Title: RN3272 FLUSAR Trench and Excavation Rescue Technician

Effective Date: May 01, 2016
Revision Date: July 16, 2019

Section I - Course Information

Course Title: FLUSAR Trench and Excavation Rescue Technician
Course Number(s): RN3272

Class Days/Time: If being taught at the Florida State Fire College Campus 11655 NW Gainesville Road, Ocala, FL 34482 Bldg. C – Classrooms – Monday - Friday 8 a.m.- 5 p.m.

Section II - Points of Contact

Training Supervisor:
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Section III – Course Description

Trench Rescue Technician provides the student with the necessary knowledge to mitigate incidents involving trench or excavation collapse that meet or exceed NFPA 1670. Topics will include:

-Hazard recognition
-Equipment utilization
-Atmospheric monitoring
-Trench support shoring
-Patient/Victim packaging and removal
-Various techniques necessary to operate safely and effectively at excavation emergencies involving collapse or failure of individual intersecting and non-intersecting trenches with an initial depth of 8 feet or less.

Section IV - Course Materials, Grading, and Attendance

Recommended Book: Copy of NFPA 1670 and Florida Trench Rescue Operations Task Book (DFS-K4-2155)

Prerequisite(s): RN3268 FLUSAR Rope Rescue Operations and RN3269 FLUSAR Trench and Excavation Rescue Operations

*Additional courses that maybe required:
RN3265 FLUSAR Confined Space Rescue Operations
RN3267 FLUSAR Vehicle Machinery Rescue Operations

Contact Hours: This class has 16 contact hours.

Continuing Educations Units (CEU's): None

Pre-Course Assignment: None

Required Materials: A complete materials list can be obtained by going to the provided hyper link at: http://www.flrules.org/Gateway/reference.asp?No=Ref-07251

NOTE: Students must bring gloves, hardhat and proper attire for trench rescue exercises.

Grading: Students must achieve a minimum cumulative score of 70% to pass this course. Course grades are determined from assignments and activities including, but not limited to homework, projects, quizzes, exams, presentations and practical skills. The instructor also has the discretion to award **(but not deduct)** points based on course participation. Below is the breakdown of the final accumulative grading:

- Homework 20 points
- Final Written Exam 40 points
- Final Practical Exam 40 points

Attendance: Students are required to attend all sessions of the course.

- Excused absences - Students are permitted excused absences totaling no more than 10% of class (1.5 hours maximum); the instructor shall be the sole determining authority in the determination of an excused absence and may assign supplemental work to make up for missed class time.
- Unexcused absences - The instructor shall be the sole determining authority in the determination of an unexcused absence (i.e. "no call, no show"). The instructor has no obligation to offer the student an opportunity to make up assignments, including quizzes and/or exams, but may do so at his/her discretion.

Section V - Instructor Qualifications

As per Chapter 69A-37.065, Florida Administrative Codes, *Programs of Study and Vocational Courses*, instructors must meet the following qualifications to be authorized to teach this course:

F.A.C. 69A-37.065(7)(h)(3) Instructor Qualifications: An instructor providing training under this paragraph (h), must be qualified by the Bureau of Fire Standards and Training within the Division. Qualified instructors are:

3. Instructor Qualifications. An instructor providing training under this section must be qualified by the Bureau. All instructors shall submit an Instructor Approval Request Form DFS-K4-2168, at this link: https://floridastatefirecollege.org/provider/pr_instructor_app.asp, which is incorporated by reference in subsection 69A-37.039(2), F.AC., and can be obtained where indicated in subsection 69A-37.039(1), F.A.C., and be approved by the Bureau prior to the first day of the course. Qualified instructors are:

a. Instructors with requisite faculty credentials for the academic institution that is registered in the Florida Department of Education Statewide Course Numbering System to teach the course; or

b. Instructors with requisite faculty credentials as determined by the United States Fire Administration – National Fire Academy; or

c. Instructors with requisite faculty credentials as determined by the respective regionally accredited or nationally accredited university or college; or

d. Instructors who hold an active Single Course Exemption Certification issued by the Division as outlined in subsection 69A-37.059(4), F.A.C.; or

e. Florida Instructor I, II, or III, as defined in rule 69A-37.059, F.A.C., who has completed the required courses under this paragraph (7)(h), which are recorded in the Bureau's database. These instructors are known as Adjunct Instructors and are approved to teach courses under the supervision of a Lead Instructor; or

f. Florida Instructor I, II, or III, as defined in rule 69A-37.059, F.A.C., who has completed the required courses under this paragraph (7)(h), and has previously taught this course as an Adjunct Instructor which was recorded in the Bureau's database. These instructors are known as Lead Instructors.

Section VI – Job Performance Requirements Applicable Fire and Life Safety Initiatives

Given information from discussion and reading materials, the student will satisfy the Job Performance Requirements (JPR) of the applicable National Fire Protection Association (NFPA) standards, as well as any applicable skill sheets.

NFPA 1670, *Standard on Operations and Training for Technical Search and Rescue Incidents*, 2014 Edition

Chapter 11 Trench and Excavation Search and Rescue

11.1 General Requirements. Organizations operating at trench and excavation search and rescue incidents shall meet the requirements specified in Chapter 4.

11.2 Awareness Level.

11.2.1 Organizations operating at the awareness level at trench and excavation emergencies shall meet the requirements specified in Sections 11.2 and 7.2 (awareness level for confined space search and rescue).

11.2.2 Each member of the organization shall meet the requirements specified in Chapter 4 of NFPA 472, *Standard for Competence of Responders to Hazardous Materials/Weapons of Mass Destruction Incidents,* and shall be a competent person as defined in 3.320.

11.2.3 Organizations operating at the awareness level at trench and excavation emergencies shall implement procedures for the following:

(1) Recognizing the need for a trench and excavation rescue
(2)*Identifying the resources necessary to conduct safe and effective trench and excavation emergency operations
(3)*Initiating the emergency response system for trenches and excavations
(4)*Initiating site control and scene management
(5)*Recognizing general hazards associated with trench and excavation emergency incidents and the procedures necessary to mitigate these hazards within the general rescue area
(6)*Recognizing typical trench and excavation collapse patterns, the reasons trenches and excavations collapse, and the potential for secondary collapse
(7)*Initiating a rapid, nonentry extrication of noninjured or minimally injured victim (s)
(8)*Recognizing the unique hazards associated with the weight of soil and its associated entrapping characteristics

11.3 Operations Level

11.3.1 Organizations operating at the operations level at trench and extrication emergencies shall meet the requirements specified in Sections 11.2 and 11.3, as well as the following sections:

(1) Section 5.3 (operations level for rope rescue)
(2) Section 7.3 (operations level for confined space search and rescue)
(3) Section 8.3 (operations level for vehicle and machinery search and rescue)

11.3.2* Members shall be capable of recognizing the hazards of using equipment and operating at trench and excavation emergencies that include the collapse or failure of individual, nonintersecting trenches with an initial depth of 2.4 m (8ft) or less under the following conditions:

(1) No severe environmental conditions exist.
(2) Digging operations do not involve supplemental sheeting and shoring.
(3) Only traditional sheeting and shoring are used.

11.3.3 Organizations operating at the operations level at trench and excavation emergencies shall develop and implement procedures for the following:

(1)*Sizing up existing and potential conditions at trench and excavation emergencies
(2) Initiating entry into a trench or excavation rescue area
(3)*Recognizing unstable areas associated with trench and excavation emergencies and adjacent structures
(4)*Identifying probable victim locations and survivability
(5)* Making the rescue area safe, including the identification, construction, application, limitations, and removal of traditional sheeting and shoring using tubulated data and approved engineering practices
(6)*Initiating a one-call utility location service
(7)*Identifying soil types using accepted visual or manual tests
(8) Ventilating the trench or excavation space

(9) Identifying and recognizing a bell-bottom pier hole excavation and its associated unique hazards
(10) Placing ground pads and protecting the "lip" of a trench or excavation
(11)*Providing entry and egress paths for entry personnel
(12)*Conducting a pre-entry briefing
(13)*Initiating record keeping and documentation during entry operations
(14) Selecting, utilizing, and applying shield systems
(15)*Selecting, utilizing, and applying sloping and benching systems
(16) Identifying the duties of panel teams, entry teams, and shoring teams
(17) Assessing the mechanism of entrapment and the method of victim removal
(18)*Performing extrication

11.4 Technician Level

11.4.1 Organizations operating at the technician level at trench and excavation emergencies shall meet the requirements specified in this chapter and the following sections:
(1) Section 7.4 (technician level for confined space search and rescue)
(2) Section 8.4 (technician level for vehicle and machinery search and rescue)

11.4.2* Members shall be capable of recognizing hazards, using equipment, and operating at trench and excavation emergencies that include the collapse or failure of individual or intersecting trenches with an initial depth of more than 2.4 m (8ft) or where severe environmental conditions exist, digging operations involve supplemental sheeting and shoring, or manufactured trench boxes or isolation devices would be used.

11.4.3 Organizations operating at the technician level at trench and excavation emergencies shall develop and implement procedures for the following:
(1) Evaluating existing and potential conditions at trench and excavation emergencies
(2)*Identifying, constructing and removing manufactured protective systems consistent with the application and limitations of such systems using tabulated data and approved engineering practices
(3)*Monitoring continuously or at frequent intervals the atmosphere in all parts of the trench to be entered for oxygen content, flammability (LEL/LFL), and toxicity, in that order
(4) Identifying the construction, application, limitations, and removal of supplemental sheeting and shoring systems designed to create approved protective systems
(5) Adjusting the protective systems based on digging operations and environmental conditions
(6)*Rigging and placement of isolation systems

Section VII –Suggested Plan of Instruction

The following is the plan of instruction used during course offerings held at the Florida State Fire College. It also serves as the suggested instructional block format for other approved training providers who use the recommended text book. All class offerings **must** satisfy the JPRs listed in *Section VI – Job Performance Requirements* regardless of textbook used.

Day/Date	Chapters	Activities
Day 1	**Class Introductions and Orientation** Trench Rescue Overview Trench Rescue Equipment (overview/operation) Trouble Shooting Techniques Trench Rescue Evolutions (intersecting trench L or T)	• Introductions • Practical skills • Homework
Day 2	**Review of Homework** Trench Rescue Lecture Supplemental sheeting and shoring Trench Rescue Evolutions (intersecting trench L or T) **Final Written Exam** **Final Practical Exam** Course Completion	• Practical skills • Final written exam • Final practical exam

Section VIII – Final Practical and Grading Rubric

Description of Assignment:
The Final Practical Skills Check-off is designed for the student to demonstrate competency of the skills identified through the following JPR's in NFPA 1670 utilizing the state task book for completion.

Format and Grading of Assignment:
Students will be given a practical skills evaluation based on those acquired skills learned under NFPA 1670 JPRs. A Pass/Fail will be applied based on the State task book assignments for the final course grade.

Section IX – Review Date and Author

May 01, 2016	Unknown
July 16, 2019	Kenneth Kurth