



UNITED STATES

**Hazardous
Materials
Instructions
for Rail**

**SAFETY
IS
JUST
GOOD
BUSINESS**

UNITED STATES
HAZARDOUS MATERIALS INSTRUCTIONS FOR RAIL

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RAILROAD SPECIAL HAZMAT INSTRUCTIONS

NORFOLK SOUTHERN CORPORATION

1. GENERAL REQUIREMENT

These rules govern all employees of Norfolk Southern Corporation (NS) and its railroad subsidiaries. On the effective date all employees must transport and handle hazardous materials in compliance with the **United States Hazardous Materials Instructions for Rail** (HM-1).

2. APPLICABILITY TO FOREIGN LINES

Foreign line carriers with trackage rights on NS are governed by the **United States Hazardous Materials Instructions for Rail**. If the foreign line railroad has adopted and issued a comparable document containing the **United States Hazardous Materials Instructions for Rail**, foreign line employees are not required to maintain and have accessible while on duty a current copy of the NS version of the document.

NS employees when operating on a foreign railroad are not required to have a copy of the foreign line hazardous materials manual if the foreign line carrier is governed by the **United States Hazardous Materials Instructions for Rail**.

3. EFFECTIVE DATE

These instructions take effect 12:01 AM, Eastern Standard Time, Wednesday, April 1, 2009. They supersede all previous rules and instructions inconsistent herewith.

Further instructions may be issued by proper authority.

S. C. Tobias
Vice Chairman and Chief Operating Officer
Norfolk Southern Corporation

NORFOLK SOUTHERN VISION

*Be the safest, most customer-focused and
successful transportation company in the world.*

INTRODUCTION

1. PURPOSE

One of the rail industry's primary focuses continues to be the safe transportation of hazardous materials. Rail employees interact regularly with employees of other railroads. If subscribing railroads implement and consistently apply a standard set of rules and regulations, we will significantly enhance both our employees' safety and the safety of the communities through which we operate. Those railroads involved in developing the **United States Hazardous Materials Instructions for Rail** worked together to create these instructions for employees who transport hazardous materials.

2. POLICY

To handle hazardous material shipments or incidents safely and efficiently, without delay, and in accord with local, state, and federal regulations, it is imperative that you familiarize yourself with the **United States Hazardous Materials Instructions for Rail**, in addition to other operating rules. These instructions provide guidance on how to perform your duties so that both you and the company will comply with Department of Transportation (DOT) regulations.

Transportation employees who inspect or transport hazardous material by rail must have a copy of and comply with the **United States Hazardous Materials Instructions for Rail**.

Employees who transport hazardous materials must also have a copy of the current **Emergency Response Guidebook** (ERG) readily accessible while on duty.

The company will provide appropriate training to each employee who directly affects hazardous material transportation safety.

Always keep in mind that the company requires you to comply fully with the law. Compliance with the letter and spirit of our obligations is good corporate citizenship and is basic to achieving quality in all areas of our operations. Each of us has a duty to see that the railroad's actions are consistent with the highest legal and ethical standards.

3. QUESTIONS

For questions about the **United States Hazardous Materials Instructions for Rail**, contact your immediate supervisor.

SECTION 1 — GENERAL INFORMATION

1. DEFINITION OF HAZARDOUS MATERIALS

- a. Hazardous materials are defined as “a substance or material which the Secretary of Transportation has determined to be capable of posing an unreasonable risk to health, safety, and property when transported in commerce.”
- b. Hazardous materials are classified according to their chemical and/or physical properties. There are two worded classes and nine numeric classes, some of which may be divided into divisions. A hazardous material is assigned to only one class, even if it meets the definition of more than one hazard class. **Table 1** lists the hazard classes and divisions.
- c. The term “hazardous material” includes hazardous substances, hazardous wastes, elevated temperature materials (HOT or MOLTEN), and marine pollutants.

TABLE 1. HAZARD CLASSES AND DIVISIONS

Numbered Classes and Divisions

1 — **Explosives**

- 1.1 — Explosive with mass explosion hazard
- 1.2 — Explosive with projection hazard
- 1.3 — Explosive with predominantly fire hazard
- 1.4 — Explosive with no significant blast hazard
- 1.5 — Very insensitive explosive; blasting agent
- 1.6 — Extremely insensitive detonating substance

2 — **Gases**

- 2.1 — Flammable gas
- 2.2 — Non-flammable, nonpoisonous, (nontoxic) compressed gas
- 2.3 — Poisonous (toxic) gas (by inhalation)

3 — **Flammable Liquids**

4 — **Flammable Solids and Reactive Solids/Liquids**

- 4.1 — Flammable solid
- 4.2 — Spontaneously combustible material
- 4.3 — Dangerous when wet material

5 — **Oxidizers and Organic Peroxides**

- 5.1 — Oxidizer
- 5.2 — Organic peroxide

6 — **Poisonous (Toxic) Materials and Infectious Substances**

- 6.1 — Poisonous (toxic) material
- 6.2 — Infectious substance

7 — **Radioactive Materials**

8 — **Corrosive Materials**

9 — **Miscellaneous Hazardous Materials**

Worded Classes

Combustible Liquid

ORM-D (Other Regulated Materials) (*Regulated in air transportation only.*)

2. GENERAL DOT REQUIREMENT

- a. No person may offer, accept, or transport a hazardous material in commerce unless that material is properly classed, described, packaged, marked, labeled, and placarded and is in proper condition for transportation according to DOT and/or International regulations.
- b. No person may transport a hazardous material in commerce unless the hazardous material is handled and transported according to DOT regulations.

3. EXPEDITING HAZARDOUS MATERIAL SHIPMENTS

- a. All loaded hazardous material shipments and residue/empty time-sensitive hazardous material shipments (see **Table 2**) must be forwarded towards the destination serving yard or applicable interchange as follows:
 - (1) within 48 hours (excluding Saturdays, Sundays, and holidays) after accepting them at the shipper's facility or receiving them in any yard, intermediate (transfer) station, or interchange point;
 - or
 - (2) when less than 5 day week service is performed, on the first available train toward the destination.

EXCEPTION: The 48 hour rule does not apply to shipments that are constructively placed or set out for repair.

TABLE 2. TIME-SENSITIVE SHIPMENTS

(1) Chloroprene, Stabilized	UN1991
(2) Ethylene, Refrigerated Liquid	UN1038
(3) Flammable Liquid, N.O.S. (Methyl Methacrylate Monomer, Uninhibited)	UN1993
(4) Flammable Liquid, N.O.S. (Recycled Styrene)	UN1993
(5) Styrene Monomer, Stabilized	UN2055
(6) Hydrogen Chloride, Refrigerated Liquid	UN2186
(7) Hydrogen, Refrigerated Liquid	UN1966
(8) Vinyl Fluoride, Stabilized	UN1860

- b. All Toxic Inhalation Hazard (TIH) shipments identified in **Table 3** must be delivered into the customer's facility at the next available switch after the TIH shipments have arrived in the railroad's yard at final destination.

If delivery cannot take place, Central Yard Operations (CYO) must be notified immediately with the reason for failure, and an alternative switching schedule, when applicable, must be scheduled.

TABLE 3. TOXIC INHALATION HAZARD (TIH) SHIPMENTS

(1)	Acetone Cyanohidrin, Stabilized	UN1541
(2)	Allyl Alcohol	UN1098
(3)	Anhydrous Ammonia	UN1005
(4)	Bromine	UN1744
(5)	Chlorine	UN1017
(6)	Chloropicrin	UN1580
(7)	Chlorosulfonic Acid	UN1754
(8)	Dimethyl Sulfate	UN1595
(9)	Ethyl Chloroformate	UN1182
(10)	Ethylene Oxide	UN1040
(11)	Hexachloropentadiene	UN2646
(12)	Hydrogen Chloride, Refrigerated Liquid	UN2186
(13)	Hydrogen Cyanide, Stabilized	UN1051
(14)	Hydrogen Fluoride, Anhydrous	UN1052
(15)	Hydrogen Sulfide	UN1053
(16)	Methyl Bromide	UN1062
(17)	Methyl Mercaptan	UN1064
(18)	Phosphorous Trichloride	UN1809
(19)	Sulfur Dioxide	UN1079
(20)	Sulfur Trioxide, Stabilized	UN1829
(21)	Sulfuric Acid, Fuming	UN1831
(22)	Titanium Tetrachloride	UN1838
(23)	Toxic By Inhalation Liquid, Corrosive, N.O.S.	UN3390
(24)	Toxic By Inhalation Liquid, Flammable, N.O.S.	UN3384

4. EXCEPTIONS FOR U.S. GOVERNMENT MATERIAL

- a. Department of Energy (DOE) and Department of Defense (DOD) shipments made for the purpose of national security and accompanied by escorts (personnel specifically designated by or under the authority of DOD or DOE) are **not** subject to DOT regulations or to the instructions in this book.
- b. Escorts must travel in a separate transport vehicle from the rail car carrying the hazardous materials.
- c. The escorts must have, in their possession, a document certifying that the shipment is for the purpose of national security.

5. INTERNATIONAL SHIPMENTS

International shipments of hazardous materials (including shipments to and from Mexico and Canada), moving with proper International documents and International placards, may be transported in the United States (U.S.):

- a. From a U.S. port of entry to their U.S. destination.
- b. When moving through the U.S. to a foreign destination.
- c. From a U.S. point of origin to the International port of entry, when the cars are:
 - (1) returning residue shipments;
 - or
 - (2) regulated Internationally but not in the U.S.

SECTION 2 — REQUIRED DOCUMENTATION

1. GENERAL REQUIREMENTS

No person may accept a hazardous material for shipment by rail transportation or transport a hazardous material in a train unless a member of the crew has each of the following documents:

- a. Acceptable shipping papers.
- b. Acceptable emergency response information.
- c. A document showing the current position of the hazardous material shipment in the train.

NOTE: The purpose of this documentation is to provide railroad personnel and emergency response personnel with accurate information about the hazardous materials.

Therefore, keep all current hazardous material documents neat and orderly and ensure that they are available in case of an emergency or for inspection. Properly discard superceded documents to eliminate the possibility of confusing or inconsistent information.

2. ACCEPTABLE SHIPPING PAPERS

Any one of the following documents is an acceptable shipping paper for hazardous material shipments, as long as it includes the required shipping description entries (see **Item 6** of this section), is legible, and is printed (manually or mechanically in English).

- a. **Railroad-produced documents** — for example, train consists, train lists, wheel reports, waybills, industry work orders, or other similar documents.
- b. **Customer-produced documents** — for example, bills of lading [including United Parcel Services (UPS) hazardous materials packets], or switch lists.
- c. A **connecting carrier's documents**.
- d. A **hand-printed document** (printed, not cursive letters) — for example, radio waybills.
- e. A **hazardous waste manifest**.

3. ACCEPTABLE EMERGENCY RESPONSE INFORMATION

Any one of the following documents is acceptable emergency response information:

- a. Emergency response information printed as part of the train list/consist.
- b. ***Emergency Response Guidebook*** (ERG).
- c. Similar information provided by the customer — for example, a Material Safety Data Sheet (MSDS).

4. DOCUMENT INDICATING POSITION-IN-TRAIN

Before moving hazardous material shipments in a train, a member of the crew must have a document that shows the current position in the train of each hazardous material shipment (loaded and residue/empty).

When making pickups or setouts, update the document before proceeding. The train crew may update the document by handwriting on it or by appending or attaching another document to it.

5. CHECKING FOR SHIPPING PAPERS

Make sure that a member of the crew has a paper copy of acceptable shipping papers, with the required entries, for each hazardous material when:

- a. Accepting hazardous material shipments at a customer's facility, interchange point, or other location.
- b. Moving hazardous material shipments in a train.
- c. Delivering hazardous material shipments to a customer's facility, interchange point, or other setout point.
- d. Switching hazardous material shipments outside a yard.

NOTE: Shipping papers are not required in the switch crew's possession when moving hazardous material shipments within a yard or at a customer's facility.

EXCEPTION: Although they may remain placarded and marked, residue/empty "Elevated Temperature Material" tank cars do not require hazardous material shipping papers and emergency response information.

6. REVIEWING SHIPPING PAPER ENTRIES

Review the shipping description entries for each hazardous material on the shipping papers and make sure that the following entries (a–g under this item) are present. (**Figure 1** shows two formats for displaying the shipping description entries.)

FIGURE 1. SHIPPING DESCRIPTION ENTRIES

Vertical Format

GATX 12345 ^(a)
1/TC ^(b)
SULFURIC ACID ^(c)
8 ^(d)
UN1830 ^(e)
PGII ^(f)
RQ (SULFURIC ACID) ^(h3)
EMERGENCY CONTACT: 800-424-9300 ^(g)
HAZMAT STCC = 4930040 ^(h11)

Horizontal Format

UTLX 12345 ^(a)
1/TC ^(b) // CHLORINE ^(c) // 2.3 ^(d) // UN1017 ^(e) // RQ (CHLORINE) ^(h3) //
POISON-INHALATION HAZARD ^(h6) // ZONE B ^(h7) // MARINE POLLUTANT
(CHLORINE) ^(h4) // EMERGENCY CONTACT: 800-424-9300 ^(g) //
HAZMAT STCC = 4920523 ^(h11)

Items (a) through (g) are required entries for the basic hazardous materials description. Item (h) refers to additional entries that may appear. Typically, items (b) through (f) are in the sequence shown; however, certain items (technical name and subsidiary hazard class) may appear in parentheses between items (b) through (f). **NOTE:** The identification number (e) may be found either before the proper shipping name (c) or after the hazard class (d) until January 1, 2013 when the identification number must appear before the proper shipping name (c).

a. Reporting Marks (Initials) and Number

The shipping paper for a rail car, freight container, transport vehicle, or portable tank must include the reporting mark and number **only** when the reporting mark and number are displayed on the rail car, freight container, transport vehicle, or portable tank.

b. Total Quantity Notation

- (1) For empty packagings, bulk packagings, or cylinders of Class 2 materials, some indication of the total quantity must be shown (certain abbreviations are acceptable). For example, "1 T/C" (1 tank car), "1 C/L" (1 car load), or "10 CYL" (10 cylinders).
- (2) For non-bulk packaging, the total quantity is given by both:
 - (a) weight or volume (including the unit of measure); for example, "100 lbs.", "55 gal.", "5 kg", or "208 L"; and
 - (b) number and type of packages; for example, "12 drums", "12 UN 1A1", "15 4G", or "2 UN 3H1 JERRICAN".
- (3) For Class 1 materials, the quantity shown must be the Net Explosive Mass. See 49 CFR, Section 172.202(a)(5)(i).

c. Proper Shipping Name

- (1) The proper shipping name of the hazardous material may be one or more words, such as "Chlorine" or "Sulfuric Acid." The proper shipping name may include a number that indicates the concentration of the material.
- (2) When a N.O.S. (Not Otherwise Specified) shipping name appears, the technical name of the product may appear in parentheses immediately after the N.O.S. shipping name, such as "Corrosive Liquid, N.O.S. (Capryl Chloride)."
- (3) Residue/empty tank car shipments must begin with "Residue: Last Contained," followed by the proper shipping name.
- (4) For waste shipments, the word "Waste" will precede or be part of the proper shipping name of the material.

d. Hazard Class

Reference: For further information on hazard classes, see the definition in the Glossary and the list of hazard classes and divisions in **Table 1**.

- (1) For certain hazardous materials, a subsidiary hazard class, will appear in parenthesis after the primary hazard class. For example, Ethylene Oxide is listed as "2.3 (2.1)".
- (2) The hazard class need not be repeated for Combustible Liquids, N.O.S. shipments.
- (3) Classes 1.1, 1.2, 1.3, 1.4, 1.5, and 1.6 may show a compatibility group letter after the class (for example, 1.1A). The letter has no significance in rail transportation.

e. Identification Number

A 4-digit identification number must appear on the shipping papers with the prefix "UN" (United Nations) or "NA" (North America) as appropriate.

NOTE: The identification number (e) may be found either before the proper shipping name (c) or after the hazard class (d) until January 1, 2013 when the identification number must appear before the proper shipping name (c).

EXCEPTION: The proper shipping description "gas generator assemblies for aircraft" does not require identification numbers.

f. Packing Group

The packing group must appear on the shipping papers in Roman numerals ("I", "II", or "III"). The packing group may be preceded by the letters "PG" ("PGI", "PGII", or "PGIII").

EXCEPTIONS: Hazard Classes 1.1, 1.2, 1.3, 1.4, 1.5, 1.6, 2.1, 2.2, 2.3, 4.1 (self-reactive liquids or solids, types B–F), 5.2, 6.2, 7, and ORM-D do not require the packing group notation.

g. Emergency Response Telephone Number

Shipping papers for hazardous materials must show a 24-hour emergency response telephone number. This number must include the area code or international access code.

EXCEPTIONS: Emergency response telephone numbers are not required when the hazardous material is shown as a "Limited Quantity", "LTD QTY", or its shipping name is:

- (1) Battery powered — equipment or vehicle.
- (2) Carbon dioxide, solid or dry ice.
- (3) Castor — bean, meal, flake, or pomace.
- (4) Consumer commodity.
- (5) Engines, internal combustion.
- (6) Fish — meal or scrap, stabilized.
- (7) Refrigerating machine.
- (8) Wheelchair, electric.
- (9) Vehicle, flammable gas powered or vehicle, flammable liquid powered.
- (10) Fumigated unit.

h. Additional Entries

Some hazardous material shipping descriptions also may require one or more of these entries:

- (1) "Residue: Last Contained ..." (for packages emptied to the maximum extent possible).
- (2) "HOT" notation added before a proper shipping name for elevated temperature materials.
- (3) "RQ" for Reportable Quantity notation of a hazardous substance.
- (4) "MARINE POLLUTANT" notation.
- (5) "POISON" or "TOXIC" notation.
- (6) "POISON (TOXIC)-INHALATION HAZARD (PIH or TIH)" or "INHALATION HAZARD (IH)" notation.

- (7) Hazard Zone notation (“ZONE A,” “ZONE B,” “ZONE C,” or “ZONE D”).
- (8) “LIMITED QUANTITY” or “LTD QTY” notation.
- (9) FRA Movement Approval (for example, “FRA 0109123”), DOT Special Permit (for example, “SP 9271”), Special Approval Number (for example, “SA 920403”), or Competent Authority Number (for example, “CA 9701001”).
- (10) DOT-113 notation (“DOT-113, Do Not Hump or Cut-Off in Motion”).
- (11) Hazardous Materials Response Code (STCC “48xxxx” or “49xxxx”).
- (12) Certain shipments described using Canadian regulations may contain both an Emergency Response Plan number and its activation telephone number (e.g., “ERP-2-1008 (800-555-5555) // SPECIAL COMMODITY”).
- (13) Box of asterisks with or without wording (not required by DOT, but may appear on railroad-produced documents).
- (14) Shipper’s Certification.
- (15) “OIL” notation.
- (16) Additional radioactive material entries.
- (17) Name and address of the place of business in Canada of the consignor.
- (18) Additional hazardous waste shipping description entries (see **Section 2, Item 11a**).
- (19) EX number for Air Bag Inflators classified as Class 9. **NOTE:** recycled Air Bag Modules do not require the EX number entry but must have the words “recycled” after the basic description.
- (20) For International shipments the following additional information may be present:

Dangerous Goods in Excepted Quantities, and an indication of number of packages.

NOTE: *This information may appear voluntarily on the shipping papers starting January 1, 2009 and becomes mandatory January 1, 2010.*

7. HANDLING SITUATIONS WHEN SHIPPING PAPERS OR REQUIRED ENTRIES ARE NOT AVAILABLE

When the appropriate shipping paper is not present or when all required entries on the shipping paper provided are not present:

- a. Do not move the car until the appropriate shipping paper or the required entries on the shipping paper are present.
- b. Take one of these three actions:
 - (1) Correct the existing document. Contact the customer or your supervisor, request the entries required to complete the shipping description, and legibly print those entries in the appropriate sequence (see **Section 2, Item 6**).
 - or
 - (2) Obtain the appropriate shipping paper from the shipper, your supervisor, or other appropriate person.
 - or

- (3) Use a radio waybill.
 - (a) Contact your supervisor or dispatcher and request the appropriate entries for a radio waybill (see **Figure 2, Radio Waybill**). The supervisor or dispatcher will provide the requested entries via radio or telephone to you.
 - (b) Complete the radio waybill using the information the supervisor or dispatcher provided.

NOTE: If a radio waybill form is not available, legibly print the required hazardous material information on a sheet of paper including the car's initials and number (see **Section 2, Item 6**).
 - (c) Keep the radio waybill with the other shipping documents until either reaching the final destination or receiving another shipping paper with the appropriate entries.
 - (d) For each radio waybill issued, add the car initial and number and its position on the position-in-train document.

8. CHECKING FOR EMERGENCY RESPONSE INFORMATION

- a. When accepting and transporting hazardous material shipments, make sure a copy of the emergency response information for each shipment (see **Section 2, Item 3**) is available.
- b. If emergency response information is **not** available, do **not** accept or transport the car.

9. CHECKING FOR POSITION-IN-TRAIN DOCUMENT

- a. When transporting hazardous material shipments in a train, make sure a member of the crew has a document indicating the current position in train of each hazardous material shipment.
- b. If the document indicating the current position in train of each hazardous material is **not** available:
 - (1) update the documents already in your possession;
 - or**
 - (2) create a hand-printed list showing the position in train of each hazardous material shipment.

NOTE: The list must show the reporting marks and number for each hazardous material shipment in the train and its actual position in the train.

10. HANDLING SHIPPING PAPERS RECEIVED FROM A CUSTOMER

When picking up a hazardous material shipment from the customer and the customer provides the original shipping papers:

- a. Check for appropriate hazardous material entries.
- b. For loaded shipments, make sure that the shipper's certification and signature (signature by hand or mechanical means) are on the shipping papers received from the customer.

11. HANDLING HAZARDOUS WASTE SHIPPING PAPERS AND MANIFESTS

- a. The shipping paper for a hazardous waste shipment must have the following entries in addition to the entries required for other hazardous material shipments:
 - (1) Proper shipping description.
 - (2) Name, address, and telephone number of the hazardous waste generator.
 - (3) Name and address of the hazardous waste disposal facility.
 - (4) Name of transporter.
 - (5) Waste manifest number.
 - (6) Special handling instructions.
- b. Before picking up a rail car containing hazardous waste from a hazardous waste generator, either:
 - (1) the shipper/generator will sign the original hazardous waste manifest if they have the authority to sign on behalf of the company;
or
 - (2) a member of the train crew, or another designated railroad employee, must sign on behalf of the company in the "Transporter acknowledgment" section of the manifest.
- c. When delivering rail cars of hazardous waste to a disposal facility, either:
 - (1) the disposal facility has an agreement with the company to forward the signed manifest directly to the Agency Operations Center;
or
 - (2) a train crew member or other designated employee must obtain a handwritten signature by a person representing the disposal facility on the manifest or on the shipping paper if the manifest is not available, which then must be forwarded to the Agency Operations Center.

12. HANDLING REQUESTS FOR SHIPPING PAPERS OR EMERGENCY RESPONSE INFORMATION

When receiving a request for shipping papers or emergency response information from a railroad employee, regulatory enforcement officer, or emergency response personnel in an emergency:

- a. share **all** the information on the shipping papers for the shipment; and
- b. share **all** available emergency response information.

SECTION 3 — CAR INSPECTION

1. GENERAL REQUIREMENTS

- a. To determine that they are in acceptable condition for transportation, all loaded and residue/empty hazardous material shipments must be inspected at these points:
- (1) Before accepting them from the shipper.
 - (2) When receiving them in interchange.
NOTE: Run-through trains received in interchange may continue to the next inspection point before being inspected.
 - (3) When placing them in a train.
 - (4) At other points where an inspection is required (e.g., 1,000 mile inspection).
- b. Accept or transport only those hazardous material shipments that conform to these instructions.

2. INSPECTION PROCEDURES

From ground level, inspect all rail cars, trailers, and containers transporting hazardous materials, whether loaded or residue/empty (including flat cars transporting placarded or marked trailers or containers), for:

- Leakage.
- Required placards and markings (including stenciling, car certificates, and qualification dates).
- Secure fastening of closures.
- Signs of tampering, such as suspicious items or items that do not belong, the presence of an “Improvised Explosive Device” (IED), and other signs that the security of the car may have been compromised. *(This inspection must take place from the ground, at a close enough distance so that any problems can be readily identified, and must NOT be performed from a moving vehicle.)*

NOTE: Where an indication of tampering or a foreign object is found, take the following actions:

- Do not accept or move the rail car.
- Immediately move yourself and others to a safe location away from the rail car before using radios and cell phones to make notifications.
- For cars at a customer’s facility, immediately contact local plant personnel. If local plant personnel are not available or cannot explain what you see, immediately contact the Train Dispatcher.
- For cars on interchange tracks or in the yard, immediately contact the Yardmaster or Train Dispatcher.

a. Inspecting All Car Types (from Ground Level)

- (1) Without climbing on the car, make sure that the hazardous material shipment is not leaking.
 - (a) Look for leaking contents — drips, wetness, or material on the car or on the ground.
 - (b) Look for a vapor cloud.
 - (c) Listen for hissing sounds of the contents escaping.

NOTE: If you find a hazardous material shipment leaking, follow the instructions in **Item 3** of this section and in **Section 8 (Emergency Response), Item 5**.
- (2) Make sure placards and markings are appropriate for the shipment in good condition and displayed correctly (see **Section 4, Placards and Markings**).
- (3) Before accepting a hazardous material shipment from the shipper, make sure that:
 - (a) All customer loading and unloading lines are disconnected.
 - (b) Derails, chocks, and blue flags are removed.
 - (c) All platforms are raised or in the clear.

b. Inspecting Tank Cars (from Ground Level)

Check placarded tank cars or tank cars marked with an identification number to see that:

- (1) Protective housing covers are closed.
- (2) Manway cover swing bolts are up and in place.
- (3) All valves and fittings appear to be closed and secure.
- (4) Visible plugs or caps (including bottom outlet caps) or other fittings are securely in place.

NOTE: Heater coil caps may be left off.
- (5) “Double shelf couplers” and roller bearings are present.

c. Inspecting Placarded/Marked Gondola Cars

- (1) Look for loosely fastened gondola covers.
- (2) Make sure the cover or tie downs do not foul any safety appliances.

d. Inspecting Placarded/Marked Hopper Cars

Check that discharge gates are closed and secured.

e. Inspecting Placarded/Marked Intermodal Cars

- (1) Make sure that an intermodal tank container of hazardous materials is not transported with a container above or below the tank.
- (2) Placards must be fully visible when containers are loaded in a well car.
- (3) Intermodal tanks must be placed so that any bottom outlet valves are pointed toward the ends of the well car or platform

f. Inspecting Shipments Placarded EXPLOSIVES 1.1 or 1.2

- (1) In addition to the other inspection requirements in this section, for shipments placarded EXPLOSIVES 1.1 and 1.2:
 - (a) Look for indications of damage to the contents.
 - (b) Make sure that completed “car certificates” (see **Figure 3, Car Certificate**) are displayed on both sides of the rail car.

- (i) Car certificates must be removed after the rail car, trailer, or container is unloaded.
 - (ii) Car certificates are either 7.1 by 7.1 inches or 5.9 by 7.9 inches in size.
- (2) Do not accept or transport the car until all damage has been corrected and car certificates are in place.

3. HANDLING DEFECTS

When a hazardous material shipment does not appear to be prepared for transportation or signs of tampering such as suspicious items are found:

- a. Do not accept or pull the hazardous material shipment or allow it to continue in transportation.
- b. Notify the customer, Train Dispatcher, Yardmaster, or your immediate supervisor, as appropriate, and explain the problem.

FIGURE 3. CAR CERTIFICATE

_____ Railroad

No. 1 _____ Station, _____, 20 _____

I hereby certify that I have this day personally examined

Car Number _____ and that the car is in condition for service and complies with the FRA Freight Car Safety Standards (49 CFR Part 215) and with the Requirements for freight cars used to transport explosives prescribed by the DOT Hazardous Materials Regulations (49 CFR Part 174).

(Qualified Person Designated Under 49 CFR 215.11)

No. 2 _____ Station, _____, 20 _____

I have this day personally examined the above car and hereby certify that the explosives in or on this car, or in or on vehicles or in containers have been loaded and braced; that placards have been applied, according to the regulations prescribed by the Department of Transportation; and that the doors of cars so equipped fit or have been stripped so that sparks cannot enter.

(Shipper or his authorized agent)

(Qualified Person Designated Under 49 CFR 215.11)

No. 3 _____ Station, _____, 20 _____

I hereby certify that I have this day personally supervised the loading of the vehicles or containers on and their securement to the above car.

(Shipper or railway employee inspecting loading and securement)

NOTE 1: A shipper must decline to use a car not in proper condition.
NOTE 2: All certificates, where applicable, must be signed.

SECTION 4 — PLACARDS AND MARKINGS

1. GENERAL REQUIREMENT

Hazardous material shipments, whether loaded or containing a residue, must not be accepted for transportation or transported unless they are properly placarded and marked.

2. PLACARD REQUIREMENTS

Each bulk packaging, freight container, transport vehicle, or rail car containing hazardous material must be placarded on each side and each end in accordance with the instructions below.

NOTE: Unless the shipping papers indicate that the shipment is a limited quantity, all international shipments (including Canada and Mexico) of hazardous materials require placards.

PLACARD — a sign measuring 273 mm (10.8 in) by 273 mm (10.8 in) square-on-point, communicating a hazard by symbol, color, and words or numbers. (See **Figure 4** for pictures of placards.) Text indicating the hazard is not required on placards other than the DANGEROUS placard. The hazard class text does not have to be in English.

NOTE: A placard meeting IMDG requirements [minimum of 250 mm (9.8 in) by 250 mm (9.8 in)] is acceptable.

- a. Placards are required when transporting **any quantity** of these hazard classes:
- 1.1 Explosive with mass explosion hazard
 - 1.2 Explosive with projection hazard
 - 1.3 Explosive with predominantly fire hazard
 - 2.3 Poisonous (toxic) gas (by inhalation)
 - 4.3 Dangerous when wet material
 - 5.2 Organic peroxide, Type B, liquid or solid, temperature controlled
 - 6.1 Poisonous (toxic) material, inhalation hazard, Hazard Zone A, and Hazard Zone B
 - 7 Radioactive Yellow III label or exclusive use shipments of low specific activity (LSA) materials and surface contaminated objects.
- b. Placards are required when transporting quantities of **1,001 lbs. (454 kg) or more** of these hazard classes:

NOTE: Placards may be displayed for quantities less than 1,001 lbs. of these materials, as long as they are appropriate for the shipment.

- 1.4 Explosive with no significant blast hazard

NOTE: Placards are not required for Class 1.4S materials.

- 1.5 Very insensitive explosive; blasting agents
- 1.6 Extremely insensitive detonating substances
- 2.1 Flammable gas
- 2.2 Non-flammable, nonpoisonous compressed gas
- 3 Flammable liquid
- 4.1 Flammable solid

- 4.2 Spontaneously combustible material
- 5.1 Oxidizer
- 5.2 Organic peroxide, other than “organic peroxide, Type B, liquid or solid, temperature controlled” in 2a above
- 6.1 Poisonous (toxic) material other than materials poisonous (toxic) by inhalation
- 8 Corrosive material
- 9 Miscellaneous hazardous material.

EXCEPTION: For U.S./Canadian transportation, Class 9 placards are not required. However, bulk shipments of Class 9 materials must be marked with the identification number (see **Section 4, Item 4**).

Combustible Liquids

Mixed hazardous materials in this item.

NOTE: For U.S. transportation of Class 6.1, PGIII, a PGIII placard may be used in place of a POISON (TOXIC) placard.

- c. Placards are not required for:
 - (1) Hazardous material shipments with less than 1,001 lbs. (454 kg) total weight, provided the hazard classes are included in **Item b** above
 - (2) ORM-D (Other Regulated Materials)
 - (3) Class 6.2 (Infectious Substances)
 - (4) Class 9 (U.S./Canadian) materials that display the identification number
 - (5) Limited Quantity (LTD QTY) shipments when identified as such on shipping papers
 - (6) Cryogenic atmospheric gases, other than Oxygen (for example, Argon)
 - (7) Combustible liquids in non-bulk packaging (i.e., drums), usually found in intermodal shipments, unless the material is a hazardous substance or hazardous waste
 - (8) Rail cars and intermodal tanks which have been cleaned and purged
 - (9) Shipments listed as Radioactive White I and Yellow II labels on shipping papers
 - (10) Class 1.4S
 - (11) Shipments of molten sulfur moving to the United States from Canada, provided the identification number and the words “MOLTEN SULFUR” appear on each side of the tank car.
- d. Placards may be displayed for hazardous materials, even when not required, as long as the placard is appropriate for the contents of the shipment. If displayed, then all instructions for that placard apply.
- e. Certain hazard classes require the display of the primary placard on a white square background, including (see **Figure 4, Placard Chart**) *(when required to be affixed to the rail car)*:
 - (1) Hazard Class 1.1 or 1.2 explosives
 - (2) Hazard Class 2.1 Flammable Gases loaded in DOT-113 tank cars
 - (3) Hazard Class 2.3 or 6.1 Poison Inhalation Hazard Zone A material.

FIGURE 4. PLACARDS FOR HAZARDOUS MATERIALS BY HAZARD CLASS

Class 1 (Explosives)



Division 1.1
(Explosive with Mass Explosion Hazard)



Division 1.2
(Explosive with Projection Hazard)



Division 1.3
(Explosive with Predominantly a Fire Hazard)



Division 1.4
(Explosive with no Significant Blast Hazard)



Division 1.5
(Very Insensitive Explosive)



Division 1.6
(Extremely Insensitive Explosive)

Class 2 (Gases)



Division 2.1
(Flammable Gas)



Division 2.1 (Flammable Gas in cryogenic form in DOT-113 Tank Car)



Division 2.2
(Non-flammable Gas)



Division 2.3 Zone A
(Poison Gas)



Division 2.3 Other than Zone A
(Poison Gas)



Oxygen



Anhydrous Ammonia
Canadian Only

International Placard



NOTE: The word "TOXIC" can be used in place of the word "POISON."

May appear in conjunction with U.S. "POISON" GAS Placard (INHALATION HAZARD CLASS 2) on Canadian or International Shipments.

Class 3 (Flammable Liquids)



Class 3
(Flammable Liquid)

Class 3 (Combustible Liquids)



Class 3
(Combustible Liquid)

FIGURE 4. PLACARDS FOR HAZARDOUS MATERIALS BY HAZARD CLASS

Class 4 (Flammable Solids & Reactive Solids/Liquids)



Division 4.1
(Flammable Solid)

Division 4.2
(Spontaneously Combustible)

Division 4.3
(Dangerous When Wet Material)

Class 5 (Oxidizers & Organic Peroxides)



Division 5.1
(Oxidizer)

Division 5.2
(Organic Peroxide)

Division 5.2
Valid through 2010 (U.S. and Canada Only)

Class 6 (Poisonous Materials)



Division 6.1 Zone A
[Poison or Toxic Inhalation Hazard (PIH or TIH)]

Division 6.1 Zone B
[Poison or Toxic Inhalation Hazard (PIH or TIH)]



NOTE: The word
"TOXIC" can be
used in place of
the word
"POISON."

Division 6.1 PGI
[Other than Poison or Toxic Inhalation Hazard (PIH or TIH)],
PGII, or PGIII

Division 6.1
PGIII

Class 7 (Radioactive Materials)



Class 7
(Radioactive Material)

Class 8 (Corrosive Materials)



Class 8
(Corrosive Material)

Class 9 (Miscellaneous Hazardous Materials)



Class 9
(Miscellaneous Hazardous Material)

Class 9 (Mixed Load)



U.S.



Canadian

- f. The DANGEROUS placard may be used instead of separate placards when a rail car, trailer, or container is loaded with non-bulk packages of two or more classes of hazardous materials from **Item 2b** of this section.

NOTE: When 1,000 kg (2,205 lbs.) or more of one class of material is loaded at one loading facility, the placard(s) for that class as specified in **Item 2b** of this section must also be applied.

- g. Some shipments of hazardous materials require subsidiary placards that represent secondary hazards. These placards must not display a 4-digit identification number, but will display the hazard class or division.

NOTE: Subsidiary placards must be displayed when the subsidiary class is 2.3, 4.3, or 6.1 with the notation POISON-INHALATION HAZARD or TOXIC-INHALATION HAZARD present on the shipping papers.

- h. For residue/empty hazardous materials shipments, the rail car, trailer, or container must remain placarded in the same manner as the loaded shipment unless the packaging:

(1) has been cleaned of residue;

or

(2) has been purged of vapor to remove any hazard;

or

(3) has been refilled, with a material requiring different placards or no placards, to such an extent that any residue remaining in the packaging is no longer hazardous.

(4) Contains a residue of an elevated temperature. These shipments may remain placarded in the same manner as when it contained a greater quantity of the material even though the material no longer meets the definition for an elevated temperature material.

(5) Contains a residue of a Hazardous Substance, Class 9, that does not meet the definition of another hazard class and is not a hazardous waste or marine pollutant. These shipments may remain marked, labeled, and or placarded in the same manner as when it contained a greater quantity of the material even though the material no longer meets the definition for a Hazardous Substance.

3. INSPECTING FOR PLACARDS

- a. Make sure that all required placards are:

(1) Consistent with the shipping paper information.

(2) On both sides and both ends of the shipment.

(3) In placard holders or securely attached to the rail car, trailer, or container.

(4) Not damaged, faded — color should be similar to the color printed in this document (see **Figure 4, Placard Chart**), or obscured by dirt or car part.

(5) Oriented horizontally, so you can read them from left to right.

(6) Readily visible from the direction they face, except for placards on the ends of trailers and containers in or on a rail car.

- b. When **picking up** a hazardous material shipment at a customer's facility or siding and a placard is not correct, does not meet the standards above, or is missing:
 - (1) Notify the customer, Train Dispatcher, Yardmaster, or your supervisor, as appropriate.
 - (2) Do **not** accept the hazardous material shipment until corrections have been made.
- c. When a placard does not meet the standards above or is discovered missing **en route**, notify the Train Dispatcher, Yardmaster, or your supervisor, as appropriate. They will arrange to correct the problem at the next inspection point.

4. MARKING REQUIREMENTS AND INSPECTING FOR MARKINGS

Marking — a descriptive commodity name, identification number, caution (such as INHALATION HAZARD, HOT, MOLTEN, FUMIGANT, OR NON-ODORIZED (not odorized) or MARINE POLLUTANT), or tank car qualification date displayed on hazardous material shipments.

Make sure the markings above are displayed on bulk packages as follows:

a. Identification Number Mark

- (1) Identification number markings must appear on both sides and both ends either on the placard or in close proximity to the placard, when a placard is required:
 - (a) Bulk packages of hazardous materials (including Class 9 when no placard is required).

NOTE: Identification number markings are not required on the ends of multi-compartmented tank cars transporting more than one hazardous material having different DOT identification numbers.
 - (b) Rail cars, trailers, and containers when 8,820 lbs. (4,000 kg) or more of non-bulk packages of hazardous materials, with the same proper shipping name and identification number, are loaded at one location and the transport vehicle does not contain any other hazardous or non-hazardous materials.

EXCEPTION: For shipments of molten sulfur from Canada, the identification number marking must appear only on both sides of the tank car.
- (2) Identification numbers can be displayed in one of three ways, as **Figure 5** shows:

FIGURE 5. IDENTIFICATION NUMBERS



- (3) Identification numbers must not be displayed on:
 - (a) EXPLOSIVES 1.1, 1.2, 1.3, 1.4, 1.5, or 1.6 placards.
 - (b) RADIOACTIVE placards.
 - (c) DANGEROUS placards.
 - (d) Subsidiary placards.
- (4) Make sure that the identification numbers appear as required above and agree with the shipping paper entries.
- (5) When **picking up** a hazardous material shipment at a customer's facility or siding or at an interchange point and the identification number is not correct, is not legible, or is missing:
 - (a) Notify the customer, Train Dispatcher, Yardmaster, or your supervisor, as appropriate.
 - (b) Do **not** accept the hazardous material shipment until corrections have been made.
- (6) When an identification number is not correct, is not legible, or is missing **en route**, notify the Train Dispatcher, Yardmaster, or your supervisor, as appropriate. They will arrange to correct the problem at the next inspection point.

NOTE: Missing identification numbers must be replaced and may be entered on the appropriate placard, orange panel, or white square-on-point configuration by hand using a **black indelible** marker.

b. MARINE POLLUTANT Mark

- (1) For a material described on the shipping papers as a marine pollutant and the shipment does not require a placard, make sure that the MARINE POLLUTANT mark appears on both sides and both ends of bulk packaging in one of the formats in **Figure 6**.

FIGURE 6. MARINE POLLUTANT MARK



NOTE: MARINE POLLUTANT marks are not required when the bulk packaging displays a placard.

- (2) When **picking up** a hazardous material shipment at a customer's facility or siding or at an interchange point, and a required MARINE POLLUTANT mark is not legible or is missing:
 - (a) Notify the customer, Train Dispatcher, Yardmaster, or your supervisor, as appropriate.
 - (b) Do **not** accept the hazardous material shipment until corrections have been made.

- (3) When a required MARINE POLLUTANT mark is not legible or is missing **en route**, notify the Train Dispatcher, Yardmaster, or your supervisor, as appropriate. They will arrange to correct the problem at the next inspection point.

c. HOT Mark

- (1) For a material described on the shipping papers with the words “HOT,” “ELEVATED TEMPERATURE,” or “MOLTEN” and transported in a bulk packaging, the word “HOT” must be marked on two opposing sides of the bulk packaging, either:
- (a) on a plain white square-on-point configuration having the same outside dimensions as a placard (see **Figure 7**);



or

- (b) on the packaging itself.

NOTE 1: The word “HOT” is **not** required for bulk packagings of molten aluminum or molten sulfur marked “MOLTEN ALUMINUM” or “MOLTEN SULFUR,” as appropriate.

NOTE 2: Residue/empty shipments that last contained elevated temperature material (HOT), such as asphalt, are not considered hazardous materials and do not require hazardous material shipping description entries on the shipping paper. When the shipping paper indicates empty, the shipment may be accepted and moved in rail transportation without the hazardous material shipping description entries, even though the HOT mark and identification number are displayed.

- (2) When **picking up** a hazardous material shipment at a customer’s facility or siding or at an interchange point and a HOT mark is not legible or is missing:
- (a) Notify the customer, Train Dispatcher, Yardmaster, or your supervisor, as appropriate.
- (b) Do **not** accept the hazardous material shipment until corrections have been made.
- (3) When a HOT mark is not legible or is missing **en route**, notify the Train Dispatcher, Yardmaster, or your supervisor, as appropriate. They will arrange to correct the problem at the next inspection point.

d. INHALATION HAZARD Mark

- (1) For a material described on the shipping papers as “Poison (Toxic) — Inhalation Hazard” or “Inhalation Hazard,” the words “INHALATION HAZARD” must appear (in at least 3.9-inch high letters) on both sides of the rail car, trailer, or container near the placards.

NOTE: When the words “INHALATION HAZARD” appear on the placards, the “INHALATION HAZARD” mark is not required on the bulk packaging.

- (2) When **picking up** a hazardous material shipment at a customer’s facility or siding or at an interchange point and the words “INHALATION HAZARD” are illegible or missing:
 - (a) Notify the customer, Train Dispatcher, Yardmaster, or your supervisor, as appropriate.
 - (b) Do **not** accept the shipment until corrections have been made.
- (3) When the “INHALATION HAZARD” marking is illegible or missing **en route**, notify the Train Dispatcher, Yardmaster, or your supervisor, as appropriate. They will arrange to correct the problem at the next inspection point.

e. Commodity Name

- (1) The commodity name is required on intermodal tanks transporting any hazardous materials and on tank cars transporting certain hazardous materials. The commodity name (3.9 inches in height for tank cars and 2 inches in height for intermodal tanks) must match the proper shipping name on the shipping papers and may include the technical name, although it is not specifically required. The commodity name must be on two opposing sides of the intermodal tank or tank car.
- (2) When **accepting** an intermodal tank or tank car of hazardous materials from the shipper or in interchange and the commodity name is illegible or missing:
 - (a) Notify the customer, Train Dispatcher, Yardmaster, or your supervisor, as appropriate.
 - (b) Do **not** accept the shipment until corrections have been made.
- (3) When the commodity name on a tank car is discovered illegible or missing **en route**, notify the Train Dispatcher, Yardmaster, or your supervisor, as appropriate. They will arrange to correct the problem at the next inspection point.

f. Tank Car Qualification Dates

- (1) Make sure the stencils describing the tank car specification and qualification dates are legible. These stencils will appear on both sides of the tank car toward the end on the right as you face the car.
- (2) Make sure the tank car qualification dates for pressure relief devices (PRD), tank, and interior heater coils are current (a car is currently within the qualification date until the last day of the year shown) (see **Figure 8**).

FIGURE 8. TANK CAR QUALIFICATION DATE (New Style)

	STATION STENCIL	QUALIFIED	DUE
TANK QUALIFICATION	ABC-1	2002	2012
THICKNESS TEST	ABC-1	2002	2012
SERVICE EQUIPMENT	ABC-1	2002	2012
PRD:	DEF-1	2002	2012
	FGL-1	2002	2012
LINING	ABC-1	2002	2012
88.B.2 INSPECTION	ABC-1	2002	2012
STUBB SILL INSPECTION	ABC-1	2002	2012

FIGURE 8. TANK CAR QUALIFICATION DATE (Older Style Example)

DOT 112J340W	
Safety Valve	280.5 LB
Tested 2006	Due 2016
Tank	340 LB
Tested 2006	Due 2016
Blt.	03/2006

NOTE 1: When the car is loaded before the end of the year, it may be transported for unloading purposes but must be requalified before reloading.

NOTE 2: A tank car containing the residue of a hazardous material that is overdue its periodic qualification date may move and not be in violation of DOT regulations. The regulations only address loading a tank car overdue for its periodic qualification.

- (3) When the qualification date is overdue, do not accept loaded tank cars from the shipper.
- (4) When found en route, car may proceed to destination after contacting the supervisor.

g. FUMIGANT Mark

- (1) As information, the purpose of the FUMIGANT mark (see **Figure 9**) is to warn persons unloading the rail car, trailer, or container that it has been fumigated and that they must take appropriate precautions before unloading the car. The (*) on the mark will be replaced by the name of the fumigant.

FIGURE 9. FUMIGANT MARK



- (2) The FUMIGANT mark must be in English. However, EPA regulations allow another language in addition to the English version on the same FUMIGANT mark or an additional one.

(3) Shipping Description Entries

- (a) For U.S. shipments that are fumigated, information on the shipping papers is not required.
- (b) For International (Canadian and IMDG) shipments verify that the information for the shipment on the shipping papers includes the following entries — UN 3359, Fumigated Unit, name of the fumigant, amount of fumigant, date of fumigation, and any disposal information.

h. Inspection for Non-Odorized Marks

Tank car or intermodal tank shipments containing liquified petroleum gas (LPG) that are unodorized must be legibly marked NON-ODORIZED or NOT ODORIZED on two opposing sides near the marked proper shipping name or near the placards.

The NON-ODORIZED or NOT ODORIZED marks may appear on a tank car or tank container used for both unodorized and odorized LPG. Shippers may include on shipping papers the information that the shipment's not odorized, if they so choose.

i. LIMITED QUANTITY Mark

- (1) The words "LIMITED QUANTITY" or "LTD QTY" displayed on both sides and both ends of trailers/containers.
- (a) The limited quantity mark is required:
- when the entire load of hazardous materials is limited quantities
 - when a mix of non-hazardous materials and hazardous materials in limited quantity
- (b) The limited quantity mark is not required:
- when there are limited quantities and other hazardous materials NOT in limited quantities, but you would placard for the regular hazardous materials
- (2) Packages containing dangerous goods in limited quantities need not be marked with the proper shipping name of the contents, but shall be marked with the UN number of the contents (preceded by the letters "UN") placed within a diamond. The width of line forming the diamond shall be at least 2 mm; the number shall be at least 6 mm high. Where more than one substance is included in the package and the substances are assigned to different UN numbers, then the diamond shall be large enough to include each relevant UN number.

SECTION 5 — SWITCHING

1. GENERAL REQUIREMENT

Switch placarded hazardous material shipments only in compliance with the restrictions on the Switching Chart (see **Figure 10**).

Switching is defined as “the operation of moving rail cars within a yard in order to place them in a train or on a classification, repair, or storage track.” It also includes making pickups and setouts at a customer’s facility or interchange points. It does **not** include moving rail cars to or from a shipper’s facility or industry track into or out of the yard.

Reminder: When moving rail cars to or from a shipper’s facility or on an industrial lead into or out of the yard, comply with both the train placement restrictions in **Section 4** and the required documentation requirements in **Section 2**.

WHEN RAIL CARS ARE CUT OFF IN MOTION, THE COUPLING SPEED MUST NOT EXCEED 4 MILES PER HOUR.

2. SAFETY

Position yourself toward the end of a tank car, at least 15 feet, and more if possible, from the manway and valves prior to coupling. Contents of tank cars may splash during or immediately following coupling due to improperly secured closures or the impact of coupling.

3. WHEN TO USE THE SWITCHING CHART

Refer to the Switching Chart:

- a. When moving placarded hazardous material shipments in a yard to place them in a train or on a classification, repair, or storage track.
- b. When making pickups or setouts of placarded hazardous material shipments at a customer’s facility, interchange point, or other setout point.








4. HOW TO USE THE SWITCHING CHART

- a. Select the applicable column and row of the Switching Chart. To do so:
 - (1) Identify the placards and/or markings applied to the car, either from information on the shipping papers or from observation.

NOTE: When placards are displayed but are not required by regulation (permissive placarding), the rail car must be switched as required for the placard displayed.
 - (2) Determine whether the car is loaded or empty.

NOTE: Residue/empty tank cars are identified on switch lists, track lists, and track inquiries with an “E” in the appropriate field. The notation “RESIDUE: LAST CONTAINED” on the shipping papers indicates a residue/empty shipment.
 - (3) Identify the car type involved by observation (e.g. tank car, hopper car, gondola, etc.).
- b. Find the applicable section on the chart, based on the placard or marking applied, the load/empty status, and the car type.
- c. Follow the restrictions associated with the placard or marking as the “X”s in the columns indicate.

**FIGURE 10.
SWITCHING CHART**

FIGURE 10. SWITCHING CHART		
NORFOLK SOUTHERN HAZARDOUS MATERIALS SWITCHING CHART	GROUP 1	GROUP 2
HOW TO USE THIS CHART		 Hazard Zone A
Select the applicable column of the Switching Chart by: <ol style="list-style-type: none"> Identifying the placard or markings applied to the car; Determining the load or residue status of the car by the notation "RESIDUE: LAST CONTAINED" on the paperwork; Identifying the car type involved by observation (e.g., tank car, hopper car, gondola, etc.); and then Finding the applicable section, based on the placard marking applied, the load or empty status, and the car type. Read and follow the restrictions associated with the placard or markings as indicated by "X"s in the columns.		 Hazard Zone A  DOT-113 Tank Car
EQUIVALENT PLACARDS  =  <p>Cars with placards displaying 4-digit identification numbers will be handled the same as cars with word description placards.</p>		
NOTE: The words "POISON" and "TOXIC" can be used interchangeably on placards displayed in Group 3. Flat car means any loaded TOFC or COFC.		
RESTRICTIONS	Any Car	Any Car
1 Must be separated from an engine by at least one non-placarded car or by one Group 4 placarded or marked car. Do not place where there is any probable danger of fire such as switch heaters. Do not place under bridges, under overpasses, or along passenger stations.	X	
2 Must not be: <ul style="list-style-type: none"> • Cut off in motion; • Struck by any free rolling car; or • Coupled into with more force than needed to make the coupling. 	X	X
3 Must not be cut off in more than two cars. No more than two car cuts can couple into these cars.	Not Allowed per Restriction 2	Not Allowed per Restriction 2
4 When using hand brakes: <ul style="list-style-type: none"> • Do not cut cars off until all preceding cars are clear of the lead. • Do not cut off any cars to follow until the lead is clear. 		

**FIGURE 10.
SWITCHING CHART**

GROUP 3			GROUP 4
<p>Hazard Zone B, C, or D</p> <p>Hazard Zone B</p>			
Loaded Tank Car	Any Flat Car	Other Loaded Car / Residue Tank Car	Any Car
	X		
X	Not Allowed per Restriction 2		
X			

SECTION 6 — TRAIN PLACEMENT

1. GENERAL REQUIREMENT

Place placarded hazardous material shipments in a train so as to comply with the instructions on the Position-in-Train Chart (**Figure 11**).

NOTE: If an error is identified, correct hazardous materials train placement errors at the first location that allows switching.

A **Train** is one or more engines coupled, with or without rail cars, displaying a marker, requiring an appropriate air brake test, and authorized to operate on a main track.

At initial terminals where mechanical forces are responsible for train inspection and at crew change points, Conductors must physically observe the first six cars of their train to ensure the correct placement of placarded hazardous material cars.

2. WHEN TO USE THE POSITION-IN-TRAIN CHART

Use the chart to make sure placement position in train is correct:

- a. Before a train departs the initial terminal.
- b. Before a train departs an intermediate station where pickups and setouts were made en route.
- c. Before delivering cars to interchange tracks that are owned and operated by another railroad.

3. HOW TO USE THE POSITION-IN-TRAIN CHART

- a. Select the applicable column of the Position-in-Train Chart. To do so:
 - (1) Identify the placards and/or markings applied to the car, either from the shipping papers or from observation.







NOTE: When placards are displayed but are not required by regulation (permissive placarding), the rail car must be switched as required for the placard displayed.
 - (2) Determine whether the car is loaded or residue/empty.

NOTE: The notation "RESIDUE: LAST CONTAINED" on the shipping papers indicates a residue/empty shipment.
 - (3) Identify the car type involved by observation (e.g. tank car, hopper car, gondola, etc.).
- b. Find the applicable section on the chart, based on the placard or marking applied, the load/residue/empty status, and the car type.
- c. Follow the restrictions associated with the placard or marking as the "X"s in the columns indicate.




4. GENERAL INFORMATION

- a.** For train placement purposes, each platform or well of an intermodal rail car counts as one car.
- b.** A buffer car is a:
 - (1)** Non-placarded rail car.
 - (2)** Rail car with a placard or marking shown in Group 5.
 - (3)** Residue/empty tank car, as long as it complies with Restriction #2 on the Position-in-Train Chart.
 - (4)** Placarded rail car, other than a tank car, as long as it complies with Restriction #7 on the Position-in-Train Chart.
- c.** The word "TOXIC" can appear in place of the word "POISON" on placards.

**FIGURE 11.
POSITION-IN-TRAIN CHART**

<h1 style="text-align: center; color: blue;">NORFOLK SOUTHERN HAZARDOUS MATERIALS POSITION-IN-TRAIN CHART</h1>		GROUP 1		GROUP 2		
		 	 Hazard Zone A	 Hazard Zone A		
<h2 style="text-align: center;">HOW TO USE THIS CHART</h2> <p>Select the applicable column of the Position-in-Train Chart by:</p> <ol style="list-style-type: none"> Finding the placard or markings applied to the car; Determining the load or residue status of the car by the notation "RESIDUE: LAST CONTAINED" on the paperwork; Identifying the type of car involved by inspection; and then Finding the appropriate column based on the placard applied, load or residue status, and car type. <p>Read and follow the restrictions associated with the placard or markings as indicated by "X"s in the columns.</p>						
<h3>EQUIVALENT PLACARDS</h3> <div style="display: flex; align-items: center; justify-content: center;">  =  </div> <p>Cars with placards displaying 4-digit identification numbers will be handled the same as cars with word description placards.</p>		<p>NOTE: The words "POISON" and "TOXIC" can be used interchangeably on placards displayed in Group 4.</p>				
RESTRICTIONS		Any Car	Loaded Tank Car	Residue Tank Car		
1	When train length permits, must not be nearer than the 6th car from an engine or any occupied caboose, shoving platform, or passenger car. If length does not permit, must be near the middle of the train.	X	X			
2	Engine, any occupied caboose, shoving platform or passenger car.	X	X	X		
3	Open-top cars (including bulkhead flats) when any of the lading protrudes beyond the car ends or if shifted would protrude beyond the car ends.	X	X			
4	Loaded flat cars except closed TOFC/COFC equipment, multi-levels, and other specially equipped cars with tie-down devices for handling vehicles.	X	X			
5	Railroad wheels loaded on wheel car flats, in gondolas with no ends, or loaded with the axes above the top of the cars.	X	X			
6	Any rail cars, transport vehicles, or freight containers with temperature control equipment or internal combustion engine in operation.	X	X			
7	Any placarded car in another placarding Group, except it may be next to any residue placarded car or any car placarded or marked as in Group 5.	X	X			

**FIGURE 11.
POSITION-IN-TRAIN CHART**

GROUP 3	GROUP 4			GROUP 5
				
Any Car	Loaded Tank Car	Residue Tank Car	Other Loaded Car	Loaded Tank Car
	X			
X	X	X		
	X			X
	X			X
	X			X
	X			
X	X		X	

SECTION 7 — KEY TRAINS

1. GENERAL REQUIREMENT

Trains carrying specified numbers of loaded rail cars, trailers, or containers of hazardous materials must be operated as “Key Trains.”

2. KEY TRAIN DEFINITION

A “Key Train” is any train as described in either a, b, or c below:

- a. one (1) or more loaded tank cars containing materials that require the phrase “Poison-Inhalation Hazard” or “Inhalation Hazard” **on the shipping papers** (in this case, count anhydrous ammonia when determining key train status);
or
- b. 20 or more carloads or intermodal portable tank loads of any hazardous materials;
or
- c. one (1) or more loads of spent nuclear fuel (SNF) or high level radioactive waste (HLRW) moving under the following HazMat STCCs or Hazardous Materials Response Codes — 4929142, 4929143, 4929144, 4929147.

EXCEPTION: Do not count box cars, trailers, or containers carrying mixed loads of hazardous materials when determining key train status.

3. IDENTIFYING KEY TRAINS

- a. A computer-generated train consist/train list will identify Key Train status in the header block on the first page.
- b. When a computer-generated train consist/train list is not available, or hazardous material cars are added to a train, the Conductor must review the shipping papers for all hazardous material cars and determine Key Train status.
- c. After picking up or setting out hazardous material shipments **en route**, the Key Train status may change. The Conductor must determine whether or not Key Train status has changed and, if so, promptly notify the Train Dispatcher.

4. INSTRUCTIONS FOR OPERATING KEY TRAINS

- a. The maximum authorized speed for Key Trains is 50 MPH, unless further restricted.
NOTE: Where lower speed restrictions are in effect, or when the train is restricted to a lower speed for other reasons, the lower speed governs.
- b. A key train will hold the main track, when practicable, unless a speed of greater than 10 MPH is authorized for the siding or auxiliary track.
- c. Only cars equipped with roller bearings will be allowed in a Key Train.
- d. When a defect in a Key Train is reported by a wayside/trackside warning detector but a visual inspection fails to confirm evidence of a defect, the train must not exceed 30 MPH until it has passed over the next wayside detector or is delivered to a terminal for a mechanical inspection. If the same car sets off the next detector or is found to be defective, it must be set out from the train.

SECTION 8 — EMERGENCY RESPONSE

1. GENERAL REQUIREMENT

In case of a hazardous materials incident, safety is the first consideration. Your responsibility, when observing an incident, is to determine the status of the incident and to immediately report the incident to the Train Dispatcher or Yardmaster.

NOTE: Do not allow a leaking hazardous material shipment to continue in transportation until the leak is resolved (e.g., repaired, reconditioned, or overpacked).

2. REPORTABLE INCIDENTS

Reportable incidents include:

- a. All unintentional or accidental releases (including very minor leaks) of hazardous materials in transportation.
- b. All derailments and accidents involving rail cars containing either a hazardous material, substance, or waste, including residue shipments, in which the:
 - (1) packaging is damaged;
 - or
 - (2) car is derailed and not upright, regardless of damage, leaks, or releases.
- c. All releases of any petroleum product (including oil, diesel fuel, gasoline, etc.) or other materials that can cause environmental damage. For example, spills on shorelines next to water, or spills that cause a sheen on the water.

When in doubt, report all release incidents, regardless of the amount of material involved.

3. WHEN AN EMERGENCY OCCURS

SAFETY IS OF FIRST IMPORTANCE.

Carry out the following actions as closely as possible; however, on-scene judgment based on actual circumstances must be the final guide for protecting people, property, and the environment.

- a. Make an emergency call, as radio rules require.
- b. Look for a fire or vapor cloud.
- c. Rescue the injured if qualified, without endangering yourself or others. Warn and keep everyone at a safe distance until it can be determined what, if any, chemicals are involved.

4. WHEN A FIRE OR VAPOR CLOUD IS VISIBLE

- a. Take the shipping papers (including the emergency response information) and move yourself and other crew members upwind to the farthest distance recommended in the Evacuation Section of the emergency response information accompanying the shipping papers or the ***Emergency Response Guidebook's*** green pages that provide initial isolation distances.

- b. Stay out of ditches and low areas.
- c. Remove all possible ignition sources. **Do Not Smoke.**
- d. Provide the Train Dispatcher or Yardmaster with as much of the following information as possible:
 - (1) status of crew members;
 - (2) cars involved, including each car's initials and numbers and its extent of involvement (for example, leaking, derailed, or on fire);
 - (3) surroundings (for example, proximity to populated areas, local bodies of water or nearby drainage ditches or storm sewers; description of terrain; location of access roads; weather conditions);
 - (4) resources required to handle situation (for example, fire, ambulance, and law enforcement agencies); and
 - (5) location where a crew member with shipping papers will meet arriving emergency response personnel.
- e. Once you are in a safe location, identify yourself and cooperate with the local emergency response personnel as noted in **Item 6** of this section.

5. WHEN NO FIRE OR VAPOR CLOUD IS VISIBLE

- a. Review the shipping papers for hazardous material shipments.
- b. Take the shipping papers (including the emergency response information) and inspect the train to identify the rail cars, trailers, or containers involved, and look for indications of the release of hazardous materials.
- c. When you encounter released hazardous materials during this inspection:
 - (1) avoid contact with the material and its vapors;
 - (2) move yourself and other crew members upwind to the farthest distance recommended in the Evacuation Section of the emergency response information accompanying the shipping papers, or the ***Emergency Response Guidebook***'s green pages that provide initial isolation distance;
 - (3) stay out of ditches and low areas;
 - (4) remove all possible ignition sources. **Do Not Smoke;** and
 - (5) warn all bystanders to stay away.
- d. After completing the inspection, notify the Train Dispatcher or Yardmaster with as much of the following information as possible:
 - (1) status of crew members;
 - (2) cars involved, including each car's initials and numbers and its extent of involvement (for example, leaking, derailed, or on fire);
 - (3) surroundings (for example, proximity to populated areas, local bodies of water or nearby drainage ditches or storm sewers; description of terrain; location of access roads; weather conditions);
 - (4) resources required to handle situation (for example, fire, ambulance, and law enforcement agencies); and
 - (5) location where a crew member with shipping papers will meet arriving emergency response personnel.
- e. Once you are in a safe location, identify yourself and cooperate with the local emergency response personnel as noted in **Item 6** of this section.

6. COOPERATING WITH LOCAL EMERGENCY RESPONDERS

- a. Share any requested information from the shipping papers with emergency response personnel.
 - (1) Provide an extra copy of the train consist/list, if available.
 - (2) Provide the ***Emergency Response Guidebook*** along with a copy of the emergency response information provided with the shipment.
 - (3) Note the time, along with the name and title of the person provided with this information.
- b. Help emergency response personnel identify cars and the commodities involved. Use shipping papers or observations from a safe location to accomplish this task.
- c. Provide a full report of the incident, and any assistance you gave to the emergency responders, to the first railroad manager on the scene.

7. HANDLING LEAKING HAZARDOUS MATERIAL SHIPMENTS

Do not move a leaking rail car containing a hazardous material unless it is necessary to reduce or eliminate an immediate threat of harm to human health or the environment.

- a. An adequate number of buffer cars must be used between the locomotive and the leaking car to prevent chemical exposure.
- b. Short movements may be made if a receptacle is attached under the leak to prevent the spread of product.
- c. If safe to do so, switch cars containing leaking hazardous materials to a location distant from habitation, waterways, and highways.

SECTION 9 — RAIL SECURITY SENSITIVE MATERIALS

1. GENERAL REQUIREMENT

Loaded rail cars, trailers, or containers carrying any Rail Security Sensitive Materials (RSSM) must be handled in accordance with the rules in this section.

2. RAIL SECURITY SENSITIVE MATERIAL DEFINITION

A "Rail Security Sensitive Material" or RSSM is described in either a, b, or c below:

- a. A rail car, trailer, or container containing more than 5,000 lbs. of a Division 1.1, 1.2, or 1.3 explosive material.
- b. A loaded tank car containing a Toxic Inhalation Hazard (TIH), including Anhydrous Ammonia, Division 2.3 gases such as Chlorine, or Division 6.1 poison liquids. A list of all TIH materials is included in **Section 1, Table 3**.
- c. A rail car containing a highway-route controlled quantity of Class 7 (radioactive) material shipped under any of the following HazMat STCCs or Hazardous Materials Response Codes — 4929142, 4929143, 4929144, 4929147.

3. INSTRUCTIONS FOR RECEIVING RSSM SHIPMENTS FROM A SHIPPER

- a. Loaded rail cars, trailers or containers of RSSM shipments may only be picked up from a Rail Secure Area in a customer's facility. A Rail Secure Area is a pre-designated physically secure location identified by a rail hazardous materials shipper or receiver for the purpose of inspecting, preparing, loading, storing, and/or unloading RSSM shipments.
- b. When picking up a loaded Rail Security Sensitive Material from a shipper:
 - (1) A hazardous materials and security inspection must be performed as instructed in **Section 3 — Car Inspection**.
 - (2) The shipper must have a representative physically present at the car when the railroad pulls the car so that "Positive Control" is maintained at all times.
 - (3) The shipper representative and the Conductor must both complete a Chain-of-Custody form.
 - (4) The shipper will be supplied the Chain-of-Custody form by the CYO or may use its own form with the same required information. The Conductor must ensure that any time RSSM is picked up, the crew completes a Chain-of-Custody form, and the Conductor must fax the completed form to CYO at the end of their shift but prior to the Hours of Service limit.

- (5) If the industry work order indicates that an RSSM shipment is to be pulled and there is no shipper representative present or a Chain-of-Custody form is not completed, the shipment must not be pulled from the customer's facility.

4. INSTRUCTIONS FOR DELIVERING RSSM TO A CONSIGNEE

When delivering RSSM shipments to NS customers, the Chain-of-Custody documentation and "Positive Control" requirements for RSSM shipments is only required for customers located in a High Threat Urban Area or HTUA. HTUA locations have been designated by the U.S. Department of Homeland Security based on the threat, vulnerability, and consequences calculated for various metropolitan areas.

The following HTUA locations are located on the Norfolk Southern system:

- Atlanta, GA
- Baltimore, MD
- Buffalo, NY
- Charlotte, NC
- Chicago, IL
- Cincinnati, OH
- Cleveland, OH
- Columbus, OH
- Detroit, MI
- Jacksonville, FL
- Jersey City/Newark, NJ
- Kansas City, MO
- Louisville, KY
- Memphis, TN
- New Orleans, LA
- Philadelphia, PA
- Pittsburgh, PA
- St. Louis, MO
- Toledo, OH
- Washington, DC

- a. Loaded rail cars, trailers or containers of RSSM shipments may only be placed in the consignee's pre-designated Rail Secure Area in the customer's facility.
- b. When delivering a loaded Rail Security Sensitive Material to a consignee in a HTUA:
- (1) The consignee must have a representative physically present at the car when the railroad delivers the car so that "Positive Control" is maintained at all times.
 - (2) The consignee representative and the Conductor must both complete a Chain-of-Custody form.
 - (3) Receivers of RSSM shipments will be noted on industry work orders. The Conductor must ensure that any time RSSM is delivered, the crew completes a Chain-of-Custody form, and the Conductor must fax the completed form to CYO at the end of their shift but prior to the Hours of Service limit.
 - (4) If the industry work order indicates that an RSSM shipment is to be delivered and there is no consignee representative present or a Chain-of-Custody form is not completed, the shipment must not be placed at the customer's facility.

5. INSTRUCTIONS FOR INTERCHANGING RSSM SHIPMENTS

- a. The instructions for interchanging RSSM shipments do not apply at the following interchange locations:

Connecting Carrier	Location
AGR	Kimbrough, AL
CERA	Marion, IN
CSXT	Brunswick, GA
CSXT	Evansville, IN
CSXT	Hopewell, VA
CSXT	Pt. Pleasant, WV
CSXT	Valdosta, GA
GFRR	Albany, GA
GITM	Anguilla Jct., GA
HPTD	High Point, NC
ICRK	Anderson, IN
IN	Montpelier, OH
KCS	Hattiesburg, MS
LVRR	Northumberland, PA
MDDE	Townsend, DE
MIDH	Middletown, PA
RJCL	Massillon, OH
RSR	Silver Springs, NY
TPW	Logansport, IN
TYBR	Fairless, PA

- b. Loaded rail cars, trailers or containers of RSSM shipments may only be interchanged at an attended location, which is defined as:
- (1) a location where a railroad employee or authorized representative is physically located in reasonable proximity to the RSSM rail car;
 - (2) can reasonably detect unauthorized access or unlawful activity near the rail car; and
 - (3) the person in attendance can promptly respond to unauthorized access or activity near the rail car. For example, someone capable of immediately contacting law enforcement or other authorities to investigate.
- c. When delivering or receiving RSSM shipment in interchange:
- (1) Both of the interchanging rail carriers are required to complete a Chain-of-Custody form. These Chain-of-Custody forms will be included in the crew's paperwork when an RSSM car is present in the train.
 - (2) Both interchanging carriers must have a representative physically present at the car at the time of pickup or delivery.
 - (a) When a foreign line carrier brings an interchange cut or train to an NS yard, the NS Yardmaster will be the chain-of-custody contact (either directly or by voice communication) in attended

yards. The NS Yardmaster should complete the Chain-of-Custody form.

- (b) When interchange cuts or trains are delivered by NS crews to a foreign line carrier yard, the crew should contact CYO or the NS Yardmaster and request a Wheel Report for the interchange cut, prior to departure. The Wheel Report will include the Chain-of-Custody forms. The Conductor must ensure that the Chain-of-Custody form is completed.
- (3) The NS Yardmaster or Conductor completing the Chain-of-Custody forms when cars are handled in interchange must fax the completed form to CYO during or at the end of their shift. Chain-of-Custody information must be provided to CYO prior to the crew's Hours of Service limit.
- (4) When delivering RSSM shipments in interchange, if the foreign line does not have a representative present to document the Chain-of-Custody, the shipment must not be interchanged.
- (5) When picking up RSSM shipments at interchange from a foreign line carrier who has left the cars unattended, the NS crew may pickup the RSSM cars provided:
 - (a) Yardmaster, control station, or supervisor, is made aware of the unattended status and has authorized the pickup (after attempting to reach the delivering carrier).
 - (b) A hazardous materials and security inspection is performed as instructed in **Section 3 — Car Inspection**.
 - (c) A Chain-of-Custody form is completed and the notation "Unattended" is entered in the blank space provided for the foreign carrier employee first and last name.

6. CHAIN-OF-CUSTODY FORM

- a. A blank copy of the Chain-of-Custody form is shown in **Figure 12**.
- b. The following information must be completed on the Chain-of-Custody form:
 - (1) the date and time;
 - (2) the location of the industry or interchange;
 - (3) the shipper, consignee, or rail carrier name when picking up or delivering RSSM shipments;
 - (4) the first and last names of the representatives participating in the transfer (NS employees, foreign rail carrier, shipper, or consignee as applicable); and
 - (5) the car initials and number for all RSSM shipments.
- c. Chain-of-Custody information must be provided to CYO prior to the crew's Hours of Service limit. If a crew determines they will not be able to fax the Chain-of-Custody form to CYO prior to expiration of their Hours of Service limit, information from the form must be provided to CYO using an alternate means; including use of a radio. A phone may be used but only if all FRA and Norfolk Southern requirements governing the on-duty use of electrical/electronic devices have been met. The Chain-of-Custody paperwork must then be faxed to CYO at the start of the crew's next tour of duty.

FIGURE 12. CHAIN-OF-CUSTODY FORM FOR RSSM SHIPMENTS

NOTE: Print legibly

The listed or attached Rail Security Sensitive Materials (RSSM) have changed custody between the parties listed:

Date: ____/____/____ Time: _____: _____ ^{AM} _{PM} (Circle One)
 (DD/MM/YYYY)

Place / Pull / Interchange Location: _____
 (Circle One) (Location Name)

Shipper / Consignee: _____
 (Circle One) (Company Name)

Shipper / Consignee: _____
 (Circle One) (Employee First and Last Name)

Foreign Carrier: _____
 (Road Initial) (Employee First and Last Name)

Norfolk Southern: _____
 (Employee First and Last Name) (NS ID #)

Initial	Number	Initial	Number
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____

Completed copy should be faxed to CYO @ 1-800-476-0180 prior to end of shift.

GLOSSARY

Buffer Car — A non-placarded rail car, a rail car with a placard or marking shown in Group F on the Switching Chart or Group E on the Position-in-Train Chart, a residue/empty tank with no other restrictions, or a placarded rail car with no other restrictions.

Bulk Packaging — Packaging with capacity greater than 119 gallons or 882 pounds. For example, bulk bags, intermodal (IM) portable tanks, portable tanks, portable bins, gondola cars, hopper cars, or tank cars.

Container — Any freight container, intermodal (IM) portable tanks, portable tank, or portable bin.

Emergency — An unforeseen combination of circumstances or the resulting state that calls for immediate action (for example, derailment and leaks).

Emergency Response Information — Hazard and response information for each hazardous material, contained in either the train documentation or the ***Emergency Response Guidebook*** (ERG), to assist response personnel at hazardous material incidents.

Hazard Class — The category of hazard assigned to a material. A class may be subdivided into divisions for clarity. A class may be expressed as a number or with words.

Hazardous Material — A substance or material which the Secretary of Transportation has determined to be capable of posing an unreasonable risk to health, safety, and property when transported in commerce. The term “hazardous material” includes hazardous substances, hazardous wastes, elevated temperature materials (HOT or MOLTEN), and marine pollutants.

Hazardous Material Shipment — A hazardous material in rail cars, trailers, or containers in rail transportation. All hazardous material shipments require shipping papers. When moved in rail cars, trailers, or containers, hazardous material shipments may or may not be placarded or marked with an identification number.

Hazardous Waste Manifest — A document specifically for tracking hazardous wastes in transportation. It contains the shipping description and identifies the waste generator, each transporter, and the disposal facility.

Hazard Zone — One of four levels of inhalation hazard (Hazard Zones A through D) assigned to gases, and one of two levels of hazard (Hazard Zones A and B) assigned to liquids that are poisonous/toxic by inhalation. For example, when the hazard zone is “A,” it is shown on the shipping paper as “Zone A.” Zone A is the most hazardous, and Zone D is the least hazardous.

Improvised Explosive Device (IED) — A device fabricated in an improvised manner incorporating explosives or destructive, lethal, noxious, pyrotechnic, or incendiary chemicals in its design. This device generally includes a power supply, a switch or timer, and a detonator or initiator.

Interchange — The process of transferring rail cars to or from another railroad.

Limited Quantity (LTD QTY) — A term used on shipping papers to indicate a hazardous material shipment which is allowed an exception to the labeling, packaging, and placarding requirements because the hazard associated with a small package is low.

Marking — A descriptive commodity name, identification number, caution (such as INHALATION HAZARD, HOT, MOLTEN, or MARINE POLLUTANT), or tank car test date displayed on hazardous material shipments. (See **Section 4** for marking requirements.)

Movement Approval — A one time authorization to move a non-conforming package not meeting the applicable hazardous material regulations. This provides no relief of any regulations other than specifically stated in the approval.

N.O.S. — Initials, found on shipping papers, which mean “Not Otherwise Specified.”

Non-Bulk Packaging — Packaging with a capacity equal to or less than 119 gallons or 882 pounds. For example, bags, bottles, boxes, cylinders, or drums.

ORM-D (Other Regulated Materials) — A material such as a consumer commodity that, due to its form, quantity, and packaging, presents such a limited hazard that it is not subject to the hazardous material regulations when transported by rail.

Packing Group — A grouping of hazardous materials according to the degree of danger:

- Packing Group I (shown as “PGI” or “I” on the shipping papers) indicates great danger.
- Packing Group II (shown as “PGII” or “II” on the shipping papers) indicates medium danger.
- Packing Group III (shown as “PGIII” or “III” on the shipping papers) indicates minor danger.

Placard — A sign measuring 10¾ by 10¾ inches square-on-point, communicating a hazard by symbol, color, and words or numbers. Some placards must be displayed on a square background which is white with a black border (see **Figure 4, pages 18–19** for pictures of placards).

Placarded Car — A rail car displaying placards in accordance with DOT regulations.

Poison/Toxic Inhalation Hazard (PIH or TIH) or Inhalation Hazard — Terms used to identify certain gases and liquids that may cause health problems if breathed in very low concentrations for short periods of time.

Position-in-Train Document — A document showing the current position of all hazardous material shipments within the train. This document could be the train consist/Train List or a separate document specifically for this purpose.

Radio Waybill — A form used to record shipping description entries provided orally.

Rail Car — Equipment used in rail transportation. For example, box car, flat car, gondola car, hopper car, tank car, or caboose, but not an engine.

Residue — The hazardous material remaining in a packaging, including a tank car, after its contents have been unloaded to the maximum extent possible. It is indicated on the shipping papers by the phrase “RESIDUE: LAST CONTAINED” before the proper shipping name.

Special Permit — A document issued by the Associate Administrator under the authority of 49 U.S.C. 5117 permitting a person to perform a function that is not otherwise permitted under subchapter A or C of this chapter, or other regulations issued under 49 U.S.C. 5101 et seq. (e.g., Federal Motor Carrier Safety routing requirements). The terms “special permit” and “exemption” have the same meaning for purposes of subchapter A or C of this chapter or other regulations issued under 49 U.S.C. 5101 through 5127. An exemption issued prior to October 1, 2005 remains valid until it is past its expiration date, terminated by the Associate Administrator, or issued as a special permit, whichever occurs first.

Shipper’s Certification — A signed (or electronically printed) declaration on the shipping paper provided by the shipper to the first transporter for a loaded hazardous material shipment. It indicates compliance with the DOT regulations. The certification must be signed by hand or mechanically. It may read either:

“This is to certify that the above-named materials are properly classified, described, packaged, marked, and labeled and are in proper condition for transportation according to the applicable regulations of the Department of Transportation.”

or

“I hereby declare that the contents of this consignment are fully and accurately described above by proper shipping name, and are classified, packaged, marked, and labeled/placarded, and are in all respects in proper condition for transport according to applicable international and national governmental regulations.”

NOTE: A shipper’s certification is required on any shipping paper that the customer provides to the crew for loaded hazardous material cars.

Shipping Paper — Any document providing the appropriate entries for a hazardous material shipment. (See **Section 2** for shipping paper requirements.)

Switching — The operation of moving rail cars within a yard, at a customer’s facility, or at an interchange point, in order to place them in a train or on a classification, repair, or storage track. It does **not** include moving rail cars to or from a shipper’s facility or industry track into or out of the yard.

Technical Name — A recognized chemical name used in scientific and technical handbooks, journals, and texts to further identify a hazardous material.

Toxic Inhalation Hazard (TIH) — Terms used to identify certain gases and liquids that may cause health problems if breathed in very low concentrations for short periods of time.

Train — One or more engines coupled, with or without rail cars, displaying a marker, requiring an appropriate air brake test, and authorized to operate on a main track.

Yard — A system of tracks, other than main tracks and sidings, used for making up and breaking up trains and for other purposes such as repair or storage of cars.

APPENDIX

A tank car containing any of the following materials must be marked on each side with the key words of the proper shipping name specified for the material or with a common name authorized for the material, such as Liquefied Petroleum Gas:

Division 2.1 materials
Division 2.3 materials
Acrolein, stabilized
Ammonia, anhydrous, liquefied
Ammonia solutions (*more than 50% ammonia*)
Bromine or Bromine solutions
Bromine chloride
Chloroprene, stabilized
Dispersant gas or Refrigerant gas
Formic acid
Hydrocyanic acid, aqueous solutions
Hydrofluoric acid, solution
Hydrogen cyanide, stabilized (*less than 3% water*)
Hydrogen fluoride, anhydrous
Hydrogen peroxide, aqueous solutions
(*greater than 20% hydrogen peroxide*)
Hydrogen peroxide, stabilized
Hydrogen peroxide and peroxyacetic acid mixtures
Nitric acid (*other than red fuming*)
Phosphorus, amorphous
Phosphorus, white dry or Phosphorus, white, under water or Phosphorus
white, in solution, or Phosphorus, yellow dry or Phosphorus, yellow,
under water or Phosphorus, yellow, in solution
Phosphorus white, molten
Potassium nitrate and sodium nitrate mixtures
Potassium permanganate
Sulfur trioxide, stabilized
Sulfur trioxide, uninhibited

- NOTE:** (1) Many other materials, hazardous and non-hazardous, *may* have the name stenciled on the car at the discretion of the shipper or car owner. The above listed materials **must**, by regulation, have the name stenciled on each side of the tank car.
- (2) The parts of the names above that appear in italics are not required to be stenciled.

FIGURE 12. CHAIN-OF-CUSTODY FORM FOR RSSM SHIPMENTS

NOTE: Print legibly

The listed or attached Rail Security Sensitive Materials (RSSM) have changed custody between the parties listed:

Date: ____/____/____ Time: _____ : _____ AM
(DD/MM/YYYY) PM (Circle One)

Place / Pull / Interchange Location: _____
(Circle One) (Location Name)

Shipper / Consignee: _____
(Circle One) (Company Name)

Shipper / Consignee: _____
(Circle One) (Employee First and Last Name)

Foreign Carrier: _____
(Road Initial) (Employee First and Last Name)

Norfolk Southern: _____
(Employee First and Last Name) (NS ID #)

Initial	Number	Initial	Number
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____

Completed copy should be faxed to CYO @ 1-800-476-0180 prior to end of shift.

FIGURE 12. CHAIN-OF-CUSTODY FORM FOR RSSM SHIPMENTS

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Norfolk Southern: _____
(Employee First and Last Name) (NS ID #)

Initial	Number	Initial	Number
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____

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UNITED STATES HAZARDOUS MATERIALS INSTRUCTIONS FOR RAIL

For information about this manual, contact:

**Norfolk Southern
Environmental Protection Department
Attn: Manager Hazardous Materials
110 Franklin Road, S.E.
Roanoke, VA 24042-0013**