

Program of Instruction

Course Syllabus

Course Title: Flammable Liquids by Rail Operations

Course Duration: 8 hours

Program: Fire Fighting

Course Prerequisites: Flammable Liquids by Rail Awareness

Course Description: This 8-hour course is designed for any first responder who could respond to a railroad emergency involving flammable liquids. Any responder with a rail line in their jurisdiction would benefit from this training. Students will have the opportunity to learn more in depth information about flammable liquids shipped by rail and their characteristics. They will receive in depth information on the types of rail road cars used to ship flammable liquids and their construction, safety features, markings and other important characteristics. They will also have the opportunity to participate in hands on evolutions learning how to properly cool rail cars involved in flammable liquid fires. They will be able to learn and practice foam application techniques on rail cars. Upon successful completion of this class, the student will have an increased level of understanding on how to deal with flammable liquid emergencies on the railroads.

Course Requirements and/or Recommendations: These can be divided into three categories: those completed prior to arriving in class (Pre-Course Work), those completed during class, such as homework assignments and quizzes (Course Work), and requirements completed after class but prior to receiving a certificate of completion. (Post-Course Work)

Summary of Directions

Pre-Course Work: None

Course Work: Participate in all course lectures and activities

Post-Course Work: None

Course Policies:

Safety Policy: Students shall understand and follow all instructions pertaining to operational safety, as stated by instructors or as written in course materials. Instructors and students shall be mindful of safety at all times. Conduct judged to be unsafe shall be grounds for dismissal from the course.

Academic Integrity Policy: IFSI has the responsibility for maintaining academic integrity so as to protect the quality of the education provided through its courses, and to protect those who depend upon our integrity. It is the responsibility of the student to refrain from infractions of academic integrity, from conduct that may lead to suspicion of such infractions, and from conduct that aids others in such infractions. Any violation of the code of conduct is grounds for immediate dismissal from the course.

American Disabilities Act: As guaranteed in the Vocational Rehabilitation Act and in the American Disabilities Act, if any student needs special accommodations they are to notify their instructor and provide documentation as soon as possible so arrangements can be made to provide for the student's needs.

Course Content:

Module: 1

Title: Framing the Issue

Terminal Learning Objective:

At the conclusion of this module, the student will describe historical events pertaining to flammable liquids by rail.

Module: 2

Title: Rail Background

Terminal Learning Objective:

At the conclusion of this module, the student will identify types of rail cars that may carry flammable liquids.

Module: 3

Title: Response Objectives

Terminal Learning Objective:

At the conclusion of this module, the student will identify responder activities required for a flammable liquids by rail incident.

Module: 4

Title: Practical Exercises

Terminal Learning Objective:

At the conclusion of this module, the student will demonstrate foam application procedures.

Reference List:

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Derailment of CN Freight Train U70691: Cherry Valley, Illinois. (2009, June 19).

Retrieved from National Transportation Safety Board: <https://www.nts.gov/investigations/AccidentReports/Reports/RAR1201.pdf>

Emergency Response to Unit Train Incidents. (n.d.). Retrieved March 2017, from CSX Unit Train ER

Guide: <http://www.btfire.org/ftp/Documents/CSX%20Unit%20Train%20ER%20Guide.pdf>

Field Guide to Tank Cars. (2010). Retrieved from Association of American

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High Hazard Flammable Trains (HHFT): On-Scene Incident Commander Field Guide. (2016, July). Retrieved from BNSF

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Lac-Mégantic runaway train and derailment investigation summary. (n.d.).

Retrieved March 2017, from Transportation Safety Board of Canada: <http://www.tsb.gc.ca/eng/rappports-reports/rail/2013/r13d0054/r13d0054-r-es.pdf>

Lynchburg, Virginia Railroad Accident Brief. (2016, March 02). Retrieved from National Transportation Safety

Board: <https://www.nts.gov/investigations/AccidentReports/Reports/RAB1601.pdf>

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Noll, G., Hildebrand, M., and Yvorra, J. (2014). *Hazardous Materials: Managing the Incident (4th Ed)*. Jones & Bartlett.

OSHA 29 CFR 1910.120 – Hazardous Materials: Hazardous Waste Operations and Emergency Response

OSHA 29 CFR 1910.134 – Respiratory Protection

OSHA 29 CFR 1910.38 – Means of Egress: Emergency Action Plans

Petro Peril: Three Months After Galena. (2015, June 05). Retrieved from Medill reports Chicago: <http://news.medill.northwestern.edu/chicago/three-months-after-train-derailment-in-galena-volatile-bakken-crude-still-fuels-concerns/>

Petroleum Crude Oil: Railroad Safety Procedures. (2014, November 17). Retrieved from United States Fire Administration: Coffee Break Training: https://www.usfa.fema.gov/downloads/pdf/coffee-break/hm/hm_2014_5.pdf

Pipeline and Hazardous Materials Safety Administration. (2014, September). Retrieved from COMMODITY PREPAREDNESS AND INCIDENT MANAGEMENT REFERENCE SHEET: https://www.phmsa.dot.gov/sites/phmsa.dot.gov/files/docs/Petroleum_Crude_Oil_Reference_Sheet.pdf

Rail Safety Alert. (2014, January 14). Retrieved from The Pipeline and Hazardous Materials Safety Administration: http://www.phmsa.dot.gov/staticfiles/PHMSA/DownloadableFiles/1_2_14%20Rail_Safety_Alert.pdf

Safety on Scene: Crude Oil Trains. (n.d.). Retrieved from International Fire Chiefs Association: <https://www.iafc.org/docs/default-source/1haz/safetyonscenecrudeoiltrains-2.pdf?sfvrsn=0>

Schnepf, R. (2010). *Hazardous Materials: Awareness and Operations*. Sudbury, MA: Jones and Bartlett Publishers, LLC.

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Course Schedule

<u>Event</u>		<u>Duration</u>
Module 1	Framing the Issue	1 hour
Module 2	Rail Background	1 hour
Module 3	Response Objectives	2 hours

Lunch

Event

Practical Exercises

Review of Rail Cars 4.1	30 minutes
Cooling Practical 4.2	1 hour
Foam Application 4.3	1 hour
Scenario 4.4	1.5 hours