</b>

*History Note:* Authority G.S. 95-13;  
*Eff.* October 1, 2009;  
*Temporary Repeal Eff.* November 8, 2010;  
*Repealed Eff.* February 1, 2011.