



## Eureka County

## Yucca Mountain Existing Transportation Corridor

## IMPACT ASSESSMENT REPORT

September 2005

## Appendix D

Wildland Fires in Eureka County and Vicinity Possibly Caused by Railroad Operations, 1999-2005				
YEAR	TYPE	INCIDENT #	LOCATION	POSSIBLE CAUSE
1999	W/L	N990597	Palisade	RR
1999	W/L	N990880	Tunnel Car	RR
1999	W/L	2000032	Near Barth Mine-Tie	RR
1999	W/L	2000180	Barth Area	RR
1999	W/L	2000067	W of Beowawe UP MM 614	RR
1999	W/L	2000466	Carlin UP MM 642.2	RR
1999	W/L	2000597	Carlin UP MM 650.6	RR
<b>Total</b>	<b>7</b>			
2000	W/L	2000023	MP 527.17 SPRR	RR
2000	W/L	2000112	Palisades UPRR	RR
2000	W/L	2000116	Palisades UPRR	RR
2000	W/L	2000117	Palisades UPRR	RR
2000	W/L	2000118	Palisades UPRR	RR
2000	W/L	2000141	UP/ SP Crossover	RR
<b>Total</b>	<b>6</b>			
2001	W/L	2010149	W of Barth	RR
2001	W/L	2010365	Barth Mine	RR
2001	W/L	2010423	Dunphy UPRR MM626.43	RR
2001	W/L	2010569	UPRR EB MM649	RR
2001	W/L	2010572	4 Fires MM647 to Carlin	RR
<b>Total</b>	<b>5</b>			
2002	W/L	2010971	SPMP 1 Mile E of Carlin	RR
2002	W/L	2011030	Barth West MP 629.75 FA	Unknown
2002	W/L	2020374	E of Barth UP MP 631.5	RR
2002	W/L	2020398	Beowawe SP MP 505, 512,521	RR
<b>Total</b>	<b>5</b>			
2003	W/L	2030589	Tunnels East SPMP 540.1	RR
2003	W/L	2030716	UPRR EB Carlin	RR
2003	W/L	2030890	Palisade 27N	RR
2003	W/L	2030921	MM 292 UPRR MP 548	RR
2003	W/L	2040557	UPRR MP 541 WB	RR
<b>Total</b>	<b>5</b>			
2004	W/L	2040981	1 Mi South of Carlin Tie Fire	RR
2004	W/L	2050199	Barth 40.34.41/116.16.621	RR
<b>Total</b>	<b>2</b>			
2005	Derailment	2050814	2 Mi East of Carlin Coal Train	RR

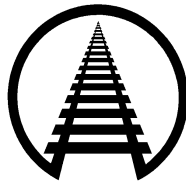
<b>Total</b>	<b>4</b>	<b>TO DATE</b>		
2005	Derailment	2050814	2 Mi East of Carlin Coal Train	RR
2005	W/L	2060036	TS Ranch Road RR Tie	RR
2005	W/L	2060077	Tomera Road RR Tie	RR
2005	W/L	2060234	Scapegoat Barth Mine	RR
<b>Total</b>	<b>4</b>	<b>TO DATE</b>		
Average per year	<b>5</b>			
MP & MM = Milepost and Milemarker				
FA = False Alarm				
W & E = Compass Direction				
UP & SP = Union and Southern Pacific Railroads				

[Table of Contents](#) | [Executive Summary](#)



[Back](#) — [Next](#)





ASSOCIATION  
OF AMERICAN  
RAILROADS

**P. G. Kinnecom**  
*Executive Director - Tank Car Safety*

March 1, 2005

**CIRCULAR NO. OT-55-G**

(CPC-1165)

**SUBJECT:** Recommended Railroad Operating Practices for Transportation of Hazardous Materials

**TO MEMBERS AND PRIVATE CAR OWNERS:**

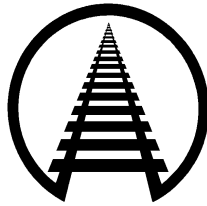
Based on recommendations of the Inter-Industry Task Force on the Safe Transportation of Hazardous Materials by Rail, AAR published Circular No. OT-55 on January 4, 1990 to document recommended railroad operating practices for the transportation of hazardous materials. The circular included recommended road and yard operating practices, designation of key routes, proposed separations from hazmat storage areas, training of transportation employees, and implementation of TRANSCAER®, a national community outreach program to improve community awareness, emergency planning and incident response for the transportation of hazardous materials.

Circular No. OT-55 has been modified to revision G dated 3/1/2005 (copy attached). Circular No. OT-55-G incorporates an industry policy and includes a template for railroads' use in documenting requests from local emergency response agencies to provide commodity flow information.

A copy of Circular No. OT-55-G, *Recommended Railroad Operating Practices for Transportation of Hazardous Materials*, is attached for your reference and use. Changes in the text have been underlined.

Sincerely,

P. G. Kinnecom



**ASSOCIATION  
OF AMERICAN  
RAILROADS**

**R.C. VanderClute**  
Senior Vice President  
Safety and Operations

March 1, 2005

**Circular No. OT-55-G**

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

Chief Operating Officers:

Based on recommendations of the AAR Risk Management Working Committee, the Safety and Operations Management Committee, on February 17, 2005, approved the following revised recommended operating practices for the transportation of hazardous materials. They are effective March 1, 2005.

**Road Operating Practices**

**I. "Key Trains"**

- A. Definition: Any train with five tank car loads of Poison Inhalation Hazard (Hazard Zone A or B) or 20 car loads or intermodal portable tank loads of a combination of PIH (Hazard Zone A or B), flammable gas, Class 1.1 or 1.2 explosives, and environmentally sensitive chemicals, or one or more car loads of Spent Nuclear Fuel (SNF), High Level Radioactive Waste (HLRW) shall be called a "Key Train". Attached as Appendix, A is a list of PIH (Hazard zone A or B) and environmentally sensitive chemicals with 49 Hazmat Codes.
- 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 (Hazard zone A or B), flammables, 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.

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 (Hazard zone A or B) 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 (Hazard zone A or B) or flammable gas must also be handled on not more than 2-car cuts.

**IV. Storage**

**Separation Distance for New Facilities**

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

Activity	PIH (Zone A or B), 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.

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

**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 at a minimum the top 25 hazardous commodities transported through the community in rank order. The request must be made using the form included as Appendix B 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.

*TRANSCAER® activities are also addressed in the Distribution Code of the American Chemistry Council's Responsible Care® program. Many members have joined the Responsible Care® Partnership Program to help describe and improve their ongoing safety, health and environmental programs.*

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**

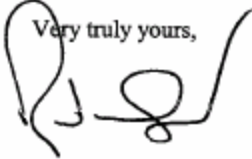
Railroads and shippers will be responsible for monitoring the shipments (loads & residue) of products classified by the Department of Transportation as being time sensitive.

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 A, page 6) 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.

Each AAR member will commit without reservation to comply with these recommendations/standards on its operations within the United States of America.

On behalf of the Safety and Operations Management Committee.

Very truly yours,  
  
R.C. VanderClute

Attachment

Supersedes Circular No. OT-55-F dated May 14, 2004.

**Appendix A to  
Circular OT-55-G**

March 1, 2005  
(Appendix A last modified May 14, 2004)

**Poisonous Inhalation Hazard Liquids**

Acetone cyanohydrin, stabilized	4921401
Acrolein, inhibited	4927007
Allyl alcohol	4921019
Allylamine	4921004
Allyl chloroformate	4930001/4923113
Arsenic trichloride	4923209
Boron tribromide	4932010
Bromine or Bromine solutions	4936110
Bromine trifluoride	4918507
Bromine pentafluoride	4918505
Bromoacetone	4921727
n-Butyl chloroformate	4921730
sec-Butyl chloroformate	4921207
n-Butyl isocyanate	4907415/4927027
tert-Butyl isocyanate	4907485/4927026
Chloroacetone, stabilized	4921558
Chloroacetonitrile	4921009
Chloroacetyl chloride	4931210/4923117
Chloropicrin	4921414
2-Chloroethanal	4921402
Chloropivaloyl chloride	4921746
Chlorosulfonic acid	4930204
Crotonaldehyde, stabilized	4909137/4921248
Cyclohexyl isocyanate	4921010
3, 5 Dichloro-2, 4, 6 trifluoropyridine	4921741
Diketene, inhibited	4912433/4921254
Dimethylhydrazine, symmetrical	4909352/4921251
Dimethylhydrazine, unsymmetrical	4921202
Dimethyl sulfate	4921405
Ethyl chloroformate	4921020
Ethyl chlorothioformate	4933327
Ethyl dichloroarsine	4921404
Ethylene chlorohydrin	4921420
Ethylene dibromide	4921497
Ethyleneimine, inhibited	4927006
Ethyl isocyanate	4907434
Ethyl phosphonothioic dichloride, anhydrous	4921745
Ethyl phosphonous dichloride, anhydrous	4921742
Ethyl phosphorodichloridate	4921744
Hexachlorocyclopentadiene	4821722/4921722
Hydrocyanic acid solution in alcohol	4921239
Hydrocyanic acid aqueous solution or hydrogen cyanide, aqueous solutions	4921028
Hydrogen cyanide, stabilized	4927014
Iron pentacarbonyl	4927004
Isobutyl chloroformate	4921211
Isobutyl isocyanate	4907409
Isopropyl chloroformate	4907628/4921252

Isopropyl isocyanate	4909306
Methacrylonitrile, inhibited	4910370
Methanesulfonyl chloride	4921239
Methyl isothiocyanate	4907453
Methoxymethyl isocyanate	4909307
Methyl bromide and ethylene dibromide,mixture	4921438
Methyl chloroformate	4927008
Methylchloromethyl ether	4927012
Methyldichloroarsine	4921275
Methylhydrazine	4927011
Methyl iodide	4921304
Methyl isocyanate	4927009/4921487
Methyl orthosilicate	4907452/4921255
Methyl phosphonic dichloride	4921695
Methyl phosphonous dichloride	4921008
Methyl vinyl ketone, Stabilized	4927022
Nickel carbonyl	4927010
Nitric acid, red fuming	4931201
Pentaborane	4916138
Perchloromethylmercaptan	4921473
Phenylcarbylamine chloride	4921587
Phenyl isocyanate	4921216
Phenyl mercaptan	4921413
Phosphorus oxychloride	4932352
Phosphorus trichloride	4921016/4832359/ 4932359
Poisonous liquids, corrosive, n.o.s. (antimony pentachloride, arsenic trichloride)	4821269/4921269
Poisonous liquids, corrosive, n.o.s. (sulfur chloride)	4921276
Poisonous liquids, corrosive, n.o.s. (vanadium oxytrichloride and titanium tetrachloride)	4921262
Poisonous liquids, corrosive, n.o.s. (sulfur dichloride)	4921223
n-Propyl chloroformate	4921756
n-Propyl isocyanate	4907458/4927025
Sulfur Chloride	4930260
Sulfuric acid, fuming	4830030/4930030
Sulfur trioxide, inhibited	4930050/4936565
Sulfur trioxide, uninhibited	4930051
Tetranitromethane	4918180
Thiophosgene	4923298
Titanium tetrachloride	4932385
Toxic liquid, inorganic, n.o.s. [inhalation hazard, Packing Group I Zone A]	4927020
[inhalation hazard, Packing Group I Zone B]	4921234
Toxic liquid, corrosive, inorganic, n.o.s. [inhalation hazard, Packing Group I Zone A]	4927021
[inhalation hazard, Packing Group I Zone B]	4921237

Toxic liquid, corrosive, inorganic, n.o.s. (antimony pentachloride, arsenic trichloride)	4821261/4921261
Toxic liquid, corrosive, inorganic, n.o.s. (sulfur dichloride)	4921264
Toxic liquid, corrosive, inorganic, n.o.s. (sulfur chloride)	4921278
Toxic liquids, corrosive, organic, n.o.s. [Inhalation Hazard, Packing Group I, Zone A]	4927005
[Inhalation Hazard, Packing Group I, Zone B]	4921270
Toxic liquids, corrosive, organic, n.o.s. (bis(tri-chloromethyl sulfide and dimethyl formamide)	4921263
Toxic liquids, flammable, organic, n.o.s. [inhalation hazard, Packing Group I Zone A]	4927001
[inhalation hazard, Packing Group I Zone B]	4921271
Toxic liquids, flammable, organic, n.o.s. (chloropicrin)	4921015
Toxic liquids, flammable, organic, n.o.s. (chloropicrin, dichloropropene)	4921064
Toxic liquids, flammable, organic, n.o.s. (methylchlorosilane, dimethylchlorosilane)	4921021
Toxic liquids, organic, n.o.s. [inhalation hazard, Packing Group I Zone A]	4927002
[inhalation hazard, Packing Group I Zone B]	4921272
Toxic liquids, oxidizing, n.o.s. [inhalation hazard, Packing Group I Zone A]	4927003
[inhalation hazard, Packing Group I Zone B]	4921273
Toxic liquids, water-reactive, n.o.s. [inhalation hazard, Packing Group I Zone A]	4927030
[inhalation hazard, Packing Group I Zone B]	4921256
Trichloroacetyl chloride	4935231
Trimethyl acetylchloride	4921063
Trimethyloxysilane	4921213
Trimethylacetyl chloride	4931745

**Poisonous Inhalation Hazard Gases - Hazard Zones A & B**

Arsine	4920135
Boron trifluoride	4920522
Bromine chloride	4920715
Carbonyl fluoride	4920559
Chlorine	4920523
Chlorine pentafluoride	4920189
Chlorine trifluoride	4920352
Chloropicrin and methyl bromide mixtures	4920547/4920516
Chloropicrin and methyl chloride mixtures	4920392
Compressed or liquefied gas, toxic, flammable, n.o.s.	
[inhalation hazard Zone A]	4920165
[inhalation hazard Zone B]	4920396
Compressed or liquified gas, toxic, n.o.s.	
[inhalation hazard] Zone A]	4920181
[inhalation hazard] Zone B]	4920570
Compressed gas, toxic, corrosive, n.o.s.	
[inhalation hazard] Zone A]	4920102
[inhalation hazard] Zone B]	4920331
Compressed gas, toxic, flammable, corrosive, n.o.s.	
[inhalation hazard] Zone A]	4920102
[inhalation hazard] Zone B]	4920303
Compressed gas, toxic, oxidizing, corrosive, n.o.s.	
[inhalation hazard] Zone A]	4920103
[inhalation hazard] Zone B]	4920306
Compressed gas, toxic, oxidizing, n.o.s.	
[inhalation hazard] Zone A]	4920104
[inhalation hazard] Zone B]	4920337
Cyanogen chloride, inhibited	4920178
Cyanogen, liquified	4920395
Diborane	4920107
Dichlorosilane	4920398
Dinitrogen tetroxide, liquefied	4920174
Fluorine, compressed	4920180
Germane	4920354
Hexafluoroacetone	4920528
Hydrogen selenide, anhydrous	4920122
Hydrogen sulfide, liquefied	4920513
Insecticide gas, toxic, flammable, n.o.s	
[inhalation hazard Zone A]	4920116
[inhalation hazard Zone B]	4920302
Liquified gas, toxic, n.o.s.	
[inhalation hazard] Zone A]	4920195
[inhalation hazard] Zone B]	4920571
Liquefied gas, toxic, flammable, n.o.s	
[inhalation hazard Zone A]	4920164
[inhalation hazard Zone B]	4920382
Liquefied gas, toxic, corrosive, n.o.s	
[inhalation hazard Zone A]	4920105
[inhalation hazard Zone B]	4920311
Liquefied gas, toxic, flammable, corrosive, n.o.s	
[inhalation hazard Zone A]	4920108
[inhalation hazard Zone B]	4920314

Liquefied gas, toxic, oxidizing, corrosive, n.o.s	
[inhalation hazard Zone A]	4920110
[inhalation hazard Zone B]	4920312
Liquefied gas, toxic, oxidizing, n.o.s	
[inhalation hazard Zone A]	4920111
[inhalation hazard Zone B]	4920317
Methylchlorosilane	4920394
Nitric oxide	4920112
Nitric oxide and dinitrogen tetroxide mixtures	4920113
Nitrogen dioxide	4920174
Nitrogen trioxide	4920175
Oxygen difluoride	4920173
Perchloryl fluoride	4920356
Phosgene	4920184
Phosphine	4920160
Phosphorus pentafluoride	4920183
Silicon Tetrafluoride	4920357
Selenium hexafluoride	4920106
Stibine	4920167
Sulfur tetrafluoride	4920187
Tellurium hexafluoride	4920188
Trifluoroacetylchloride	4920347
Tungsten Hexafluoride	4920371

**Environmentally Sensitive Chemicals**

Allyl Chloride	4907412
Carbon Tetrachloride	4821831/4860106/ 4921830/4921831/ 4960115
Chlorobenzene	4909153
Chloroform	4925224/4925225 4921767/4921769
o-Dichlorobenzene	4915132/4925203
Dichloropropane (Propylene dichloride)	4909265
Dichloropropane/Dichloropropene mixture	4910234
Dichloropropene	4909255
Ethyl Chloride	4905712/4908129/ 4908162
Ethylene Dibromide (already listed as PIH)	
Ethylene Dibromide and Methyl Bromide Mixtures (already listed as PIH)	
Ethylene Dichloride	4909166/4912081/ 4908129/4910437/ 4913242/4913295/ 4921030
Epichlorohydrin	4921005
Methyl Chloroform (1,1,1 Trichloroethane)	4825182/4925182/ 4910463/4010475/ 4915969/4925310/ 4960205
Methylene Chloride (Dichloromethane)	4925131/4905764
Methylene chloride/chloroform mixture	4960150
Perchloroethylene (Tetrachloroethylene)	4825202/4910134 4840355/4925202
Perchloroethylene/Trichloroethylene mixture	4940373
Trichloroethylene	4925181

**Time Sensitive Materials****20 day**

Ethylene, refrigerated liquid	4905735
Hydrogen, refrigerated liquid	4905745
Chloroprene, stabilized	4907223
Flammable Liquid, n.o.s. (Methyl Methacrylate Monomer, uninhibited)	4907255
Hydrogen chloride, refrigerated liquid	4920504

**30 day**

Styrene monomer, stabilized	4907265
Flammable Liquid, n.o.s. (Recycled styrene)	4910159
Styrene monomer, stabilized	4907235

**Appendix B to  
Circular OT-55-G**

March 1, 2005

[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]**

-----  
For [RAILROAD] Use Only

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

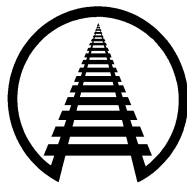
Hazardous Materials Service Support:

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

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

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

Report sent via:  Email  U.S. Mail



ASSOCIATION  
OF AMERICAN  
RAILROADS

**P. G. Kinnecom**  
*Executive Director - Tank Car Safety*

March 1, 2005

**CIRCULAR NO. OT-55-G**

(CPC-1165)

**SUBJECT:** Recommended Railroad Operating Practices for Transportation of Hazardous Materials

**TO MEMBERS AND PRIVATE CAR OWNERS:**

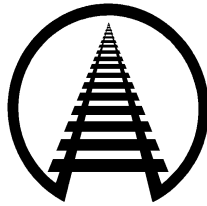
Based on recommendations of the Inter-Industry Task Force on the Safe Transportation of Hazardous Materials by Rail, AAR published Circular No. OT-55 on January 4, 1990 to document recommended railroad operating practices for the transportation of hazardous materials. The circular included recommended road and yard operating practices, designation of key routes, proposed separations from hazmat storage areas, training of transportation employees, and implementation of TRANSCAER®, a national community outreach program to improve community awareness, emergency planning and incident response for the transportation of hazardous materials.

Circular No. OT-55 has been modified to revision G dated 3/1/2005 (copy attached). Circular No. OT-55-G incorporates an industry policy and includes a template for railroads' use in documenting requests from local emergency response agencies to provide commodity flow information.

A copy of Circular No. OT-55-G, *Recommended Railroad Operating Practices for Transportation of Hazardous Materials*, is attached for your reference and use. Changes in the text have been underlined.

Sincerely,

P. G. Kinnecom



**ASSOCIATION  
OF AMERICAN  
RAILROADS**

**R.C. VanderClute**  
Senior Vice President  
Safety and Operations

March 1, 2005

**Circular No. OT-55-G**

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

Chief Operating Officers:

Based on recommendations of the AAR Risk Management Working Committee, the Safety and Operations Management Committee, on February 17, 2005, approved the following revised recommended operating practices for the transportation of hazardous materials. They are effective March 1, 2005.

**Road Operating Practices**

**I. "Key Trains"**

- A. Definition: Any train with five tank car loads of Poison Inhalation Hazard (Hazard Zone A or B) or 20 car loads or intermodal portable tank loads of a combination of PIH (Hazard Zone A or B), flammable gas, Class 1.1 or 1.2 explosives, and environmentally sensitive chemicals, or one or more car loads of Spent Nuclear Fuel (SNF), High Level Radioactive Waste (HLRW) shall be called a "Key Train". Attached as Appendix, A is a list of PIH (Hazard zone A or B) and environmentally sensitive chemicals with 49 Hazmat Codes.
- 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 (Hazard zone A or B), flammables, 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.

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 (Hazard zone A or B) 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 (Hazard zone A or B) or flammable gas must also be handled on not more than 2-car cuts.

**IV. Storage**

**Separation Distance for New Facilities**

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

Activity	PIH (Zone A or B), 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.

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

**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 at a minimum the top 25 hazardous commodities transported through the community in rank order. The request must be made using the form included as Appendix B 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.

*TRANSCAER® activities are also addressed in the Distribution Code of the American Chemistry Council's Responsible Care® program. Many members have joined the Responsible Care® Partnership Program to help describe and improve their ongoing safety, health and environmental programs.*

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**

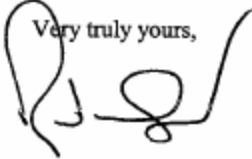
Railroads and shippers will be responsible for monitoring the shipments (loads & residue) of products classified by the Department of Transportation as being time sensitive.

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 A, page 6) 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.

Each AAR member will commit without reservation to comply with these recommendations/standards on its operations within the United States of America.

On behalf of the Safety and Operations Management Committee.

Very truly yours,  
  
R.C. VanderClute

Attachment

Supersedes Circular No. OT-55-F dated May 14, 2004.

**Appendix A to  
Circular OT-55-G**

March 1, 2005  
(Appendix A last modified May 14, 2004)

**Poisonous Inhalation Hazard Liquids**

Acetone cyanohydrin, stabilized	4921401
Acrolein, inhibited	4927007
Allyl alcohol	4921019
Allylamine	4921004
Allyl chloroformate	4930001/4923113
Arsenic trichloride	4923209
Boron tribromide	4932010
Bromine or Bromine solutions	4936110
Bromine trifluoride	4918507
Bromine pentafluoride	4918505
Bromoacetone	4921727
n-Butyl chloroformate	4921730
sec-Butyl chloroformate	4921207
n-Butyl isocyanate	4907415/4927027
tert-Butyl isocyanate	4907485/4927026
Chloroacetone, stabilized	4921558
Chloroacetonitrile	4921009
Chloroacetyl chloride	4931210/4923117
Chloropicrin	4921414
2-Chloroethanal	4921402
Chloropivaloyl chloride	4921746
Chlorosulfonic acid	4930204
Crotonaldehyde, stabilized	4909137/4921248
Cyclohexyl isocyanate	4921010
3, 5 Dichloro-2, 4, 6 trifluoropyridine	4921741
Diketene, inhibited	4912433/4921254
Dimethylhydrazine, symmetrical	4909352/4921251
Dimethylhydrazine, unsymmetrical	4921202
Dimethyl sulfate	4921405
Ethyl chloroformate	4921020
Ethyl chlorothioformate	4933327
Ethyl dichloroarsine	4921404
Ethylene chlorohydrin	4921420
Ethylene dibromide	4921497
Ethyleneimine, inhibited	4927006
Ethyl isocyanate	4907434
Ethyl phosphonothioic dichloride, anhydrous	4921745
Ethyl phosphonous dichloride, anhydrous	4921742
Ethyl phosphorodichloridate	4921744
Hexachlorocyclopentadiene	4821722/4921722
Hydrocyanic acid solution in alcohol	4921239
Hydrocyanic acid aqueous solution or hydrogen cyanide, aqueous solutions	4921028
Hydrogen cyanide, stabilized	4927014
Iron pentacarbonyl	4927004
Isobutyl chloroformate	4921211
Isobutyl isocyanate	4907409
Isopropyl chloroformate	4907628/4921252

Isopropyl isocyanate	4909306
Methacrylonitrile, inhibited	4910370
Methanesulfonyl chloride	4921239
Methyl isothiocyanate	4907453
Methoxymethyl isocyanate	4909307
Methyl bromide and ethylene dibromide,mixture	4921438
Methyl chloroformate	4927008
Methylchloromethyl ether	4927012
Methyldichloroarsine	4921275
Methylhydrazine	4927011
Methyl iodide	4921304
Methyl isocyanate	4927009/4921487
Methyl orthosilicate	4907452/4921255
Methyl phosphonic dichloride	4921695
Methyl phosphonous dichloride	4921008
Methyl vinyl ketone, Stabilized	4927022
Nickel carbonyl	4927010
Nitric acid, red fuming	4931201
Pentaborane	4916138
Perchloromethylmercaptan	4921473
Phenylcarbylamine chloride	4921587
Phenyl isocyanate	4921216
Phenyl mercaptan	4921413
Phosphorus oxychloride	4932352
Phosphorus trichloride	4921016/4832359/ 4932359
Poisonous liquids, corrosive, n.o.s. (antimony pentachloride, arsenic trichloride)	4821269/4921269
Poisonous liquids, corrosive, n.o.s. (sulfur chloride)	4921276
Poisonous liquids, corrosive, n.o.s. (vanadium oxytrichloride and titanium tetrachloride)	4921262
Poisonous liquids, corrosive, n.o.s. (sulfur dichloride)	4921223
n-Propyl chloroformate	4921756
n-Propyl isocyanate	4907458/4927025
Sulfur Chloride	4930260
Sulfuric acid, fuming	4830030/4930030
Sulfur trioxide, inhibited	4930050/4936565
Sulfur trioxide, uninhibited	4930051
Tetranitromethane	4918180
Thiophosgene	4923298
Titanium tetrachloride	4932385
Toxic liquid, inorganic, n.o.s. [inhalation hazard, Packing Group I Zone A]	4927020
[inhalation hazard, Packing Group I Zone B]	4921234
Toxic liquid, corrosive, inorganic, n.o.s. [inhalation hazard, Packing Group I Zone A]	4927021
[inhalation hazard, Packing Group I Zone B]	4921237

Toxic liquid, corrosive, inorganic, n.o.s. (antimony pentachloride, arsenic trichloride)	4821261/4921261
Toxic liquid, corrosive, inorganic, n.o.s. (sulfur dichloride)	4921264
Toxic liquid, corrosive, inorganic, n.o.s. (sulfur chloride)	4921278
Toxic liquids, corrosive, organic, n.o.s. [Inhalation Hazard, Packing Group I, Zone A]	4927005
[Inhalation Hazard, Packing Group I, Zone B]	4921270
Toxic liquids, corrosive, organic, n.o.s. (bis(tri-chloromethyl sulfide and dimethyl formamide)	4921263
Toxic liquids, flammable, organic, n.o.s. [inhalation hazard, Packing Group I Zone A]	4927001
[inhalation hazard, Packing Group I Zone B]	4921271
Toxic liquids, flammable, organic, n.o.s. (chloropicrin)	4921015
Toxic liquids, flammable, organic, n.o.s. (chloropicrin, dichloropropene)	4921064
Toxic liquids, flammable, organic, n.o.s. (methylchlorosilane, dimethylchlorosilane)	4921021
Toxic liquids, organic, n.o.s. [inhalation hazard, Packing Group I Zone A]	4927002
[inhalation hazard, Packing Group I Zone B]	4921272
Toxic liquids, oxidizing, n.o.s. [inhalation hazard, Packing Group I Zone A]	4927003
[inhalation hazard, Packing Group I Zone B]	4921273
Toxic liquids, water-reactive, n.o.s. [inhalation hazard, Packing Group I Zone A]	4927030
[inhalation hazard, Packing Group I Zone B]	4921256
Trichloroacetyl chloride	4935231
Trimethyl acetylchloride	4921063
Trimethyloxysilane	4921213
Trimethylacetyl chloride	4931745

**Poisonous Inhalation Hazard Gases - Hazard Zones A & B**

Arsine	4920135
Boron trifluoride	4920522
Bromine chloride	4920715
Carbonyl fluoride	4920559
Chlorine	4920523
Chlorine pentafluoride	4920189
Chlorine trifluoride	4920352
Chloropicrin and methyl bromide mixtures	4920547/4920516
Chloropicrin and methyl chloride mixtures	4920392
Compressed or liquefied gas, toxic, flammable, n.o.s.	
[inhalation hazard Zone A]	4920165
[inhalation hazard Zone B]	4920396
Compressed or liquified gas, toxic, n.o.s.	
[inhalation hazard] Zone A]	4920181
[inhalation hazard] Zone B]	4920570
Compressed gas, toxic, corrosive, n.o.s.	
[inhalation hazard] Zone A]	4920102
[inhalation hazard] Zone B]	4920331
Compressed gas, toxic, flammable, corrosive, n.o.s.	
[inhalation hazard] Zone A]	4920102
[inhalation hazard] Zone B]	4920303
Compressed gas, toxic, oxidizing, corrosive, n.o.s.	
[inhalation hazard] Zone A]	4920103
[inhalation hazard] Zone B]	4920306
Compressed gas, toxic, oxidizing, n.o.s.	
[inhalation hazard] Zone A]	4920104
[inhalation hazard] Zone B]	4920337
Cyanogen chloride, inhibited	4920178
Cyanogen, liquified	4920395
Diborane	4920107
Dichlorosilane	4920398
Dinitrogen tetroxide, liquefied	4920174
Fluorine, compressed	4920180
Germane	4920354
Hexafluoroacetone	4920528
Hydrogen selenide, anhydrous	4920122
Hydrogen sulfide, liquefied	4920513
Insecticide gas, toxic, flammable, n.o.s	
[inhalation hazard Zone A]	4920116
[inhalation hazard Zone B]	4920302
Liquified gas, toxic, n.o.s.	
[inhalation hazard] Zone A]	4920195
[inhalation hazard] Zone B]	4920571
Liquefied gas, toxic, flammable, n.o.s	
[inhalation hazard Zone A]	4920164
[inhalation hazard Zone B]	4920382
Liquefied gas, toxic, corrosive, n.o.s	
[inhalation hazard Zone A]	4920105
[inhalation hazard Zone B]	4920311
Liquefied gas, toxic, flammable, corrosive, n.o.s	
[inhalation hazard Zone A]	4920108
[inhalation hazard Zone B]	4920314

Liquefied gas, toxic, oxidizing, corrosive, n.o.s	
[inhalation hazard Zone A]	4920110
[inhalation hazard Zone B]	4920312
Liquefied gas, toxic, oxidizing, n.o.s	
[inhalation hazard Zone A]	4920111
[inhalation hazard Zone B]	4920317
Methylchlorosilane	4920394
Nitric oxide	4920112
Nitric oxide and dinitrogen tetroxide mixtures	4920113
Nitrogen dioxide	4920174
Nitrogen trioxide	4920175
Oxygen difluoride	4920173
Perchloryl fluoride	4920356
Phosgene	4920184
Phosphine	4920160
Phosphorus pentafluoride	4920183
Silicon Tetrafluoride	4920357
Selenium hexafluoride	4920106
Stibine	4920167
Sulfur tetrafluoride	4920187
Tellurium hexafluoride	4920188
Trifluoroacetylchloride	4920347
Tungsten Hexafluoride	4920371

**Environmentally Sensitive Chemicals**

Allyl Chloride	4907412
Carbon Tetrachloride	4821831/4860106/ 4921830/4921831/ 4960115
Chlorobenzene	4909153
Chloroform	4925224/4925225 4921767/4921769
o-Dichlorobenzene	4915132/4925203
Dichloropropane (Propylene dichloride)	4909265
Dichloropropane/Dichloropropene mixture	4910234
Dichloropropene	4909255
Ethyl Chloride	4905712/4908129/ 4908162
Ethylene Dibromide (already listed as PIH)	
Ethylene Dibromide and Methyl Bromide Mixtures (already listed as PIH)	
Ethylene Dichloride	4909166/4912081/ 4908129/4910437/ 4913242/4913295/ 4921030
Epichlorohydrin	4921005
Methyl Chloroform (1,1,1 Trichloroethane)	4825182/4925182/ 4910463/4010475/ 4915969/4925310/ 4960205
Methylene Chloride (Dichloromethane)	4925131/4905764
Methylene chloride/chloroform mixture	4960150
Perchloroethylene (Tetrachloroethylene)	4825202/4910134 4840355/4925202
Perchloroethylene/Trichloroethylene mixture	4940373
Trichloroethylene	4925181

**Time Sensitive Materials****20 day**

Ethylene, refrigerated liquid	4905735
Hydrogen, refrigerated liquid	4905745
Chloroprene, stabilized	4907223
Flammable Liquid, n.o.s. (Methyl Methacrylate Monomer, uninhibited)	4907255
Hydrogen chloride, refrigerated liquid	4920504

**30 day**

Styrene monomer, stabilized	4907265
Flammable Liquid, n.o.s. (Recycled styrene)	4910159
Styrene monomer, stabilized	4907235

**Appendix B to  
Circular OT-55-G**

March 1, 2005

[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]**

-----  
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

## **Appendix G**

# **Department of Energy Policy Statement for Use of Dedicated Trains for Waste Shipments to Yucca Mountain**

**July 18, 2005**

### **POLICY STATEMENT**

The Department of Energy (DOE) will use dedicated train service (DTS) for its usual rail transport of spent nuclear fuel (SNF) and high-level radioactive waste (HLW) to the Yucca Mountain Repository site in Nevada when the repository is operational.

### **BACKGROUND**

On April 8, 2004, the Department issued a record of decision on using rail as the preferred mode for transport of SNF and HLW to the repository. Using rail would result in fewer shipments than using trucks and would reduce environmental impacts. The term "dedicated train" refers to train service dedicated to one commodity (in this case, SNF and HLW). Past and current SNF shipping campaigns by DOE programs, including fuel from Three Mile Island and the West Valley Demonstration Project, the Foreign Research Reactor SNF Acceptance Program, and commercial campaigns, have used DTS.

### **DEDICATED TRAIN SERVICE BENEFITS**

The benefits for the use of dedicated trains can be grouped into categories of safety, security, cost and operations.

#### **Safety**

SNF and HLW is shipped safely regardless of mode or type of service, primarily due to the stringent regulations in place and the robust nature of the transport packages involved. However, the radiological risk resulting from transport without incident may be lower due to decreased time in transit.

#### **Security**

DOE shipments have been and will continue to be made securely using both DTS and general freight service. Escort and other physical protection features can be employed using either type of service. DTS does offer some potential advantages, such as:

- Increased command and control capabilities. Shorter DTS trains allow better visual monitoring from the locomotive and escort car.
- Avoidance of lengthy "dwell times" in rail yards.

#### **System Cost**

Analyses indicate that the primary benefit of using DTS is the significant cost savings

over the lifetime of the Yucca Mountain project. The cost of DTS is offset by a reduced fleet size and its attendant operations and maintenance.

## **Operations**

The use of DTS will result in several benefits for repository and transportation operations.

- Transit and turnaround times will be shorter using DTS, enabling the repository to operate with fewer casks and fewer railcars (i.e., equipment will not sit idle in rail yards). In contrast, using general freight service would increase the required size of the cask and railcar fleet by about 40 percent due to the increased transit time associated with general freight service.
- Use of DTS provides greater operational flexibility and efficiency for the waste management system due to reduced time in transit, and greater predictability in routing and scheduling.
- Repository operational resources could be better managed by taking advantage of more predictable shipment and receipt schedules.
- Transportation planning and operations would be simplified by narrowing mode and type to mostly rail coupled with the use of DTS.

---

[Table of Contents](#) | [Executive Summary](#)

**Appendix H**  
**Letter from Nevada Senators Harry Reid and John Ensign**  
**to DOE regarding DOE policy statement**  
**for use of dedicated trains for waste shipment**

August 17, 2005

The Honorable Samuel W. Bodman  
Secretary  
Department of Energy  
1000 Independence Avenue, SW  
Washington DC 20585

Dear Secretary Bodman:

In reviewing the Department of Energy's policy statement for the use of dedicated trains for spent fuel and high-level waste shipments to the proposed Yucca Mountain repository that was announced on July 18, 2005, we am requesting the following additional information:

(1) Since 1986, the State of Nevada has been urging DOE to require the use of dedicated trains for all SNF and HLW shipments to a repository. For almost two decades, DOE has consistently refused to make such a commitment. What prompted DOE to issue its policy statement on the dedicated train issue? Please explain the process that DOE went through in reassessing its policy.

(2) The policy announced on July 18th states that DOE "will use dedicated train service (DTS) for its usual rail transport of spent nuclear fuel and high level radioactive waste to the Yucca Mountain Repository site ... when the repository is operational (emphasis added). Please define what is meant by "usual rail transport" and how this policy differs from current DOE policy that anticipates the use of general freight service on a case by case basis. Does the new policy mean that DOE will require all SNF and HLW shipments to a repository to use dedicated trains?

(3) The announced policy statement appears to be internally inconsistent in that it purports to require the use dedicated train shipments to Yucca Mountain but, in discussing security benefits, states that "DOE shipments have been and will continue to be made securely using both DTS and general freight service" (emphasis added). Please explain how the use of general freight service is compatible with the decision to use dedicated trains. Also, please explain the circumstances under which DOE would use general freight service instead of dedicated train service. Will DOE require use of dedicated trains for shipments of spent naval reactor fuel to INEEL and/or other federal facilities?

(4) DOE has proposed, in a March 2004 supplement analysis to the Yucca Mountain Final Environmental Impact Statement, to transport smaller, legal weight truck casks on rail cars in the likely event that a rail spur to Yucca Mountain is delayed or not available at

all. Under this scenario, about 2,200 truck casks per year would be shipped to Nevada on about 440 train movements, off-loaded at an intermodal facility, and transported to Yucca Mountain by truck. Even if it is assumed (as DOE has done) that such a scenario would only be needed for a six year period, DOE would require at least one train per day, seven days per week, for shipments to the repository. Does the new policy on dedicated train service apply to legal-weight truck casks shipped on railcars? Has DOE assessed the safety, security, and operational implications inherent in shipping thousands of truck casks on railcars, in hundreds of dedicated trains per year? If so, please provide us with that assessment.

(5) There are about 24 reactor sites, out of a total 72, or one-third, of reactor sites that are not capable of shipping spent fuel by rail. DOE has proposed transporting rail casks from these sites to rail connections by using large, heavy haul trucks. DOE has also proposed using barges to ship rail casks from 17 of these sites. Will dedicated train service be used at these 24 sites? If so, please provide DOE's plans and timeline for providing the necessary infrastructure.

(6) There are about 24 reactor sites, out of a total 72 reactor sites, that are not capable of shipping spent fuel by rail. DOE has proposed transporting rail casks from these sites to rail connections by using large, heavy haul trucks. DOE has also proposed using barges to ship rail casks from 17 of these sites. Does the new policy mean that DOE will require all SNF from these 24 sites to use dedicated trains once the casks are delivered to a rail connection?

(7) In order to make efficient use of dedicated trains, it will be necessary for DOE move spent fuel from about 50 eastern reactor sites to marshalling yards or collection points where trains can be assembled for cross-country transport to Yucca Mountain. DOE has identified the Union Pacific Provisio Yard near Chicago as one of the probable primary marshalling points. Does the new policy mean that DOE will require all SNF shipments to use dedicated trains for shipment to these marshalling yards, as well as for shipment from these yards to Yucca Mountain?

(8) The policy statement cites "avoidance of lengthy 'dwell times' in rail yards" as an advantage of dedicated trains. Please describe the method used by DOE to compare "dwell times" for dedicated train service with the "dwell times" for general freight service.

(9) The policy statement asserts that "the radiological risk resulting from transport without incident may be lower due to decreased time in transit." Please explain how DOE evaluated radiological risk to members of the general public. How will the use of dedicated trains affect routine radiological exposures to yard workers, train crews, safety inspectors, and escorts? Please provide us all analyses or assessments of radiological risk that DOE undertook or relied on in making this evaluation and coming to these conclusions.

(10) Since 1983, the State of Nevada, together with the Western Governors' Association, has urged DOE to prepare a comprehensive plan for transporting spent fuel and high-level waste to a repository. Today, more than 20 years after the passage of the Nuclear Waste Policy Act, DOE still has not prepared a comprehensive transportation plan. The dedicated train policy statement is another example of piecemeal decision-making on

DOE's part. When will DOE be able to provide a comprehensive transportation plan that shows in detail how the dedicated train policy statement relates to and integrates with the other aspects of the requisite transportation system?

(11) The policy statement asserts that "the primary benefit of using DTS is the significant cost savings over the lifetime of the Yucca Mountain project." Since 1983, the State of Nevada has urged DOE to prepare a comprehensive cost analysis for transporting spent fuel and high-level waste to a repository. Today, more than 20 years after the passage of the Nuclear Waste Policy Act, DOE still has not prepared a comprehensive cost assessment of its comprehensive transportation plan. When will DOE provide us with that assessment?

Given the magnitude of human health and safety implications of the proposed Yucca Mountain transportation plan and that this policy has already been finalized, we request that you reply to these questions by September 1, 2005. We appreciate your attention to this important matter.

Sincerely,  
HARRY REID, United States Senator  
JOHN ENSIGN, United States Senator

Cc: Kenny C. Guinn, Governor of Nevada  
Bob Loux, Executive Director, Nevada Agency for Nuclear Projects  
Brian Sandavol, Attorney General, State of Nevada  
Nils Diaz, Chairman, Nuclear Regulatory Commission  
B. John Garrick, Chairman, Nuclear Waste Technical Review Board  
G. Paul Bollwerk III, Chairman, Atomic Safety and Licensing Board

---

[Table of Contents](#) | [Executive Summary](#)

*Version 1.0—July, 1998*

**Rail and Highway Regulations Relative to the Transportation of Radioactive Materials**

**AND**

**Their Applicability to States, Tribes, Shippers, and Carriers**

SUBJECT AREA	RAIL	HIGHWAY	STATE APPLICABILITY	TRIBAL APPLICABILITY <sup>1,2</sup>	SHIPPER <sup>3</sup> /CARRIER RESPONSIBILITY	ADDITIONAL INFORMATION
Packaging	10 CFR 71	10 CFR 71			Shipper, Carrier	<b>10 CFR 71</b> —Establishes requirements for packaging, preparation for shipment, and transportation of licensed material; as well as procedures for NRC approval of said activities
	49 CFR 173, sub. I	49 CFR 173, sub I			Shipper, Carrier	<b>49 CFR 173, sub I</b> —Sets forth requirements for the packaging and transportation of Class 7 (radioactive) materials.
	49 CFR 174		✓	✓	Shipper, Carrier	<b>49 CFR 174</b> —Requirements applicable to acceptance and transport of radioactive materials packages by rail.
		49 CFR 177	✓	✓	Shipper, Carrier	<b>49 CFR 177</b> —Requirements applicable to acceptance and transport of radioactive materials packages by motor vehicle.
	49 CFR 178, sub. K	49 CFR 178, sub. K	✓	✓	Shipper, Carrier	<b>49 CFR 178, sub. K</b> —Specifications for packagings for Class 7 (radioactive) materials.
	49 CFR 179				Shipper, Carrier	<b>49 CFR 179</b> —Prescribes specifications for construction and repair of tank cars.
	49 CFR 180	49 CFR 180			Shipper, Carrier	<b>49 CFR 180</b> —Requirements pertaining to the maintenance, reconditioning, repair, inspection, and testing of packaging.

<sup>1</sup> “Applicability” in this sense refers to cases wherein the state or federally-recognized Indian tribe is expressly enumerated in the regulation as a distinct jurisdiction with clearly defined responsibilities related to compliance with the regulation, not to cases where the regulation is defined to apply more broadly to “all persons in the United States”, except in certain cases where a regulation defines “persons” to include state and tribal political entities.

<sup>2</sup> For the purposes of the regulations considered herein, all federally recognized Indian Tribes are subject to the same requirements and considerations as those applied to states *except where expressly noted*.

<sup>3</sup> Some regulations may use “Licensee” where applicable.

SUBJECT AREA	RAIL	HIGHWAY	STATE APPLICABILITY	TRIBAL APPLICABILITY	SHIPPER/CARRIER RESPONSIBILITY	ADDITIONAL INFORMATION
Hazard identification and definition <sup>4</sup>	49 CFR 172	49 CFR 172			Shipper, Carrier	49 CFR 172—Lists and classifies various substances considered hazardous (including radioactive) for the purposes of transportation, and prescribes requirements for transport.
	49 CFR 173, sub I	49 CFR 173, sub I				49 CFR 173, sub I— Sets forth hazard class definitions and requirements for the packaging and transportation of Class 7 (radioactive) materials.
		49 CFR 177			Shipper, Carrier	49 CFR 177—Provides segregation and compatibility tables and transport index for radioactive materials
Training <sup>5</sup>	29 CFR 1910	29 CFR 1910	✓	✓	Shipper, Carrier	29 CFR 1910—Defines requirements for awareness and technician level training.
	49 CFR 107		✓			49 CFR 107—Registration and licensing requirements involving annual fees for state-level training.
	49 CFR 172, sub. H	49 CFR 172, sub. H	✓	✓	Shipper, Carrier	49 CFR 172, sub.H—prescribes requirements and responsibilities for training hazmat employees
		49 CFR 177			Carrier	49 CFR 177—No carrier shall transport hazardous materials unless each employee has been trained in all applicable procedures for safe operation.
	49 CFR 240		✓	✓	Carrier	49 CFR 240—Each railroad must have a certification program for engineers.

<sup>4</sup> Two regulations are notably absent. 40 CFR 261.4 excludes “source, special nuclear, or [nuclear] byproduct material” as defined by the Atomic Energy Act of 1954 (as amended) from consideration as a “hazardous waste” for the purposes of EPA regulation. 40 CFR 262.11 excludes items contained in 40 CFR 261.4 from its transportation-related requirements.

<sup>5</sup> “Training” in the context of this matrix refers to any requirements specified by federal rule or regulation for any person involved in the transportation of Class 7 hazardous materials.

SUBJECT AREA	RAIL	HIGHWAY	STATE APPLICABILITY	TRIBAL APPLICABILITY	SHIPPER/CARRIER RESPONSIBILITY	ADDITIONAL INFORMATION
Safety, Inspection, and Enforcement	10 CFR 19	10 CFR 19			Carrier	10 CFR 19--Establishes requirements for notices, instructions, and reports by licensees to individuals participating in their activities.
	10 CFR 20	10 CFR 20				10 CFR 20—Establishes radiation protection standards for licensee activities
	49 CFR 173, sub I	49 CFR 173, sub I			Shipper, Carrier	49 CFR 173, sub I— Sets forth requirements for the packaging and transportation of Class 7 (radioactive) materials.
	49 CFR 174				Shipper, Carrier	49 CFR 174—Establishes detailed handling requirements for Class 7 (radioactive) materials transported by rail
		49 CFR 177			Shipper, Carrier	49 CFR 177—Records, equipment, packagings, and containers must be made available for examination by DOT. Driver training includes inspection procedures.
	49 CFR 209		✓	✓	Shipper, Carrier	49 CFR 209—Describes procedures employed by the FRA in enforcement of railroad safety statutes and regulations.
	49 CFR 210				Shipper, Carrier	49 CFR 210—Provides compliance criteria concerning requirements for inspection and testing of equipment relative to noise emissions from rail cars.
	49 CFR 211					49 CFR 211—Establishes safety-related rulemaking practices.
	49 CFR 212		✓		Shipper, Carrier	49 CFR 212—Establishes standards and procedures for state participation in investigative and surveillance activities under Federal railroad safety laws.
	49 CFR 213				Carrier	49 CFR 213—Initial minimum safety responsibilities and requirements for railroad track.
	49 CFR 214				Carrier	49 CFR 214—minimum Federal requirements for railroad safety standards for railroad employees.
	49 CFR 215				Carrier	49 CFR 215—Minimum Federal safety standards for rail freight cars
	49 CFR 216		✓	✓	Carrier	49 CFR 216—Special notice for repairs and emergency order procedures.
	49 CFR 220				Carrier	49 CFR 220—Minimum standards for and definition of use of radio communication in railroad operations.
	49 CFR 221		✓	✓	Carrier	49 CFR 221—Minimum requirements for rear-end marking devices on trains.
	49 CFR 223				Carrier	49 CFR 223—Minimum Federal safety standards for impact resistance of all window glazing materials in locomotives, passenger cars, and cabooses.

Safety, Inspection, and Enforcement (CONTINUED)	49 CFR 228				Carrier	49 CFR 228—Prescribes reporting and record keeping requirements regarding the hours of service.	
	49 CFR 229				Carrier	49 CFR 229—Minimum Federal safety standards for all locomotives (except steam); requires daily and periodic inspections and tests, sets limits on component deterioration.	
	49 CFR 231				Carrier	49 CFR 231—Supplements statutory requirements concerning handbrakes, handholds, steps, and ladders for locomotives and rail cars.	
	49 CFR 232				Carrier	49 CFR 232—Supplements statutory requirements of brake systems of all locomotives and railroad cars. Sets requirements for pre-departure inspection and testing.	
	49 CFR 233				Carrier	49 CFR 233—Requires annual report to FRA on signal systems and periodic reports to FRA on certain signal failures.	
	49 CFR 234				Carrier	49 CFR 234—Requires maintenance, inspection, and testing of active warning devices at grade crossings.	
	49 CFR 235				Carrier	49 CFR 235—Prohibits discontinuance or modification of certain signal systems without prior approval by FRA.	
	49 CFR 236				Carrier	49 CFR 236—Prescribes minimum Federal standards for design, inspection, testing, and remedial action of signal systems.	
	49 CFR 240			✓	Carrier	49 CFR 240—Minimum standards for eligibility, training, testing, certification, and monitoring of locomotive engineers.	
		49 CFR 325				Carrier	49 CFR 325—Procedures for inspection, surveillance, and measurement of motor vehicles by motor carriers to determine compliance with EPA Noise Emission Standards.
		49 CFR 350	✓	✓		Carrier	49 CFR 350—Encourages each state to enforce uniform motor carrier safety and hazardous materials regulations for carriers and drivers.
		49 CFR 355	✓	✓		Carrier	49 CFR 355—Seeks compatibility of state laws and regulations relating to motor carrier safety with the Federal Motor Carrier Safety Regulations.
		49 CFR 383	✓	✓		Carrier	49 CFR 383—Requires a single Commercial Driver's License for operators of commercial vehicles. Provides disqualifying criteria for unsafe operators.
	49 CFR 384	✓	✓		Carrier	49 CFR 384—Includes minimum standards for the actions states must take to comply with the Commercial Motor Vehicle Safety Act of 1986.	

<b>Safety, Inspection, and Enforcement (CONTINUED)</b>		<b>49 CFR 386</b>			Carrier	<b>49 CFR 386</b> —Governs proceedings to determine compliance of motor carriers and their drivers with FHWA regulations and procedures.
		<b>49 CFR 387</b>	✓	✓	Carrier	<b>49 CFR 387</b> —Prescribes minimum levels of financial responsibility to be maintained by motor carriers to ensure continued safe operation of motor vehicles.
		<b>49 CFR 388</b>	✓	✓	Carrier	<b>49 CFR 388</b> —Establishes procedures for any state to enter into a cooperative agreement with the Federal government to enforce state safety laws and regulations related to motor carrier operations.
		<b>49 CFR 390</b>	✓	✓	Carrier	<b>49 CFR 390</b> —General rules of applicability and definition of Federal motor carrier safety regulations
		<b>49 CFR 391</b>	✓	✓	Carrier	<b>49 CFR 391</b> —Establishes minimum qualifications for drivers of commercial motor vehicles; establishes minimum duties of motor carriers with respect to their drivers.
		<b>49 CFR 392</b>	✓	✓	Carrier	<b>49 CFR 392</b> —Enumerates specific operating rules for drivers and supervisors of commercial motor vehicles.
		<b>49 CFR 393</b>			Carrier	<b>49 CFR 393</b> —Enumerates parts and accessories necessary for safe operation of a commercial motor vehicle.
		<b>49 CFR 395</b>	✓	✓	Carrier	<b>49 CFR 395</b> —Establishes Federal standards for acceptable hours of service by drivers of commercial motor vehicles.
		<b>49 CFR 396</b>			Carrier	<b>49 CFR 396</b> —Assigns procedures and responsibilities for inspection, maintenance, and repair of commercial motor vehicles.
		<b>49 CFR 397</b>	✓	✓	Carrier	<b>49 CFR 397</b> —Covers all rules associated with driving, marking, and parking a commercial motor vehicle engaged in the transportation of hazardous (including Class 7) hazardous materials.

SUBJECT AREA	RAIL	HIGHWAY	STATE APPLICABILITY	TRIBAL APPLICABILITY	SHIPPER/CARRIER RESPONSIBILITY	ADDITIONAL INFORMATION
Transportation Operations	10 CFR 71	10 CFR 71	✓	✓	Shipper, Carrier	<b>10 CFR 71</b> —Establishes requirements for packaging, preparation for shipment, and transportation of licensed material; as well as procedures for NRC approval of said activities
	49 CFR 171	49 CFR 171	✓	✓	Shipper, Carrier	<b>49 CFR 171</b> —Prescribes DOT requirements governing the transportation of hazardous (including radioactive) materials in commerce.
	49 CFR 173, sub I	49 CFR 173, sub I			Shipper, Carrier	<b>49 CFR 173, sub I</b> — Sets forth requirements for the packaging and transportation of Class 7 (radioactive) materials.
	49 CFR 174				Shipper, Carrier	<b>49 CFR 174</b> —Details requirements for Class 7 shipping and handling documentation requirements pertaining to rail carriers.
		49 CFR 177			Shipper, Carrier	<b>49 CFR 177</b> —Details requirements for Class 7 shipping and handling documentation requirements pertaining to highway carriers.
	49 CFR 210				Shipper, Carrier	<b>49 CFR 210</b> —Provides minimum compliance regulations for enforcement of EPA Noise Emission Standards for railroads.
	49 CFR 212		✓		Shipper, Carrier	<b>49 CFR 212</b> —Establishes standards and procedures for state participation in investigative and surveillance activities under Federal railroad safety laws.
	49 CFR 213				Carrier	<b>49 CFR 213</b> —Initial minimum safety responsibilities and requirements for railroad track.
	49 CFR 214				Carrier	<b>49 CFR 214</b> —minimum Federal requirements for railroad safety standards for railroad employees.
	49 CFR 216		✓	✓	Carrier	<b>49 CFR 216</b> —Special notice for repairs and emergency order procedures.
	49 CFR 217				Carrier	<b>49 CFR 217</b> —Establishes requirements for railroads to notify FRA and employees of operating rules.
	49 CFR 218				Carrier	<b>49 CFR 218</b> —Minimum requirements for railroad operating rules and practices.
	49 CFR 221		✓	✓	Carrier	<b>49 CFR 221</b> —Minimum requirements for rear-end devices on trains.
	49 CFR 228				Carrier	<b>49 CFR 228</b> —Prescribes reporting and record keeping requirements regarding hours of service.
	49 CFR 229				Carrier	<b>49 CFR 229</b> —Minimum Federal safety standards, requiring daily and periodic inspections and tests.
	49 CFR 236				Carrier	<b>49 CFR 236</b> —Prescribes minimum Federal standards for installation of signal systems.
49 CFR 240		✓	✓	Carrier	<b>49 CFR 240</b> —Each railroad must have a certification	

						program for engineers.
<b>Transportation Operations (CONTINUED)</b>		49 CFR 325	✓	✓	Carrier	49 CFR 325—Applies EPA Noise Emission Standards to motor vehicles engaged in interstate commerce under any condition.
		49 CFR 350	✓	✓	Carrier	49 CFR 350—Proscribes requirements for federal assistance to states for programs to adopt and enforce federal rules, regulations, standards, and orders applicable to commercial motor vehicle safety.
		49 CFR 355	✓	✓	Carrier	49 CFR 355—Ensures compatibility of state laws and regulations affecting interstate motor carrier operations.
		49 CFR 383	✓	✓	Carrier	49 CFR 383—Establishes knowledge and skills related to operation of motor vehicle necessary to obtain and retain a Commercial Driver's License.
		49 CFR 384	✓	✓	Carrier	49 CFR 384—Operators must undergo a program of testing to ensure fitness for operation of commercial motor vehicles.
		49 CFR 387	✓	✓	Carrier	49 CFR 387—Establishes financial responsibilities for motor carriers to ensure their maintenance and operation of vehicles in a safe manner.
		49 CFR 388	✓	✓	Carrier	49 CFR 388—Establishes procedures for any state to enter into a cooperative agreement with the Federal government to enforce state safety laws and regulations related to motor carrier operations.
		49 CFR 390	✓	✓	Carrier	49 CFR 390—General rules of applicability and definition of Federal motor carrier safety regulations.
		49 CFR 392	✓	✓	Carrier	49 CFR 392—Enumerates specific operating rules for drivers and supervisors of commercial motor vehicles.
		49 CFR 393	✓	✓	Carrier	49 CFR 393—Enumerates parts and accessories necessary for safe operation of a commercial motor vehicle.
		49 CFR 395	✓	✓	Carrier	49 CFR 395—Establishes Federal standards for acceptable hours of service by drivers of commercial motor vehicles.
		49 CFR 396	✓	✓	Carrier	49 CFR 396—Assigns procedures and responsibilities for inspection, maintenance, and repair of commercial motor vehicles.
		49 CFR 397	✓	✓	Carrier	49 CFR 397—Covers all rules associated with driving, marking, and parking a commercial motor vehicle engaged in the transportation of hazardous (including Class 7) hazardous materials.

SUBJECT AREA	RAIL	HIGHWAY	STATE APPLICABILITY	TRIBAL APPLICABILITY	SHIPPER/CARRIER RESPONSIBILITY	ADDITIONAL INFORMATION
Substance Abuse	49 CFR 219				Shipper, Carrier	49 CFR 219—Minimum Federal safety standards for control of alcohol and drug use in railroad operations.
		49 CFR 382	✓ <sup>6</sup>		Shipper, Carrier	49 CFR 382—Establishes programs to prevent accidents and injuries resulting from alcohol or controlled substance use by drivers of commercial motor vehicles.
Emergency Response, Cleanup, and Remediation	29 CFR 1910.120	29 CFR 1910.120	✓		Carrier	29 CFR 1910.120—Covers employees in hazardous (including radioactive) waste clean-up and emergency response operations if said operations involve a possibility of employee exposure.
	49 CFR 174		✓		Shipper, Carrier	49 CFR 174—Establishes detailed handling requirements for Class 7 (radioactive) materials transported by rail
		49 CFR 177	✓	✓	Shipper, Carrier	49 CFR 177—Establishes procedures for treatment of disabled vehicles and damaged containers.
	49 CFR 225		✓	✓	Shipper, Carrier	49 CFR 225—Includes requirements for reports and records of “accidents” and “incidents” arising from railroad operations.

<sup>6</sup> The state role in highway regulations related to substance abuse is confined to a limited discretion available to states in excepting certain persons (i.e. military personnel, farmers, or emergency response personnel) from certain aspects of state CDL standards.

SUBJECT AREA	RAIL	HIGHWAY	STATE APPLICABILITY	TRIBAL APPLICABILITY	SHIPPER/CARRIER RESPONSIBILITY	ADDITIONAL INFORMATION
Licensing/ Nuclear Security	10 CFR 10	10 CFR 10			Carrier	<b>10 CFR 10</b> —Establishes requirements for special nuclear material access authorization.
	10 CFR 11	10 CFR 11			Carrier	<b>10 CFR 11</b> -- Establishes requirements for special nuclear material access authorization.
	10 CFR 25	10 CFR 25			Carrier	<b>10 CFR 25</b> —Procedures relating to access authorization of licensee personnel.
	10 CFR 31	10 CFR 31	✓	✓	Shipper, Carrier	<b>10 CFR 31</b> —Establishes general licenses for possession, use, and ownership of certain byproduct material.
	10 CFR 32	10 CFR 32	✓	✓	Shipper, Carrier	<b>10 CFR 32</b> —Prescribes requirements for issuance of specific licenses to parties who manufacture or initially transfer certain byproduct material.
	10 CFR 33	10 CFR 33			Carrier	<b>10 CFR 33</b> —Prescribes requirements for the issuing “specific licenses of broad scope”
	10 CFR 40	10 CFR 40	✓	✓	Shipper <sup>7</sup> , Carrier	<b>10 CFR 40</b> —Establishes procedures and criteria for the issuance of source material licenses; also provides for disposal and long-term care of byproduct and residual materials and uranium.
	10 CFR 72	10 CFR 72	✓	✓	Shipper, Carrier	<b>10 CFR 72</b> —Requirements, procedures, and criteria for the issuance of licenses to receive, transfer, or possess spent fuel and other materials for spent fuel storage.
	10 CFR 73	10 CFR 73	✓	✓	Shipper, Carrier	<b>10 CFR 73</b> —Prescribes requirements for the establishment and maintenance of a physical protection system of special nuclear material at fixed sites and in transit.
	10 CFR 74	10 CFR 74	✓	✓	Shipper, Carrier	<b>10 CFR 74</b> —Contains the requirements for the control and accounting of special nuclear material at fixed sites and for documenting the transfer of special nuclear materials.
	10 CFR 110	10 CFR 110			Shipper <sup>8</sup> , Carrier	<b>10 CFR 110</b> —Licensing, enforcement, and rulemaking procedures and criteria for the export of nuclear equipment and material.
	10 CFR 150	10 CFR 150	✓	✓	Carrier	<b>10 CFR 150</b> —Provides certain exemptions to persons in Agreement States from some licensing requirements and NRC requirements in certain cases.

<sup>7</sup> DOE prime contractors partially exempt

<sup>8</sup> excludes DOE and DOD for activities authorized by sections 54, 64, 82, and 91 of the Atomic Energy Act; except in cases where DOE seeks an export license under section 111 of same.

<b>Licensing/ Nuclear Security (CONTINUED)</b>	<b>49 CFR 172</b>	<b>49 CFR 172</b>			Shipper, Carrier	<b>49 CFR 172</b> —Lists and classifies various substances considered hazardous (including radioactive) for the purposes of transportation, and prescribes requirements for transport.
	<b>49 CFR 173, sub I</b>	<b>49 CFR 173, sub I</b>			Shipper, Carrier	<b>49 CFR 173, sub I</b> — Sets forth requirements for the packaging and transportation of Class 7 (radioactive) materials.
	<b>49 CFR 223</b>				Carrier	<b>49 CFR 223</b> —Requires installation of window glazing materials sufficient to resist both bullet and large object impacts.