

H B

G 7 3

HOUSE  
COMMITTEE REPORT

5/5

(9)

Date referred: 4/7/86

FURTHER REFERRALS:

Rules

DATE: ~~4/25/86~~ 5/2

The RESOURCES Committee has considered HB 673

"An Act relating to transportation of hazardous substances in municipalities."

and recommends:

- do pass
- do not pass
- do pass with attached amendment(s)
- no recommendation
- replace with CSHB 673 (Resources)  same title
- new title

and recommends DO PASS

further referral to the \_\_\_\_\_ Committee

- and attaches:
- letter of intent
  - first fiscal note
  - new fiscal note
  - zero fiscal note

SIGNING DO PASS:

SIGNING OTHER RECOMMENDATIONS:

Herrmann Alfred Herrmann

Cato Bette Cato

Pearce James Pearce

Sund W. Sund

Wallis Ray Wallis

Thompson David W. Thompson

Dick Shultz No Rec

Roger Jenkins No Rec

Dick Shultz  
Co-Chairman Shultz

PROPOSED AMENDMENTS  
TO CS FOR HOUSE BILL 673  
"AN ACT RELATING TO TRANSPORTATION OF HAZARDOUS MATERIALS"

*Adopted* AMENDMENT 1:

Page 1, line 15, delete [and to and from commercial transportation facilities,]

Page 1, line 21, add new subsection (c):

A process involving substantive consultation with the commercial carriers of hazardous materials to assure that at least one feasible route will be permitted to and from commercial transportation facilities; and

RATIONALE: The purpose of this section is to allow municipalities to select the safest routing of hazardous materials within and through the municipality. At least one route to and from a commercial facility must be allowed, or the facility will in effect be "zoned out" of existence. If it is the municipalities' intent to prevent a carrier from hauling certain commodities, it should do so through condemnation or its planning and zoning powers.

AMENDMENT 2:

Page 2, line 1, delete [a shipment of 500 pounds or more of a hazardous material, or if less than 500 lbs.,]

RATIONALE: The 500 lb. provision would allow for special routing, and require special notification for truck loads of fuel oil, gasoline, asphalt, propane, and other commonly used material which are classified as "hazardous" under federal law. The notification limits established in 49 C.F.R. 172.200-172.558 have been adopted after extensive review, and should be followed.

AMENDMENT 3:

Page 2, lines 11-18, delete Section (a).

RATIONALE: Forwarding copies of hazardous materials manifests to the Department of Public Safety is simply a paper work exercise which will not make any significant contribution to the public safety.

Note (if this amendment is adopted, then on page 3, line 10 delete [[a] and]

AMENDMENT 4:

Page 3, lines 18-21, delete [a shipment of 500 lbs. or more of a hazardous material, if less than 500 lbs.,]

RATIONALE: Same as for amendment 2

AMENDMENT 5:

Page 3, lines 26-27 delete [or an aircraft traveling intrastate]

RATIONALE: There has been no testimony or reasons cited for inclusion of aircraft in this legislation. Most of the provisions (i.e., routing or delay of shipment) do not make sense in context with air transportation.

Original sponsors: Koponen, Hurley,  
Davis and Goll

1 IN THE HOUSE

BY THE RESOURCES COMMITTEE

2 CS FOR HOUSE BILL NO. 673 (Resources)

3 IN THE LEGISLATURE OF THE STATE OF ALASKA

4 FOURTEENTH LEGISLATURE - SECOND SESSION

5 A BILL

6 For an Act entitled: "An Act relating to transportation of hazardous  
7 materials."

8 BE IT ENACTED BY THE LEGISLATURE OF THE STATE OF ALASKA:

9 \* Section 1. AS 29.35 is amended by adding a new section to read:

10 Sec. 29.35.143. TRANSPORTATION OF HAZARDOUS MATERIALS. (a)

11 Consistent with federal law, a municipality that regulates the trans-  
12 portation of hazardous materials shall

13 (1) establish reasonable routes for the transportation of  
14 bulk shipments of selected hazardous materials in the municipality,  
15 after completing

16 (A) a comparative safety analysis of alternative  
17 routes;

18 (B) a process involving substantive consultation with  
19 other jurisdictions, including the state, affected by the rout-  
20 ing; and

21 (C) a process involving substantive consultation with  
22 the commercial carriers of hazardous materials to assure that at  
23 least one feasible route is permitted to and from commercial  
24 transportation facilities; and

25 (2) provide for the description, marking, labeling, and  
26 placarding of containers or vehicles used to transport bulk shipments  
27 of hazardous materials in the municipality, in a manner identical to  
28 the manner provided in 49 C.F.R. 172.200 - 172.558.

29 (b) Notwithstanding AS 29.35.200, 29.35.210, and 29.35.220, a

borough may exercise powers under this section on an areawide or nonareawide basis.

(c) In this section

(1) "bulk shipment of a hazardous material" means a shipment of 500 pounds or more of a hazardous material or, if less than 500 pounds, a quantity equal to or greater than the reportable quantity of the material specified in the Hazardous Materials Table in 49 C.F.R. 172.101;

(2) "hazardous material" has the meaning given in 49 C.F.R. 171.8;

(3) "person" has the meaning given in AS 01.10.060 and also includes a political subdivision, government agency, municipality, or other public or private entity.

\* Sec. 2. AS 46.03 is amended by adding a new section that reads:

Sec. 46.03.895. NOTICE OF HAZARDOUS MATERIALS. (a) If a vehicle carrying a bulk shipment of hazardous materials in the state is delayed because of an unscheduled interruption, such as mechanical failure of the vehicle, impassable road conditions, weather, or other emergency requiring the operator to leave the vehicle unattended in a location or for a period of time that creates an increased risk of harm to the public safety or health, then the operator of the vehicle or an agent of the carrier shall give prompt, oral notice to the division of state troopers, or to a person or agency designated by the Department of Public Safety, of the location and contents of the vehicle and the circumstances of the delay.

(b) Except as provided in (c) of this section, a consignee of a bulk shipment of a hazardous material that is to be stored by the consignee for more than seven days shall, within 72 hours after receiving the shipment, send to a person or agency designated by the

Department of Public Safety

(1) a copy of the description of the hazardous materials that is required to be on the shipping paper by the United States Department of Transportation under 49 C.F.R. 172.200 - 172.204; and

(2) a notice of the location at which the materials are to be used or stored.

(c) The notice and description required under (b) of this section for regularly scheduled bulk shipments of a hazardous material must be sent by April 15 each year, but are not required more than once a year, except that notice and descriptions are required within 72 hours after a significant change in the schedule, quantity, contents, or routing of a regularly scheduled bulk shipment. The Department of Public Safety shall adopt regulations specifying what constitutes a "significant change" under this subsection.

(d) In this section

(1) "bulk shipment of a hazardous material" means a shipment of 500 pounds or more of a hazardous material or, if less than 500 pounds, a quantity equal to or greater than the reportable quantity of the material specified in the Hazardous Materials Table in 49 C.F.R. 172.101;

(2) "hazardous materials" has the meaning given in 49 C.F.R. 171.8;

(3) "vehicle" includes a motor vehicle and a railroad car.

Hein  
4/25/86

Original sponsors: Koponen, Hurley,  
Davis and Goll

1 IN THE HOUSE

2 CS FOR HOUSE BILL NO. 673 ( )

3 IN THE LEGISLATURE OF THE STATE OF ALASKA

4 FOURTEENTH LEGISLATURE - SECOND SESSION

5 A BILL

6 For an Act entitled: "An Act relating to transportation of hazardous  
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9 \* Section 1. AS 29.35 is amended by adding a new section to read:

10 Sec. 29.35.143. TRANSPORTATION OF HAZARDOUS MATERIALS. (a)

11 Consistent with federal law, a municipality that regulates the trans-  
12 portation of hazardous materials shall

13 (1) establish reasonable routes for the transportation of  
14 ~~bulk shipments~~ of selected hazardous materials in the municipality,  
15 and to and from commercial transportation facilities, after completing

16 (A) a comparative safety analysis of alternative  
17 routes; and

18 (B) a process involving substantive consultation with  
19 other jurisdictions, including the state, affected by the rout-  
20 ing; and

21 (2) provide for the description, marking, labeling, and  
22 placarding of containers or vehicles used to transport ~~bulk shipments~~  
23 ~~of~~ hazardous materials in the municipality, in a manner identical to  
24 the manner provided in 49 C.F.R. 172.200 - 172.558.

25 (b) Notwithstanding AS 29.35.200, 29.35.210, and 29.35.220, a  
26 borough may exercise powers under this section on an areawide or  
27 nonareawide basis.

28 (c) In this section

29 (1) "~~bulk shipments of hazardous materials~~" means a

1 ~~shipment of 500 pounds or more of a hazardous material or, if less~~  
2 ~~than 500 pounds, a quantity equal to or greater than the reportable~~  
3 ~~quantity of the material specified in the Hazardous Materials Table in~~  
4 ~~49 C.F.R. 173.701;~~

5 (2) "hazardous material" has the meaning given in 49 C.F.R.  
6 171.8;

7 (3) "person" has the meaning given in AS 01.10.060 and also  
8 includes a political subdivision, government agency, municipality, or  
9 other public or private entity.

10 \* Sec. 2. AS 46.03 is amended by adding a new section to read:

11 Sec. 46.03.895. NOTICE OF HAZARDOUS MATERIALS. (a) Except as  
12 provided in (d) of this section, a carrier who transports a bulk  
13 shipment of a hazardous material into the state shall, within 72 hours  
14 after the shipment arrives in the state, send to the Department of  
15 Public Safety, division of fire prevention, a copy of the description  
16 of the hazardous materials that is required to be on the shipping  
17 paper by the United States Department of Transportation under 49  
18 C.F.R. 172.200 - 172.204.

19 (b) If a vehicle carrying a bulk shipment of hazardous materials  
20 in the state is delayed because of an unscheduled interruption, such  
21 as mechanical failure of the vehicle, impassable road conditions,  
22 weather, or other emergency requiring the operator to leave the vehi-  
23 cle unattended in a location or for a period of time that creates an  
24 increased risk of harm to the public safety or health, then the opera-  
25 tor of the vehicle or an agent of the carrier shall give prompt, oral  
26 notice to the division of state troopers, or to a person or agency  
27 designated by the Department of Public Safety, of the location and  
28 contents of the vehicle and the circumstances of the delay.

29 (c) Except as provided in (d) of this section, a consignee of a

1 bulk shipment of a hazardous material that is to be stored by the  
2 consignee for more than seven days shall, within 72 hours after re-  
3 ceiving the shipment, send to a person or agency designated by the  
4 Department of Public Safety

5 (1) a copy of the description specified in (a) of this  
6 section; and

7 (2) a notice of the location at which the materials are to  
8 be used or stored.

9 (d) Notice and descriptions required under (a) and (c) of this  
10 section for regularly scheduled bulk shipments of a hazardous material  
11 ~~must be sent by April 15 each year, but are not required more than~~  
12 once a year, except that notice and descriptions are required within  
13 ~~72 hours~~ after a significant change in the schedule, quantity,  
14 contents, or routing of a regularly scheduled bulk shipment. ~~The~~  
15 ~~Department of Public Safety shall adopt regulations specifying what~~  
16 ~~constitutes a "significant change" under this subsection.~~

17 (e) In this section

18 (1) "bulk shipment of a hazardous material" means a ship-  
19 ment of 500 pounds or more of a hazardous material or, if less than  
20 500 pounds, a quantity equal to or greater than the reportable quan-  
21 tity of the material specified in the Hazardous Materials Table in 49  
22 C.F.R. 172.101;

23 (2) "hazardous materials" has the meaning given in 49  
24 C.F.R. 171.8;

25 (3) "vehicle" includes a motor vehicle, a railroad car, or  
26 an aircraft traveling intrastate.

Position Paper

CS for House Bill No. 673 (C&RA)

For an Act entitled: "An Act relating to transportation to hazardous materials in municipalities."

This bill would enable municipalities to establish a system to monitor transportation of hazardous materials; provide for routing the transportation of selected hazardous materials; provide for the description, marking, labeling, and placarding of bulk containers on vehicles used to transport hazardous materials in the municipality; and require persons transporting a bulk shipment of hazardous material to notify the municipality of the hazardous material as provided in the local ordinance.

POSITION

The Department of Health and Social Services supports the general concepts of CSHB 673 (C&RA) and feels that it will enable municipalities to better plan for potential hazardous materials emergencies, because local officials will be notified of the existence of various hazardous materials substances and can propose transportation routing to ensure optimum protection of the public.

Recommended by:

*Elizabeth Ward*  
Elizabeth Ward, M.N.  
Director  
Division of Public Health

Date:

*April 9, 86*

Recommended by:

*J.R. Pugh*  
John R. Pugh, Commissioner  
Department of Health and  
Social Services

Date:

*4/16/86*

Hein  
4/15/86

Original sponsors: Koponen, Hurley,  
Davis and Goll

1 IN THE HOUSE

2 CS FOR HOUSE BILL NO. 673 ( )

3 IN THE LEGISLATURE OF THE STATE OF ALASKA

4 FOURTEENTH LEGISLATURE - SECOND SESSION

5 A BILL

6 For an Act entitled: "An Act relating to transportation of hazardous  
7 materials."

8 BE IT ENACTED BY THE LEGISLATURE OF THE STATE OF ALASKA:

9 \* Section 1. AS 29.35 is amended by adding a new section to read:

10 Sec. 29.35.143. TRANSPORTATION OF HAZARDOUS MATERIALS. (a)

11 Consistent with federal law, a municipality may by ordinance

12 (1) provide for routing the transportation of selected  
13 hazardous materials in the municipality in accordance with U.S. De-  
14 partment of Transportation policies regarding the use of

15 (A) comparative safety analyses; and

16 (B) a process involving substantive consultation with  
17 other jurisdictions affected by the routing; and

18 (2) provide for the description, marking, labeling, and  
19 placarding of bulk containers or vehicles used to transport hazardous  
20 materials in the municipality, as provided in 49 C.F.R. 172.200 -  
21 172.558.

22 (b) If a vehicle carrying a shipment of hazardous materials in  
23 the state is delayed for one hour or more due to mechanical failure or  
24 other circumstance, the operator of the vehicle shall give prompt,  
25 oral notice to the Department of Public Safety or an emergency ser-  
26 vices provider designated by the Department of Public Safety, of the  
27 location and contents of the vehicle and the circumstances of the  
28 delay.

29 (c) Notwithstanding AS 29.35.200, 29.35.210, and 29.35.220, a

1 borough may exercise powers under this section on an areawide or  
 2 nonareawide basis.

3 (d) In this section

4 (1) "hazardous material" means a substance regulated as a  
 5 hazardous material under 49 C.F.R. 100 - 199;

6 (2) "person" has the meaning given in AS 01.10.06<sup>2</sup> and also  
 7 includes a political subdivision, government agency, municipality, or  
 8 other public or private entity.  
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**Alaska State Legislature  
Representative Niilo Koponen**

Pouch V  
Juneau, Alaska 99811  
(907) 465-4992

542 4th Avenue, Suite C  
Fairbanks, Alaska 99701  
(907) 456-8161

POSITION PAPER--HB673

The purpose of this bill is to give Alaskan municipalities greater regulatory oversight with regard to the transportation of hazardous materials within their borders.

Concern about the risks involved in the transport of hazardous materials has prompted public demand for improved emergency response capabilities and strong enforcement of safety rules.

This bill gives municipalities two powerful tools with which to regulate hazardous materials. Routing and placarding requirements have been found consistent with U.S. D.O.T. policies and will provide much needed guidelines in the movement of these materials.

DEPARTMENT OF ENVIRONMENTAL CONSERVATION

HB 673

An Act Relating to Transportation of  
Hazardous Substances in Municipalities

This proposed bill amends AS 29.35.140 by adding two new subsections, the first to provide that municipalities may adopt by ordinance a program to monitor the transportation of hazardous substances, which includes four elements:

- (1) a system to monitor transportation in the municipality
- (2) transportation routes and advance notification procedures
- (3) placarding of vehicles
- (4) a requirement that transporters notify the municipalities

Subsection (c) defines hazardous substance.

The Department of Environmental Conservation (DEC) supports the concept of this bill since it would allow municipal public safety agencies to obtain the information on the movement of hazardous substances in their communities. The Department has the following specific comments on this bill:

- (1) There may be difficulty in requiring placarding of vehicles beyond that required by the U.S. Department of Transportation because federal transportation requirements prevail in a conflict with State or local requirements. DEC is not aware of whether the bill includes any other conflicts with federal transportation requirements.
- (2) Several definitions of "hazardous substance" have been included in bills being reviewed by this Legislature. I suggest you consider using the definition which appears at AS 46.08.900(6) in the proposed CSHB 470 (Finance) dated 3/8/85.
- (3) The bill does not set any limit on the quantity of material subject to this law. You may wish to indicate that it is intended to apply to the transportation of materials in bulk containers greater than some specific volume.

It might be appropriate, in conjunction with this bill, to repeal AS 46.03.308, which establishes another set of reporting requirements. Passed as part of SB 503 in 1984, AS 46.03.308 requires that generators of hazardous wastes (a subset of materials) notify DEC. DEC is then required to notify local governments of shipments. This bill would be more comprehensive and would achieve the same purpose.

Thank you for the opportunity to comment. My staff is available to work with yours as this proposal moves through the legislative process.



STATE OF ALASKA  
OFFICE OF THE GOVERNOR  
BILL ANALYSIS

DEPARTMENT Environmental Conservation	DIVISION Environmental Quality	BILL NUMBER HB 673	SPONSOR Niilo Koponen et al.
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DEPARTMENT POSITION  
Supportive

PREPARED BY S. W. Hungerford	DATE 3/11/86	COMMISSIONER'S SIGNATURE Bill Ross <i>Am DKyle</i>	DATE 3/11/86
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SUMMARY

OTHER AGENCIES AFFECTED BY BILL None Apparent	CONSTITUENT GROUPS AFFECTED BY BILL Communities Railroad/Trucking Firms
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ORGANIZATIONAL SUPPORT FOR BILL	ORGANIZATIONAL OPPOSITION TO BILL Unknown at this point
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FISCAL IMPACT:  NONE  FISCAL NOTE ATTACHED

BACKGROUND/LEGISLATIVE INTENT

ANALYSIS OF BILL/PROGRAM EFFECTS

SEE ATTACHED COMMENTS

AMENDMENTS PROPOSED

PLEASE ATTACH A SEPARATE SHEET FOR ADDITIONAL COMMENTS OR ANALYSIS.

# STATE OF ALASKA 1986 LEGISLATIVE SESSION FISCAL NOTE

Revision Date : \_\_\_\_\_

**REQUEST**

Bill/Resolution No. : HB 673  
 Title : "An Act relating to transportation of hazardous substances in municipalities,"  
 Sponsor : Niilo Koponen  
 Requestor : C & RA and Resources  
 Date of Request : 3/10/86

**FISCAL DETAIL**

Agency Affected : Environmental Conservation  
 BRU : Environmental Quality  
 Components : Director's Office

**EXPENDITURES/REVENUES : (Thousands of Dollars)**

OPERATING	FY 86	FY 87	FY 88	FY 89	FY 90	FY 91
PERSONAL SERVICES						
TRAVEL						
CONTRACTUAL SUPPLIES						
EQUIPMENT						
LAND & STRUCTURES						
GRANTS, CLAIMS						
MISCELLANEOUS						
<b>TOTAL OPERATING</b>	0	0	0	0	0	0
<b>CAPITAL</b>	0	0	0	0	0	0
<b>REVENUE</b>	0	0	0	0	0	0

**FUNDING : (Thousands of Dollars)**

GENERAL FUND						
FEDERAL FUNDS						
OTHER						
<b>TOTAL</b>	0	0	0	0	0	0

**POSITIONS : NONE**

FULL-TIME						
PART-TIME						
TEMPORARY						

**ANALYSIS :** Attach a separate page if necessary

Prepared by : S.W. Hungerford Phone : 465-2666  
 Division : Environmental Quality Date : 3/10/86

Approved by Commissioner : Bill Ross *Amy D. Kelly* Date : 3/12/86  
 Agency : Environmental Conservation

Distribution (by Agency preparing fiscal note):

- Legislative Finance
- Legislative Sponsor
- Requestor
- Office of Management and Budget
- Impacted Agency(ies)

DEPARTMENT OF PUBLIC SAFETY

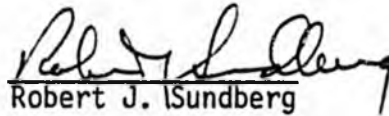
POSITION PAPER - HB 673

Neutral

March 21, 1986

HB 673 - "An Act relating to transportation of hazardous substances in municipalities."

This bill does not materially effect or impact this Department.

  
Robert J. Sundberg

# STATE OF ALASKA 1986 LEGISLATIVE SESSION FISCAL NOTE

Revision Date : \_\_\_\_\_

**REQUEST**

**FISCAL DETAIL**

Bill/Resolution No. : HB 673  
 Title : "An Act relating to transportation of hazardous substances in municipalities."  
 Sponsor : Representative Koponen  
 Requestor : House Community & Regional Affairs  
 Date of Request : 3/21/86

Agency Affected : Public Safety  
 BRU : \_\_\_\_\_  
 Components : \_\_\_\_\_

**EXPENDITURES/REVENUES : (Thousands of Dollars)**

OPERATING	FY 86	FY 87	FY 88	FY 89	FY 90	FY 91
PERSONAL SERVICES						
TRAVEL						
CONTRACTUAL						
SUPPLIES						
EQUIPMENT						
LAND & STRUCTURES						
GRANTS, CLAIMS						
MISCELLANEOUS						
<b>TOTAL OPERATING</b>		0	0	0	0	0

CAPITAL						
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REVENUE						
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**FUNDING : (Thousands of Dollars)**

GENERAL FUND		0	0	0	0	0
FEDERAL FUNDS						
OTHER						
<b>TOTAL</b>		0	0	0	0	0

**POSITIONS :**

FULL-TIME						
PART-TIME						
TEMPORARY						

**ANALYSIS :** Attach a separate page if necessary

Prepared by : *K Niles* Kathy Niles, Admin Assistant  
 Division : Commissioner's Office

Phone : 465-4336  
 Date : 3/21/86

Approved by Commissioner : *[Signature]*  
 Agency : Public Safety

Date : 3/21/86

Distribution (by Agency preparing fiscal note):

- Legislative Finance
- Legislative Sponsor
- Requestor
- Office of Management and Budget
- Impacted Agency(ies)

10-11-85

MINNESOTA  
WASTE MANAGEMENT BOARD

CHAPTER III, SECTION F

WHAT FACTORS COULD AFFECT THE USE OF OUT-OF-STATE DISPOSAL FACILITIES  
BY MINNESOTA GENERATORS?

D R A F T

June 5, 1985

rather than a market regulator.

Finally, state subsidies are generally found to be well within the legitimate proprietary capacity of a state government to act solely on behalf of its own citizens. Thus, these subsidies are exempt from traditional Commerce Clause restraints. However, any subsidy could be subject to an Equal Protection challenge on grounds that a subsidy is not reasonably related to a state's legitimate purpose, or that a subsidy is not the least restrictive alternative to achieve a legitimate state goal.

\* **Exemption from Commerce Clause Hazardous Waste Transportation**

Localities have enacted laws that attempt to restrict the transportation of certain hazardous wastes through a city. The legal question arises as to whether such local laws violate the Commerce Clause or are pre-empted by the federal Hazardous Materials Transportation Act and related Department of Transportation regulations. In 1982 the Second Circuit Court of Appeals decided National Tank Truck Carriers, Inc. v New York City (677 F2d 270). At issue were New York City Fire Department regulations that prohibited the transportation of hazardous gases by tank truck in New York City, except when the fire commissioner authorizes such transportation because "no practical alternative route to passage through the city exists." The fire commissioner authorized trucks carrying hazardous gases to travel through New York City, but only along a certain route and never between 6 - 10 a.m. and 3 - 7 p.m.

**Exemption from Commerce Clause Interstate Public Safety Regulations**  
not motivated by economic protectionism, and equally applicable to interstate and intrastate shipments. The commerce clause was not violated, as the burden on interstate commerce, if any, was incidental.

Nor were the regulations pre-empted by federal law or regulation. The Court found the local fire department regulations to be entirely consistent with, and in furtherance of, the federal regulations and their underlying purpose which is to promote safety to life and property.

The National Tank Truck Carriers case was followed more recently in a case in the New York Criminal Court in Richmond County, People of the State of New York v Dempsey and Miron (466 N.Y.S. 2d 923) (1983). Two truck drivers were charged with violating sections of the city code and charter that restricted the transportation of flammable liquids within city limits during restricted hours. The Court denied defendants claim that the regulations unconstitutionally restrained interstate commerce. It found the regulations were a reasonable way to achieve their public safety purpose.

In general, the Supreme Court is reluctant to invalidate state regulations in the field of highway public safety, as these regulations have a strong presumption of validity.

~~In conclusion, courts have upheld local ordinances that restrict the transportation of hazardous waste throughout a locality on grounds that the burden on interstate commerce is incidental and the restrictions are a reasonable way to achieve a legitimate public purpose.~~

However, these local ordinances are not likely to pose a substantial threat to the out-of-state disposal of Minnesota's hazardous waste because they do not ban the transportation of out-of-state wastes, but merely reasonably restrict the transportation of all wastes, whatever their origin.

HOUSE  
COMMITTEE REPORT

(7)

Date referred: 2/17/86

FURTHER REFERRALS: RESOURCES

COMMUNITY AND  
The REGIONAL AFFAIRS

DATE: 4-4-86

Committee has considered HB 673

"An Act relating to transportation of hazardous substances in municipalities."

and recommends:

- do pass
- do not pass
- do pass with attached amendment(s)
- no recommendation
- replace with CS HB 673  same title
- new title

and recommends DO PASS

further referral to the \_\_\_\_\_ Committee

- and attaches:
- letter of intent
  - first fiscal note
  - new fiscal note
  - zero fiscal note

SIGNING DO PASS:

SIGNING OTHER RECOMMENDATIONS:

John G. Kopman

Mark Shulberg

ROD E. CROO

ALAN MARROU

Peter J. ...

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Peter J. ...

Chairman

STATE OF ALASKA  
THE LEGISLATURE

LEGISLATIVE AFFAIRS AGENCY

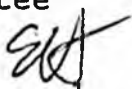
POUCH Y STATE CAPITOL  
JUNEAU, ALASKA 99811  
907-465-3800

MEMORANDUM

April 1, 1986

SUBJECT: Authority of Municipalities to Regulate the  
Transportation of Hazardous Materials (CSHB  
673 (C&RA))

TO: Representative Peter Goll  
Chairman, House Community and Regional  
Affairs Committee

FROM: Edward H. Hein   
Legislative Counsel

Your assistant, Bob Berry, asked whether municipalities already have authority to regulate the transportation of hazardous materials through their jurisdictions. Under AS 29.35.220, a third class borough may acquire such authority on a service-area basis only. Under AS 29.35.200 - 29.35.210, first and second class boroughs have such authority, but not on an areawide basis. Under AS 29.35.250 - 29.35.260, cities have such authority. All this authority, however, is subject to conformity with federal Department of Transportation regulation.

EHH:ml  
050/me1

STATE OF ALASKA  
THE LEGISLATURE

POUCH Y STATE CAPITOL  
JUNEAU ALASKA 99811  
907 465 3800

LEGISLATIVE AFFAIRS AGENCY

M E M O R A N D U M

April 25, 1986

SUBJECT: Comparative sectional analysis of various  
versions of CSHB 672 and CSHB 673

TO: Representative Niilo Koponen

FROM: Edward H. Hein *EHA*  
Legislative Counsel

The latest draft of CSHB 673 ( ), dated 4/24/86, combines CSHB 672 ( ), dated 4/14/86 with CSHB 673 ( ), dated 4/15/86, and makes additional changes. I shall refer to the latest draft as "the bill."

Section 1 of the bill incorporates all of the 4/15 version of CSHB 673, except for subsection (b) of that version, which is deleted. The first significant change is that instead of merely allowing municipalities to regulate the routing and placarding, etc., of hazardous materials shipments, the bill now sets mandatory minimum requirements that must be met if a municipality is going to regulate hazardous materials transportation. Although a municipality is not required to regulate, if it does so it must establish reasonable routes after doing a comparative safety analysis of alternative routes and consulting with other jurisdictions affected by the routing, including the state. The municipality also must provide for placarding, labeling, marking, and description of bulk container and vehicles transporting hazardous materials. This must be done in a manner identical to the manner required by federal Department of Transportation regulations.

Hazardous material is now defined as in CSHB 672 ( ), which uses the federal DOT definition. Bulk shipments are defined as 500 pounds or more of a single hazardous material, or the reportable quantity (RQ) of a hazardous material, if the material has an RQ less than 500 pounds.

Sec. 2 of the bill incorporates CSHB 672 ( ), with several changes. Under subsection (a), carriers bringing hazardous

Representative Niilo Koponen  
Page 2  
April 25, 1986

materials into the state will have 72 hours after the shipment arrives in the state, instead of 48 hours, to send a copy of the shipping papers to the state fire marshal. This requirement applies only to bulk shipments that are not regularly scheduled. Bulk shipments are defined as in section 1. Regularly scheduled shipments are covered under subsection (d).

Subsection (b) requires the vehicle operator or an agent of the carrier to orally and promptly notify the state troopers, or a person or agency designated by the Department of Public Safety, if the vehicle is carrying a bulk shipment of hazardous materials and is delayed because of an unscheduled interruption.

Subsection (c) requires a consignee of a bulk shipment of a hazardous material to notify a person or agency designated by the Department of Public Safety within 72 hours after the shipment arrives, but only if the shipment is going to be stored for seven days or more. Notice must include a copy of the shipping papers and the location at which the materials are to be stored or used. In earlier versions of HB 673, notification was not limited to bulk shipments, and notice had to be given within 48 hours.

Subsection (d) provides that notice of regularly scheduled bulk shipments must be sent by April 15 each year, but is not required more than once a year, except that notice of significant changes in shipments must be given within 72 hours.

Subsection (e) adds definitions of "bulk shipment," as described above, and "vehicle," and deletes definitions of "emergency services providers" and "service area." The definition of "vehicle" includes motor vehicles, railroad cars, and intrastate aircraft.

These bills were combined in CSHB 673 because both deal with the transportation of hazardous materials, and in order to avoid duplication and to assure consistency. Section 1 of the bill appears to comply with federal DOT regulations. Sec. 2 probably is in compliance because, although it affects interstate commerce in subsection (a), the requirement is not unduly burdensome or unreasonable: 72 hours is an adequate reporting period; pre-notification is not required; carriers are required only to supply a copy of shipping papers that they must already carry under federal regulation.

EHH:mkr  
m5/025



## Alaska Environmental Lobby, Inc.

204 N. Franklin Street, Suite 3 Juneau, Alaska 99801

907-586-2345

Date: March 20, 1986

To: Representative Niilo Koponen

From: Scott Highleyman *Scott Highleyman*

RE: HB 673--Hazardous Materials Transportation Bill

Attached is a memo by Margaret Rawitz, attorney for the Municipality of Anchorage, regarding Municipal Transportation Ordinances and preemption by the Department of Transportation.

As Rawitz points out, the D.O.T. can preempt municipal ordinances not consistent with Federal Regulations under Title 49. They have a reputation of jealously guarding their regulatory power, and have had a history of rejecting ordinances for minor differences from Title 49. Prenotification, routing restrictions, curfews, and certain packaging and placarding requirements have been found to be inconsistent.

Title 49, as you know, is a long complex nightmare of regulations. If it is your intent to adopt part of Title 49 to avoid the problem of preemption, perhaps legal services should research the parts of Title 49 that could be adopted to address the four areas outlined in HB 673. And, of course, there remains the problem of which agency would be responsible for the regulations, and what kind of fiscal note would be attached. I have no easy answer for that one!

By the way, T.J. Thrasher of the Alaska Truckers Association told me after last Friday's Community and Regional Affairs hearing that they do not oppose adoption of Title 49. Somehow, I find that hard to believe.

# Municipality of Anchorage

## MEMORANDUM

SW  
1-16-86

DATE: January 9, 1985  
TO: Jim Sweeney, Engineering & Planning, Solid Waste  
FROM: MSR Margaret J. Rawitz, Assistant Municipal Attorney  
SUBJECT: Transportation of Hazardous Materials and Wastes

### QUESTION PRESENTED

The Hazardous Waste Task Force would like to develop and submit to the Assembly an ordinance to regulate the transportation of hazardous materials and hazardous wastes in Anchorage. What provisions should be included in the ordinance? What provisions may not be included in the ordinance?

### SHORT ANSWER

The role of local governments in the regulation of the transportation of hazardous materials and hazardous wastes has been largely preempted by the U.S. Department of Transportation pursuant to the Hazardous Materials Transportation Act. However, the Municipality may have a limited ability to regulate routing, walk-around inspections, and certain other operational requirements. In addition, the Municipality may adopt any regulations which are identical to federal law.

### DISCUSSION

The Hazardous Waste Task Force has proposed an ordinance to regulate the transportation of hazardous materials and hazardous wastes in Anchorage. The elements of the proposed ordinance include the following:

- A. adoption of federal regulations;
- B. prenotification of transportation of hazardous materials;
- C. a curfew or limitation on hours;
- D. specified routing;
- E. a requirement of a police or fire department escort in certain cases; and

- F. restrictions on the storage of hazardous materials and hazardous wastes being transported through the Port of Anchorage.

Some of these proposals are inconsistent with the Hazardous Materials Transportation Act and might therefore be invalid.

A. Hazardous Materials Transportation Act.

Congress enacted the Hazardous Materials Transportation Act (HMTA) in 1974 and designated the U.S. Department of Transportation (DOT) as the enforcement agency. 49 U.S.C. §§ 1801-1812. The HMTA gives jurisdiction to DOT over all forms of transportation of hazardous materials in order to provide uniform national regulation and to minimize the risks through a comprehensive approach to regulation. Congress delegated authority to the Secretary of Transportation 1) to designate and classify the hazardous materials covered by the HMTA, 2) to issue regulations "for the safe transportation in commerce of hazardous materials" and 3) to establish criteria for handling hazardous materials. In addition, in order to accomplish the goals of uniform regulation and minimization of risk, Congress added a section to the HMTA preempting "any requirement of a state or political subdivision thereof which is inconsistent with any requirement set forth" in the HMTA or in a regulation issued thereunder. "Preemption" means that the right to regulate transportation of hazardous materials is reserved exclusively to the Department of Transportation and any local regulation which is inconsistent with federal regulations is invalid. State and local laws which are not inconsistent with federal law are not preempted.

B. DOT Inconsistency Rulings.

"Inconsistent" means any situation where it is not possible to comply both with federal and state or local law, or where compliance with state or local law is an obstacle to the accomplishment to the goals and purposes of the federal law. National Tank Truck Carriers, Inc., v. Burke, 535 F. Supp. 509, 515 (D. RI. 1982). DOT applies this test in reaching its "Inconsistency Rulings", decisions as to whether a state or local law is inconsistent with the HMTA and therefore preempted.

DOT has issued 16 Inconsistency Rulings through December 1, 1985. In most cases, DOT has found state and local regula-

tions to be inconsistent with federal law, jealously protecting its preemptive powers. The local regulations examined generally fall into two major groupings: operating requirements and equipment requirements. Since the proposed Anchorage ordinance does not contain any equipment requirements, the focus of this memorandum will be on operating requirements.

If a federal regulation is adopted verbatim, it will not be considered inconsistent.

### C. Operating Requirements.

Examples of operating requirements include bans, curfews, routing restrictions, special accident notifications, inspections, fees, prenotification, permits, applications, and headlight requirements. Most operating requirements have been determined to be inconsistent by DOT and are therefore preempted. The reasoning adopted by the DOT has focused on delay, the extent of burden on commerce, and the necessity for the regulation. For example, although a requirement for immediate oral notification of an accident to local authorities has been upheld, a requirement for a written follow-up notification has been held to be inconsistent because it is duplicative of federal requirements.

Prenotification has repeatedly been found to be inconsistent because of the likelihood that a shipment will be delayed while the shipper attempts to identify the contents of the shipment in order to notify local authorities. Perhaps a requirement for prenotification which did not require the shipper to specify the type of substance being shipped would be acceptable. However, the usefulness of such a requirement might be questionable.

Curfews have been found to be inconsistent because they ultimately delay the transportation of the hazardous materials. Similarly, bans and exclusions have been found to be inconsistent because they only serve to direct the hazardous materials to another jurisdiction. A requirement for additional placarding is inconsistent because it burdens commerce. Other activities which have been found to be preempted include the routing of high level radioactive shipments, packaging and placarding requirements, and the designation and classification of hazardous materials.

D. Effect on Proposed Ordinance.

The prenotification, curfew, and police escort provisions of the proposed ordinance would most likely be found inconsistent with federal law.

The restrictions on the transportation of materials through the Port may also be partially preempted. The provision that hazardous wastes shipped through the Port shall not be stored for more than five days is arguably consistent because it will speed up rather than delay such shipments. However, the DOT might consider the net effect of this provision to be merely a shifting of the delay to some other link in the transportation chain, perhaps a ship. The effect could be seen as increasing the risks and could be considered inconsistent. The requirement for special security measures while the wastes are stored at the Port may be considered a burden on commerce

E. Routing.

Routing requirements which are reasonable and do not have the effect of an exclusion or ban are generally found to be consistent. The federal policy is to employ major transportation routes for the transportation of hazardous goods and to avoid populated areas. The transportation routing proposed by the Hazardous Waste Task Force seems to be consistent with these criteria.

CONCLUSION

The following two documents may prove useful to anyone interested in investigating this issue in greater depth: Regulating the Transportation of Hazardous Materials on City Streets--Are Local Governments Helpless? by Timothy J. Harrison and Donna M. Clark, City of Tucson (1985) and Establishing Routes for Trucks Hauling Hazardous Materials: The Experience in Portland Oregon by Portland Office of Emergency Management (March 1984). These documents have already been provided to you and Jim Sellers.

Before I proceed with preparation of an ordinance regulating the transportation of hazardous substances in Anchorage, I would like further guidance from the Task Force on the direction they would like to take in light of the preemption problems discussed above. The options include the following:

Jim Sweeney, Engineering & Planning, Solid Waste  
January 9, 1986  
Page 5

1.) adopt federal regulations, 2) adopt regulations which have previously been found to be consistent, 3) a combination of "1" and "2", and 4) elect not to regulate the transportation of hazardous substances because it is already comprehensively regulated by the federal government. The ordinance as originally proposed is not a viable option because of federal preemption.

You have indicated that, although the federal government has adequate regulations in place, the level of enforcement in Anchorage is unsatisfactory. If we adopt the federal regulations so that we may enforce them ourselves, we will have adopted a massive and complex regulatory system. The benefits of enforcing such a system might be outweighed by the costs of implementation. For example, it may necessitate fairly extensive training of enforcement officials. In short, due consideration should be given to the burdens of adopting and enforcing the federal program, to the Municipality's ability to enforce such a program, the cost of enforcement, and the "cost", if any, of having on the books an ordinance which does not get enforced.

MJR:ld

cc: Jim Sellers, Fire Training Center



# OTA REPORT BRIEF

March 1986

## Transportation of Hazardous Materials: State and Local Activities

Accidents involving hazardous materials occur at least weekly in major metropolitan areas. Although a large urban jurisdiction that has had many such accidents may have a trained hazardous materials response team, about three-quarters of the Nation's first responders are not adequately trained to deal with hazardous materials.

The most pressing national need in emergency response is finding an effective way to train first responders to handle different types of hazardous materials. Despite the existence of many training programs, no national guidelines for them are currently in place, and some of the programs are inadequate. National emergency response guidelines or standards are needed to ensure adequate training. Furthermore, financial assistance for training and for maintaining emergency response capabilities is needed by many localities.

More than 180 million shipments of hazardous materials are made in the United States each year, about 500,000 each day, according to Department of Transportation figures. These shipments contain a wide variety of dangerous and unfamiliar substances: more than 2,400 chemicals, explosives, wastes, and radioactive materials are listed as hazardous materials in the Code of Federal Regulations—and the list is growing.

Gasoline and petroleum products account for more hazardous materials transportation accidents, injuries and damages than other classified commodities, because they are the most frequently transported hazardous cargo. Additional safety measures and training programs for drivers and handlers could reduce the incidence of such accidents.

Although most hazardous materials accidents do not cause deaths, they often cause serious injury and substantial damage in addition to being frightening and spectacular. Concern about the risks involved has motivated public demand for improved emergency response capabilities and strong enforcement of safety rules.

To help prevent accidents and protect public safety, State and local governments have restricted the routes that hazardous materials shippers use or the hours that shipments are permitted. They may also require licensing, registration, or permits; advance notification of shipment or other special procedures; and escorts for

hazardous materials movements. These requirements and restrictions vary from State to State, leaving transporters unsure whether they are complying with local regulations.

Many industry representatives as well as State and local governments strongly support establishment of a national truck driver's license and uniform guidelines for registration, permit, and shipment notification requirements. They also feel that penalties for violating regulations should be consistent across governmental and jurisdictional levels and substantial enough to discourage future infractions. Continued Federal support for States' hazardous materials enforcement activities is important, since Federal inspection forces have been reduced annually for several years.

To plan for accident prevention and to improve their emergency response, States and localities need to know what types of hazardous materials accidents might occur in their areas, which locations have the highest risk, and what types of materials are most likely to be involved. Because of the lack of a reliable national hazardous materials transportation database, State and local governments are performing their own studies to determine what is transported near, within, and through their communities. These data collection and planning activities serve to coordinate and improve communication between the numerous separate groups that are concerned with hazardous materials transportation and emergency response.

Information accompanying hazardous materials is often faulty or insufficient, posing additional problems for public safety personnel. State enforcement officials have found that 25 to 50 percent of placards on hazardous materials shipments are incorrect. Shipping papers are sometimes incomplete or inaccessible. Emergency crews must assess the risks of the hazardous material and make decisions on how to respond based on information that may or may not be accurate. The wrong response to a hazardous materials accident endangers both emergency personnel and the neighboring communities.

*Copies of the OTA report, "Transportation of Hazardous Materials: State and Local Activities," are available from the U.S. Government Printing Office. The GPO stock number is 052-003-01016-0; the price is \$3.75. Copies of the report for congressional use are available by calling 4-8996. Summaries of reports are available at no charge from the Office of Technology Assessment.*

The Office of Technology Assessment (OTA) is an analytical arm of the U.S. Congress whose basic function is to help legislators anticipate and plan for the positive and negative impacts of technological changes.

Address: OTA, U.S. Congress, Washington, DC 20510. Phone: 202/224-9241. John H. Gibbons, Director.

# Transportation of Hazardous Materials: **State and Local Activities**

A Special Report

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CONGRESS OF THE UNITED STATES  
Office of Technology Assessment  
Washington, D. C. 20510

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Chapter 1

Introduction and Findings

# Introduction and Findings

Each year, more than 4 billion tons of hazardous products and waste are transported throughout the United States.\* The safe handling and carriage of these materials—which include explosives, flammables, corrosive or toxic chemicals, poisons, spent reactor fuel and low-level waste, and disease-causing biological agents—are of major concern to Federal, State, and local agencies charged with public safety and to the industries that produce, ship, and use hazardous materials.\*\*

The safe and efficient transport of hazardous materials depends on three principal activities: accident prevention (including regulation and enforcement), emergency response when accidents occur, and research and planning. While emergency response activities arouse the most intense public interest, all three activities are interdependent and necessary. Maintaining transport safety and efficiency is technologically demanding—a task made complex by the variety and volume of materials transported and by the interlocking responsibilities of Federal, State, and

local governments and the multitude of private firms involved.\*\*\*

Historically, the Federal Government has taken a lead role in regulation of hazardous materials transportation and safety enforcement. State and local governments, however, are assuming greater responsibilities in this area, prompted by a growing awareness of the dangers posed by hazardous materials transportation and recognition that emergency response—at least initially—almost always falls to State and local agencies. The Senate Committee on Commerce, Science, and Transportation, mindful of heightened public concern about chemical spills and accidents involving radioactive materials and toxic substances, requested that the Office of Technology Assessment (OTA) undertake a study of hazardous materials transportation. The study, directed specifically at the issues of container technology, accident data collection and recordkeeping, and training programs for personnel involved in hazardous materials transportation or in emergency response to hazardous materials accidents, will be completed in early 1986. This review of State and local activities provides background information for analysis of the issues to be addressed in the larger study.

\*This estimate includes hazardous materials carried in pipelines.

\*\*Hazardous materials are substances or matter transported in commerce that pose risks to human safety, property, and the environment if accidentally released. Hazardous materials transported by pipeline or generated or used in military or other defense-related activities are similar in nature and pose similar risks but are excluded from this discussion.

\*\*\*This document summarizes Federal programs and identifies State and local concerns. The OTA Final Report will examine in detail Federal regulations and technical programs and assess the extent to which they meet the needs identified in this report.

## HAZARDOUS MATERIALS TRANSPORTATION

Statistics gathered by the Office of Hazardous Materials Transportation (OHMT)\* of the U.S. Department of Transportation (DOT) indicate that there are more than 180 million shipments of hazardous materials in the United States each year. The variety of these substances is enormous and growing. Currently, more than 2,400 substances are listed in the Federal Code of Regulations as hazardous commodities; many of the more than 70,000 chemical

products on the market today have not been reviewed for inclusion.<sup>1</sup>

Chemical products are but one kind of hazardous material. There are also biological products, fuels, petroleum products, explosives, acids, fertilizers, gaseous substances, and various forms of industrial waste. Radioactive substances are another major form of hazardous materials. More than 20,000 medical and academic institutions, laboratories, government agencies, industrial enterprises,

\*Until Nov. 1, 1985, OHMT was called the Materials Transportation Bureau (MTB); OHMT is a part of the DOT's Research and Special Programs Administration.

<sup>1</sup>See 49 CFR 172.101.

and utilities operating nuclear powerplants generate low-level radioactive waste, amounting to an annual volume of 77,000 cubic meters and containing 500,000 curies of radioactive material.<sup>2</sup> A recent study by the Department of Energy (DOE) projects that this volume could double by 1990.<sup>3</sup> These figures do not include the high-level radioactive waste now shipped by utilities, the Department of Defense (DOD), and DOE. They also do not include the increased high-level radioactive commercial waste that will be shipped in the late 1990s once Federal storage facilities have been established or the low-level waste that will be generated as present nuclear reactors are decommissioned and dismantled. According to a recent estimate, the remains from decommissioning a single large reactor would fill well over 1,000 trucks, equaling one-quarter of all the low-level nuclear waste now generated yearly in the United States.<sup>4</sup>

All of these hazardous materials move by land, sea, and air modes of transportation at a rate of about 500,000 shipments per day. Truck transport accounts for about half of all hazardous materials shipments. The types of vehicles carrying hazardous materials on the Nation's highways range from tank trucks, bulk cargo carriers, and other specially designed mobile containers to conventional tractor-trailers and flat beds that carry packages, cylinders, drums, and other small containers. Rail shipments (equaling about 80 million tons a year) are commonly bulk commodities, such as liquid or gaseous chemicals and fuels, carried in tank cars. Most hazardous materials transported by barge on inland waterways are also bulk cargo. The Corps of Engineers estimates that the total inland waterborne volume is approximately 60 million tons a year. Coastal and inland waterborne volumes, combined, reach 550 million tons annually. DOT estimates that

about 600,000 vehicles and vessels are regularly used to transport hazardous materials in bulk, and 700,000 carry portable containers. The transport of hazardous materials by air (either in all-cargo aircraft or in belly compartments of passenger aircraft) is insignificant in tonnage—an estimated 175,000 tons annually—but constitutes a high number of shipments. A 1980 Federal Aviation Administration study found that roughly 5 percent of air cargo at 39 major airports (amounting to 300,000 packages) contained hazardous materials, typically rather small parcels of high-value or time-critical material.

The safety record of hazardous materials carriers, as reported to the Office of Hazardous Materials Transportation, is summarized in table 1-1. For the period 1973-83, there was an annual average of 11,462 reported incidents—a rate of 1.25 incidents per 10,000 shipments.\* Most of these were accidental releases during handling and loading and not vehicle accidents en route. The reported deaths and injuries caused by exposure to hazardous materials are similarly low, equaling about two fatalities per 1,000 incidents, a result both of the regulations governing hazardous materials transportation and the degree of care exercised by shippers, carriers, and others involved in accident prevention and response.\*\* The

\*These figures are for incidents reported to OHMT. Some experts estimate there may be as many as three to four times as many incidents that are unreported.

\*\*In recent years, there has been an annual average of 24 deaths and 663 injuries in hazardous materials accidents reported to DOT. Even taking into account evidence of incomplete data, to be addressed in OTA's Final Report, the death and injury toll in automobile accidents in the same period was 2,000 times greater.

Table 1-1.—Incidents Involving Transport of Hazardous Materials, 1973-83 (as reported to DOT)

Mode	Annual average			
	Incidents	Deaths	Injuries	Damages <sup>a</sup> (millions of dollars)
Highway .....	10,289	19.3	419.2	\$ 8.15
Rail <sup>b</sup> .....	975	4.0	221.8	4.67
Water .....	26	0	3.3	0.07
Air .....	150	0.4	9.0	0.43
Freight forwarder ..	2	0	1.9	(c)
Other ..	20	0	7.8	0.01
<b>Total .....</b>	<b>11,462</b>	<b>23.7</b>	<b>663.0</b>	<b>\$13.33</b>

<sup>a</sup>Properly damage estimates reported to MTB within 15 days after an accident.

<sup>b</sup>The rail safety record improved during the period because of an increase in the number of Federal rail inspectors and equipment improvements during the early 1980s.

<sup>c</sup>Less than \$0.01 million.

SOURCE: U.S. Department of Transportation, Materials Transportation Bureau, Annual Report on Hazardous Materials Transportation, Calendar Year 1983.

<sup>1</sup>Under the present classification system, low-level waste includes dry trash; used equipment; and solidified and absorbed liquids, gases, and sludges. Items range from spent resins from ion-exchange processes, filter materials, lubricating oils, and contaminated tools, clothing, and packaging (all of which have relatively low levels of radioactivity); to sealed sources such as Cobalt 60 for radiation treatments; to irradiated reactor components such as in-core instrumentation and control rods (which typically have higher levels of radioactivity). Taylor Moore, "The Great State of Uncertainty in Low-Level Waste Disposal," The Electric Power Research Institute (EPRI) Journal, March 1985, p. 24.

<sup>2</sup>U.S. Department of Energy, *Spent Fuel and Radioactive Waste: Inventories, Projections and Characteristics*, DOE/RW-0006 (Washington, DC: September 1984).

<sup>4</sup>Steve Olson, "Nuclear Undertakers," *Science* 84, vol. 5, No. 7, September 1984, p. 57.

true costs of hazardous materials accidents are difficult to determine. A large number of incidents are not reported to OHMT, and the costs of those that appear to be greatly underestimated. Interstate carriers are required to report any spill except those of certain consumer goods and paints and batteries to DOT within 15 days, usually long before full costs are known. Typically, carriers report only their direct costs. The annual damage cost for incidents reported to OHMT from 1973 to 1983 was \$13 million. This figure is undoubtedly too low, perhaps by a factor of as much as 10,<sup>5</sup> if all costs associated with hazardous materials accidents are considered, including long-term cleanup costs.

Still, it is the risk of death and injury that causes the deepest concern. Hazardous materials accidents are often spectacular, although loss of life is relatively rare. No State or local official can erase the memory of an overturned load of explosives or tanker of chemicals in an area for which he or she is responsible. These experiences and the almost weekly news reports of a hazardous materials spill somewhere in the Nation, more than the official statistical record, drive the demand for strong enforcement of safety rules and improved emergency response capabilities.

<sup>5</sup>An OTA contractor studying accident report data has found that DOT damage reports are consistently low. For example, the National Transportation Safety Board (NTSB) listed damages of \$597,000 for a February 1978 rail accident; the DOT report of the accident listed damages of \$11,000. For a May 1983 rail hazardous materials accident,

NTSB records showed \$570,000 damages; DOT records did not show the accident at all.

Mark Abkowitz and George F. List, "Hazardous Materials Transportation: Commodity Flow and Information Systems," report prepared for U.S. Congress, Office of Technology Assessment, December 1985.

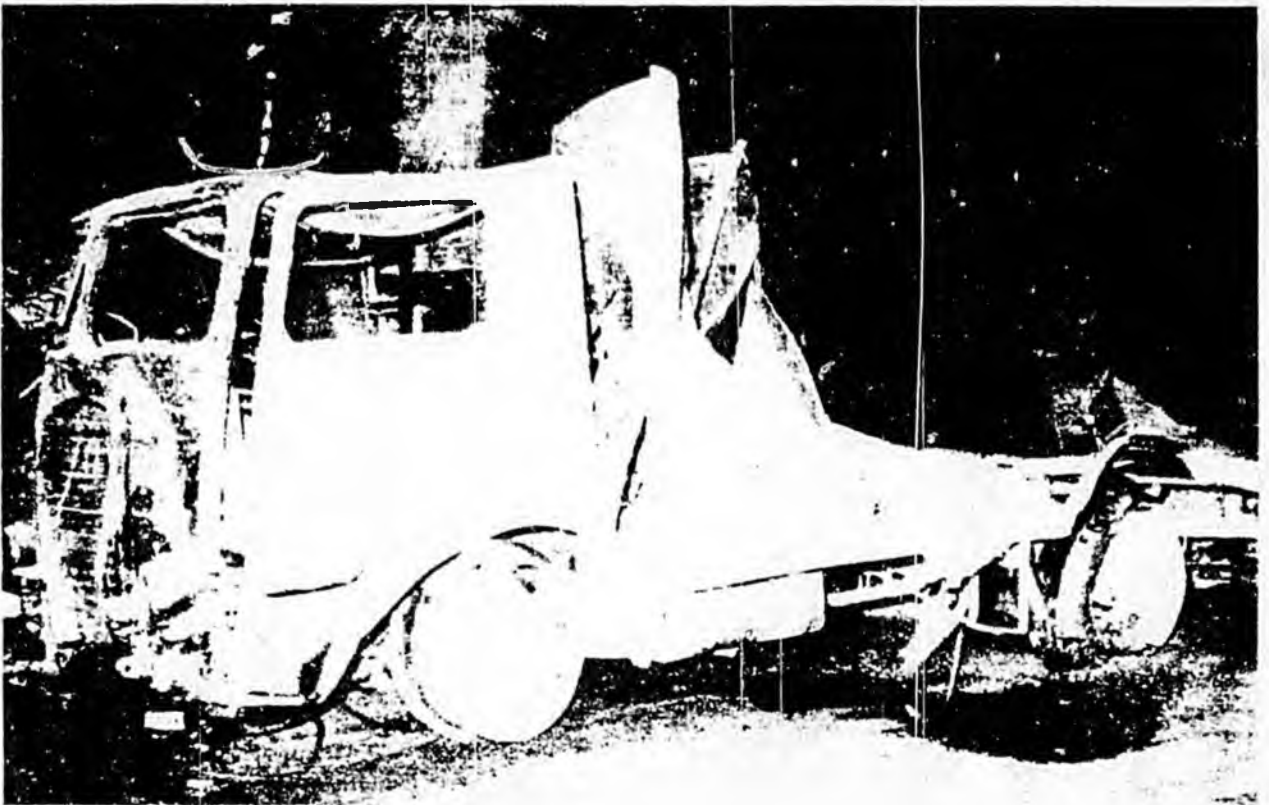


Photo credit: Research and Special Programs Administration, DOT

The remains of a truck that had been carrying chemicals, after an accident.

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## GOVERNMENT AND INDUSTRY ROLES

### Federal

The Federal Government has four roles with regard to hazardous materials transportation: regulation, enforcement, emergency response and planning, and data collection. Responsibility for these functions is distributed among numerous departments and agencies. The departments and agencies operate under a complex set of agreements and coordination procedures, with no single agency having sole responsibility or authority over all aspects of hazardous materials production, shipment preparation, and transportation. In some instances, jurisdictions overlap. In others, responsibility is assigned depending on the type of material involved, the mode of transport, or the nature of Federal regulation.

DOT is the designated lead agency for establishment and enforcement of regulations regarding safe transportation of hazardous materials. The DOT Research and Special Programs Administration (RSPA) has authority to issue regulations on most aspects of hazardous materials transportation containers. It must coordinate with the modal administrations, the Federal Highway Administration, the Federal Railroad Administration, the Federal Aviation Administration, the National Highway Traffic Safety Administration, and the U.S. Coast Guard, which have authority over the vehicles or vessels themselves. This intra-agency fragmentation notwithstanding, DOT as an agency is responsible for identification of hazardous materials, regulation of hazardous materials containers, handling and shipments, development of standards and testing procedures, inspection and enforcement, and data collection.

Another group of agencies—DOE, DOD, the Nuclear Regulatory Commission (NRC), and the Environmental Protection Agency (EPA)—has jurisdiction over other aspects of hazardous materials transportation. DOE is largely concerned with fuels; DOD, with materials used for military purposes. NRC has jurisdiction over high-level radioactive substances in the civil sector, while EPA has responsibilities for chemicals and hazardous nonnuclear wastes. These agencies also undertake training activities and safety awareness programs, and provide technical support for State and local governments.

The Federal Emergency Management Agency is responsible for coordinating Federal assistance, planning, and training activities for emergency response with State and local governments. The Departments of Justice and Labor also have designated responsibilities and areas of interest.

The data collection function similarly is spread among several Federal agencies. The various databases maintained by those agencies record accidents and spills and monitor compliance and sometimes carrier performance. OHMT is the principal agency collecting data on hazardous materials transportation spills, but every other Federal entity keeps records pertaining to its area of interest. There is no central clearinghouse to collect and analyze hazardous materials transportation information.

### State

The States mirror Federal functions and responsibilities to a degree, but the structure is by no means uniform or even comparable from State to State. Some States have extensive programs of regulation, enforcement, emergency planning, and training. In others, programs are still in a formative stage. The functions and activities listed in table 1-2 indicate the range and nature of State involvement, not the situation in every State. State programs, like their Federal counterparts, are characterized by a multiplicity and diversity of activities and areas of jurisdiction, complicated in many instances by differences between Federal and State agencies as to definitions of hazardous materials, regulatory requirements, transportation restrictions, and stringency of enforcement.

Regulatory activities are a major feature of many State programs. State regulations may require licensing or registration of hazardous materials transporters, imposition of fees and taxes (often as an extension of the licensing function), prenotification, and routing restrictions. States also maintain inspection and enforcement programs and may require special safety procedures.

Other important State functions are planning and training for emergency preparedness and response. Training is conducted in cooperation with local

**Table 1-2.—Hazardous Materials Assistance Commonly Available From State and Local Agencies**

<b>State:</b>	
<i>Civil Defense:</i>	Communications, coordination, evacuation, radiological monitoring.
<i>State Police:</i>	Traffic control, communications, evacuation.
<i>Environmental:</i>	Chemists, environmental scientist meteorologists, lab services, some equipment, knowledge of contractors.
<i>Public Works:</i>	Construction equipment and operators.
<i>Public Health:</i>	Health specialists.
<i>Agriculture:</i>	Pesticide and/or fertilizer experts.
<i>Fire Marshal or Fire Academy:</i>	Fire suppression advice.
<b>Local:</b>	
<i>Fire Department:</i>	Trained firefighters and specialized equipment for: 1) suppressing fires, 2) rescuing injured or trapped persons and 3) dealing with select hazardous materials.
<i>Public Works:</i>	Equipment and personnel to contain spills by digging trenches or constructing dikes. Can usually provide sand—an excellent sorbent for spilled hazardous materials.
<i>Police:</i>	Communications equipment and traffic/crime control at scene of spill.
<i>Civil Defense:</i>	Equipment for monitoring radioactivity. Will usually coordinate the response of various agencies.
<i>Public Health Agency:</i>	Advice on the chemical properties of the materials and human health effects.

SOURCE: U.S. Department of Transportation, Research and Special Programs Administrator, *Community Teamwork: Working Together to Promote Hazardous Materials Transportation Safety: A Guide for Local Officials*, May 1983, p. 58.

agencies and often with some technical assistance and financial support from the Federal Government and industry. Since States are also responsible for emergency programs, civil defense, police, fire, environmental, and public works agencies may all play roles in State hazardous materials activities, making program coordination difficult. In rural areas and small towns, State agencies may constitute the first response team.\* In metropolitan areas, local governments usually assume this function.

### Local

Diversity of function and concern also exists at the regional and local levels of government. Some major cities and metropolitan areas exercise regulatory, inspection, enforcement, and licensing functions akin to those of Federal and State agencies. Many have undertaken emergency planning and training activities, either on their own or with assistance from Federal and State hazardous materials offices. The most important and most nearly uni-

\*First responders are those agencies, such as police or fire, that are called initially when an accident involving hazardous materials occurs. They may be followed by State and local health authorities and environmental cleanup crews.

versal local function, however, is emergency response.

Almost 75 percent of the U.S. population lives in metropolitan areas, where the majority of hazardous materials are produced, transported, and used. Local fire and police departments constitute the first line of response in the event of a hazardous materials accident, and local hospitals and health officials bear the brunt of treating accident victims. Local resources are also the first used to prevent the spread of contamination or to evacuate the area around an accident site.

The diversity of local functions is equaled by a wide range of capabilities. Some locales have well-developed emergency plans, adequately trained and equipped response teams, and sufficient resources for hazardous materials containment and cleanup. Others, particularly small urban and rural jurisdictions, must rely on local fire and police departments that most often have little or no training or experience in dealing with hazardous materials.

### Industry

An important adjunct to Federal, State, and local government resources are the safety-related programs and capabilities of the industries that produce and transport hazardous materials. Some of the more than 50 national industry associations are made up of hazardous materials producers and users—e.g., the Chemical Manufacturers Association, the National Agricultural Chemicals Association, and the American Petroleum Institute. Others are transportation associations such as the American Trucking Associations, the American Waterways Operators, the Association of American Railroads, and the Air Transport Association.

Industry programs provide employee, client, and contractor training in the handling and transport of hazardous materials and in emergency response. Some industries maintain special response teams to aid State and local authorities at an accident site; others offer funding for training and equipping State and local first response teams. Industry associations and individual firms also contribute to State and local planning, prevention, and education efforts, either by underwriting part of the cost of such programs or by providing technical support. Voluntary standard setting in support of hazardous materials safety varies widely from company to company.

## ORGANIZATION AND SCOPE OF REPORT

This special report, which documents findings pertaining to State and local activities, is the outgrowth of an OTA workshop held on May 30, 1985, and a series of meetings between OTA and government, industry, and academic experts on hazardous materials. The workshop examined the results of OTA's initial research and literature review of State and local capabilities and activities in the areas of accident prevention and emergency response. The comments of workshop participants, supplemented by follow-up interviews and analysis of key points by OTA staff and an extensive review process, form the basis for the material and findings presented here.

Concerns of State and local governments about the transportation of hazardous materials focus on accident prevention and enforcement, emergency response, and collection of information to support planning for emergency preparedness. OTA found that while a hazardous materials accident in any mode of transportation will involve State and local public safety officers, highway and rail hazardous materials accidents tend to concern public officials the most. No other public organization, such as a port authority or the Coast Guard, is likely to be available to provide immediate assistance to State and local public safety personnel for either truck or rail accidents.

This report will emphasize truck transportation because it is of greatest concern to State and local officials. Trucks carry more hazardous materials than any other mode of transportation, and there are many more trucks than other vehicles or vessels carrying hazardous materials. Finally, trucks travel on public rights of way through every jurisdiction, mingling with other traffic and thus increasing spill and accident risks.

Three subjects are addressed in the chapters that follow:

- State prevention and enforcement programs;
- emergency response training, planning, and implementation; and
- information collection for State and local planning.

General findings are presented below. Detailed findings and supporting material are contained in each chapter. It should be noted that the findings presented in this special report will be considered in the context of Federal programs and other resources in a second OTA report to Congress, *Transportation of Hazardous Materials*. The second report will include policy options for consideration by Congress in 1986.

## GENERAL FINDINGS

Financial assistance for enforcement and response training and planning activities is needed by many localities. Potential sources of funds include Federal, State, or local assistance, cooperative programs with industry, and registration or user fees.

Movements of gasoline and petroleum products, by far the most frequently transported hazardous materials,\* account for more hazardous materials transportation accidents, injuries, and damage than transport of any of the other classified commodities. State and local enforcement, emergency response, and planning personnel should focus on this problem in cooperation with industry representatives. Attention should be given to developing additional safety measures and programs to pro-

more better awareness and training of drivers, handlers, and enforcement personnel. Generally, emergency response personnel are already trained to handle gasoline incidents.

State and local enforcement and emergency response personnel are dissatisfied with the information accompanying hazardous materials shipments. Placarding requirements should more accurately reflect the degree of hazard of the material, and shipping papers should include more information on the nature of the hazard posed and accident mitigation techniques.

### Prevention and Enforcement

National standards establishing uniform State hazardous materials requirements and regulations would simplify and improve compliance by shippers, carriers, and State and local enforcement

\*According to data provided by the American Petroleum Association and OTA calculations, these products comprise about 50 percent of total hazardous materials movements.

activities. State, regional, and local agency concerns as well as those of industry should be considered in formulating standards. The areas where uniformity is most needed are:

- **Licensing** to ensure that drivers and others handling hazardous materials are qualified and have been properly trained. Some form of a national truck driver's license is favored by many State, local, and industry officials.
- **Permit or registration requirements** to obtain information and collect fees in a coordinated manner that does not unduly burden transporters and ensures that money collected is used to meet related needs.
- **Shipment notification systems** that provide useful information for localities without unduly burdening carriers.

Penalties for regulatory violations, including failure to report hazardous materials incidents, should be consistent across governmental and jurisdictional levels and sufficiently large to discourage future infractions. An effective enforcement program requires that legislatures, enforcement agencies, and courts be aware of the death, injury, property damage, and environmental harm that could result from accidental release of hazardous materials and set penalties accordingly.

State and local enforcement personnel need additional training and current information on hazardous materials regulations for all modes of transportation. Methods used by the Federal Government to deliver this information to State and local officials need to be improved and strengthened. Programs to educate shippers and carriers on safety measures and regulatory compliance need strengthening as well.

### Emergency Response

An effective way to deliver hazardous materials training to first responders is the most pressing national need in emergency response. Many different and successful training programs exist, but they are not reaching sufficient numbers of first responders, especially in the smaller urban and rural areas. Moreover, some training programs are simply inadequate.

Maintaining existing response programs through refresher training and training of new personnel to fill vacancies created by turnovers in response teams is financially difficult for most jurisdictions.

National guidelines for different levels of training and national certification standards for responders are needed. Advanced hazardous materials training is appropriate for personnel in large jurisdictions, along major transportation corridors, or in States with heavy concentrations of hazardous materials industries. The numerous existing training programs need to be systematically examined and evaluated.

National equipment guidelines for emergency response are needed to assist response organizations in equipment selection.

When formulating hazardous materials emergency response plans, communities should consider formal, written mutual aid agreements with regional and adjacent local jurisdictions and Good Samaritan laws to protect first responders from liability when they respond to incidents for which they are not responsible.

### Planning and Data Collection

Improved data on hazardous materials storage and commodity flow is needed by State and local governments for analyzing accident prevention techniques such as routing and planning for emergency response. Federal databases pertaining to commodity flow are kept by a wide variety of Federal agencies, but the agencies do not use the same commodity identification codes, and the databases are not interactive. The data are not useful to State and local governments, some of which have undertaken data collection on their own. Data collection efforts would be improved by coordinating existing Federal data resources and providing State and local access to them. National guidelines on hazard assessment data collection for local government would also be valuable. In the absence of national legislation, right-to-know laws should be considered by jurisdictions. Such laws are an important aid in gathering information on the identities and associated hazards of the chemicals most likely to be encountered.

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A reliable, comprehensive Federal accident record system is essential. Current Federal efforts are too fragmented to be useful to State and local agencies, or to carriers, which could use the findings to develop or modify their own safety programs. Existing Federal databases that record data on accidents, violations, and shippers and carriers that do not comply with regulations would be more useful if they were interactive and were made accessible to State enforcement personnel. The SAFETYNET Program, being developed by the Federal Highway Administration, and the National Driver's License Registry, being developed by the National Highway Traffic Safety Administration, should help, but their full implementation is at least a decade away.

A more clearly defined and smoothly functioning Federal authority for hazardous materials transportation is needed. The current designation of DOT as lead agency and RSPA as lead group within DOT has not resulted in clear lines of authority or intermodal coordination for transporting hazardous and radioactive commodities and wastes. While a number of federally sponsored activ-

ities have made important contributions to the development of municipal and State programs, the absence of effective Federal program coordination means that jurisdictions have difficulty gaining access to available information, planning, and financial resources.

The lack of interagency coordination at the Federal level is often replicated at the State level, compounding the difficulties of regional and local jurisdictions.

Up-to-date technical information is needed for planning emergency response. Current toxicological, chemical, and health data should be compiled, updated regularly, and made accessible to planners and responders.

State and local officials are concerned about shipments of chemical weapons and explosives or radioactive materials by DOD and DOE. While these officials understand the need for secrecy about such shipments, they seek guarantees that Federal enforcement will be stronger and when an accident occurs, emergency response efforts will be adequate.



# Alaska State Legislature

Representative Niilo Koponen

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MEMO to Resource Committee Members

From Doug Yates/ staff to Koponen

4/30/86

RE: HB 673

Enclosed please find new additional supporting material on the need for legislation in this area. Sections of specific relevancy are highlighted for your convenience.

# Hazardous materials emergencies: response and control

**Sandra A. Barker, BSIT**  
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**E**MERGENCY MEDICAL services (EMS) personnel are often not prepared to adequately and safely respond to an emergency that involves a hazardous material. Much attention has been paid to the risks these materials pose to the community and its residents, by all levels of government and the private sector. However, most EMS providers have done little to protect themselves against the many dangerous materials they may encounter in rendering prehospital care. The *Code of Federal Regulations* (Title 49) defines these hazardous materials as any substance or material capable of posing an unreasonable risk to health, safety, and property.<sup>1-3</sup>

Major disasters involving these materials—such as the toxic release from the Union Carbide plant in India that killed more than 2,000 persons and other disasters of lesser magnitude—have gained the attention of local, state, and federal officials. Pending legislation, law suits, and stricter regulations, as well as more effective methods of enforcement are being considered as a result of such tragic events. In addition, industry's loss of credibility will be difficult to overcome.<sup>1-4</sup>

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Other incidents involving hazardous materials happen every day on railroads and highways, in industry and at home. The threat of acute exposure to these materials requires that certain precautions be implemented early in the incident.

Western life style has created a dependency on the tens of thousands of chemicals used every day. While these chemicals bring economic benefits to society they also pose a public safety problem. Swimming pools need chlorine to purify the water; farms and home gardens use various quantities and strengths of pesticides; motorists use gasoline; homes are heated by fuel or natural gas; industry uses various chemicals to manufacture products; and research and medical facilities use nuclear and chemical products to improve overall health conditions.

More than 70,000 chemicals are produced, and the number increases by 1,000 chemicals annually.<sup>1</sup> These materials are manufactured, stored, transported, and used in every community in the United States. The Chemical Manufacturers Association estimates that more than 250 million tons of chemicals are produced every year resulting in more than 90 million shipments of hazardous materials, which clearly demonstrates their importance to the nation's economy.<sup>5-6</sup> Most people would be surprised to know exactly how many dangerous materials are shipped every day by truck, air, ship, and rail through their community.

EMS response personnel and other public safety providers become at risk when they are dispatched to the incident that may result in fire or toxic threats, or trauma, as well as effects that may not be manifested for days or weeks. An incorrect action early in the incident can result in immediate death; dangerous chemicals carried to the emergency department can injure or kill hospital workers; and although the danger may not be immediate, long-term health hazards may result.

John Cashman, author of *Hazardous Materials Emergencies—Response and Control*, cites the following examples of EMS responses, some resulting in further consequences for the emergency department and its staff:

June 13, 1981, Lancaster, Pennsylvania. Two emergency medical technicians (EMTs) and a volunteer fireman died trying to save a young boy who had attempted to get a grass catcher he had dropped into an abandoned septic tank. The septic tank had been used for some time to dispose of grass clippings which decompose and produce methane gas. The first medic to enter the tank was overcome. The second medic wore an air pac and was able to secure a rope to the boy, but he removed his air pac to assist his partner and was also overcome. Two volunteer firefighters followed; one was also overcome while the other rescued the boy.

November 4, 1981, Castiac, California. When a degreasing agent leaked from a truck 58 persons were sent to the hospital with nausea and dizziness; 11 were admitted, including 3 hospital emergency department workers who breathed fumes from the patients while assisting in patient care.

January 26, 1982, San Diego, California. Three sailors died and seven were injured from exposure to freon gas. Six were crewmen, but the seventh was a naval hospital corpsman who became ill after administering mouth-to-mouth resuscitation to the injured.

December 17, 1980, San Diego, California. Rescuing three victims from a vehicle accident required a lengthy extrication. During the process, containers of pesticides thrown from the truck were discovered. Paramedics and victims of the accident suffered from delayed effects of pesticide poisoning.

### EMS IMPLICATIONS

Hazardous materials properly contained or controlled do not present a problem to EMS responders. However, when an accident occurs, hazardous materials containers may leak, rupture, or be punctured. Once this occurs the leaking substance, combined with the air, vapors, or other substances, can become unstable and very dangerous. For example, a derailed train carrying a variety of chemicals can pose a hazard to responders, residents, and essential community services. It may also contaminate the water supply making it unsafe for human consumption for an extended period of time. Decisions must be made ranging from initial response procedures to caring for the injured to evacuating everyone in the surrounding area. These decisions must be based on the identity of the chemical and its potential hazard to the safety of the responders, the injured, and the community residents. To be considered are questions of who should be notified, who is in charge, where patients will go, and certainly who will pay for services and damage.

Accidents of this magnitude attract a variety of agencies. In a report completed for the Federal Emergency Management Agency, 23 serious hazardous materials incidents were investigated. It was determined that at a typical rail accident as many as 260 officials from 17 different agencies may respond. EMS officials make up 14% of this response (Fig 1).<sup>1,5-6</sup>

This is a significant planning fact for the EMS system.

The local community relies on its public safety network to manage the incident until responsible agencies arrive and provide the necessary technical expertise. The majority of physical injuries are received in the first few minutes of the incident. However, the first responders are least likely to have the proper training. Although the majority of hazardous materials incidents are managed by the fire

chief, technical expertise is available from various agencies. This expertise may arrive in a timely fashion, but the local responders are quite alone for the initial minutes no matter what the magnitude of the event.

It is the response techniques required during the initial stages of an accident that the EMS personnel must address. Although the overall tactical responsibility for such an incident rests with the fire service or with the agency or person who holds jurisdictional authority for hazardous materials response, the fact remains that the first person to respond to the scene in many parts of the country may very well be an EMT. The EMT is relied on not only to provide patient care to the sick and wounded, but also to assist fellow responders should they be overcome or injured.

Without an overall awareness of the potential dangers, EMS personnel find it difficult to overcome the "rush-in" urge to provide patient care. At this point an EMT can quickly become part of the overall problem rather than an integral part of the solution, for the untrained are often the victims. A hazardous materials incident may pose the ultimate in danger for emergency services personnel.<sup>8-9</sup>

In an effort to provide the same standard of care as in "routine" emergencies, the predictable response is to rush in and render life-saving measures.<sup>9</sup> Without a defined, safe approach to a hazardous materials incident, injury and death may occur as well as unnecessary damage to personal property and the environment.

Informal interviews with over 150 fire and EMS officials throughout the nation revealed three major concerns: EMS personnel have not had educational exposure to the serious nature of some of the chemicals they may encounter; EMS personnel often have no protective clothing and self-contained breathing apparatus to protect themselves against dangerous chemicals, or the training to use them; EMS personnel have not been trained in the

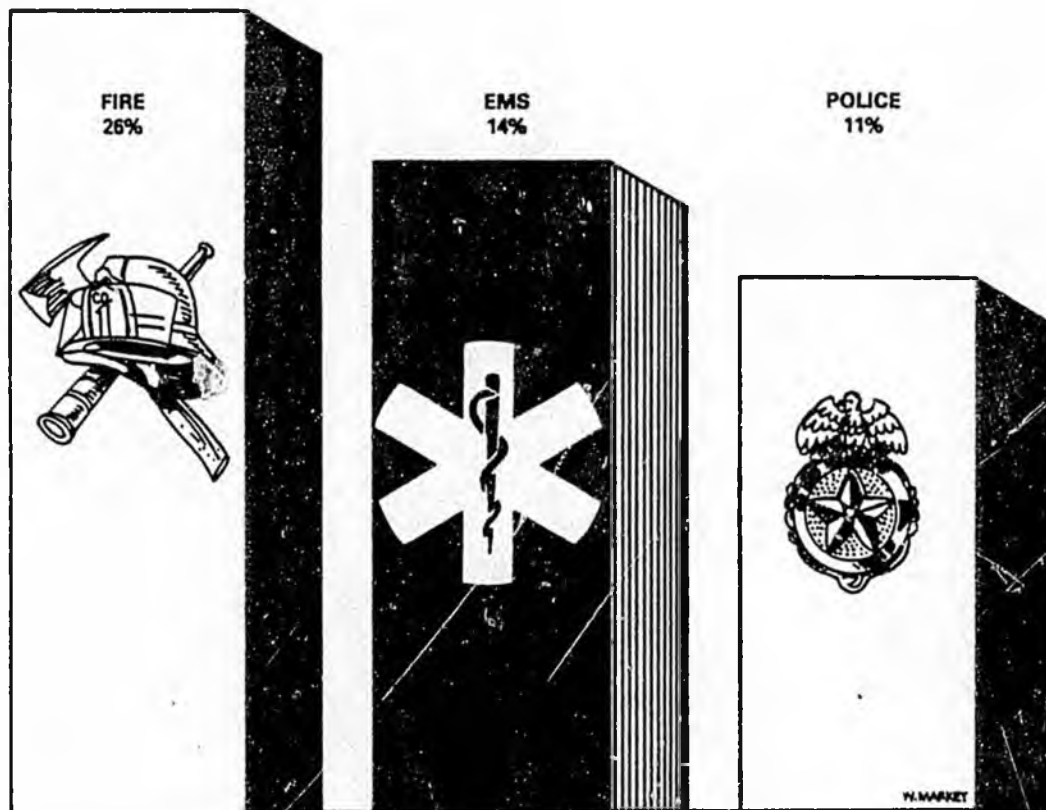


Fig 1. Responders to a hazardous materials incident at a typical rail accident.<sup>1,5,6</sup>

necessity and principles of contamination control and field decontamination. The validity of these concerns is evidenced in part by the previous examples.

#### UNDERSTANDING THE HAZARDS

The overall seriousness of the hazardous material problem is difficult to assess because of the lack of a uniform reporting system. However, this does not apply to the area dealing with transportation of these products because federal law requires that all accidents, leaks, or spills that occur during transportation of hazardous materials be reported to the Department of Transportation. A data bank has

been established by the Department of Energy's Transportation Technology Center at Sandia National Laboratories in New Mexico for incidents involving radiologic materials.<sup>1</sup>

One study revealed that between 1970 and 1983 there were 15,792 transportation accidents involving hazardous materials. These accidents caused 741 deaths, 11,866 injuries, and \$250 million in property damage.<sup>1</sup>

According to Department of Energy statistics for the 10-year period between 1970 and 1980, 101 radioactive materials accidents were reported. The many different types of radioactive materials shipped by the government were not included in these figures. Furthermore, of the 1,114 individual packages of radioactive material involved in the accidents,

**Table 1.** Reported hazardous materials incidents, 1971 to 1975<sup>1,5,6,11</sup>

Classification	No of reports	Percentage
Flammable liquid	16,406	51.27
Corrosive materials	10,672	33.33
Poisons, class B	2,026	6.32
Flammable compressed gas	718	2.24
Oxidizing material	644	2.01
Nonflammable compressed gas	535	1.67
Miscellaneous and unknown	472	1.47
Flammable solid	183	0.57
Radioactive material	144	0.45
Explosives	122	0.38
Combustible liquid	69	0.21
Poisons, class A	27	0.08
Total	32,018	100

58 were damaged, releasing radioactive material.<sup>10</sup> However, the records also indicate that although some injuries and deaths resulted from the incidents, all were from causes directly related to the accident itself and not to exposure to radioactive materials. Table 1 outlines the reported accidents by hazard class.<sup>1,5,6,11</sup>

The above figures reflect transportation accidents only. The Oak Ridge Associated Universities Radiation Assistance Center in Oak Ridge, Tennessee, maintains a radiation accident registry that monitors accidents, mostly in free world countries. Data from this registry indicate that between 1948 and 1983, 450 persons received doses of radiation considered to be serious—21 of these exposures were fatal. The registry also includes data on those exposed to fallout resulting from the 1954 atomic weapon testing near the Marshall Islands.<sup>1</sup> Nuclear weapons transported in various ways and the loss or theft of such a weapon also pose a radiologic threat. Response to these accidents, although highly controlled by the U.S. government for security reasons, may also present a radiation danger for a provider of emergency services. The significant factor in these studies is that no incident has been

reported in which EMTs or other responders have been injured by radiation.<sup>11-13</sup>

Other peacetime incidents involving radioactive materials can potentially affect emergency responders. There are 95 nuclear reactors in 35 states, either active or under construction.<sup>1,13</sup> Although a large amount of radiation is present, the radiation release possibilities are quite low. Communities and states involved have done considerable planning for such an occurrence and the industry itself is heavily regulated to protect the general population.

Teaching hospitals and universities use research and medical isotopes which have diagnostic and treatment functions. Radiopharmaceutical shipments, most often in packages containing low-level radiation, pose a potential threat of contamination to responders, equipment, and the emergency departments. Radioactive sources used in therapy for cancer treatment contain higher levels of radiation, but the probability of an incident involving them is much lower than that involving radiopharmaceuticals.<sup>1</sup>

Industrial uses of radioactive material involve many different isotopes used for different purposes, the most common being radi-

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ography. Radiography is an x-ray-like process used for quality assurance in production. The amount of radiation required to achieve this function is high and the accident and health hazard potential becomes more significant if the source is left out of its container and not shielded by dense metal. According to the Nuclear Regulatory Commission, more than 10,000 people work in more than 1,000 companies licensed to do radiography. The emotional issues resulting from a lack of understanding of radiation are key to the concern of emergency responders even though, according to the Federal Emergency Management Agency, accidents involving radioactive materials make up only 1/50 of the documented hazardous materials incidents.<sup>1,12</sup>

Dealing with hazardous materials requires that EMS personnel understand the potential dangers. Health effects are not always immediate and may not occur until hours or even days or weeks after the incident occurs. In adequate response procedures, freeing the patient of dangerous chemicals, or decontamination, carries with it the threat of exposing staff, patient, and visitors in the emergency department to those same dangers. Without knowing the nature of the material and its potential danger, the hazardous chemical effects may result in a fatal outcome for both victim and rescuer.

In dealing with a hazardous materials incident, early coordination is imperative. Carefully laid out plans and procedures must be addressed before the incident occurs.<sup>6,14-16</sup> Each emergency responder must be able to predict the response of other emergency workers. Management of this type of emergency must begin with the safety of the responder. EMTs must be able to detect what the hazard's capability is, and then determine the correct response alternatives. The hazardous material can be identified by its required placards, occupancy and location, container shape, markings and colors, or

shipping papers or labels. Placards may not present the hazard potential. In transportation accidents, for example, most dangerous substances must be placarded only if there are 1,000 lb or more.<sup>2</sup> However, less than 1,000 lb or a combination of many chemicals still poses a health hazard. In addition there are "gypsies," or transporters who ignore regulations; if a truck is not placarded, it does not mean that a dangerous chemical is not present. The fact is, there is no guarantee; however, the starting point is the shipping paper contained inside the cab if shipped by truck, but it may be difficult to reach without proper clothing. Lives may be endangered while trying to identify the hazardous material. However, all accidents involving trucks should be considered to involve hazardous materials until proven otherwise.

#### DECISION MAKING

A decision-making process must be taught to EMS personnel to assist them in evaluating and assessing the scene and choosing the appropriate alternatives (Fig 2). The question is: Under what circumstances does the EMT go in? Upon arrival, using binoculars from a safe distance is most important to identify or rule out any possibility of a hazardous substance before entering the scene. Once the substance is identified, the determination can be made whether to enter the scene. The type of material and the need for protective clothing for that particular material must be assessed before entering the scene.

Because of the vast number of chemicals in use, it is impossible for any responder to know specific patient care required. It is therefore most helpful to understand broad management principles, to be able to use appropriate reference books, and to establish medical control early in the incident.

In assessing the hazards when placarding or other identification means of the material are

available, the Department of Transportation Emergency Response Guide is a recommended reference for all responders. It should be carried in every emergency vehicle. This guide allows the EMT to identify the placard on the vehicle and outlines initial emergency actions based on the material involved. At this point the decision is made whether to go in or to wait. To assist the responder in reading the placard information it is helpful to carry binoculars in the vehicle so that the situation can be assessed initially from a safe distance. Once the material is identified, the information should be communicated to the dispatcher, who will have access to additional resources that will provide more complete information. Once the decision is made to enter the scene, normal safety considerations should be adhered to.

#### RESPONSE TO CHEMICAL EMERGENCIES

As outlined in Fig 2, a well-calculated decision must be made even to enter the scene.

Personal protective clothing should be worn as well as self-contained breathing apparatus if indicated for chemical emergencies. EMS personnel who have the training and proper clothing to enter the scene should do so on the "buddy system" with someone, appropriately clothed, ready to enter the scene if he or she needs help.<sup>3,14</sup>

Chemicals may cause additional complications to the patient's condition. However, triage is performed in the same manner as in other emergencies, using mechanical breathing aids as necessary.<sup>14,17</sup> After the primary assessment, life-saving emergency care should be given immediately, establishing medical control as soon as possible. The patient should then be removed from the area of the dangerous substance and decontaminated. After being disrobed, the patient should be washed with the appropriate solution. If water is used, or even passed into the "hot" or contaminated area, it should be contained to prevent further contamination. For example, water used to wash the patients can be con-

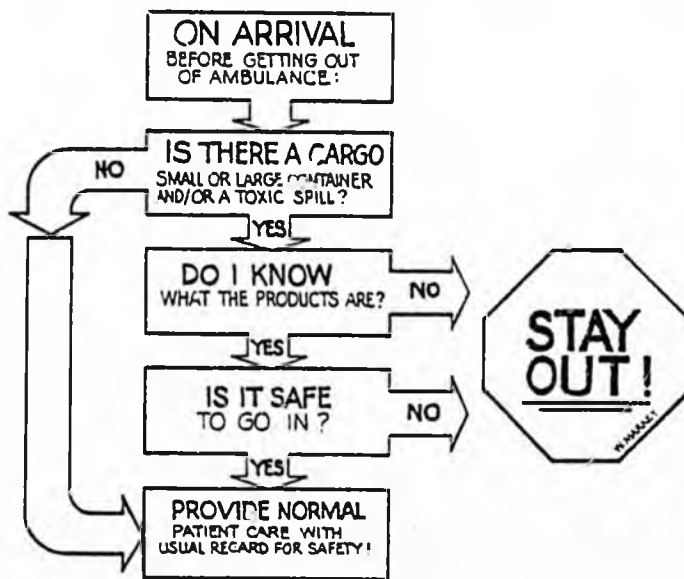


Fig 2. Decision tree for EMS responders.

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tained in a child's wading pool or in a tarpaulin supported by a partially charged line in a figure-eight pattern. All equipment and personnel in the "hot" area must undergo decontamination procedures as well.

After the patient is washed or decontaminated, he or she should be wrapped in a clean blanket and transferred into a "clean" area where additional medical care can be given.

If the patient does not require advanced life support, then a basic-level EMS unit should be used to transport the patient. All unnecessary equipment should be removed to facilitate decontamination and a timely return to service. Lining or draping the floor and walls of the ambulance may help clean-up later.

Notification that the patient has been exposed to a chemical must be given early in the incident. This will allow hospitals to gather the necessary information, and the physician responsible for medical control can be contacted for treatment decisions. The hospital emergency departments must also consider a separate entrance and treatment area to better control any contamination that may still be present. In addition, personal protective clothing is necessary for emergency department personnel.<sup>12</sup> Special holding tanks are necessary to contain decontamination solutions, and floor drains in this area should not be connected directly to the sewer system. The goal is to contain all contamination at the scene and keep the ambulance and the emergency department as "clean" as possible (Fig 3).

## RESPONSE TO A RADIATION ACCIDENT

As a result of the accident at Three Mile Island in 1979, opportunities for training medical responders to respond to an accident at a nuclear power plant have increased, particularly within the 10-mi emergency planning zone of a nuclear power plant. Participation in emergency preparedness exercises conducted by the utilities, as required by the Nuclear Regulatory Commission, has focused on an integrated community response to an unplanned event or release of a radioactive material. However, as with chemical emergencies, little training is brought to medical responders who may be present at an industrial accident, transportation accident, or medical or research facility accident.

The decision process presented earlier also applies to the radiation accident. Because some radioactive materials are combined with chemical substances, it is important that the EMT have this information before entering the scene.<sup>11-13,18</sup>

Once it is determined that the radiation is not combined with other harmful chemicals the primary mission of emergency medical responders is to provide life-saving care to the victims.<sup>12</sup> Once life-threatening injuries are attended to, the victim can be moved a safe distance from the radiation. Life-saving treatment should not be delayed in the attempt to decontaminate the victim.<sup>1,12,13</sup>

A victim may have been exposed to radiation but not contaminated. For example,

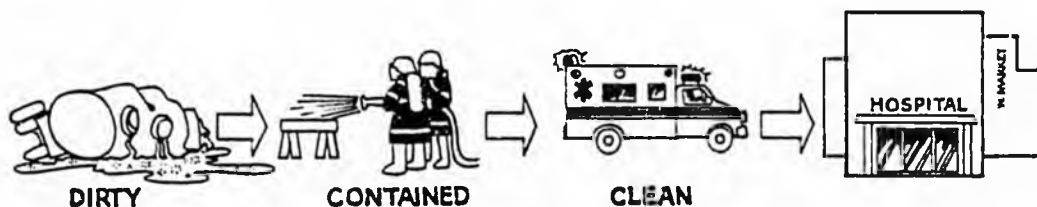


Fig 3. Response to a hazardous materials emergency.

exposure to radiation occurs when someone is near an unshielded gamma source such as is used in radiography. Occasionally at an accident scene, contamination occurs when radioactive particulate matter becomes airborne. If a radioactive material spills, it combines with dust; the dust may become airborne and contaminates anything or anyone it falls on.

As in chemical emergencies, full protective clothing should be worn to protect the rescuer from radioactive contamination. The protective clothing can easily be removed, aiding decontamination. However, it affords no pro-

tection against gamma radiation. For this reason, it is important to control the length of time of exposure and the distance from the radiation source, and to use any shielding available. Again, the first priority is the patient. Sound judgment should be used and emergency medical care rendered. If contamination is present or there is a threat of exposure to radiation, a "hot" zone should be established. The boxed information<sup>12</sup> outlines the recommended response for emergency medical personnel to radiation accidents.

#### Field Operation Protocols for Radiation Accidents<sup>12</sup>

1. Approach site with caution—look for evidence of hazardous materials.
2. If radiation hazard is suspected, position personnel, vehicles, and command post at a safe distance (200–300 feet) upwind of the site.
3. Notify proper authorities and hospital.
4. Put on protective gear and use dosimeters and survey meters if immediately available.
5. Determine the presence of injured victims.
6. Assist and treat life-threatening injuries immediately. Do not delay advanced life support if victims cannot be moved or to assess contamination status. Perform routine emergency care during extrication procedures.
7. Move victims away from the radiation hazard area, using proper patient transfer techniques to prevent further injury. Stay within the controlled zone if contamination is suspected.
8. Expose wounds and cover with sterile dressings.
9. Victims should be monitored at the control line for possible contamination only after they are medically stable. Radiation levels above background indicate the presence of contamination. Remove the contaminated accident victims' clothing.
10. Move the ambulance cot to the clean side of the control line and unfold a clean sheet or blanket over it. Place the victim on the covered cot and package for transport. Do not remove the victim from the backboard if one was used.
11. Package the victim by folding the stretcher sheet or blanket over and securing the victim in the appropriate manner.
12. Before leaving the controlled area, rescuers should remove protective gear at the control line. If possible, the victim should be transported by personnel who have not entered the controlled area. Ambulance personnel attending victims should wear gloves.
13. Transport victims to the hospital emergency department. The hospital should be given additional, appropriate information, and the ambulance crew should ask for any special instructions the hospital may have.
14. Follow the hospital's radiologic protocol upon arrival.
15. The ambulance and crew should not return to regular service until the crew, vehicle and equipment have undergone monitoring and necessary decontamination by the radiation safety officer.
16. Personnel should not eat, drink, smoke, etc. at the accident site, in the ambulance, or at the hospital until they have been released by the radiation safety officer.

10 **AN EMS SYSTEMS PROBLEM**

Local, county, and state EMS officials must address hazardous-materials response as a systems problem. Should EMS have a role and, if so, what measures must be implemented to help ensure a successful, safe response?

The decision tree for EMS personnel is one result of comprehensive planning. This protocol or guideline outlines a community's intended response. It clearly defines the decision process, basing actions—agreed on ahead of time—on the nature of the incident.

When several communities in New England were preparing for a hazardous materials exercise, response organizations held many meetings to determine just what individual agency roles would be. Would EMS units be involved in patient care during initial rescue operations? The decision was no, because of the lack of training and protective clothing. EMS responders would receive the patient after initial decontamination had been performed. Considered were the expense and storage of fully encapsulated suits on the emergency vehicle. This process helped all community leaders to address the issue of the danger faced by EMS personnel when responding to a vehicle accident where gasoline or other substances could cause fire. New procedures were implemented for routine calls as well until protective clothing could be purchased and provided to EMS responders.

The final decision made before the exercise was the definition and assignment of roles. The fire service would perform rescue and initial decontamination. EMS providers would receive the patient, establish medical control, and provide patient care before and during transport. Although this planning was done as an exercise, it clearly outlined the value of identifying roles and responsibilities ahead of time. Decisions were made and agreed on ahead of time, through comprehensive planning that outlined the communities' intended response.

Local communities must plan extensively to cope with a hazardous materials situation. Many community, state and federal agencies will respond to this type of incident and should be coordinated before the incident occurs. Hazardous materials planning requires a comprehensive approach to define the roles of all players.

As seen in Fig 4 a survey based on Department of Transportation<sup>1</sup> data from 1971 to 1983 shows that 54% of deaths and 19% of injuries were caused by flammable liquids. These figures represent all reported injuries. They become very significant for EMS because they are frequently responded to and often without protective clothing. When gasoline has been spilled during a vehicle accident, accepted procedure is for the fire department to wear full protective clothing.<sup>20</sup> Firefighters hold a charged line (water-pressurized hose) on the vehicle in case of fire. However, should a fire occur, analysis of past accidents shows that the recommended protective clothing effectively protects against flammability.

In many communities, EMS personnel participate in rescue operations without protective clothing and therefore stand a greater chance of injury than firefighters. No one suit can protect against all hazardous materials<sup>1-3</sup>; nevertheless, EMS personnel need protective clothing against toxic fires and explosions. Protection from the dangers of routine vehicle accidents must be integrated into the system at a minimum. Without this basic protection, rescue operations should be left to those best equipped and trained to handle them.

As the EMS systems address these problems the question will arise of whose responsibility it is to ensure that personal protective clothing is worn. This responsibility must be shared by everyone in the system. It is the service's responsibility to provide equipment appropriate for its planned response; it is the chief or EMS scene commander's responsibility to see

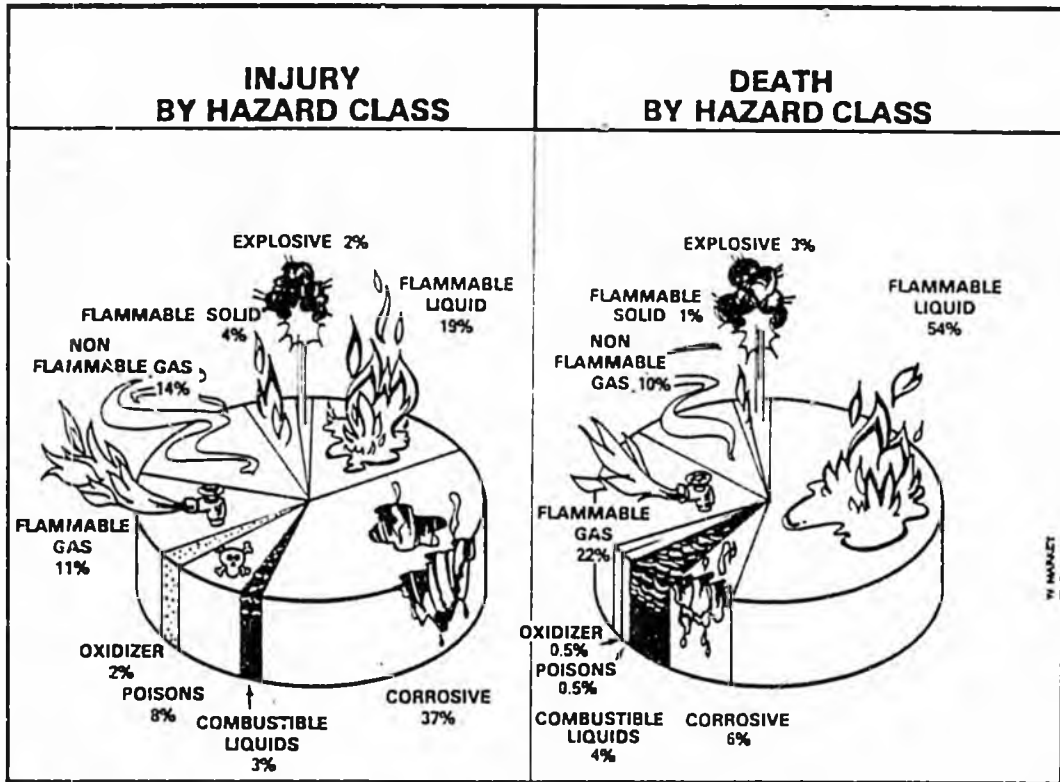


Fig 4. Percentages of deaths and injuries resulting from hazardous materials by classification of the material.

that the equipment is used; and it is the EMT's responsibility to wear it, get the required training, and keep it in good condition and use it as directed.

Training programs can be designed and provided for medical responders. At a minimum, training programs should focus on overall awareness, the necessity and use of personal protective clothing, and the use of the Department of Transportation's *Emergency Response Guide Book*. Overall awareness of the hazard is necessary to make the correct decisions that determine all future actions. A responder must have the necessary information to support the decision of choosing the right response procedures.

Because of the vast number of chemicals in use, it is practical to plan and train for the

chemicals that are most likely to exist in the particular community.<sup>1,15,16</sup> Valuable resources should not be committed until the hazard is analyzed. In states that have "right to know" legislation, industry is required to reveal the names of chemicals stored and used on the premises. The hazard is analyzed regularly by emergency program managers. If the local EMTs are participating in this activity, he or she would have first-hand knowledge of the hazardous materials likely to pose a threat to the community.

Training programs need not be expensive. Many volunteer providers are using the many resources available to them in the community, such as local industry representatives, spill response contractors, local and state health

12 departments and environmental agencies, colleges and universities, and fire services instructors.<sup>5,15</sup> The training can be conducted by modules addressing the specific concerns of a particular community. The fire service offers many courses for first responders in hazardous materials awareness. Although much of the information may be directed to the firefighter, EMS personnel can gain an appreciation and overall awareness of the importance of knowing the chemicals they are dealing with.

EMS professionals must also encourage active participation of the community hospitals in training and ensuring effective interactions between prehospital and hospital providers. Clearly defined patient care procedures must be established, trained for, and exercised. A community exercise of its hazardous materials plan is an ideal way to identify not only community deficiencies, but EMS system deficiencies that can hinder safe, effective patient care.

Prehospital care workers must identify what their role will be, and, as important, what is expected of them by the community. Once their role is defined and an analysis of the hazards completed, EMS providers can begin to assess the resources necessary to do the job safely and correctly. Training can then be directed toward this defined role; equipment purchases will be based on the need of the particular service in carrying out its community-assigned role.

• • •

EMS providers stand a greater chance of injury than firefighters because of lack of training and protective clothing. Not only is there a danger from toxicity of a chemical, but a routine auto accident poses a flammability hazard. Because of a lack of awareness of potential dangers and lack of protective clothing, EMS is

generally not equipped to handle such an emergency safely.

The radiologic materials accidents that must be responded to require the same level of awareness as chemical accidents. But radiation itself generally does not pose an immediate health hazard to responders or patients if not combined with other forms of hazardous materials.

In either case, careful protective measures should be implemented while rescuing and treating the victim. Contamination should be contained in a designated area. The hospital should be notified in advance and the patient transported to a medical facility. Although EMS personnel have a role in these situations also, they must clearly define that role based on their existing training and resources.

The New England Council for Emergency Medical Services (NECEMS) has found that an improper response on the part of a first responder can be the cause of a multicasualty or mass casualty incident. In 1974 the NECEMS implemented a registry of mass casualty incidents. A preliminary view of the first six months of data showed that of the reported mass casualty events that involved hazardous materials, none of the injured were community residents or bystanders; they were responders to the incident who may have been untrained and unprepared.

Present trends indicate increasing interaction between public safety personnel and dangerous hazardous materials. It is the responsibility of the EMS system to respond to these trends by incorporating the necessary training, resulting in an ability to determine what they can and cannot handle.

Community leaders should be made aware of the liability they may face if public safety agencies respond without the proper training or equipment. Communities become inured to the more frequent accidents such as multicasualty injuries on the highways; however, a

bizarre accident, such as deaths of either responders or residents caused by a hazardous material, raises a public outcry.<sup>21,22</sup>

Emergency response officials must have the support of community officials to provide public safety workers with the appropriate equipment and training to protect them from physical injury. These officials must have the same support to protect the community from the liability it may face if these workers are

"expected" to provide this level of response without proper training and equipment.

Planning is key—whether the hazardous material is chemical or radiologic. The planning process must include businesses or industries that are the source of the hazard, as well as those that must respond to the hazard.<sup>23-24</sup> Through this partnership and sharing of knowledge and expertise, a community can define for itself how it plans to deal with hazardous materials.

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**Fairbanks  
North  
Star  
Borough**

Mayor: Juanita Helms

March 11, 1986

The Honorable Niilo Koponen  
Alaska State Legislature  
Pouch V  
Juneau, AK 99811

Dear Representative <sup>Niilo</sup> ~~Koponen~~:

I am writing in support of House Bills No. 672 and No. 673, relating to the transportation of hazardous materials within and into municipalities. The passage of these bills would enable the Fairbanks North Star Borough to track the arrival and movement of such materials in our community. Such information would be of great benefit to emergency responders in the community, and would ultimately result in a significant improvement in their ability to protect public health and welfare from accidents involving these materials.

Our one recommendation for inclusion in these bills would be a definition under HB 672 for "service district" (referenced in Section 46.03.895(b)) to ensure that all appropriate emergency responders are notified in accordance with the proposed regulations.

The Fairbanks North Star Borough endorses these bills and would like to urge your support of these measures.

Sincerely,

A handwritten signature in cursive script that reads "Juanita".

Juanita Helms  
Borough Mayor

JH/pld



April 4, 1986

Representative Nilo Koponen  
Pouch V  
Juneau, Alaska 99811

Dear Representative Koponen,

The League of Women Voters of Alaska supports HB673, An Act relating to transportation of Hazardous Materials in municipalities. The League promotes energy-efficient and environmentally sound transportation systems that improve the well being of cities and other communities. HB673 creates a hazardous materials transportation system.

Hazardous materials are common place. Due to increased volumes being transported the League of Women Voters supports a program which allows emergency response teams to know what hazardous materials are on the scene of an accident, to identify the safest routes for hazardous material transport and to monitor amounts and kinds of hazardous materials withing the governmental entity at any given moment.

If hazardous materials are released into the environment by accident they immediately are classified as a hazardous waste. The League of Women Voters takes strong action to ensure the safe treatment, storage and disposal of all hazardous wastes. Costs of a hazardous waste spill are minimized when appropriate response is taken to contain and minimize exposure to hazardous waste. HB673 enables emergency preparedness.

HB673 allows the Municipalities the latitude to protect the wellbeing of citizens and minimize potential damage to the health and the environment within a community.

Sincerely,

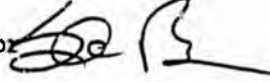
Mary Core  
Chairperson, Natural Resource Portfolio

*Alaska*  
**MUNICIPAL**  
*League*

TELEPHONE  
(907) 586-1325

105 MUNICIPAL WAY, SUITE 301  
JUNEAU, ALASKA 99801

TO: Representative Peter Goll, Chairman  
Members of the House Community and Regional Affairs Committee

FROM: Scott A. Burgess, Executive Director 

DATE: March 24, 1986

SUBJECT: HB 673 - Transportation of Hazardous Substances in  
Municipalities

Attached is Alaska Municipal League Resolution #86-09 in support of the State giving municipalities additional authority to develop and enforce a community right-to-know program for hazardous materials handled, stored, transported, used, processed and disposed of in their communities. Based on this resolution, the League supports HB 673. The legislation authorizes, but does not require, action by municipalities who have a problem and the resources to carry out a community right-to-know program.

This legislation, if passed, along with several other pieces of legislation before the Legislature dealing with other aspects of the hazardous waste issue, will enable the State and the municipalities to better address the threat posed by hazardous substances in our communities and in Alaska.

On a related issue, I have also attached a copy of AML Resolution #86-05.

Again, the League supports HB 673. Thank you.

RESOLUTION OF THE ALASKA MUNICIPAL LEAGUE

RESOLUTION NO. 86-09

A RESOLUTION SUPPORTING STATEWIDE  
HAZARDOUS MATERIAL DISCLOSURE LEGISLATION.

WHEREAS, the handling, storage, transportation, use, processing, and disposal of hazardous materials and hazardous waste occurs in all communities in Alaska, and

WHEREAS, the potential impacts of accidents associated with hazardous materials and hazardous wastes can have devastating impacts on the public health and the environment, and

WHEREAS, knowledge of the types of hazardous materials and hazardous wastes are critical and central to a community's ability to recognize potentially dangerous situations, and

WHEREAS, firefighters, police officers and other public safety and medical professionals often lack the information necessary to respond quickly and safely to emergencies involving hazardous materials and hazardous waste, and

WHEREAS, the public has the right to know what hazardous materials and hazardous wastes are in their community;

NOW, THEREFORE, BE IT RESOLVED that the Alaska Municipal League supports the adoption of state enabling legislation to allow local governments to establish a Hazardous Materials Disclosure (Community Right-to-know) Program. Such a Hazardous Materials Disclosure law should address minimum program requirements for a municipality, including:

- a. Notification
- b. Placarding
- c. Transportation Routing
- d. Transportation requirements for selected materials
- e. Emergency Coordination Procedures


BE IT FURTHER RESOLVED that the Alaska Municipal League requests the Alaska Department of Environmental Conservation to work with the Statewide Task Force on Hazardous Materials to develop an equitable allocation of costs by municipal contributions, user fees, etc., by March 1, 1986.

Adopted this 16th day of November 1985.



LEO B. RASMUSSEN, President

ATTEST:



SCOTT A. BURGESS, Executive Director

"Freight container" means a reusable container having a volume of 64 cubic feet or more, designed and constructed to permit being lifted with its contents intact and intended primarily for containment of packages (in unit form) during transportation.

"Fuel tank" means a tank other than a cargo tank, used to transport flammable or combustible liquid, or compressed gas for the purpose of supplying fuel for propulsion of the transport vehicle to which it is attached, or for the operation of other equipment on the transport vehicle.

"Gross weight" means the weight of a packaging plus the weight of its contents.

"Hazardous material" means a substance or material which has been determined by the Secretary of Transportation to be capable of posing an unreasonable risk to health, safety, and property when transported in commerce, and which has been so designated.

"Hazardous substance", for the purposes of this subchapter, means a material, and its mixtures or solutions, that is identified by the letter "E" in Column 1 of the Table to § 172.101 when offered for transportation in one package, or in one transport vehicle if not packaged, and when the quantity of the material therein equals or exceeds the reportable quantity (RQ). This definition does not apply to petroleum products that are lubricants or fuels; or to a mixture or solution containing a material identified by the letter "E" in Column 1 of the Table to § 172.101 if it is in a concentration less than that shown in the following table based on the reportable quantity (RQ) specified for the materials in Column 2 of the Table to § 172.101:

RQ pounds	RQ kilograms	Concentration by weight	
		Percent	Ppm
5000	2270	10	100,000
1000	454	20	20,000
100	45.4	0.2	2,000
10	4.54	0.02	200
1	0.45	0.002	20

"Hazardous waste", for the purposes of this subchapter, means any material that is subject to the hazardous

waste manifest requirements of the EPA specified in 40 CFR Part 262 or would be subject to these requirements absent an interim authorization to a state under 40 CFR Part 123, Subpart F.

"Hermetically sealed" means closed by fusion, gasketing, crimping, or equivalent means so that no gas or vapor can enter or escape.

"IAEA" means International Atomic Energy Agency.

"IATA" means International Air Transport Association.

"ICAO" means International Civil Aviation Organization.

"IM Tank Table" means the table (with preface) listing hazardous materials approved by the Associate Director of HMR for carriage in IM portable tanks under special conditions specified therein.

"IMO" means International Maritime Organization.

"Intermodal container" means a freight container designed and constructed to permit it to be used interchangeably in two or more modes of transport.

"Intermodal portable tank" or "IM portable tank" means a specific class of portable tanks designed primarily for international intermodal use.

"Irritating material" See § 173.381.

"Limited quantity," when specified as such in a section applicable to a particular material, with the exception of Poison B materials, means the maximum amount of a hazardous material for which there is a specific labeling and packaging exception.

"Magnetic materials" See § 173.1020.

"Magazine vessel" means a vessel used for the receiving, storing, or dispensing of explosives.

"Marking" means applying the descriptive name, instructions, cautions, weight, or specification marks or combination thereof required by this subchapter to be placed upon outside containers of hazardous materials.

"Mixture" means a material composed of more than one chemical compound or element.

"Mode" means any of the following transportation methods; rail, highway, air, or water.

"Motor vehicle" includes a vehicle, machine, tractor, trailer, or semi-

trailer, or any combination thereof, propelled or drawn by mechanical power and used upon the highways in the transportation of passengers or property. It does not include a vehicle, locomotive, or car operated exclusively on a rail or rails, or a trolley bus operated by electric power derived from a fixed overhead wire, furnishing local passenger transportation similar to street-railway service.

"MTB" means the Materials Transportation Bureau, U.S. Department of Transportation, Washington, D.C. 20590.

"Name of contents" means the proper shipping name as specified in § 172.101 or § 172.102 (when authorized).

"Navigable waters" means, for the purposes of this subchapter, waters of the United States, including the territorial seas.

"Net weight" means a measure of weight referring only to the contents of a package, and does not include the weight of any packaging material.

"N.O.S." means not otherwise specified.

"NPT" means an American Standard taper pipe thread in compliance with the requirements of Federal Standard H28, Part II, Section VII. See § 171.7(d)(12).

"NRC (non-reusable container)" means a container whose reuse is restricted in accordance with the provisions of § 173.28.

"Occupied caboose" means a rail car being used to transport non-passenger personnel.

"Officer in Charge, Marine Inspection" means a person from the civilian or military branch of the Coast Guard designated as such by the Commandant and who under the supervisor and direction of the Coast Guard District Commander is in charge of a designated inspection zone for the performance of duties with respect to the enforcement and administration of Title 52, Revised Statutes, acts amendatory thereof or supplemental thereto, rules and regulations thereunder, and the inspection required thereby.

"Operator" means a person who controls the use of an aircraft, vessel, or vehicle.

"Organic peroxide" See § 173.15