



Training and Performance Assurance of Plant Operating Personnel

FRA Region 8 Conference

Topics

- Training and Performance Assurance
- Regulatory history
- Transloading safety
- Operational testing
- Recordkeeping



Other Presentations

- Watco will also provide an overview of the following functions under the break out session “*TC Loading / Unloading & Transloading*”:
 - Pre-transportation functions
 - Determining that a tank car is in proper condition and safe for transportation.
 - 49 CFR 173.31
 - 49 CFR 174.67
 - AAR Pamphlet 34



Training and Performance Assurance

- Training is instruction on how to do a job, which includes classroom, computer-based, and on-the-job training.
- Performance assurance is the means in which workers demonstrate that they understood the training and can apply it in everyday situations.
- Performance assurance is an on-going activity to ensure that hazmat employees meet performance standards, and to identify where additional training is needed.
 - Watco has incorporated the Federal Railroad Administration's (FRA's) requirement for "*operational testing*" to assess the level of compliance of workers performing a task.



Regulatory Basis for Training

- Department of Transportation (“DOT”) requirements to train employees who directly affect hazardous materials transportation safety.
 - 49 CFR 172.700 *et seq*
- Occupational Safety and Health Administration (“OSHA”) requirements to prevent or minimize the consequences of a catastrophic release of a highly hazardous chemical, which encompasses training of employees involved in operating a process.
 - 29 CFR 1910.119
- Company and industry-wide compliance data (*e.g.*, accidents, incidents, enforcement findings).



DOT Training

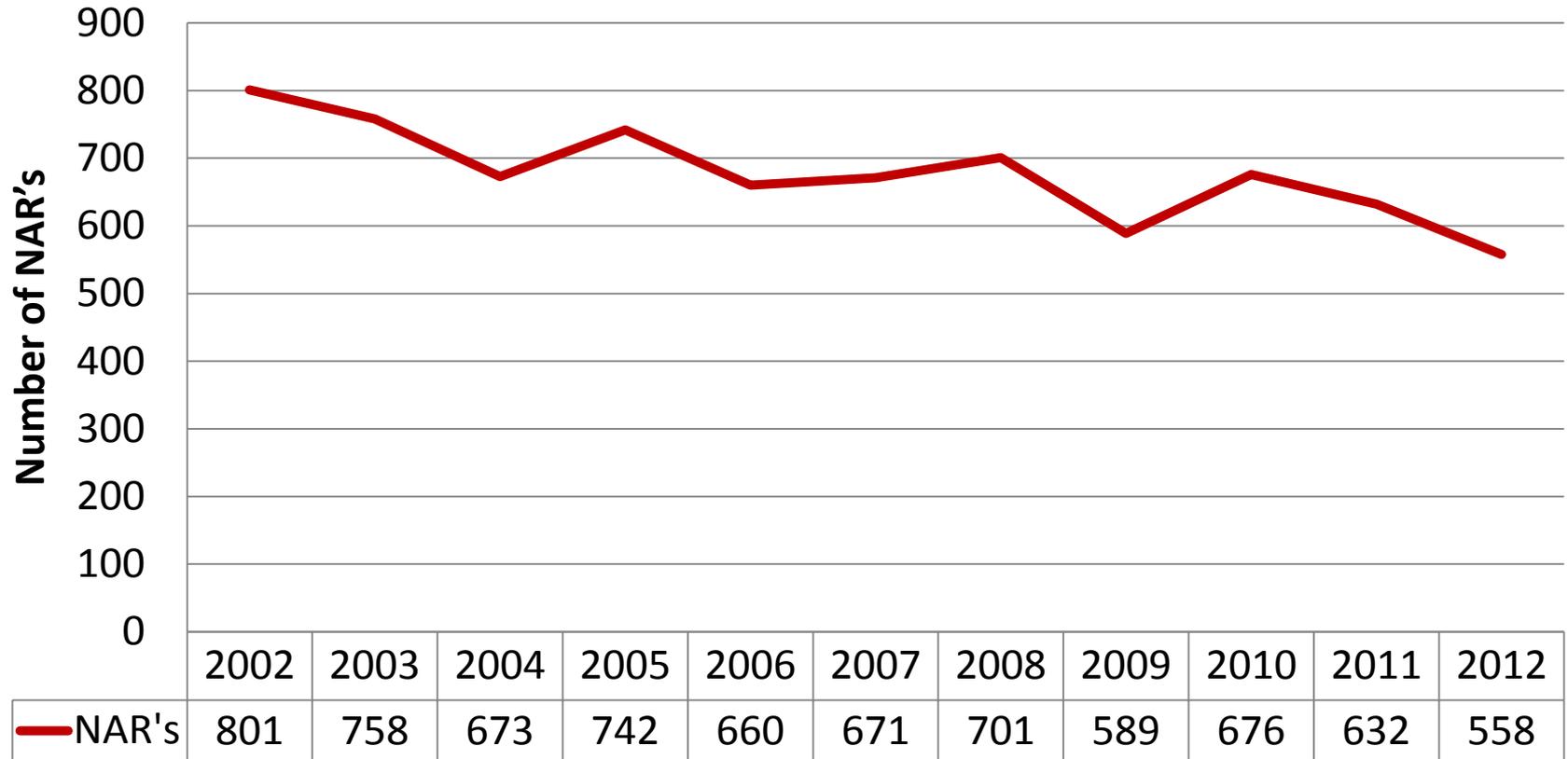
- ❑ Based on information provided to PHMSA through its hazardous material incident reporting system, **human error** is the probable cause of most transportation incidents.
- ❑ Training is meant to **increase an employee's awareness** of safety considerations involved in the loading, off-loading, handling, storage, and transporting hazardous materials.
- ❑ The intent of the training rule is to **reduce hazardous materials incidents** caused by human error and to mitigate the effects of incidents should they occur.



Non-Accident Releases

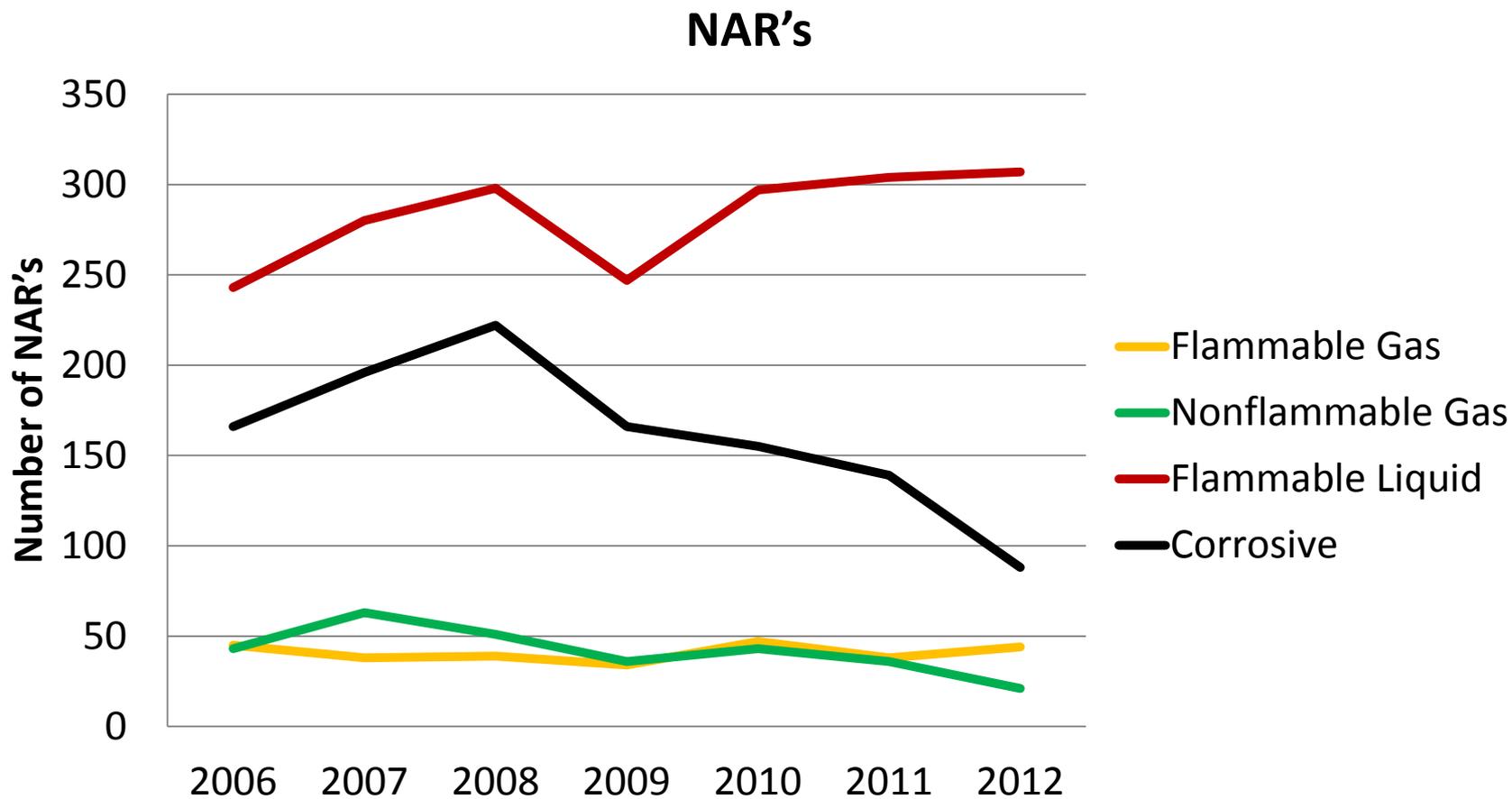
Source: BOE Annual Report

NAR's



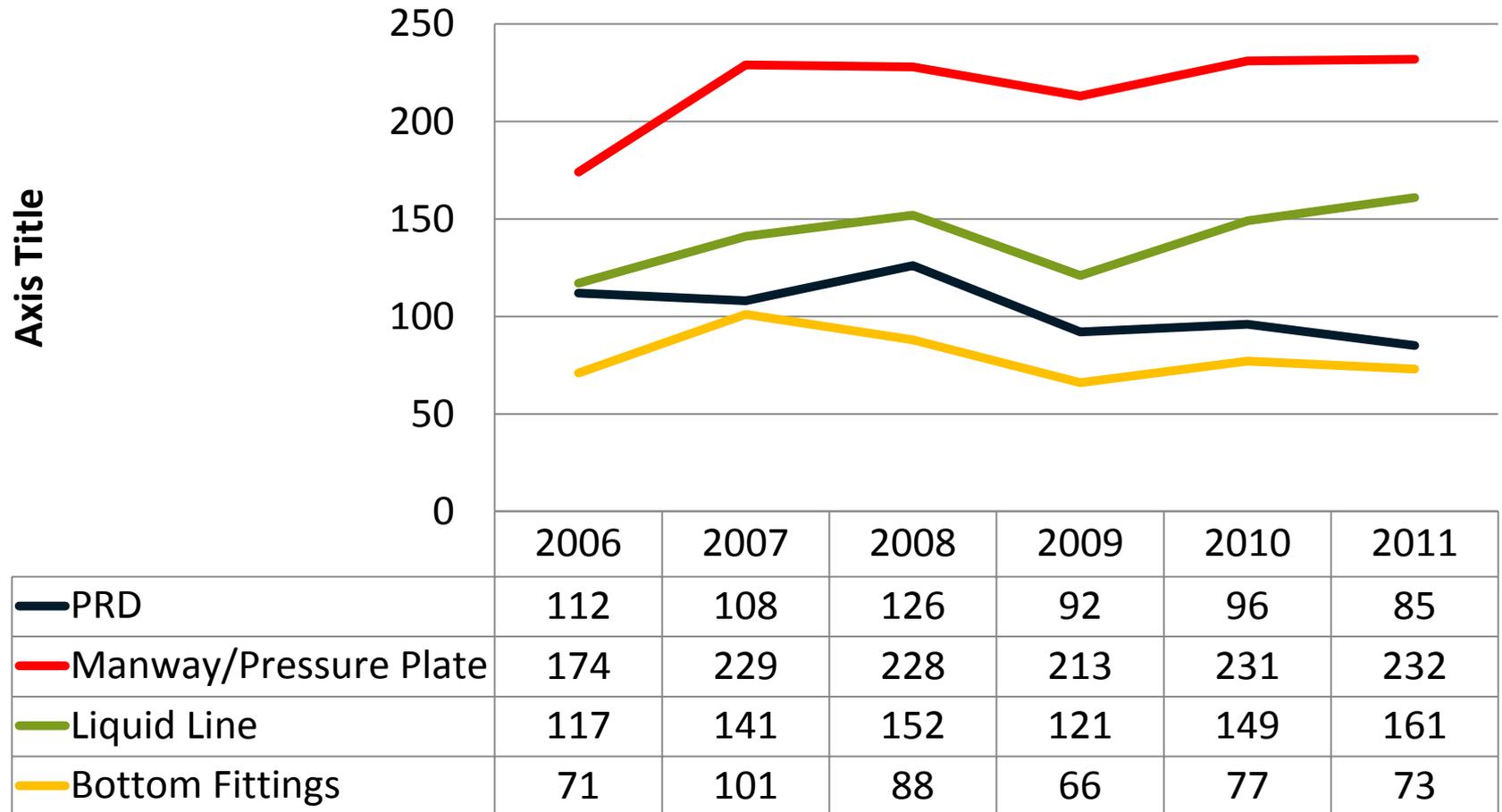
Top Four NAR's by Hazard Class

Source: BOE Annual Report

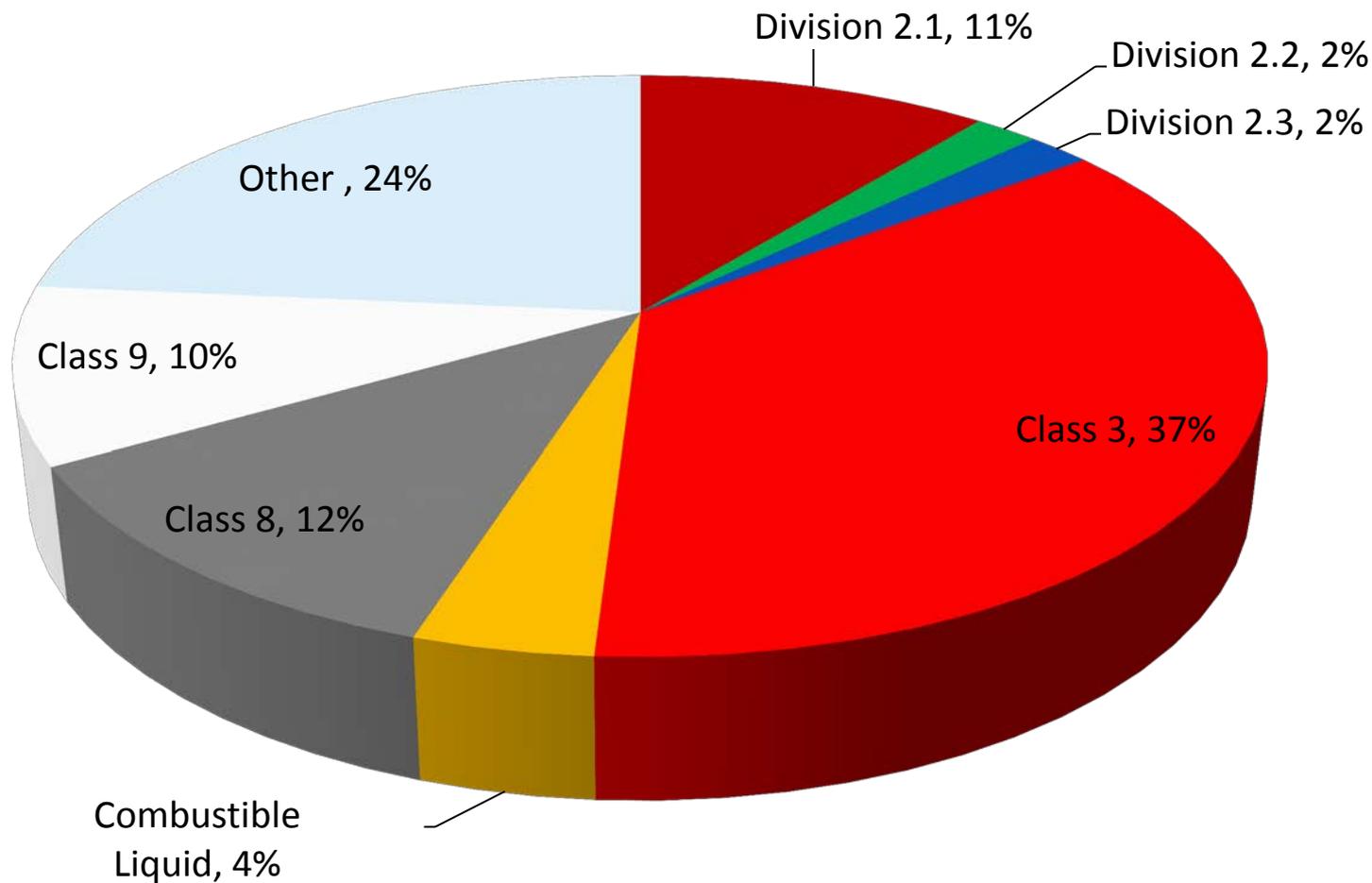


Top Sources of NAR's

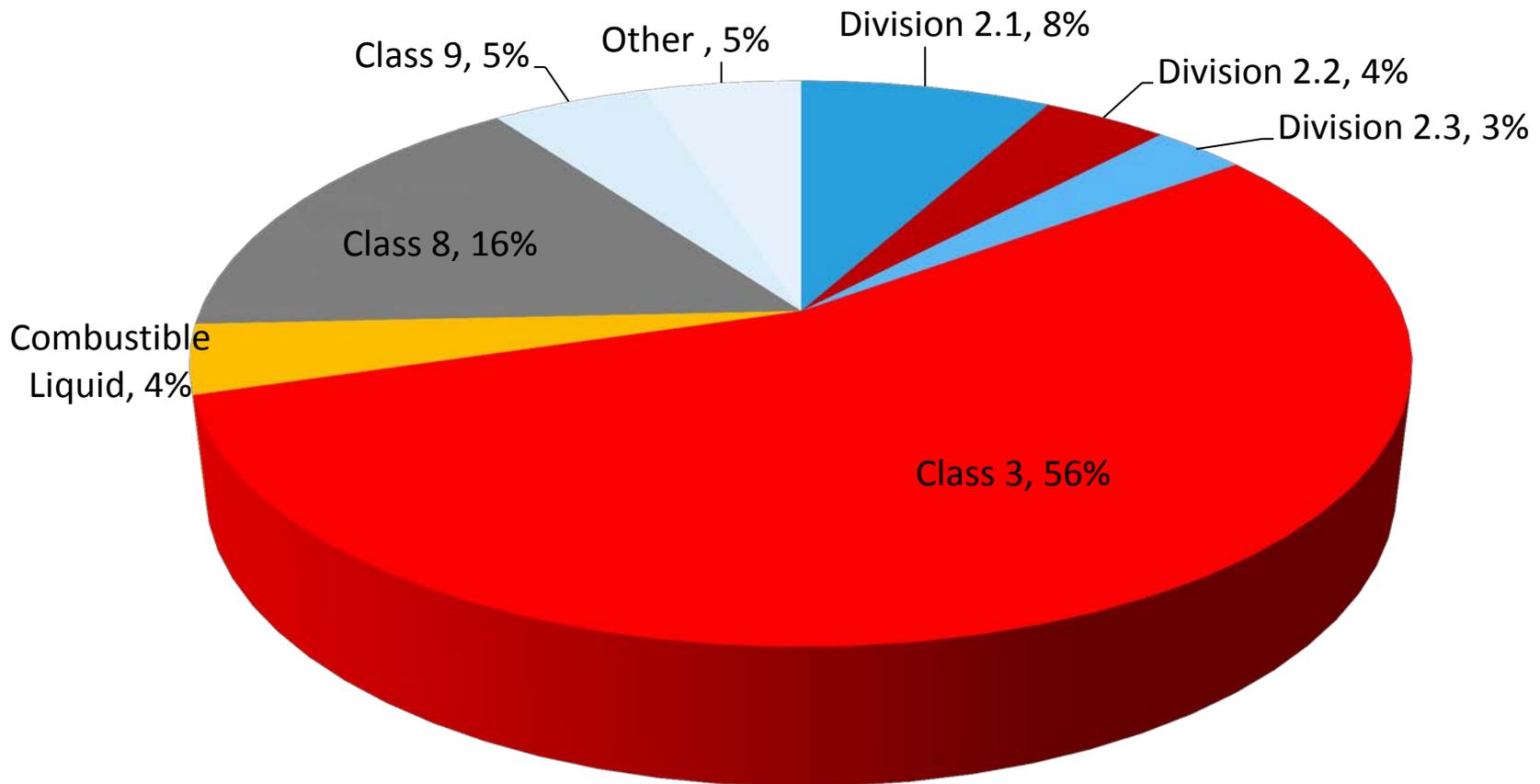
Source: BOE Annual Report



CY 2012 Total Car Origins by Hazard Class



CY 2012 Tank Car NAR's by Hazard Class



FRA Defects and Violations by Regulatory Topic: 2007 –2011

Regulatory Subject	Defects	Violations
Shipping Papers	8,324	814
Markings	3,820	345
Labeling	87	0
Placarding	18,572	373
Emergency Response Information	1,072	561
Training	41,191	8,287
Safety and Security Plans	2,992	57
Shippers—General Requirements for Shipments and Packagings	14,467	4,035
Carriage by Rail	16,420	2,281
Specifications for Tank Cars	512	649
Qualification and Maintenance of Tank Cars	184	45



Top FRA Defects and Violations 2007 –2011

Section	Regulatory Subject	Defects	Violations	Total
1720704	Training Requirement	32,182	5,462	37,644
1730031	Use of Tank Cars	13,036	3,629	16,665
1720702	Applicability and Responsibility for Training and Testing	9,009	2,825	11,834
1720516	Visibility and Display of Placards	9,597	53	9,650
1720504	General Placarding Requirements	6,416	91	6,507
1740026	Notice to Train Crews	3,789	1,331	5,120
1790007	Quality Assurance Program	3,715	613	4,328
1720201	Preparation and Retention of Shipping Papers	3,592	139	3,731
1740050	Nonconforming or Leaking Packages	3,364	194	3,558
1740003	Unacceptable Hazardous Materials Shipments	3,068	11	3,079
1720802	Components of a Security Plan	2,620	32	2,652





Who requires training? Generally, persons who:

- Classify materials;
- Select packagings to contain a hazardous material;
- Manufacture, inspect, test, maintain, or repair a package marked to a DOT or UN specification;
- **Load, offload, or pack a hazardous material into a packaging;**
- Mark, label, or placard a package containing a hazardous material;



Individuals who require training also include persons who:

- Prepare shipping documents for a hazardous material;
- Offer or accept a hazardous material into transportation;
- Transport a hazardous material in transportation;
- Handle a hazardous material during transportation; and
- **Directly affect hazardous materials transportation safety.**

DOT Training

Initial training

- Within 90-days
- Under the supervision of a properly trained and knowledgeable hazmat employee

Recurrent training

- At least once every 3 years
- Within 90-days of a change in the security plan

Relevant training

- Training received from a previous employer or other source may be used to satisfy the training requirements



DOT Training

- ❑ *General Awareness / Familiarization Training*
 - ❑ Each hazmat employee must receive general awareness / familiarization training designed to:
 - ❑ Provide familiarity with the requirements of the HMR's
 - ❑ To enable the employee to recognize and identify hazardous materials.



DOT Training

- ❑ *Function-Specific Training*
 - ❑ Each hazmat employee must receive function-specific training that is specifically applicable to the functions the employee performs.
 - ❑ As an alternative to function-specific training, training relating to the requirements of the ICAO Technical Instructions and the IMDG Code may be provided to the extent such training addresses identical functions.



DOT Training

- ❑ *Safety Training*
 - ❑ Each hazmat employee shall receive safety training concerning:
 - ❑ Emergency response information;
 - ❑ Measures to protect the employee from the hazards associated with hazardous materials to which the employee may be exposed to in the work place; and
 - ❑ Methods and procedures for avoiding accidents.



DOT Training

- ❑ *Security Awareness Training*
 - ❑ Each hazmat employee must receive training that provides an awareness of security risks associated with hazardous materials transportation and methods designed to enhance transportation security.
 - ❑ This training must also include a component covering how to recognize and respond to possible security threats.



DOT Training

- ❑ *In-Depth Security Training*
 - ❑ Each hazmat employee of a person required to have a security plan, performs a regulated function related to the hazardous materials covered by the plan, or is responsible for implementing the plan must be trained concerning the security plan and its implementation.



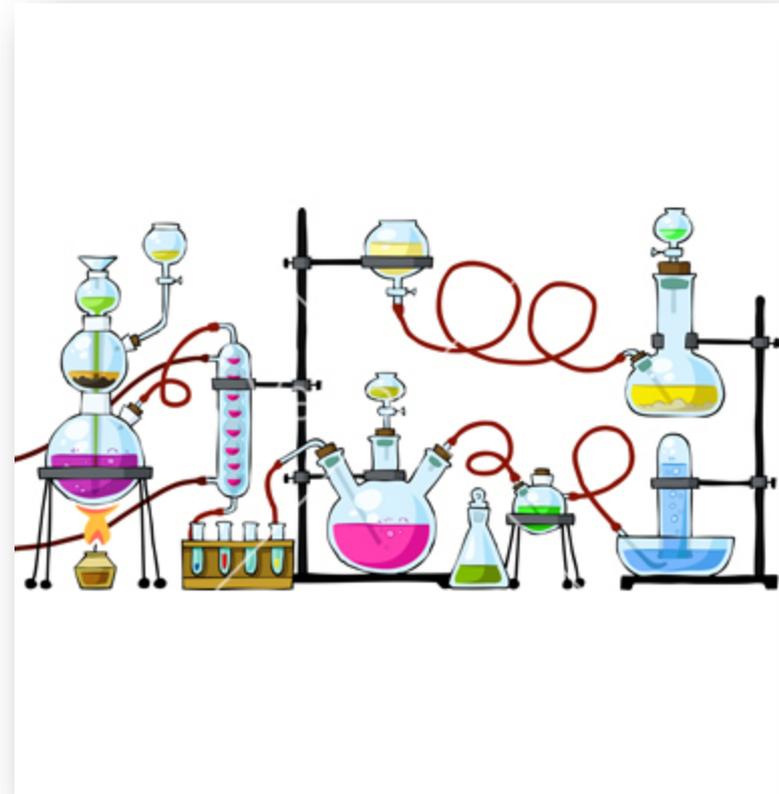
DOT Recognition of Other Training

- ❑ Training conducted by employers to comply with other federal or international agencies, may be used to satisfy the training requirements to the extent that such training addresses DOT's training components.



Introduction to OSHA Process Safety

- ❑ The OSHA regulation establishes requirements for process safety management with the intent of protecting employees and by preventing or minimizing the consequences of chemical accidents involving highly hazardous chemicals.
- ❑ All employees involved with highly hazardous chemicals must fully understand the safety and health hazards of the chemicals and processes they work with.



14 Elements of PSM

1. Employee Participation
2. Process Safety Information (PSI)
3. Process Hazard Analysis (PHA)
4. Operating Procedures
5. Training
6. Contractor Safety
7. Pre-Startup Safety Review (PSSR)
8. *Mechanical Integrity*
9. *Hot Work Program*
10. *Management of Change (MOC)*
11. Incident Investigation
12. *Emergency Planning and Response*
13. Compliance Audits
14. Trade Secrets



Employee Participation

- ❑ Consult with employees and their representatives on the development and conduct of hazard assessments and the development of chemical accident prevention plan.



Process Safety Information

- Develop and maintain written safety information identifying workplace chemical and process hazards, equipment used in the processes, and technology used in the processes.

MATERIAL SAFETY DATA SHEET

Revision Date: 5/21/2012

1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

Product Name: Linear Low Density Polyethylene

Product Grade Designations*: Hifor LT74104, LT74121, LT74156, DC74159
Hifor Clear SC74557, SC74559, SC74580
Hifor Xtreme SC74842, SC74840, SC74858, SC74849, SC74836
Mxsten@ CV77514, CV77515, CV77516, CV77518, CV77519, CV77520,
CV77525, CV77526
Mxsite@ LC78104, LC78105
LF2010AA, LF2020AA

*This MSDS is also valid for Developmental grade designations beginning with a D.

Manufacturer/Supplier:

Westlake Polymers LLC
2801 Post Oak Blvd.
Houston, TX 77056
US

MSDS Prepared by Product Regulatory Compliance / Health Safety & Environmental

Chemical Name Ethene-hexene copolymer

Synonym(s) LLDPE, Ethylene - Hexene Copolymer

Product Use plastic film, laminating, molding, coating

OSHA Status non-hazardous

For emergency information, telephone CHEMTREC at 800-424-9300.

2. COMPOSITION / INFORMATION ON INGREDIENTS

<u>Weight %</u>	<u>Component</u>	<u>CAS Registry No.</u>
99+ - 85	linear low density polyethylene	25213-02-9
15 - 0	polymers	proprietary
<0.5	antioxidants	proprietary
<0.5 - 0	slip reagent and/or processing aid	proprietary
<0.12	acid neutralizer	proprietary

3. HAZARDS IDENTIFICATION

HMIS® Hazard Ratings: Health - 0, Flammability -1, Chemical Reactivity - 0

HMIS® rating involves data interpretations that may vary from company to company. They are intended only for rapid, general identification of the magnitude of the specific hazard. To deal adequately with the safe handling of this material, all the information contained in this MSDS must be considered.

Exposure Limit: as Nuisance dust, 15.0 mg/m³, OSHA; Dust accumulation may acquire a static charge which could ignite the combustible particles. See section 7.

Inhalation: Not a hazard at ambient temperatures; vapors, fumes, or sprays which can form at elevated temperatures are irritants to the eyes and respiratory tract. Fine dust may cause respiratory tract irritation.



Process Hazard Analysis

- ❑ Perform a workplace hazard analysis, including, as appropriate, identification of potential sources of accidental releases.
- ❑ The analysis should consider previous releases and the release consequences.



Operating Procedures

- ❑ Develop and implement written operating procedures for the chemical process.
- ❑ The procedures must be technically accurate and understandable to employees.
- ❑ The procedures should be reviewed by engineering and operating personnel.



Watco Compliance Services
Visual Inspection

Procedure: ES-903
Original Date: 4.18.13
Revision Level: Original
Revision Date:
Revised By:
Approved By: Hybinette
Page 1 of 3

1) **WHERE TO INSPECT**

a) This procedure provides instruction to perform a general external and internal visual inspection of the tank shell, heads, sump, nozzles, and nozzle reinforcements for defects. Defects means abrasion, corrosion, cracks, dents, flaws in welds, distortions, erosion, rail burns, scores, wheel burns, and wear.

2) **WHEN TO INSPECT**

a) Scheduled Inspection

i) Except as provided in paragraph (b), inspect the tank shell, heads, sump, nozzle, and nozzle reinforcement:

- (1) At least once every 10-years; or
- (2) The interval detailed on the product specification sheet; or
- (3) An alternative interval based on government approval.

b) Condition Based Inspection

i) Inspect the tank shell, heads, sump, nozzle, and nozzle reinforcements if:

- (1) There is visible indications of metal loss (*e.g.*, corrosion, pits, scores, gouges, rail burns, wheel burns, and wear);
- (2) There is visible indications of cracks or fracture;
- (3) There is visible indications of tank deformations (*e.g.*, buckles and dents);
- (4) The Associate Administrator for Safety, FRA, requires it based on the existence of objectively reasonable and articulate belief that the equipment is in an unsafe operating condition.

3) **HOW TO INSPECT**

a) Technician Qualification

i) Each technician working to this procedure must have a current nondestructive testing Level II certificate of qualification or an American Welding Society ("AWS") Certified Welding Inspector ("CWI") certification for visual inspection.

b) Nondestructive Testing Procedure

i) Each technician working to this procedure must have the knowledge, skills, and abilities, to use properly the tank car facility's nondestructive testing procedure.

ii) The nondestructive testing procedure must have a documented performance qualification record with a quantified sensitivity and reliability level.

c) Equipment

i) Flashlight

d) Documents

i) Prior to inspection, obtain Form ES-903.01 to record the inspection results.

e) Process

i) Exterior and Interior Tank Shell, Heads, Sump, Nozzle, and Nozzle Reinforcement

- (1) Visually inspect the tank shell, heads, sump, nozzle, and nozzle reinforcements for defects.
- (2) In areas of metal loss, record on Form ES-903.01 for further evaluation.
- (3) In areas of buckling and denting, measure the radius of the buckle or dent and the depth and record on Form ES-903.01.
- (4) Visually inspect the tank and head circumferential butt welds for cracks.
- (5) Visually inspect pad-to-tank welds and bracket-to-pad fillet welds for cracks.



Training

- ❑ Provide written safety and operating information to employees and train employees on the operating procedures, emphasizing hazards and safe practices;
- ❑ The employer must determine that each employee understands and adheres to the training (i.e., performance assurance).
- ❑ Watco manages performance assurance through “operational testing” of employees performing their tasks and recording the results of these tests.



Contractors & Pre-Start Up Review

- ❑ Contractors
 - ❑ Employers who use contractors to perform work in and around processes should develop a screening process so that they hire and use contractors who perform tasks without compromising safety.
 - ❑ Employer should ensure that each contractor has the necessary knowledge, skills, and abilities to perform the work.
- ❑ Pre-Startup Review
 - ❑ Perform a pre-startup safety review of new facilities and for modified facilities.



Mechanical Integrity

- ❑ Establish maintenance systems for critical process related equipment including written procedures, employee training, appropriate inspections, and testing of such equipment to ensure ongoing mechanical integrity.
- ❑ Establish a quality assurance program to ensure that initial process related equipment, maintenance materials, and spare parts are fabricated and installed consistent with design specifications.



Hot Work Permit, MOC, & Incident Investigation

- *Hot Work Permit*
 - Establish procedures for performing hot work near covered processes.
- *Management of Change*
 - Establish procedures to manage changes (except for replacements in kind) to process chemicals, technology, equipment, procedures, and changes to facilities that affect a covered process.
- *Investigation of Incidents*
 - Incident investigation is the process of identifying underlying causes an avoid repeated implementing steps to prevent similar events. The intent is for employers to learn from past experiences.



Emergency Planning, Compliance Audits, & Trade Secrets

- *Emergency Planning*
 - Establish a system to respond to the workplace hazard assessment findings, which shall address prevention, mitigation, and emergency responses.
 - Periodically review the workplace hazard assessment and response system.
- *Compliance Audits*
 - Establish a process to audit the safety management system and field assessment of the safety and health conditions and standard operating practices to verify that the employer's system is effective.
- *Trade Secrets*
 - *Employers may enter into a confidentiality agreement with those involved in developing and implementing a process safety management system, including auditing and incident investigations.*



DOT / PSM at Tioga



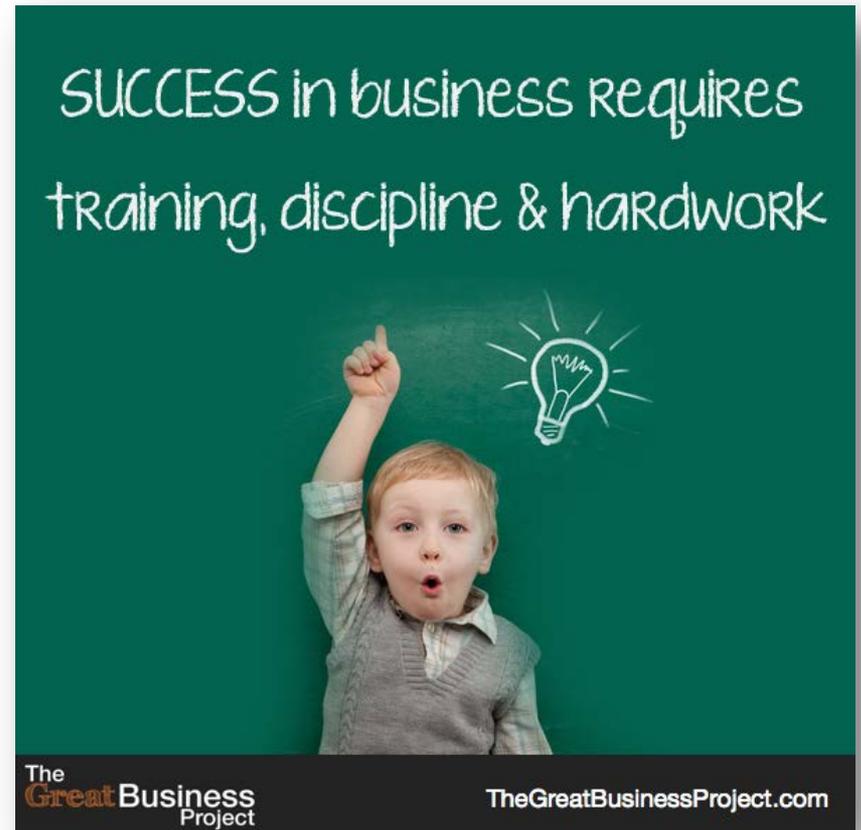
How to Comply with both DOT and OSHA Requirements

- 14 Elements OSHA's Process Safety Management
- AAR's Pamphlet 34 Recommended Methods for the Safe Loading and Unloading of Non-Pressure (General Service) and Pressure Tank Cars.
- General Code of Operating Rules
- Other OSHA, DOT and EPA regulations



Training Programs, Elements, and Goals

- Clear and defined
- Allows the worker to track his/her progress. (Goals)
- Potential hazards



Training Programs, Elements, and Goals

- *Training Program Elements and Goals*
 - Covers; DOT HazMat Awareness, HAZWOPER (OSHA), OSHA Safety, Function Specific and Terminal Procedure.
 - Measures not only knowledge but ability to perform.
 - Practical
 - Academic (Training Center)
 - Proves confidence by ensuring skill development



Training Programs, Elements, and Goals

- ❑ Starting and new job can be overwhelming.
- ❑ Different positions have different job requirements
- ❑ One function specific train does not fit all positions
- ❑ Job Profiles
 - ❑ Train Crew
 - ❑ Rack Loading Operators
 - ❑ Gate Security
 - ❑ Truck Off Load Attendant
 - ❑ Utility
 - ❑ Site Operator
- ❑ Each job profiles has a different function specific requirements



Emergency Response

- ❑ Training Program Entails
 - ❑ DOT HAZMAT Awareness
 - ❑ HAZWOPER (OSHA)
 - ❑ OSHA Safety,
 - ❑ Security Plan
 - ❑ Facility Response Plan
 - ❑ Terminal Procedure
 - ❑ Insipient Fire Fighting
 - ❑ Function Specific



Pre-Transportation Functions

- ❑ Determining that the tank car is in proper condition and safe for transportation
 - ❑ Training
 - ❑ Checklists
 - ❑ Operational testing



Operational Testing

- ❑ Each transloading facility periodically conducts operational tests and inspections to determine the extent of compliance with its standard operating procedures.
- ❑ Each facility maintains a record of each operational test performed.



Operational Test Results

Operational Test Results

Employee Information

Employee:

Railroad:

Test Information | Supervisor Info | Rules | Summary

Certification Class:

Test Name:

Test Type:

Test Date: Test Time:

Train Number:

Milepost/Location:

Comments:



Tioga Transloading Safety

- ❑ Goals and Track Progress
 - ❑ Clear Path
 - ❑ Check List
 - ❑ One on one interaction with trainer and supervisor

Training For Rack Operators



FUNCTION SPECIFIC TRAINING

<input type="checkbox"/>	Site Security SCP
<input type="checkbox"/>	ESD SCP and Matrix
<input type="checkbox"/>	MSDS SCP
<input type="checkbox"/>	Alarms and 4 Gas Monitor SCP
<input type="checkbox"/>	All Clear SCP
<input type="checkbox"/>	Blue Flag Protection SCP
<input type="checkbox"/>	Upper and Lower Rack Operations SCP
<input type="checkbox"/>	Waste SCP
<input type="checkbox"/>	Sample Pot SCP
<input type="checkbox"/>	
<input type="checkbox"/>	



DOT GENERAL AWARENESS HAZARDOUS MATERIALS TRAINING

<input type="checkbox"/>	DOT HAZMAT Regulations and Shipping Papers
<input type="checkbox"/>	Placarding and Labeling
<input type="checkbox"/>	Tank Car Loading and Inspection
<input type="checkbox"/>	Packing and Cargo
<input type="checkbox"/>	Flammable Liquid Fire Hazard
<input type="checkbox"/>	Personnel Security
<input type="checkbox"/>	Unauthorized Access
<input type="checkbox"/>	En Route Security



Tioga Transloading Safety

Caution:

If an Emergency Situation should occur to where there is potential of danger to Personnel, Equipment or the Public, shutdown the equipment using the Emergency Shutdown Procedure

Initials: _____

Caution:

Review Emergency Contact Phone Numbers and Emergency Procedures

Initials: _____

Caution:

H₂S can be lethal at low concentrations and can create an explosive atmosphere.

Use appropriate precautions whenever there is a potential for H₂S

Initials: _____

Caution:

LEL can create an explosive atmosphere at low concentrations.

Use appropriate precautions whenever there is a potential for LEL

Initials: _____



Training Records Include:

- Hazmat employee's name
- Most recent training date
- A description, copy, or location of the training material
- Name and address of the person providing the training
- Certification that the hazmat employee has been properly trained and tested
- OSHA: Means used to verify that the employee understood the training

Tioga Recordkeeping

- ❑ Goals and Track Progress
 - ❑ Sign-offs
 - ❑ Binders house each worker's records
 - ❑ DOT HazMat
 - ❑ OSHA
 - ❑ HAZWOPER



Training Verification	
Operator	Date
Instructor	Date
Supervisor	Date



Tioga Recordkeeping

- Measure Growth
 - Measures not only knowledge but ability to perform.
 - Practical
 - Academic (Training Center)



Tioga Employee Confidence

- ❑ Workers are self-confident, knowledgeable and skilled
- ❑ Supervisor are confident in their team.
- ❑ The site will develop a great reputation for professionalism.

