



AWR 147: Rail Car Incident Response – Course Overview

The *Rail Car Incident Response* course has been developed to educate emergency responders on freight rail car incidents involving hazardous materials. As more and more rail traffic transports cargo, including hazardous materials, it is critical that emergency responders are well trained. The increase in traffic adds to the already present risk of transportation incidents involving hazardous cargo. In addition, since a majority of the rail traffic travels through rural America, it is important that the often times resource limited rural responder community become educated about the dangers and unique hazards presented with rail cars. The information covered in this course will enhance the ability of emergency responders, especially rural emergency responders, to manage rail car incidents.

The following key elements serve as the basis for the course:

- Recognizing the chemical being transported, which has physical, chemical, and toxicological properties that dictate the transportation requirements and the manner in which the chemical must be considered in an emergency situation;
- Identifying the packaging system, which is reflected in the design and construction of the rail tank car, and the components of the rail car as well as all the information conveyed in the car stenciling;
- Explaining the incident to determine the damage to the car and the potential hazard to people, property, and the environment from the release or reaction of the chemical and to take appropriate protective action;
- Recognizing the appropriate and safest handling method of the chemical in the damaged car to mitigate the situation, whether by transfer, neutralization, venting, flaring, etc., and understanding these options;
- Managing the incident and the many conflicting interests represented by all the potential participants at an incident; and
- Identifying federal, state and private sector resources available to assist in the response.

This course will cover additional information that will include topics such as the effects of Boiling Liquid Expanding Vapor Explosion (B.L.E.V.E.), the Detect, Estimate, Choose, Identify, Do, and Evaluate (D.E.C.I.D.E.) analysis system, basic rail car design, damage assessment, product transfers, and a glossary of railroad terms.

Generally, safeguards and procedures are established to prevent hazardous materials



from causing harm to employees under normal transportation, storage, handling and use. If these safeguards and procedures are circumvented or otherwise removed, the material is no longer under effective control and a release may occur. The ultimate goal during a response is to prevent or reduce the impact of the incident on people, property, and the environment, and to restore conditions to as near normal as possible. Upon completion of this course, the participant should be well prepared to manage and/or respond to a rail car incident without endangering the health and safety of the responders.

This course supports the strategic goals of *Homeland Security Presidential Directive 8–National Preparedness*, the National Preparedness Goal and the Target Capabilities List in the areas of Planning, Interoperable Communications, Information Sharing & Collaboration, CBRNE Detection, Risk Analysis, Critical Infrastructure Protection, On-site Incident Management, Emergency Operations Center Management, Worker Health & Safety, Public Safety & Security, Animal Health Emergency Support, Firefighting Operations/Support, WMD/Hazardous Materials Response & Decon, Citizens Protection: Evacuation and/or In-Place Protection, Emergency Public Information and Warning, and Structural Damage, Assessment & Mitigation.



Module 1 - Course Overview and Pre-Test - Administration Page

Module 1 – Course Overview and Pre-Test	
Duration	.5 hour
Scope Statement	This module includes introductory administrative tasks and a pre-test, as well as a review of the course goals and objectives. It also provides an opportunity for participants and the instructor to be introduced to one another.
Terminal Learning Objectives (TLO)	At the conclusion of this module, participants will be able to explain the course goals and objectives, and summarize how course materials will be beneficial to their discipline.
Enabling Learning Objectives (ELO)	ELO 1.1 - List the course goals and objectives ELO 1.2 - Demonstrate baseline knowledge of subject matter by completing a pre-test
Resources	Pre-Test (will be a separate handout for participants – ensure sufficient copies are on hand) D.E.C.I.D.E. pens (one per participant)
Instructor to Participant Ratio (e.g., 1:25)	1:25
Reference List	NA
Practical Exercise Statement	NA
Assessment Strategy	<ul style="list-style-type: none">• Observation of student participation• Instructor facilitated verbal review of module content• Administration of a pre-test to assess participant's prior knowledge of course materials



Module 2 – Introduction to Rail Car Emergency Response - Administration Page

Module 2 – Introduction to Rail Car Emergency Response	
Duration	.5 hour
Scope Statement	This module includes an introduction to rail car emergency response as well as a review of the D.E.C.I.D.E decision making process. During this module, basic information regarding rail car incident response will be discussed to provide a common foundation upon which the remainder of the course will build.
Terminal Learning Objectives (TLO)	At the conclusion of this module, participants will be able discuss potential hazards at a train derailment and explain a systematic process for making emergency response decisions.
Enabling Learning Objectives (ELO)	ELO 2.1 - Recognize potential hazards at a train derailment incident ELO 2.2 - Explain how to use the Detect, Estimate, Choose, Identify,
Resources	D.E.C.I.D.E. pens (one per participant) Video of Rail Incident – Graniteville, South Carolina (chlorine trail derailment)
Instructor to Participant Ratio (e.g., 1:25)	1:25
Reference List	South Carolina Department of Health and Environment, U.S. Environmental Protection Agency video footage of Graniteville, SC chlorine train derailment (used with permission)
Practical Exercise Statement	NA
Assessment Strategy	<ul style="list-style-type: none">• Observation of student participation• Instructor facilitated verbal review of module content• Administration of a pre-test to assess participant's prior knowledge of course materials



Module 3 – Overview of Rail/Freight Industry - Administration Page

Module 3 – Overview of Rail/Freight Industry	
Duration	0.75 hour
Scope Statement	The information contained in this module includes an overview of the rail/freight industry as well as the laws and regulations governing the protection of the environment and worker safety. This module also discusses specific regulatory provisions that apply to emergency response operations applicable to a railcar incident.
Terminal Learning Objectives (TLO)	At the conclusion of this module, participants will be able to discuss rail/freight industry characteristics as well as identify the regulatory requirements pertinent to a rail car emergency.
Enabling Learning Objectives (ELO)	<p>ELO 3.1 – Discuss characteristics and pertinent information regarding the rail/freight industry</p> <p>ELO 3.2 - Identify the regulatory basis including the role of the EPA, OSHA, FRA, and DOT regarding a rail car incident as well as the appropriate state and local agencies that have authority in the jurisdiction where the training is being held</p> <p>ELO 3.3 - Describe the role of regulators and industry associations as they apply to rail car incidents</p>
Resources	NA
Instructor to Participant Ratio (e.g., 1:25)	1:25
Reference List	<p>U.S. Department of Labor. Occupational Safety and Health Administration. Process Safety Management - Final Rule. 29 Code of Federal Regulations Part 1910.119.</p> <p>U.S. Department of Labor. Occupational Safety and Health Administration. Hazardous Waste Operations and Emergency Response - Final Rule. 29 Code of Federal Regulations Part 1910.120.</p> <p>U.S. Department of Labor. Occupational Safety and Health Administration. Hazard Communication - Final Rule. 29 Code of Federal Regulations Part 1910.1200.</p> <p>U.S. Environmental Protection Agency. National Oil and Hazardous Substance Contingency Plan - Final Rule. 40 Code of Federal</p>



	<p>Regulations Part 300.</p> <p>U.S. Environmental Protection Agency. Hazardous Waste Management - Final Rule. 40 Code of Federal Regulations Parts 261 and 262.</p> <p>U.S. Department of Transportation. Hazardous Materials Regulations - Final Rule. 49 Code of Federal Regulations Parts 100-199.</p> <p>National Fire Protection Association. Standard for Professional Competence of Responders to Hazardous Materials Incidents, NFPA No. 472. 2002 edition.</p> <p>U.S. Department of Homeland Security. Rail Transportation Security Final Rule. 49 CFR Part 1580, November, 2009.</p> <p>U.S. Department of Homeland Security-Transportation Security Administration/Office of Intelligence. <i>Freight Rail Threat Assessment</i>, September, 15, 2009 (Unclassified/For Official Use Only)</p>
Practical Exercise Statement	N/A
Assessment Strategy	<ul style="list-style-type: none">• Observation of student participation• Instructor facilitated verbal review of module content• Administration of post-test



Module 4 – Basic Rail Car Design - Administration Page

Module 4 – Basic Rail Car Design	
Duration	1.0 hour
Scope Statement	The purpose of this module is to acquaint the participant with tank cars, their classes, and specification markings. Correct interpretation of these will allow the participant to identify specific information necessary for an emergency responder to correctly assess and formulate a plan of action.
Terminal Learning Objectives (TLO)	At the conclusion of this module, participants will be able to identify and interpret key rail car design features to aid in the assessment of a rail car incident.
Enabling Learning Objectives (ELO)	ELO 4.1 - Recognize various rail car designs and aspects of their construction
	ELO 4.2 - Identify rail car fittings and appurtenances
	ELO 4.3 - Identify and interpret rail car identification markings
Resources	<p><i>“Tank Cars at a Glance” video, Trinity Tank Car Co., Dallas, TX</i></p> <p>Rail Car pictures for Identification Practical Exercise (pictures included in PowerPoint presentation)</p> <p>2008 Emergency Response Guidebook</p> <p>Glossary of Railroad Terms</p>
Instructor to Participant Ratio (e.g., 1:25)	1:25
Reference List	<p><i>“Railroad Tank Car Specification Marking” summary sheet from the First Hazardous Materials Guide for First Responders, FEMA</i></p> <p><i>First Hazardous Materials Guide for First Responders, FEMA</i></p> <p><i>2008 Emergency Response Guidebook, A Guide for First Responders During the Initial Phase of a Dangerous Goods/Hazardous Materials Incident (ISBN#1-59042-392-5; U.S. Department of Transportation)</i></p> <p><i>“Tank Cars at a Glance” video, Trinity Tank Car Co., Dallas, TX</i></p> <p><i>UTLX Rail Car Design Specifications and Drawings-</i> http://www.utlx.com/</p>



	<i>NIOSH Pocket Guide to Chemical Hazards</i> (U.S. Department of Health and Human Services, Center for Disease Control, National Institute for Occupational Safety and Health), www.cdc.gov/niosh
Practical Exercise Statement	Identification of Rail Car Design Features (using pictures of rail cars)
Assessment Strategy	<ul style="list-style-type: none">• Observation of student participation as well as performance in practical exercises• Instructor facilitated verbal review of module content• Administration of post-test



Module 5 – Characteristics of Chemicals & Toxicology - Administration Page

Module 5 – Characteristics of Chemicals & Toxicology	
Duration	0.75 hour
Scope Statement	<p>In order to safely handle a hazardous material, it is important to understand and predict its behavior. Hazardous materials have been studied for many years and common terminology is used to describe what makes a material hazardous. This module presents commonly used terms that describe chemical properties and behavior or the characteristics of those chemicals (both physical and chemical properties). In addition, toxicology, which discusses the measurement and effect of poisons on the human body, is discussed in this module. There are many different factors that will affect the toxicity of a chemical including route of entry, length of exposure, concentration of the chemical, and many others. The purpose of learning about toxicology is to enable individuals to understand the risks associated with hazardous materials, and the implications of personal exposure to hazardous materials.</p>
Terminal Learning Objectives (TLO)	<p>At the conclusion of this module, participants will be able to define basic chemical terminology and will be able to differentiate the behaviors of chemicals based on physical and chemical properties. In addition, participants will be able to describe toxic effects of hazardous materials especially the impact on the human body.</p>
Enabling Learning Objectives (ELO)	<p>ELO 5.1 - Define basic chemical terminology</p> <p>ELO 5.2 - Predict chemical behavior of a hazardous material based upon:</p> <ul style="list-style-type: none">Vapor PressureBoiling PointVapor DensityMelting PointFreezing PointSublimationSolubilityDensity <p>ELO 5.3 - Recognize the following terms relating to flammability:</p> <ul style="list-style-type: none">Flash PointAuto ignition TemperatureLower Explosive Limit (LEL)Upper Explosive Limit (UEL)



	<p>Flammable or Explosive Range</p> <p>ELO 5.4 - Recognize the properties of: Flammable and Combustible Materials Pyrophoric Materials Oxidizers Explosives Corrosive Materials Radioactive and Biological Agents</p> <p>ELO 5.5 - Define the term toxicology and associated terms and how they relate to emergency responders</p> <p>ELO 5.6 – Describe how hazardous materials can enter the body</p> <p>ELO 5.7 – Identify steps to avoid exposure</p>
Resources	<p><i>2008 Emergency Response Guidebook, A Guide for First Responders During the Initial Phase of a Dangerous Goods/Hazardous Materials Incident</i> (ISBN# 9780160794568; U.S. Department of Transportation) (One copy for each participant)</p> <p><i>DOT Chart 13 – Hazardous Materials Marking, Labeling & Placarding Guide</i> (U.S. Department of Transportation, Pipeline and Hazardous Materials Safety Administration) (One copy for each participant)</p> <p><i>NIOSH Pocket Guide to Chemical Hazards</i> (U.S. Department of Health and Human Services, Center for Disease Control, National Institute for Occupational Safety and Health) (One or two classroom copies available for reference)</p> <p>Video – Waverly, TN “LPG BLEVE” Incident</p>
Instructor to Participant Ratio (e.g., 1:25)	1:25
Reference List	<p><i>2008 Emergency Response Guidebook, A Guide for First Responders During the Initial Phase of a Dangerous Goods/Hazardous Materials Incident</i> (ISBN# 9780160794568; U.S. Department of Transportation)</p> <p><i>DOT Chart 13 – Hazardous Materials Marking, Labeling & Placarding Guide</i> (U.S. Department of Transportation, Pipeline and Hazardous Materials Safety Administration)</p> <p><i>NIOSH Pocket Guide to Chemical Hazards</i> (U.S. Department of</p>



	<p>Health and Human Services, Center for Disease Control, National Institute for Occupational Safety and Health)</p> <p>Association of American Railroads, Class I Railroad Statistics June 10, 2009, retrieved from World Wide Web, August 17, 2009, http://www.aar.org/~media/AAR/Industry%20Info/Statistics%2020090910.ashx</p>
Practical Exercise Statement	N/A
Assessment Strategy	<ul style="list-style-type: none">• Observation of student participation• Instructor facilitated verbal review of module content• Administration of post-test



Module 6 - Hazardous Materials Recognition and Identification - Administration Page

Module 6 – Hazardous Materials Recognition and Identification	
Duration	1.25 hours
Scope Statement	<p>All the activities required to control a hazardous material emergency are based upon identifying the hazardous substance or substances involved. In some cases, placards, labels, shipping papers, knowledge about chemicals stored on the train, or an eyewitness's report may make the identification process relatively easy. In other cases, identifying a hazardous substance may take a considerable amount of time.</p> <p>Without knowledge of the materials involved, it must be assumed that a worst-case scenario has occurred. The maximum precautions must be used in undefined incidents. Once the material is identified, the hazards associated with it can be determined and an evaluation made of its potential impact. The information covered in this module is essential to the safety and well being of the emergency responder.</p>
Terminal Learning Objectives (TLO)	At the conclusion of this module, participants can recognize and identify hazardous materials by evaluating available information present at a rail car incident such as occupancy/location, container/vehicle shape, markings and colors, placards and labels, documentation/shipping papers, as well as senses.
Enabling Learning Objectives (ELO)	<p>ELO 6.1 - Distinguish between pressurized and general service rail cars in terms of products transported</p> <p>ELO 6.2 - Explain the U.S. DOT marking, labeling and placarding system</p> <p>ELO 6.3 - Describe UN Hazard Classification System</p> <p>ELO 6.4 - Describe U.S. DOT shipping document requirements and show competency in reading a railroad consist shipping document</p> <p>ELO 6.5 - Identify the presence of hazardous materials by evaluating available information and describe how occupancy/location, container/vehicle shape and material construction, markings and colors, placards and labels, documentation/shipping papers, and senses impact the identification of hazardous materials</p>
Resources	<i>2008 Emergency Response Guidebook, A Guide for First Responders During the Initial Phase of a Dangerous Goods/Hazardous Materials Incident</i> (ISBN# 9780160794568; U.S. Department of Transportation)



	<p><i>Field Guide to Tank Car Identification</i> (1992, Association of American Railroads, Bureau of Explosives)</p> <p><i>DOT Chart 13 – Hazardous Materials Marking, Labeling & Placarding Guide</i> (U.S. Department of Transportation, Pipeline and Hazardous Materials Safety Administration) (One copy for each participant.)</p> <p>Consist Shipping Paper Exercise</p>
Instructor to Participant Ratio (e.g., 1:25)	1:25
Reference List	<p><i>National Fire Protection Administration (NFPA) 741: Recommended Practice for Responding to Hazardous Materials Incidents</i> (2002 edition, National Fire Protection Administration)</p> <p>U.S. Department of Transportation Hazardous Materials Transportation Law Title 49:B Chapter 1:A Hazardous Materials and Oil Transportation</p> <p><i>NIOSH/OSHA/USCG/EPA Occupational Safety and Health Guidance Manual for Hazardous Waste Site Activities</i> (1985, DHHS (NIOSH) Publication No. 85-115)</p> <p>Federal Railroad Administration – Hazardous Materials Division – Hazardous Materials Guidance Documents (HMG) 101-109</p>
Practical Exercise Statement	Consist Shipping Paper – Practical Exercise
Assessment Strategy	<ul style="list-style-type: none">• Observation of student participation as well as performance in practical exercises• Instructor facilitated verbal review of module content• Administration of post-test



Module 7 – Rail Tank Car Damage Assessment & Mitigation Techniques - Administration Page

Module 7 – Rail Tank Car Damage Assessment & Mitigation Techniques	
Duration	1.0 hour
Scope Statement	Assessment of tank damage is not a casual matter and requires the presence of trained specialists. The guidelines discussed in this module review the major factors to be considered when assessing rail tank car damage and are intended only to allow those first on the scene to make an initial appraisal of rail tank car damage for purposes of determining what actions should be taken until expert appraisal assistance is available.
Terminal Learning Objectives (TLO)	At the conclusion of this module, participants can recognize important tank car features to assess during an emergency response. In addition, participants will perform simulated damaged tank car inspections utilizing assessment techniques discussed during the module. The simulated assessment is not conducted in a real world hazardous environment (i.e., hot zone) but rather conducted in a hazard free environment (i.e., cold zone) using pictures of damaged tank cars. Participants will also be able to recognize various incident control, confinement, and containment techniques that might be used by trained specialists during an incident.
Enabling Learning Objectives (ELO)	ELO 7.1 - Recognize tank car construction features
	ELO 7.2 - Use damage assessment process to determine extent of damage incurred following a rail car incident
	ELO 7.3 - Explain factors affecting the severity of tank car damage
	ELO 7.4 – Perform simulated damaged tank car inspections (using pictures of damaged equipment)
	ELO 7.5 – Recognize various incident control, confinement, and containment techniques that might be used by trained specialists during an incident
Resources	A copy of the Matheson Gas Products Propane material is included at the end of the module in the “Module 7 Resources” section. Tank Car Damage Assessment Worksheet (part of Practical Exercise), courtesy of the Transportation Technology Center,



	<p>Inc.(TTCI) – subsidiary of the Association of American Railroads (AAR)</p> <p>Field Guide to Tank Car Identification, specifically section on Tank Car Damage Assessment (everyone should have a copy)</p>
Instructor to Participant Ratio (e.g., 1:25)	1:25
Reference List	<p><i>Field Guide to Tank Car Identification</i> (1992, Association of American Railroads, Bureau of Explosives)</p> <p><i>Hazardous Materials Response Handbook</i>, Third Edition, page 495, “Grounding and Bonding Applications for Emergency Responders” (National Fire Protection Association, Quincy, MA, 1997)</p>
Practical Exercise Statement	Rail Car Tank Car Damage Assessment (slides of pictures included in powerpoint presentation)
Assessment Strategy	<ul style="list-style-type: none">• Observation of student participation as well as performance in practical exercises• Instructor facilitated verbal review of module content• Administration of post-test



Module 8 – Application of Incident Command System on Rail Car Incidents - Administration Page

Module 8 – Application of Incident Command System on Rail Car Incidents	
Duration	0.5 hours
Scope Statement	The number of personnel required to respond to a hazardous material incident varies based on the size and complexity of the incident. Regardless of the number of personnel required to respond, the response effort must be organized and coordinated. Without a coordinated, organized effort, the response will be inefficient and possibly ineffective. This module will discuss the common elements to all incidents including the need for planning, organizing, locating resources (i.e., personnel, equipment) and implementing response operations utilizing the Incident Command System (ICS) that is consistent with the National Incident Management System (NIMS).
Terminal Learning Objectives (TLO)	At the conclusion of this module, participants should explain the important elements regarding planning, organizing, locating resources, and responding to a rail car incident as part of the overall incident command effort to ensure a safe conclusion of the incident and also to understand the roles and responsibilities of each responder as they apply to the Incident Command System organization that is consistent with NIMS.
Enabling Learning Objectives (ELO)	ELO 8.1 - Explain the use of the Incident Command System at rail car incidents that is consistent with NIMS ELO 8.2 - List three Incident Priorities ELO 8.3 - Describe the duties and responsibilities of the various positions that are used in the Incident Command System and at the scene of a rail car incident
Resources	NA
Instructor to Participant Ratio (e.g., 1:25)	1:25
Reference List	Incident Command System (ICS) 300 – Intermediate ICS for Expanding Incidents – Instructor Manual, Emergency Management Institute Course Number: G300, September, 2005 National Incident Management System (NIMS), Draft Revised NIMS Document 2007, retrieved from the World Wide Web, October 30, 2008, http://www.fema.gov/emergency/nims/nims_doc.shtm
Practical Exercise Statement	NA
Assessment Strategy	<ul style="list-style-type: none">• Observation of student participation• Instructor facilitated verbal review of module content• Administration of post-test



Module 9 – Review of Case Studies - Administration Page

Module 9 – Review of Case Studies	
Duration	.75 hours
Scope Statement	This module will allow the participants to apply the knowledge gained throughout the course to real case studies of rail car incidents. All of the major rail car incident factors will be reviewed using real life examples presented in a case study format. The case study review will focus on the applicability of the material presented in this course.
Terminal Learning Objectives (TLO)	At the conclusion of this module, participants can apply the knowledge learned throughout the course to a real life rail car incident case study, specifically elements regarding recognition, evaluation, control, information, planning, and safety.
Enabling Learning Objectives (ELO)	ELO 9.1 – Discuss appropriate rail car incident response to prevent or reduce the impact of rail incident on people, property, and the environment.
	ELO 9.2 – Discuss recognized hazards and appropriate control measures for each
	ELO 9.3 – Discuss appropriate measures to ensure an organized and coordinated response effort
Resources	Video on the Livingston, LA Train Derailment
Instructor to Participant Ratio (e.g., 1:25)	1:25
Reference List	<i>HAZMATS! Case Studies for Emergency Responders, National Fire Protection Agency (NFPA)</i> <i>Railroad Accident Report: Collision of Norfolk Southern Freight Train 192 With Standing Norfolk Southern Local Train P22 With Subsequent Hazardous Materials Release at Graniteville, South Carolina.</i> Retrieved from the World Wide Web. July 21, 2008. http://homeland.cq.com/hs/flatfiles/temporaryItems/20051129_ntsb.pdf (Full Report at: http://www.nts.gov/publictn/2005/RAR0504.htm)
Practical Exercise Statement	NA
Assessment Strategy	<ul style="list-style-type: none">• Observation of student participation• Instructor facilitated verbal review of module content• Administration of post-test



Module 10 – Post-test and Course Evaluation - Administration Page

Module 10 – Post-test and Course Evaluation	
Duration	0.5 hour
Scope Statement	In this module, participants will be administered a post-test. They will also complete a course evaluation form and provide feedback on the content and instruction of the <i>Rail Car Incident Response</i> course. Participants who complete the post-test at a 70% passing rate and fill out an evaluation form will be issued a Certificate of Completion.
Terminal Learning Objectives (TLO)	At the conclusion of this module, participants will complete a comprehensive post-test and course evaluation
Enabling Learning Objectives (ELO)	ELO 10-1: Demonstrate a foundation of knowledge regarding safely assessing, controlling, containing, and handling leaking or damaged rail cars by completing a post-test
	ELO 10-2: Identify areas of improvement as well as competency regarding the course content and instruction by completing a course evaluation form
Resources	Post-test Standardized Level 1 Evaluation Form
Instructor to Participant Ratio (e.g., 1:25)	1:25
Reference List	NA
Practical Exercise Statement	NA
Assessment Strategy	<ul style="list-style-type: none">• Observation of student participation as well as performance in practical exercises• Instructor facilitated verbal review of module content• Administration of post-test



AWR 147: RAIL CAR INCIDENT RESPONSE TRAINING

Agenda

- 8:00 a.m. Module 1 - Course Overview and Pre-Test
 Review Course Objectives
 Administration of Pre-Test
- Module 2 – Introduction to Rail Car Emergency Response
 Video Presentation of Incident
- 9:00 a.m. Module 3 – Overview of the Rail/Freight Industry
 Federal Railroad Administration
 Review of Applicable Legislation and Regulations
- 9:45 a.m. Break
- 10:00 a.m. Module 4 – Basic Rail Car Design
 Identify Rail Car Identification Markings
 Determine Rail Car Construction Features and Fittings
- 11:00 a.m. Module 5 – Characteristics of Chemicals and Toxicology
- 11:45 p.m. Lunch
- 12:45 p.m. Module 6 - Hazardous Materials Recognition and Identification
 Consist Practical Exercise
- 2:00 p.m. Module 7 – Rail Tank Car Damage Assessment and Mitigation Techniques
 Tank Car Damage Assessment
 Factors Affecting the Severity of Tank Car Damage
 Simulated Tank Car Damage Assessment (using pictures)
 Overview of Incident Control, Confinement, & Containment Techniques
- 3:00 p.m. Break
- 3:15 p.m. Module 8 – Application of the Incident Command System in Rail Car Incidents
- 3:45 p.m. Module 9 - Review of Case Studies
- 4:30 p.m. Module 10 – Post Test and Course Evaluation
- 5:00 p.m. Adjourn