



# ASSOCIATION OF AMERICAN RAILROADS

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April 26, 2019

**Circular No. OT-55**

(CPC-1348)

Subject: Recommended Railroad Operating Practices for Transportation of Hazardous Materials

TO: MEMBERS AND PRIVATE CAR OWNERS

AAR's Safety and Operations department is amending AAR Circular No. OT-55 by deleting the Canadian Only "T" code section from Appendix A and B of this document. This amendment reflects the changes in the Canadian Transportation of Dangerous Goods Regulations (TDGR). This Circular letter only impacts Appendices A & B. The impacted codes are highlighted in yellow. This is only an amendment to AAR Circular No. OT-55 (attached) and becomes effective May 1<sup>st</sup> 2019 and supersedes all previous versions of OT-55.

Respectfully Submitted,

## **Legal Disclaimer**

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# ASSOCIATION OF AMERICAN RAILROADS

Circular OT-55  
Effective May 1<sup>st</sup>. 2019

## **Recommended Railroad Operating Practices For Transportation of Hazardous Materials**

### **Road Operating Practices**

#### **I. "Key Trains"**

A. Definition: A "Key Train" is any train with:

- One tank car load of Poison or Toxic Inhalation Hazard<sup>1</sup> (PIH or TIH) (Hazard Zone A, B, C, or D), anhydrous ammonia (UN1005), or ammonia solutions (UN3318), or;
- 20 car loads or intermodal portable tank loads of any combination of hazardous material, or;
- One or more car loads of Spent Nuclear Fuel (SNF), High Level Radioactive Waste (HLRW).

Appendices A and B are the lists of PIH/TIH sorted by Hazard Class and alphabetically proper shipping name, and by Hazard Class and Hazardous Materials Response Code (HMRC), respectively, Appendix 1 is a list of SNF and HLRW with 49 Hazmat Codes, Appendix 2 is a list of time sensitive materials and Appendix 3 is a form for requesting hazardous materials commodity flow information.

B. Restrictions:

1. Maximum speed -- "Key Train" - 50 MPH
2. Unless siding or auxiliary track meets FRA Class 2 standards, a Key Train will hold main track at meeting or passing points, when practicable.
3. Only cars equipped with roller bearings will be allowed in a Key Train.
4. If a defect in a "Key Train" bearing is reported by a wayside detector, but a visual inspection fails to confirm evidence of a defect, the train will not exceed 30 MPH until it has passed over the next wayside detector or delivered to a terminal for a mechanical inspection. If the same car again sets off the next detector or is found to be defective, it must be set out from the train.

#### **II. Designation of "Key Routes"**

A. Definition: Any track with a combination of 10,000 car loads or intermodal portable tank loads of hazardous materials, or a combination of 4,000 car loadings of PIH or TIH (Hazard zone A, B, C, or D), anhydrous ammonia, flammable gas, Class 1.1 or 1.2 explosives, environmentally sensitive chemicals, Spent Nuclear Fuel (SNF), and High Level Radioactive Waste (HLRW) over a period of one year.

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<sup>1</sup> Poison Inhalation Hazard (PIH) and Toxic Inhalation Hazard (TIH) are used interchangeably and refer to the same list of chemicals.

B. Requirements:

1. Wayside defective bearing detectors shall be placed at a maximum of 40 miles apart on "Key Routes", or equivalent level of protection may be installed based on improvements in technology.
2. Main Track on "Key Routes" is inspected by rail defect detection and track geometry inspection cars or any equivalent level of inspection no less than two times each year; sidings are similarly inspected no less than one time each year; and main track and sidings will have periodic track inspections that will identify cracks or breaks in joint bars.
3. Any track used for meeting and passing "Key Trains" must be Class 2 or higher. If a meet or pass must occur on less than Class 2 track due to an emergency, one of the trains must be stopped before the other train passes.

III. Yard Operating Practices

- A. Maximum reasonable efforts will be made to achieve coupling of loaded placarded tank cars at speeds not to exceed 4 MPH.
- B. Loaded placarded tank cars of PIH or TIH (Hazard zone A, B, C or D), anhydrous ammonia, or flammable gas which are cut off in motion for coupling must be handled in not more than 2-car cuts; and cars cut off in motion to be coupled directly to a loaded placarded tank car of PIH or TIH (Hazard zone A, B, C, or D), anhydrous ammonia, or flammable gas must also be handled in not more than 2-car cuts.

IV. Storage

**Separation Distance for New Facilities**

Loaded Tank Cars and Storage Tanks from Mainline Class 2 Track or Higher

Activity	PIH (Zone A, B, C or D), Class 3, Division 2.1, Division 2.2 and all other Hazard Classes	Combustible Liquids, Class 8, and Class 9
Loading and Unloading	100 FEET	50 FEET
Storage of Loaded Tank Cars	50 FEET	25 FEET
Storage in Tanks	100 FEET	50 FEET

**Note 1**– With regard to existing facilities, maximum reasonable effort should be made to conform to this standard taking into consideration cost, physical and legal constraints. New facilities should take into consideration location of Mainline Class 2 Track or higher of all carriers.

**Note 2** – The proposals apply to storage on railroad property and on chemical company property located close to railroad mainline.

**Note 3** – These separations are primarily intended to provide protection to new facilities from main line derailments. Separation distances were derived from AAR derailment data for distances that cars typically travel from the main line during derailments. Although incidents that may occur in the new facilities cannot be quantified in the same manner, these separation distances will also provide some measure of protection to main line traffic. Also, both track class (e.g. operational speed) and hazard classification (e.g. risk) are factors that were taken into consideration when assigning the categories.

**Note 4** – Distances above are measured from track centerline to track centerline or from track centerline to nearest edge of storage tanks.

V. TRANSCAER® (Transportation Community Awareness and Emergency Response Implementation of TRANSCAER®)

Railroads will assist in implementing TRANSCAER®, a system-wide community outreach program to improve community awareness, emergency planning and incident response for the transportation of hazardous materials. Objectives of TRANSCAER® are as follows:

- Demonstrate the continuing commitment of chemical manufacturers and transporters to the safe transportation of hazardous materials;
- Improve the relationship between manufacturers, carriers and local officials of communities through which hazardous materials are transported;
- When requested assist Local Emergency Planning Committees (LEPC's) in assessing the hazardous materials moving through their communities and the safeguards that are in place to protect against unintentional releases. Upon written request, AAR members will provide bona fide emergency response agencies or planning groups with specific commodity flow information covering all hazardous commodities transported through the community for a 12 month period in rank order. The request must be made using the form included as Appendix 3 by an official emergency response or planning group with a cover letter on appropriate letterhead bearing an authorized signature. The form reflects the fact that the railroad industry considers this information to be restricted information of a security sensitive nature and that the recipient of the information must agree to release the information only to bona fide emergency response planning and response organizations and not distribute the information publicly in whole or in part without the individual railroad's express written permission. It should be noted that commercial requirements change over time, and it is possible that a hazardous materials transported tomorrow might not be included in the specific commodity flow information provided upon request, since that information was not available at the time the list was provided;
- Assist LEPC's in developing emergency plans to cope with hazardous materials transportation incidents;
- Assist community response organizations in preparations for responding to hazardous materials incidents.

An important product of the TRANSCAER® program will be to overcome the widespread belief that every local firefighter and policeman must have the expert skills and equipment to respond personally to any hazardous materials emergency. Through the awareness training and contingency planning provided through TRANSCAER®, states and local communities will be able to pool their expertise and resources with those of industry to provide for a more coordinated and better managed emergency response system.

TRANSCAER® should be highly publicized to produce the maximum desirable enhancement of public awareness.

#### **VI. Criteria for Shipper Notification**

The railroads will initiate the shipper's emergency response system by calling CHEMTREC, or the appropriate contact telephone number as required by regulation on the shipping document, when an incident occurs involving any car (load or residue) containing a hazardous material regulated in transportation by the Department of Transportation.

An incident is defined as a rail car which is derailed and not upright, or which has sustained body or tank shell damage, or has sustained a release of any amount of product.

The shipper's emergency response system should also be initiated if the carrier believes there is reason to suspect any other potential for injury to people, property or the environment.

In the event of a major rail accident, a consist (to include shipper, consignee and commodity description for each hazardous material), waybill or equivalent document, should be provided upon request to CHEMTREC or the appropriate shipper contact as identified by the emergency response telephone number

displayed on the shipping document. This can be accomplished by facsimile or other appropriate and acceptable electronic means.

A major rail accident is defined as one resulting in fire, explosion, the potential for an explosion, fatalities, evacuation of the general public, or multiple releases of hazardous materials.

Anytime a consist or other document is provided to CHEMTREC or the appropriate contact a follow-up call by the carrier should be made to confirm the receipt of the information as well as to provide other additional information pertaining to the incident not contained in the facsimile or electronically transmitted document.

This practice does not preclude any carrier from notifying CHEMTREC or the appropriate shipper contact of a rail incident involving hazardous materials that does not meet the criteria outlined above.

## **VII. Time Sensitive Materials**

Railroads and shippers will be responsible for monitoring the shipments (loads & residue) of products classified by the Department of Transportation as being time sensitive.

This monitoring process will, at a minimum, provide a means to ensure the movement of rail cars containing time sensitive materials (for list see Appendix 2) in order to achieve delivery of the product within the time specified by the Department of Transportation.

As warranted, railroads will implement an internal escalation process and communicate with shippers, receivers and other rail carriers concerning any rail car containing a time sensitive product that has been delayed in transit to the extent that it may not reach destination within the time specified by the Department of Transportation. In such cases, an expedited movement of the rail car, or other action as deemed appropriate by the carrier and shipper will be taken.

## **VIII. Electronic Emergency Response Information**

In an effort to provide timely and reliable information to emergency responders, the railroad industry is providing an application, knowing a car number, to determine what is in that rail car carrying hazardous materials, and if that car is in a train, what all the hazardous material cars in the train are carrying. As of this date, the application, called AskRail currently provides the following information:

- Type of car (e.g. tank car, hopper car, etc.)
- Whether the car is loaded or empty/residue
- The quantity in the car
- Proper shipping name, hazard class and packing group
- UN/NA ID number
- The handling railroad
- The Emergency Response Guidebook information associated with any hazardous materials in the train
- A map based representation of the isolation zone (as defined in the ERG) associated with the hazardous materials in the train showing items of interest in the area including educational institutions, hospitals and health facilities, police and fire stations
- 24-hour emergency response phone numbers for all the Class 1 railroads and Amtrak
- The top 125 hazardous materials transported by rail
- The AAR Field Guide to Tank Cars.

**IX. Special Provision for Spent Nuclear Fuel (SNF) and High Level Radioactive Waste (HLRW)**

When a train carrying SNF or HLRW meets another train carrying loaded tank cars of flammable gas, flammable liquids or combustible liquids in a single bore double track tunnel, one train shall stop outside the tunnel until the other train is completely through the tunnel.

**X. Applicability**

These recommendations apply to rail operations within the United States of America.

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(Supersedes Circular No. OT-55-P dated October 16, 2017)

**Appendix A:**  
**List of Poison Inhalation Hazard (PIH) or Toxic Inhalation Hazard Chemicals (TIH)**  
**(Hazard Zone A, B, C, or D)**  
**Sorted by Hazard Class and Proper Shipping Name**  
**January 19, 2016**

HMRC	Proper Shipping Name	UN/NA#	Packing Group	Hazard Zone	Hazard Class
4904211	AMMONIA SOLUTION	UN3318			2.2
4904210	AMMONIA, ANHYDROUS	UN1005			2.2
4904879	AMMONIA, ANHYDROUS	UN1005			2.2
4920190	ADSORBED GAS, TOXIC, CORROSIVE, N.O.S.	UN3516		A	2.3
4920551	ADSORBED GAS, TOXIC, CORROSIVE, N.O.S.	UN3516		B	2.3
4920552	ADSORBED GAS, TOXIC, CORROSIVE, N.O.S.	UN3516		C	2.3
4920553	ADSORBED GAS, TOXIC, CORROSIVE, N.O.S.	UN3516		D	2.3
4920191	ADSORBED GAS, TOXIC, FLAMMABLE, CORROSIVE, N.O.S.	UN3517		A	2.3
4920554	ADSORBED GAS, TOXIC, FLAMMABLE, CORROSIVE, N.O.S.	UN3517		B	2.3
4920555	ADSORBED GAS, TOXIC, FLAMMABLE, CORROSIVE, N.O.S.	UN3517		C	2.3
4920557	ADSORBED GAS, TOXIC, FLAMMABLE, CORROSIVE, N.O.S.	UN3517		D	2.3
4920192	ADSORBED GAS, TOXIC, FLAMMABLE, N.O.S.	UN3514		A	2.3
4920558	ADSORBED GAS, TOXIC, FLAMMABLE, N.O.S.	UN3514		B	2.3
4920560	ADSORBED GAS, TOXIC, FLAMMABLE, N.O.S.	UN3514		C	2.3
4920561	ADSORBED GAS, TOXIC, FLAMMABLE, N.O.S.	UN3514		D	2.3
4920193	ADSORBED GAS, TOXIC, N.O.S.	UN3512		A	2.3
4920562	ADSORBED GAS, TOXIC, N.O.S.	UN3512		B	2.3
4920563	ADSORBED GAS, TOXIC, N.O.S.	UN3512		C	2.3
4920564	ADSORBED GAS, TOXIC, N.O.S.	UN3512		D	2.3
4920194	ADSORBED GAS, TOXIC, OXIDIZING, CORROSIVE, N.O.S.	UN3518		A	2.3
4920565	ADSORBED GAS, TOXIC, OXIDIZING, CORROSIVE, N.O.S.	UN3518		B	2.3
4920566	ADSORBED GAS, TOXIC, OXIDIZING, CORROSIVE, N.O.S.	UN3518		C	2.3
4920567	ADSORBED GAS, TOXIC, OXIDIZING, CORROSIVE, N.O.S.	UN3518		D	2.3
4920198	ADSORBED GAS, TOXIC, OXIDIZING, N.O.S.	UN3515		A	2.3
4920568	ADSORBED GAS, TOXIC, OXIDIZING, N.O.S.	UN3515		B	2.3
4920569	ADSORBED GAS, TOXIC, OXIDIZING, N.O.S.	UN3515		C	2.3
4920572	ADSORBED GAS, TOXIC, OXIDIZING, N.O.S.	UN3515		D	2.3
4920360	AMMONIA SOLUTIONS	UN3318		D	2.3
4920359	AMMONIA, ANHYDROUS	UN1005		D	2.3

HMRC	Proper Shipping Name	UN/NA#	Packing Group	Hazard Zone	Hazard Class
4920135	ARSINE	UN2188		A	2.3
4920176	ARSINE, ADSORBED	UN3522		A	2.3
4920349	BORON TRICHLORIDE	UN1741		C	2.3
4920522	BORON TRIFLUORIDE	UN1008		B	2.3
4920573	BORON TRIFLUORIDE, ADSORBED	UN3519		B	2.3
4920715	BROMINE CHLORIDE	UN2901		B	2.3
4920399	CARBON MONOXIDE, COMPRESSED	UN1016		D	2.3
4920511	CARBON MONOXIDE, REFRIGERATED LIQUID	NA9202		D	2.3
4920559	CARBONYL FLUORIDE	UN2417		B	2.3
4920351	CARBONYL SULFIDE	UN2204		C	2.3
4920523	CHLORINE	UN1017		B	2.3
4920189	CHLORINE PENTAFLUORIDE	UN2548		A	2.3
4920352	CHLORINE TRIFLUORIDE	UN1749		B	2.3
4920574	CHLORINE, ADSORBED	UN3520		B	2.3
4920516	CHLOROPICRIN AND METHYL BROMIDE MIXTURES	UN1581		B	2.3
4920547	CHLOROPICRIN AND METHYL BROMIDE MIXTURES	UN1581		B	2.3
4920392	CHLOROPICRIN AND METHYL CHLORIDE MIXTURES	UN1582		B	2.3
4920527	COAL GAS, COMPRESSED	UN1023		C	2.3
4920102	COMPRESSED GAS, TOXIC, FLAMMABLE, CORROSIVE, N.O.S.	UN3305		A	2.3
4920303	COMPRESSED GAS, TOXIC, FLAMMABLE, CORROSIVE, N.O.S.	UN3305		B	2.3
4920304	COMPRESSED GAS, TOXIC, FLAMMABLE, CORROSIVE, N.O.S.	UN3305		C	2.3
4920305	COMPRESSED GAS, TOXIC, FLAMMABLE, CORROSIVE, N.O.S.	UN3305		D	2.3
4920301	COMPRESSED GAS, TOXIC CORROSIVE, N.O.S.	UN3304		D	2.3
4920324	COMPRESSED GAS, TOXIC CORROSIVE, N.O.S.	UN3304		B	2.3
4920379	COMPRESSED GAS, TOXIC FLAMMABLE, N.O.S.	UN1953		D	2.3
4920103	COMPRESSED GAS, TOXIC OXIDIZING, CORROSIVE, N.O.S.	UN3306		A	2.3
4920101	COMPRESSED GAS, TOXIC, CORROSIVE, N.O.S.	UN3304		A	2.3
4920331	COMPRESSED GAS, TOXIC, CORROSIVE, N.O.S.	UN3304		C	2.3
4920165	COMPRESSED GAS, TOXIC, FLAMMABLE, N.O.S.	UN1953		A	2.3
4920378	COMPRESSED GAS, TOXIC, FLAMMABLE, N.O.S.	UN1953		C	2.3
4920396	COMPRESSED GAS, TOXIC, FLAMMABLE, N.O.S.	UN1953		B	2.3
4920181	COMPRESSED GAS, TOXIC, N.O.S.	UN1955		A	2.3
4920373	COMPRESSED GAS, TOXIC, N.O.S.	UN1955		D	2.3
4920375	COMPRESSED GAS, TOXIC, N.O.S.	UN1955		C	2.3
4920570	COMPRESSED GAS, TOXIC, N.O.S.	UN1955		B	2.3
4920307	COMPRESSED GAS, TOXIC, OXIDIZING, CORROSIVE, N.O.S.	UN3306		C	2.3



HMRC	Proper Shipping Name	UN/NA#	Packing Group	Hazard Zone	Hazard Class
4920308	COMPRESSED GAS, TOXIC, OXIDIZING, CORROSIVE, N.O.S.	UN3306		D	2.3
4920104	COMPRESSED GAS, TOXIC, OXIDIZING, N.O.S.	UN3303		A	2.3
4920309	COMPRESSED GAS, TOXIC, OXIDIZING, N.O.S.	UN3303		C	2.3
4920310	COMPRESSED GAS, TOXIC, OXIDIZING, N.O.S.	UN3303		D	2.3
4920337	COMPRESSED GAS, TOXIC, OXIDIZING, N.O.S.	UN3303		B	2.3
4920395	CYANOGEN	UN1026		B	2.3
4920178	CYANOGEN CHLORIDE, STABILIZED	UN1589		A	2.3
4920107	DIBORANE	UN1911		A	2.3
4920398	DICHLOROSILANE	UN2189		B	2.3
4920174	DINITROGEN TETROXIDE	UN1067		A	2.3
4920353	ETHYLENE OXIDE	UN1040		D	2.3
4920342	ETHYLENE OXIDE AND CARBON DIOXIDE MIXTURE	UN3300		D	2.3
4920180	FLUORINE, COMPRESSED	UN1045		A	2.3
4920510	GAS IDENTIFICATION SET	NA9035			2.3
4920534	GAS SAMPLE, NON-PRESSURIZED, TOXIC, FLAMMABLE, N.O.S.	UN3168			2.3
4920536	GAS SAMPLE, NON-PRESSURIZED, TOXIC, N.O.S.	UN3169			2.3
4920354	GERMANE	UN2192		B	2.3
4920575	GERMANE, ADSORBED	UN3523		B	2.3
4920515	HEXAETHYL TETRAPHOSPHATE AND COMPRESSED GAS MIXTURES	UN1612		C	2.3
4920528	HEXAFLUOROACETONE	UN2420		B	2.3
4920502	HYDROGEN BROMIDE, ANHYDROUS	UN1048		C	2.3
4920503	HYDROGEN CHLORIDE, ANHYDROUS	UN1050		C	2.3
4920504	HYDROGEN CHLORIDE, REFRIGERATED LIQUID	UN2186		C	2.3
4920348	HYDROGEN IODIDE, ANHYDROUS	UN2197		C	2.3
4920122	HYDROGEN SELENIDE ANHYDROUS	UN2202		A	2.3
4920172	HYDROGEN SELENIDE, ADSORBED	UN3526		A	2.3
4920513	HYDROGEN SULFIDE	UN1053		B	2.3
4920115	INSECTICIDE GASES, TOXIC FLAMMABLE, N.O.S.	UN3355		A	2.3
4920550	INSECTICIDE GASES, TOXIC, N.O.S.	UN1967		C	2.3
4920381	LIQUEFIED GAS, TOXIC FLAMMABLE, N.O.S.	UN3160		D	2.3
4920105	LIQUEFIED GAS, TOXIC, CORROSIVE, N.O.S.	UN3308		A	2.3
4920311	LIQUEFIED GAS, TOXIC, CORROSIVE, N.O.S.	UN3308		B	2.3
4920313	LIQUEFIED GAS, TOXIC, CORROSIVE, N.O.S.	UN3308		C	2.3
4920315	LIQUEFIED GAS, TOXIC, CORROSIVE, N.O.S.	UN3308		D	2.3
4920108	LIQUEFIED GAS, TOXIC, FLAMMABLE, CORROSIVE, N.O.S.	UN3309		A	2.3
4920314	LIQUEFIED GAS, TOXIC, FLAMMABLE, CORROSIVE, N.O.S.	UN3309		B	2.3
4920316	LIQUEFIED GAS, TOXIC, FLAMMABLE, CORROSIVE, N.O.S.	UN3309		C	2.3

HMRC	Proper Shipping Name	UN/NA#	Packing Group	Hazard Zone	Hazard Class
4920318	LIQUEFIED GAS, TOXIC, FLAMMABLE, CORROSIVE, N.O.S.	UN3309		D	2.3
4920164	LIQUEFIED GAS, TOXIC, FLAMMABLE, N.O.S.	UN3160		A	2.3
4920380	LIQUEFIED GAS, TOXIC, FLAMMABLE, N.O.S.	UN3160		C	2.3
4920382	LIQUEFIED GAS, TOXIC, FLAMMABLE, N.O.S.	UN3160		B	2.3
4920195	LIQUEFIED GAS, TOXIC, N.O.S.	UN3162		A	2.3
4920368	LIQUEFIED GAS, TOXIC, N.O.S.	UN3162		C	2.3
4920369	LIQUEFIED GAS, TOXIC, N.O.S.	UN3162		D	2.3
4920571	LIQUEFIED GAS, TOXIC, N.O.S.	UN3162		B	2.3
4920110	LIQUEFIED GAS, TOXIC, OXIDIZING, CORROSIVE, N.O.S.	UN3310		A	2.3
4920312	LIQUEFIED GAS, TOXIC, OXIDIZING, CORROSIVE, N.O.S.	UN3310		B	2.3
4920320	LIQUEFIED GAS, TOXIC, OXIDIZING, CORROSIVE, N.O.S.	UN3310		C	2.3
4920325	LIQUEFIED GAS, TOXIC, OXIDIZING, CORROSIVE, N.O.S.	UN3310		D	2.3
4920111	LIQUEFIED GAS, TOXIC, OXIDIZING, N.O.S.	UN3307		A	2.3
4920317	LIQUEFIED GAS, TOXIC, OXIDIZING, N.O.S.	UN3307		B	2.3
4920319	LIQUEFIED GAS, TOXIC, OXIDIZING, N.O.S.	UN3307		C	2.3
4920321	LIQUEFIED GAS, TOXIC, OXIDIZING, N.O.S.	UN3307		D	2.3
4920518	METHYL BROMIDE	UN1062		C	2.3
4920355	METHYL MERCAPTAN	UN1064		C	2.3
4920394	METHYLCHLOROSILANE	UN2534		B	2.3
4920113	NITRIC OXIDE AND DINITROGEN TETROXIDE MIXTURES	UN1975		A	2.3
4920112	NITRIC OXIDE, COMPRESSED	UN1660		A	2.3
4920175	NITROGEN TRIOXIDE	UN2421		A	2.3
4920509	NITROSYL CHLORIDE	UN1069		C	2.3
4920344	OIL GAS, COMPRESSED	UN1071			2.3
4920530	ORGANIC PHOSPHATE, MIXED WITH COMPRESSED GAS	NA1955		C	2.3
4920173	OXYGEN DIFLUORIDE, COMPRESSED	UN2190		A	2.3
4920535	PARATHION AND COMPRESSED GAS MIXTURE	NA1967		C	2.3
4920356	PERCHLORYL FLUORIDE	UN3083		B	2.3
4920184	PHOSGENE	UN1076		A	2.3
4920160	PHOSPHINE	UN2199		A	2.3
4920171	PHOSPHINE, ADSORBED	UN3525		A	2.3
4920326	PHOSPHORUS PENTAFLUORIDE	UN2198		B	2.3
4920576	PHOSPHORUS PENTAFLUORIDE, ADSORBED	UN3524		B	2.3
4920106	SELENIUM HEXAFLUORIDE	UN2194		A	2.3
4920357	SILICON TETRAFLUORIDE	UN1859		B	2.3
4920577	SILICON TETRAFLUORIDE, ADSORBED	UN3521		B	2.3
4920167	STIBINE	UN2676		A	2.3

HMRC	Proper Shipping Name	UN/NA#	Packing Group	Hazard Zone	Hazard Class
4920508	SULFUR DIOXIDE	UN1079		C	2.3
4920187	SULFUR TETRAFLUORIDE	UN2418		A	2.3
4920526	SULFURYL FLUORIDE	UN2191		D	2.3
4920188	TELLURIUM HEXAFLUORIDE	UN2195		A	2.3
4920347	TRIFLUOROACETYL CHLORIDE	UN3057		B	2.3
4920346	TRIFLUOROCHLOROETHYLENE, STABILIZED	UN1082		C	2.3
4920371	TUNGSTEN HEXAFLUORIDE	UN2196		B	2.3
4909276	ETHYLENE OXIDE AND PROPYLENE OXIDE MIXTURES	UN2983	1		3
4907423	ISOCYANATES, FLAMMABLE, TOXIC, N.O.S.	UN2478	C		3
4916138	PENTABORANE	UN1380	1	A	4.2
4918505	BROMINE PENTAFLUORIDE	UN1745	1	A	5.1
4918507	BROMINE TRIFLUORIDE	UN1746	1	B	5.1
4921402	2-CHLOROETHANAL	UN2232	1	B	6.1
4921495	2-METHYL-2-HEPTANETHIOL	UN3023	1	B	6.1
4921741	3,5-DICHLORO-2,4,6- TRIFLUOROPYRIDINE	NA9264	1	B	6.1
4921401	ACETONE CYANOHYDRIN, STABILIZED	UN1541	1	B	6.1
4927007	ACROLEIN, STABILIZED	UN1092	1	A	6.1
4921019	ALLYL ALCOHOL	UN1098	1	B	6.1
4923113	ALLYL CHLOROFORMATE	UN1722	1	B	6.1
4921004	ALLYLAMINE	UN2334	1	B	6.1
4923209	ARSENIC TRICHLORIDE	UN1560	1	B	6.1
4921727	BROMOACETONE	UN1569	2	B	6.1
4921558	CHLOROACETONE, STABILIZED	UN1695	1	B	6.1
4921439	CHLOROACETONITRILE	UN2668	1	B	6.1
4923117	CHLOROACETYL CHLORIDE	UN1752	1	B	6.1
4921204	CHLOROFORMATES, TOXIC, CORROSIVE, FLAMMABLE, N.O.S.	UN2742	2		6.1
4921414	CHLOROPICRIN	UN1580	1	B	6.1
4921791	CHLOROPICRIN MIXTURES, N.O.S.	UN1583	1		6.1
4921746	CHLOROPIVALOYL CHLORIDE	NA9263	1	B	6.1
4921248	CROTONALDEHYDE	UN1143	1	B	6.1
4921010	CYCLOHEXYL ISOCYANATE	UN2488	1	B	6.1
4921254	DIKETENE, STABILIZED	UN2521	1	B	6.1
4921405	DIMETHYL SULFATE	UN1595	1	B	6.1
4921251	DIMETHYLHYDRAZINE, SYMMETRICAL	UN2382	1	B	6.1
4921202	DIMETHYLHYDRAZINE, UNSYMMETRICAL	UN1163	1	B	6.1
4921020	ETHYL CHLOROFORMATE	UN1182	1	B	6.1
4927035	ETHYL ISOCYANATE	UN2481	1	A	6.1

HMRC	Proper Shipping Name	UN/NA#	Packing Group	Hazard Zone	Hazard Class
4921745	ETHYL PHOSPHONOTHIOIC DICHLORIDE, ANHYDROUS	NA2927	1	B	6.1
4921742	ETHYL PHOSPHONOUS DICHLORIDE, ANHYDROUS	NA2845	1	B	6.1
4921744	ETHYL PHOSPHORODICHLORIDATE	NA2927	1	B	6.1
4921404	ETHYLDICHLOROARSINE	UN1892	1	B	6.1
4921420	ETHYLENE CHLOROXYDRIN	UN1135	1	B	6.1
4921497	ETHYLENE DIBROMIDE	UN1605	1	B	6.1
4927006	ETHYLENEIMINE, STABILIZED	UN1185	1	A	6.1
4921722	HEXACHLOROCYCLOPENTADIENE	UN2646	1	B	6.1
4921028	HYDROCYANIC ACID, AQUEOUS SOLUTIONS	UN1613	1	B	6.1
4921239	HYDROGEN CYANIDE, SOLUTION IN ALCOHOL	UN3294	1	B	6.1
4927014	HYDROGEN CYANIDE, STABILIZED	UN1051	1	A	6.1
4923111	HYDROGEN CYANIDE, STABILIZED	UN1614	1		6.1
4927004	IRON PENTACARBONYL	UN1994	1	A	6.1
4921211	ISOBUTYL CHLOROFORMATE	NA2742	1	B	6.1
4927036	ISOBUTYL ISOCYANATE	UN2486	1	A	6.1
4921699	ISOCYANATOBENZOTRI- FLUORIDES	UN2285	2		6.1
4921252	ISOPROPYL CHLOROFORMATE	UN2407	1	B	6.1
4927037	ISOPROPYL ISOCYANATE	UN2483	1	A	6.1
4921797	METAL CARBONYLS, LIQUID, N.O.S.	UN3281	1		6.1
4921440	METHACRYLONITRILE, STABILIZED	UN3079	1	B	6.1
4921245	METHANESULFONYL CHLORIDE	UN3246	1	B	6.1
4927038	METHOXYMETHYL ISOCYANATE	UN2605	1	A	6.1
4921438	METHYL BROMIDE AND ETHYLENE DIBROMIDE MIXTURES, LIQUID	UN1647	1	B	6.1
4927008	METHYL CHLOROFORMATE	UN1238	1	A	6.1
4927012	METHYL CHLOROMETHYL ETHER	UN1239	1	A	6.1
4921304	METHYL IODIDE	UN2644	1	B	6.1
4927009	METHYL ISOCYANATE	UN2480	1	A	6.1
4921487	METHYL ISOTHIOCYANATE	UN2477	1	B	6.1
4921255	METHYL ORTHOSILICATE	UN2606	1	B	6.1
4921695	METHYL PHOSPHONIC DICHLORIDE	NA9206	1	B	6.1
4921008	METHYL PHOSPHONOUS DICHLORIDE	NA2845	1	B	6.1
4927022	METHYL VINYL KETONE, STABILIZED	UN1251	1	A	6.1
4921275	METHYLDICHLOROARSINE	NA1556	1	B	6.1
4927011	METHYLHYDRAZINE	UN1244	1	A	6.1
4921730	N-BUTYL CHLOROFORMATE	UN2743	1	B	6.1
4921027	N-BUTYL ISOCYANATE	UN2485	1	B	6.1
4927010	NICKEL CARBONYL	UN1259	1	A	6.1
4921756	N-PROPYL CHLOROFORMATE	UN2740	1	B	6.1
4927025	N-PROPYL ISOCYANATE	UN2482	1	A	6.1
4921793	NITRILES, LIQUID, TOXIC, N.O.S.	UN3276	1		6.1
4921792	NITRILES, TOXIC, FLAMMABLE, N.O.S.	UN3275	1		6.1

HMRC	Proper Shipping Name	UN/NA#	Packing Group	Hazard Zone	Hazard Class
4921796	ORGANOARSENIC COMPOUND, LIQUID, N.O.S.	UN3280	1		6.1
4921794	ORGANOPHOSPHORUS COMPOUND, LIQUID, TOXIC, N.O.S.	UN3278	1		6.1
4921795	ORGANOPHOSPHORUS COMPOUND, TOXIC, FLAMMABLE, N.O.S.	UN3279	1		6.1
4921473	PERCHLOROMETHYLMERCAPTAN	UN1670	1	B	6.1
4921216	PHENYL ISOCYANATE	UN2487	1	B	6.1
4921413	PHENYL MERCAPTAN	UN2337	1	B	6.1
4921587	PHENYLCARBYLAMINE CHLORIDE	UN1672	1	B	6.1
4921437	PHOSPHORUS OXYCHLORIDE	UN1810	1	B	6.1
4921016	PHOSPHORUS TRICHLORIDE	UN1809	1	B	6.1
4921207	SEC-BUTYL CHLOROFORMATE	NA2742	1	B	6.1
4927039	SULFURYL CHLORIDE	UN1834	1	A	6.1
4927026	TERT-BUTYL ISOCYANATE	UN2484	1	A	6.1
4921463	TETRANITROMETHANE	UN1510	1	B	6.1
4921465	THIOPHOSGENE	UN2474	1	B	6.1
4921462	TITANIUM TETRACHLORIDE	UN1838	1	B	6.1
4921024	TOXIC BY INHALATION LIQUID, CORROSIVE, N.O.S.	UN3390	1	B	6.1
4921287	TOXIC BY INHALATION LIQUID, CORROSIVE, N.O.S.	UN3390	1	B	6.1
4921288	TOXIC BY INHALATION LIQUID, CORROSIVE, N.O.S.	UN3390	1	B	6.1
4927028	TOXIC BY INHALATION LIQUID, CORROSIVE, N.O.S.	UN3389	1	A	6.1
4921441	TOXIC BY INHALATION LIQUID, FLAMMABLE, CORROSIVE, N.O.S.	UN3489	1	B	6.1
4927031	TOXIC BY INHALATION LIQUID, FLAMMABLE, CORROSIVE, N.O.S.	UN3488	1	A	6.1
4921003	TOXIC BY INHALATION LIQUID, FLAMMABLE, N.O.S.	UN3384	1	B	6.1
4921029	TOXIC BY INHALATION LIQUID, FLAMMABLE, N.O.S.	UN3384	1	B	6.1
4927019	TOXIC BY INHALATION LIQUID, FLAMMABLE, N.O.S.	UN3383	1	A	6.1
4921000	TOXIC BY INHALATION LIQUID, N.O.S.	UN3382	1	B	6.1
4927018	TOXIC BY INHALATION LIQUID, N.O.S.	UN3381	1	A	6.1
4921023	TOXIC BY INHALATION LIQUID, OXIDIZING, N.O.S.	UN3388	1	B	6.1
4927024	TOXIC BY INHALATION LIQUID, OXIDIZING, N.O.S.	UN3387	1	A	6.1
4921458	TOXIC BY INHALATION LIQUID, WATER-REACTIVE, FLAMMABLE, N.O.S.	UN3491	1	B	6.1
4927034	TOXIC BY INHALATION LIQUID, WATER-REACTIVE, FLAMMABLE, N.O.S.	UN3490	1	A	6.1
4921006	TOXIC BY INHALATION LIQUID, WATER-REACTIVE, N.O.S.	UN3386	1	B	6.1
4927023	TOXIC BY INHALATION LIQUID, WATER-REACTIVE, N.O.S.	UN3385	1	A	6.1

HMRC	Proper Shipping Name	UN/NA#	Packing Group	Hazard Zone	Hazard Class
4921213	TRIMETHOXSILANE	NA9269	1	B	6.1
4921063	TRIMETHYLACETYL CHLORIDE	UN2438	1	B	6.1
4821019	WASTE ALLYL ALCOHOL	UN1098	1	B	6.1
4821722	WASTE HEXACHLOROCYCLO- PENTADIENE	UN2646	1	B	6.1
4821029	WASTE, TOXIC BY INHALATION LIQUID, FLAMMABLE, N.O.S.	UN3384	1	B	6.1
4932010	BORON TRIBROMIDE	UN2692	1	B	8
4936110	BROMINE	UN1744	1	A	8
4930204	CHLOROSULFONIC ACID	UN1754	1	B	8
4933327	ETHYL CHLOROTHIOFORMATE	UN2826	2	B	8
4930024	HYDROGEN FLUORIDE, ANHYDROUS	UN1052	1	C	8
4931201	NITRIC ACID, RED FUMING	UN2032	1	B	8
4932379	SULFUR CHLORIDES	UN1828	1		8
4930050	SULFUR TRIOXIDE, STABILIZED	UN1829	1	B	8
4930030	SULFURIC ACID, FUMING	UN1831	1	B	8
4935231	TRICHLOROACETYL CHLORIDE	UN2442	2	B	8
4830030	WASTE SULFURIC ACID, FUMING	UN1831	1	B	8

**Appendix B:**  
**List of Poison Inhalation Hazard (PIH) or Toxic Inhalation Hazard Chemicals (TIH)**  
**(Hazard Zone A, B, C, or D)**  
**Sorted by Hazmat Response Code #**  
**January 19, 2016**

HMRC	Proper Shipping Name	UN/NA#	Packing Group	Hazard Zone	Hazard Class
4821019	WASTE ALLYL ALCOHOL	UN1098	1	B	6.1
4821029	WASTE, TOXIC BY INHALATION LIQUID, FLAMMABLE, N.O.S.	UN3384	1	B	6.1
4821722	WASTE HEXACHLOROCYCLO- PENTADIENE	UN2646	1	B	6.1
4830030	WASTE SULFURIC ACID, FUMING	UN1831	1	B	8
4904210	AMMONIA, ANHYDROUS	UN1005			2.2
4904211	AMMONIA SOLUTION	UN3318			2.2
4904879	AMMONIA, ANHYDROUS	UN1005			2.2
4907423	ISOCYANATES, FLAMMABLE, TOXIC, N.O.S.	UN2478	C		3
4909276	ETHYLENE OXIDE AND PROPYLENE OXIDE MIXTURES	UN2983	1		3
4916138	PENTABORANE	UN1380	1	A	4.2
4918505	BROMINE PENTAFLUORIDE	UN1745	1	A	5.1
4918507	BROMINE TRIFLUORIDE	UN1746	1	B	5.1
4920101	COMPRESSED GAS, TOXIC, CORROSIVE, N.O.S.	UN3304		A	2.3
4920102	COMPRESSED GAS, TOXIC, FLAMMABLE, CORROSIVE, N.O.S.	UN3305		A	2.3
4920103	COMPRESSED GAS, TOXIC OXIDIZING, CORROSIVE, N.O.S.	UN3306		A	2.3
4920104	COMPRESSED GAS, TOXIC, OXIDIZING, N.O.S.	UN3303		A	2.3
4920105	LIQUEFIED GAS, TOXIC, CORROSIVE, N.O.S.	UN3308		A	2.3
4920106	SELENIUM HEXAFLUORIDE	UN2194		A	2.3
4920107	DIBORANE	UN1911		A	2.3
4920108	LIQUEFIED GAS, TOXIC, FLAMMABLE, CORROSIVE, N.O.S.	UN3309		A	2.3
4920110	LIQUEFIED GAS, TOXIC, OXIDIZING, CORROSIVE, N.O.S.	UN3310		A	2.3
4920111	LIQUEFIED GAS, TOXIC, OXIDIZING, N.O.S.	UN3307		A	2.3
4920112	NITRIC OXIDE, COMPRESSED	UN1660		A	2.3
4920113	NITRIC OXIDE AND DINITROGEN TETROXIDE MIXTURES	UN1975		A	2.3
4920115	INSECTICIDE GASES, TOXIC FLAMMABLE, N.O.S.	UN3355		A	2.3
4920122	HYDROGEN SELENIDE ANHYDROUS	UN2202		A	2.3
4920135	ARSINE	UN2188		A	2.3
4920160	PHOSPHINE	UN2199		A	2.3
4920164	LIQUEFIED GAS, TOXIC, FLAMMABLE, N.O.S.	UN3160		A	2.3
4920165	COMPRESSED GAS, TOXIC, FLAMMABLE, N.O.S.	UN1953		A	2.3
4920167	STIBINE	UN2676		A	2.3

HMRC	Proper Shipping Name	UN/NA#	Packing Group	Hazard Zone	Hazard Class
4920171	PHOSPHINE, ADSORBED	UN3525		A	2.3
4920172	HYDROGEN SELENIDE, ADSORBED	UN3526		A	2.3
4920173	OXYGEN DIFLUORIDE, COMPRESSED	UN2190		A	2.3
4920174	DINITROGEN TETROXIDE	UN1067		A	2.3
4920175	NITROGEN TRIOXIDE	UN2421		A	2.3
4920176	ARSINE, ADSORBED	UN3522		A	2.3
4920178	CYANOGEN CHLORIDE, STABILIZED	UN1589		A	2.3
4920180	FLUORINE, COMPRESSED	UN1045		A	2.3
4920181	COMPRESSED GAS, TOXIC, N.O.S.	UN1955		A	2.3
4920184	PHOSGENE	UN1076		A	2.3
4920187	SULFUR TETRAFLUORIDE	UN2418		A	2.3
4920188	TELLURIUM HEXAFLUORIDE	UN2195		A	2.3
4920189	CHLORINE PENTAFLUORIDE	UN2548		A	2.3
4920190	ADSORBED GAS, TOXIC, CORROSIVE, N.O.S.	UN3516		A	2.3
4920191	ADSORBED GAS, TOXIC, FLAMMABLE, CORROSIVE, N.O.S.	UN3517		A	2.3
4920192	ADSORBED GAS, TOXIC, FLAMMABLE, N.O.S.	UN3514		A	2.3
4920193	ADSORBED GAS, TOXIC, N.O.S.	UN3512		A	2.3
4920194	ADSORBED GAS, TOXIC, OXIDIZING, CORROSIVE, N.O.S.	UN3518		A	2.3
4920195	LIQUEFIED GAS, TOXIC, N.O.S.	UN3162		A	2.3
4920198	ADSORBED GAS, TOXIC, OXIDIZING, N.O.S.	UN3515		A	2.3
4920301	COMPRESSED GAS, TOXIC CORROSIVE, N.O.S.	UN3304		D	2.3
4920303	COMPRESSED GAS, TOXIC, FLAMMABLE, CORROSIVE, N.O.S.	UN3305		B	2.3
4920304	COMPRESSED GAS, TOXIC, FLAMMABLE, CORROSIVE, N.O.S.	UN3305		C	2.3
4920305	COMPRESSED GAS, TOXIC, FLAMMABLE, CORROSIVE, N.O.S.	UN3305		D	2.3
4920307	COMPRESSED GAS, TOXIC, OXIDIZING, CORROSIVE, N.O.S.	UN3306		C	2.3
4920308	COMPRESSED GAS, TOXIC, OXIDIZING, CORROSIVE, N.O.S.	UN3306		D	2.3
4920309	COMPRESSED GAS, TOXIC, OXIDIZING, N.O.S.	UN3303		C	2.3
4920310	COMPRESSED GAS, TOXIC, OXIDIZING, N.O.S.	UN3303		D	2.3
4920311	LIQUEFIED GAS, TOXIC, CORROSIVE, N.O.S.	UN3308		B	2.3
4920312	LIQUEFIED GAS, TOXIC, OXIDIZING, CORROSIVE, N.O.S.	UN3310		B	2.3
4920313	LIQUEFIED GAS, TOXIC, CORROSIVE, N.O.S.	UN3308		C	2.3
4920314	LIQUEFIED GAS, TOXIC, FLAMMABLE, CORROSIVE, N.O.S.	UN3309		B	2.3
4920315	LIQUEFIED GAS, TOXIC, CORROSIVE, N.O.S.	UN3308		D	2.3
4920316	LIQUEFIED GAS, TOXIC, FLAMMABLE, CORROSIVE, N.O.S.	UN3309		C	2.3
4920317	LIQUEFIED GAS, TOXIC, OXIDIZING, N.O.S.	UN3307		B	2.3



HMRC	Proper Shipping Name	UN/NA#	Packing Group	Hazard Zone	Hazard Class
4920318	LIQUEFIED GAS, TOXIC, FLAMMABLE, CORROSIVE, N.O.S.	UN3309		D	2.3
4920319	LIQUEFIED GAS, TOXIC, OXIDIZING, N.O.S.	UN3307		C	2.3
4920320	LIQUEFIED GAS, TOXIC, OXIDIZING, CORROSIVE, N.O.S.	UN3310		C	2.3
4920321	LIQUEFIED GAS, TOXIC, OXIDIZING, N.O.S.	UN3307		D	2.3
4920324	COMPRESSED GAS, TOXIC CORROSIVE, N.O.S.	UN3304		B	2.3
4920325	LIQUEFIED GAS, TOXIC, OXIDIZING, CORROSIVE, N.O.S.	UN3310		D	2.3
4920326	PHOSPHORUS PENTAFLUORIDE	UN2198		B	2.3
4920331	COMPRESSED GAS, TOXIC, CORROSIVE, N.O.S.	UN3304		C	2.3
4920337	COMPRESSED GAS, TOXIC, OXIDIZING, N.O.S.	UN3303		B	2.3
4920342	ETHYLENE OXIDE AND CARBON DIOXIDE MIXTURE	UN3300		D	2.3
4920344	OIL GAS, COMPRESSED	UN1071			2.3
4920346	TRIFLUOROCHLOROETHYLENE, STABILIZED	UN1082		C	2.3
4920347	TRIFLUOROACETYL CHLORIDE	UN3057		B	2.3
4920348	HYDROGEN IODIDE, ANHYDROUS	UN2197		C	2.3
4920349	BORON TRICHLORIDE	UN1741		C	2.3
4920351	CARBONYL SULFIDE	UN2204		C	2.3
4920352	CHLORINE TRIFLUORIDE	UN1749		B	2.3
4920353	ETHYLENE OXIDE	UN1040		D	2.3
4920354	GERMANE	UN2192		B	2.3
4920355	METHYL MERCAPTAN	UN1064		C	2.3
4920356	PERCHLORYL FLUORIDE	UN3083		B	2.3
4920357	SILICON TETRAFLUORIDE	UN1859		B	2.3
4920359	AMMONIA, ANHYDROUS	UN1005		D	2.3
4920360	AMMONIA SOLUTIONS	UN3318		D	2.3
4920368	LIQUEFIED GAS, TOXIC, N.O.S.	UN3162		C	2.3
4920369	LIQUEFIED GAS, TOXIC, N.O.S.	UN3162		D	2.3
4920371	TUNGSTEN HEXAFLUORIDE	UN2196		B	2.3
4920373	COMPRESSED GAS, TOXIC, N.O.S.	UN1955		D	2.3
4920375	COMPRESSED GAS, TOXIC, N.O.S.	UN1955		C	2.3
4920378	COMPRESSED GAS, TOXIC, FLAMMABLE, N.O.S.	UN1953		C	2.3
4920379	COMPRESSED GAS, TOXIC FLAMMABLE, N.O.S.	UN1953		D	2.3
4920380	LIQUEFIED GAS, TOXIC, FLAMMABLE, N.O.S.	UN3160		C	2.3
4920381	LIQUEFIED GAS, TOXIC FLAMMABLE, N.O.S.	UN3160		D	2.3
4920382	LIQUEFIED GAS, TOXIC, FLAMMABLE, N.O.S.	UN3160		B	2.3
4920392	CHLOROPICRIN AND METHYL CHLORIDE MIXTURES	UN1582		B	2.3
4920394	METHYLCHLOROSILANE	UN2534		B	2.3
4920395	CYANOGEN	UN1026		B	2.3
4920396	COMPRESSED GAS, TOXIC, FLAMMABLE, N.O.S.	UN1953		B	2.3
4920398	DICHLOROSILANE	UN2189		B	2.3

HMRC	Proper Shipping Name	UN/NA#	Packing Group	Hazard Zone	Hazard Class
4920399	CARBON MONOXIDE, COMPRESSED	UN1016		D	2.3
4920502	HYDROGEN BROMIDE, ANHYDROUS	UN1048		C	2.3
4920503	HYDROGEN CHLORIDE, ANHYDROUS	UN1050		C	2.3
4920504	HYDROGEN CHLORIDE, REFRIGERATED LIQUID	UN2186		C	2.3
4920508	SULFUR DIOXIDE	UN1079		C	2.3
4920509	NITROSYL CHLORIDE	UN1069		C	2.3
4920510	GAS IDENTIFICATION SET	NA9035			2.3
4920511	CARBON MONOXIDE, REFRIGERATED LIQUID	NA9202		D	2.3
4920513	HYDROGEN SULFIDE	UN1053		B	2.3
4920515	HEXAETHYL TETRAPHOSPHATE AND COMPRESSED GAS MIXTURES	UN1612		C	2.3
4920516	CHLOROPICRIN AND METHYL BROMIDE MIXTURES	UN1581		B	2.3
4920518	METHYL BROMIDE	UN1062		C	2.3
4920522	BORON TRIFLUORIDE	UN1008		B	2.3
4920523	CHLORINE	UN1017		B	2.3
4920526	SULFURYL FLUORIDE	UN2191		D	2.3
4920527	COAL GAS, COMPRESSED	UN1023		C	2.3
4920528	HEXAFLUOROACETONE	UN2420		B	2.3
4920530	ORGANIC PHOSPHATE, MIXED WITH COMPRESSED GAS	NA1955		C	2.3
4920534	GAS SAMPLE, NON-PRESSURIZED, TOXIC, FLAMMABLE, N.O.S.	UN3168			2.3
4920535	PARATHION AND COMPRESSED GAS MIXTURE	NA1967		C	2.3
4920536	GAS SAMPLE, NON-PRESSURIZED, TOXIC, N.O.S.	UN3169			2.3
4920547	CHLOROPICRIN AND METHYL BROMIDE MIXTURES	UN1581		B	2.3
4920550	INSECTICIDE GASES, TOXIC, N.O.S.	UN1967		C	2.3
4920551	ADSORBED GAS, TOXIC, CORROSIVE, N.O.S.	UN3516		B	2.3
4920552	ADSORBED GAS, TOXIC, CORROSIVE, N.O.S.	UN3516		C	2.3
4920553	ADSORBED GAS, TOXIC, CORROSIVE, N.O.S.	UN3516		D	2.3
4920554	ADSORBED GAS, TOXIC, FLAMMABLE, CORROSIVE, N.O.S.	UN3517		B	2.3
4920555	ADSORBED GAS, TOXIC, FLAMMABLE, CORROSIVE, N.O.S.	UN3517		C	2.3
4920557	ADSORBED GAS, TOXIC, FLAMMABLE, CORROSIVE, N.O.S.	UN3517		D	2.3
4920558	ADSORBED GAS, TOXIC, FLAMMABLE, N.O.S.	UN3514		B	2.3
4920559	CARBONYL FLUORIDE	UN2417		B	2.3
4920560	ADSORBED GAS, TOXIC, FLAMMABLE, N.O.S.	UN3514		C	2.3
4920561	ADSORBED GAS, TOXIC, FLAMMABLE, N.O.S.	UN3514		D	2.3
4920562	ADSORBED GAS, TOXIC, N.O.S.	UN3512		B	2.3
4920563	ADSORBED GAS, TOXIC, N.O.S.	UN3512		C	2.3
4920564	ADSORBED GAS, TOXIC, N.O.S.	UN3512		D	2.3

HMRC	Proper Shipping Name	UN/NA#	Packing Group	Hazard Zone	Hazard Class
4920565	ADSORBED GAS, TOXIC, OXIDIZING, CORROSIVE, N.O.S.	UN3518		B	2.3
4920566	ADSORBED GAS, TOXIC, OXIDIZING, CORROSIVE, N.O.S.	UN3518		C	2.3
4920567	ADSORBED GAS, TOXIC, OXIDIZING, CORROSIVE, N.O.S.	UN3518		D	2.3
4920568	ADSORBED GAS, TOXIC, OXIDIZING, N.O.S.	UN3515		B	2.3
4920569	ADSORBED GAS, TOXIC, OXIDIZING, N.O.S.	UN3515		C	2.3
4920570	COMPRESSED GAS, TOXIC, N.O.S.	UN1955		B	2.3
4920571	LIQUEFIED GAS, TOXIC, N.O.S.	UN3162		B	2.3
4920572	ADSORBED GAS, TOXIC, OXIDIZING, N.O.S.	UN3515		D	2.3
4920573	BORON TRIFLUORIDE, ADSORBED	UN3519		B	2.3
4920574	CHLORINE, ADSORBED	UN3520		B	2.3
4920575	GERMANE, ADSORBED	UN3523		B	2.3
4920576	PHOSPHORUS PENTAFLUORIDE, ADSORBED	UN3524		B	2.3
4920577	SILICON TETRAFLUORIDE, ADSORBED	UN3521		B	2.3
4920715	BROMINE CHLORIDE	UN2901		B	2.3
4921000	TOXIC BY INHALATION LIQUID, N.O.S.	UN3382	1	B	6.1
4921003	TOXIC BY INHALATION LIQUID, FLAMMABLE, N.O.S.	UN3384	1	B	6.1
4921004	ALLYLAMINE	UN2334	1	B	6.1
4921006	TOXIC BY INHALATION LIQUID, WATER-REACTIVE, N.O.S.	UN3386	1	B	6.1
4921008	METHYL PHOSPHONOUS DICHLORIDE	NA2845	1	B	6.1
4921010	CYCLOHEXYL ISOCYANATE	UN2488	1	B	6.1
4921016	PHOSPHORUS TRICHLORIDE	UN1809	1	B	6.1
4921019	ALLYL ALCOHOL	UN1098	1	B	6.1
4921020	ETHYL CHLOROFORMATE	UN1182	1	B	6.1
4921023	TOXIC BY INHALATION LIQUID, OXIDIZING, N.O.S.	UN3388	1	B	6.1
4921024	TOXIC BY INHALATION LIQUID, CORROSIVE, N.O.S.	UN3390	1	B	6.1
4921027	N-BUTYL ISOCYANATE	UN2485	1	B	6.1
4921028	HYDROCYANIC ACID, AQUEOUS SOLUTIONS	UN1613	1	B	6.1
4921029	TOXIC BY INHALATION LIQUID, FLAMMABLE, N.O.S.	UN3384	1	B	6.1
4921063	TRIMETHYLACETYL CHLORIDE	UN2438	1	B	6.1
4921202	DIMETHYLHYDRAZINE, UNSYMMETRICAL	UN1163	1	B	6.1
4921204	CHLOROFORMATES, TOXIC, CORROSIVE, FLAMMABLE, N.O.S.	UN2742	2		6.1
4921207	SEC-BUTYL CHLOROFORMATE	NA2742	1	B	6.1
4921211	ISOBUTYL CHLOROFORMATE	NA2742	1	B	6.1
4921213	TRIMETHOXSILANE	NA9269	1	B	6.1
4921216	PHENYL ISOCYANATE	UN2487	1	B	6.1
4921239	HYDROGEN CYANIDE, SOLUTION IN ALCOHOL	UN3294	1	B	6.1
4921245	METHANESULFONYL CHLORIDE	UN3246	1	B	6.1

HMRC	Proper Shipping Name	UN/NA#	Packing Group	Hazard Zone	Hazard Class
4921248	CROTONALDEHYDE	UN1143	1	B	6.1
4921251	DIMETHYLHYDRAZINE, SYMETRICAL	UN2382	1	B	6.1
4921252	ISOPROPYL CHLOROFORMATE	UN2407	1	B	6.1
4921254	DIKETENE, STABILIZED	UN2521	1	B	6.1
4921255	METHYL ORTHOSILICATE	UN2606	1	B	6.1
4921275	METHYLDICHLOROARSINE	NA1556	1	B	6.1
4921287	TOXIC BY INHALATION LIQUID, CORROSIVE, N.O.S.	UN3390	1	B	6.1
4921288	TOXIC BY INHALATION LIQUID, CORROSIVE, N.O.S.	UN3390	1	B	6.1
4921304	METHYL IODIDE	UN2644	1	B	6.1
4921401	ACETONE CYANOHYDRIN, STABILIZED	UN1541	1	B	6.1
4921402	2-CHLOROETHANAL	UN2232	1	B	6.1
4921404	ETHYLDICHLOROARSINE	UN1892	1	B	6.1
4921405	DIMETHYL SULFATE	UN1595	1	B	6.1
4921413	PHENYL MERCAPTAN	UN2337	1	B	6.1
4921414	CHLOROPICRIN	UN1580	1	B	6.1
4921420	ETHYLENE CHLOROXYDRIN	UN1135	1	B	6.1
4921437	PHOSPHORUS OXYCHLORIDE	UN1810	1	B	6.1
4921438	METHYL BROMIDE AND ETHYLENE DIBROMIDE MIXTURES, LIQUID	UN1647	1	B	6.1
4921439	CHLOROACETONITRILE	UN2668	1	B	6.1
4921440	METHACRYLONITRILE, STABILIZED	UN3079	1	B	6.1
4921441	TOXIC BY INHALATION LIQUID, FLAMMABLE, CORROSIVE, N.O.S.	UN3489	1	B	6.1
4921458	TOXIC BY INHALATION LIQUID, WATER-REACTIVE, FLAMMABLE, N.O.S.	UN3491	1	B	6.1
4921462	TITANIUM TETRACHLORIDE	UN1838	1	B	6.1
4921463	TETRANITROMETHANE	UN1510	1	B	6.1
4921465	THIOPHOSGENE	UN2474	1	B	6.1
4921473	PERCHLOROMETHYLMERCAPTAN	UN1670	1	B	6.1
4921487	METHYL ISOTHIOCYANATE	UN2477	1	B	6.1
4921495	2-METHYL-2-HEPTANETHIOL	UN3023	1	B	6.1
4921497	ETHYLENE DIBROMIDE	UN1605	1	B	6.1
4921558	CHLOROACETONE, STABILIZED	UN1695	1	B	6.1
4921587	PHENYLCARBYLAMINE CHLORIDE	UN1672	1	B	6.1
4921695	METHYL PHOSPHONIC DICHLORIDE	NA9206	1	B	6.1
4921699	ISOCYANATOBENZOTRI- FLUORIDES	UN2285	2		6.1
4921722	HEXACHLOROCYCLOPENTADIENE	UN2646	1	B	6.1
4921727	BROMOACETONE	UN1569	2	B	6.1
4921730	N-BUTYL CHLOROFORMATE	UN2743	1	B	6.1
4921741	3,5-DICHLORO-2,4,6- TRIFLUOROPYRIDINE	NA9264	1	B	6.1
4921742	ETHYL PHOSPHONOUS DICHLORIDE, ANHYDROUS	NA2845	1	B	6.1
4921744	ETHYL PHOSPHORODICHLORIDATE	NA2927	1	B	6.1

HMRC	Proper Shipping Name	UN/NA#	Packing Group	Hazard Zone	Hazard Class
4921745	ETHYL PHOSPHONOTHIOIC DICHLORIDE, ANHYDROUS	NA2927	1	B	6.1
4921746	CHLOROPIVALOYL CHLORIDE	NA9263	1	B	6.1
4921756	N-PROPYL CHLOROFORMATE	UN2740	1	B	6.1
4921791	CHLOROPICRIN MIXTURES, N.O.S.	UN1583	1		6.1
4921792	NITRILES, TOXIC, FLAMMABLE, N.O.S.	UN3275	1		6.1
4921793	NITRILES, LIQUID, TOXIC, N.O.S.	UN3276	1		6.1
4921794	ORGANOPHOSPHORUS COMPOUND, LIQUID, TOXIC, N.O.S.	UN3278	1		6.1
4921795	ORGANOPHOSPHORUS COMPOUND, TOXIC, FLAMMABLE, N.O.S.	UN3279	1		6.1
4921796	ORGANOARSENIC COMPOUND, LIQUID, N.O.S.	UN3280	1		6.1
4921797	METAL CARBONYLS, LIQUID, N.O.S.	UN3281	1		6.1
4923111	HYDROGEN CYANIDE, STABILIZED	UN1614	1		6.1
4923113	ALLYL CHLOROFORMATE	UN1722	1	B	6.1
4923117	CHLOROACETYL CHLORIDE	UN1752	1	B	6.1
4923209	ARSENIC TRICHLORIDE	UN1560	1	B	6.1
4927004	IRON PENTACARBONYL	UN1994	1	A	6.1
4927006	ETHYLENEIMINE, STABILIZED	UN1185	1	A	6.1
4927007	ACROLEIN, STABILIZED	UN1092	1	A	6.1
4927008	METHYL CHLOROFORMATE	UN1238	1	A	6.1
4927009	METHYL ISOCYANATE	UN2480	1	A	6.1
4927010	NICKEL CARBONYL	UN1259	1	A	6.1
4927011	METHYLHYDRAZINE	UN1244	1	A	6.1
4927012	METHYL CHLOROMETHYL ETHER	UN1239	1	A	6.1
4927014	HYDROGEN CYANIDE, STABILIZED	UN1051	1	A	6.1
4927018	TOXIC BY INHALATION LIQUID, N.O.S.	UN3381	1	A	6.1
4927019	TOXIC BY INHALATION LIQUID, FLAMMABLE, N.O.S.	UN3383	1	A	6.1
4927022	METHYL VINYL KETONE, STABILIZED	UN1251	1	A	6.1
4927023	TOXIC BY INHALATION LIQUID, WATER-REACTIVE, N.O.S.	UN3385	1	A	6.1
4927024	TOXIC BY INHALATION LIQUID, OXIDIZING, N.O.S.	UN3387	1	A	6.1
4927025	N-PROPYL ISOCYANATE	UN2482	1	A	6.1
4927026	TERT-BUTYL ISOCYANATE	UN2484	1	A	6.1
4927028	TOXIC BY INHALATION LIQUID, CORROSIVE, N.O.S.	UN3389	1	A	6.1
4927031	TOXIC BY INHALATION LIQUID, FLAMMABLE, CORROSIVE, N.O.S.	UN3488	1	A	6.1
4927034	TOXIC BY INHALATION LIQUID, WATER-REACTIVE, FLAMMABLE, N.O.S.	UN3490	1	A	6.1
4927035	ETHYL ISOCYANATE	UN2481	1	A	6.1
4927036	ISOBUTYL ISOCYANATE	UN2486	1	A	6.1
4927037	ISOPROPYL ISOCYANATE	UN2483	1	A	6.1
4927038	METHOXYMETHYL ISOCYANATE	UN2605	1	A	6.1

HMRC	Proper Shipping Name	UN/NA#	Packing Group	Hazard Zone	Hazard Class
4927039	SULFURYL CHLORIDE	UN1834	1	A	6.1
4930024	HYDROGEN FLUORIDE, ANHYDROUS	UN1052	1	C	8
4930030	SULFURIC ACID, FUMING	UN1831	1	B	8
4930050	SULFUR TRIOXIDE, STABILIZED	UN1829	1	B	8
4930204	CHLOROSULFONIC ACID	UN1754	1	B	8
4931201	NITRIC ACID, RED FUMING	UN2032	1	B	8
4932010	BORON TRIBROMIDE	UN2692	1	B	8
4932379	SULFUR CHLORIDES	UN1828	1		8
4933327	ETHYL CHLOROTHIOFORMATE	UN2826	2	B	8
4935231	TRICHLOROACETYL CHLORIDE	UN2442	2	B	8
4936110	BROMINE	UN1744	1	A	8

**Appendix 1**  
**Spent Nuclear Fuel (SNF) and High Level Radioactive Waste (HLRW)**  
**August 5, 2013**

<b>HMRC</b>	<b>Proper Shipping Description</b>
4929142	Radioactive Material, Type B(U) Package, Fissile
4929143	Radioactive Material, Type B(M) Package, Fissile
4929144	Radioactive Material, Transported Under Special Arrangement, Fissile
4929147	Radioactive Material, Transported Under Special Arrangement

**Appendix 2**  
**Time Sensitive Materials**  
**August 5, 2013**

Proper Shipping Name	Haz Mat STCC
<b>20 Day</b>	
Ethylene, refrigerated liquid	4905735
Hydrogen, refrigerated liquid	4905745
Vinyl Fluoride, stabilized	4905793
Chloroprene, stabilized	4907223
Flammable Liquid, n.o.s. (Methyl Methacrylate Monomer, uninhibited)	4907255
Hydrogen chloride, refrigerated liquid	4920504
<b>30 day</b>	
Styrene monomer, stabilized	4907265
Styrene monomer, stabilized	4907235



**Appendix 3**

**Sample Request for Hazardous Materials Commodity Flow Information**

**August 5, 2013**

[Company LOGO]

Request for Hazardous Materials COMMODITY FLOW INFORMATION

Organization Requesting Information: \_\_\_\_\_

Contact Person: \_\_\_\_\_

Phone Number: \_\_\_\_\_

Email Address: \_\_\_\_\_

Mailing Address: \_\_\_\_\_  
(Street Address)

\_\_\_\_\_  
(City, State, Zip)

Geographical Description of Area for study: \_\_\_\_\_

Preferred method to receive report:  Email  U.S. Mail (Mark One)

By signing below I acknowledge and agree to the terms set forth by [RAILROAD NAME] for use and dissemination of the [RAILROAD'S] Hazardous Materials Commodity Flow Information. [RAILROAD'S NAME] considers this information to be restricted information of a security sensitive nature. I thus affirm and agree that the information provided by [RAILROAD NAME] in this report will be used solely for and by bona fide emergency planning and response organizations for the expressed purpose of emergency and contingency planning. This information will not be distributed publicly in whole or in part without the expressed written permission of [RAILROAD NAME].

\_\_\_\_\_  
(Signature of person requesting commodity flow information)

**Return Completed Form to: [INSERT RAILROAD NAME AND ADDRESS]**

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For [RAILROAD] Use Only

[PERSON RESPONSIBLE FOR APPROVAL]: \_\_\_ Yes \_\_\_ NO Date: \_\_\_\_\_

Hazardous Materials Service Support:

Date Request Received: \_\_\_\_\_

Time Period Covered: \_\_\_\_\_

Date Report Sent: \_\_\_\_\_

Report sent via:  Email  U.S. Mail