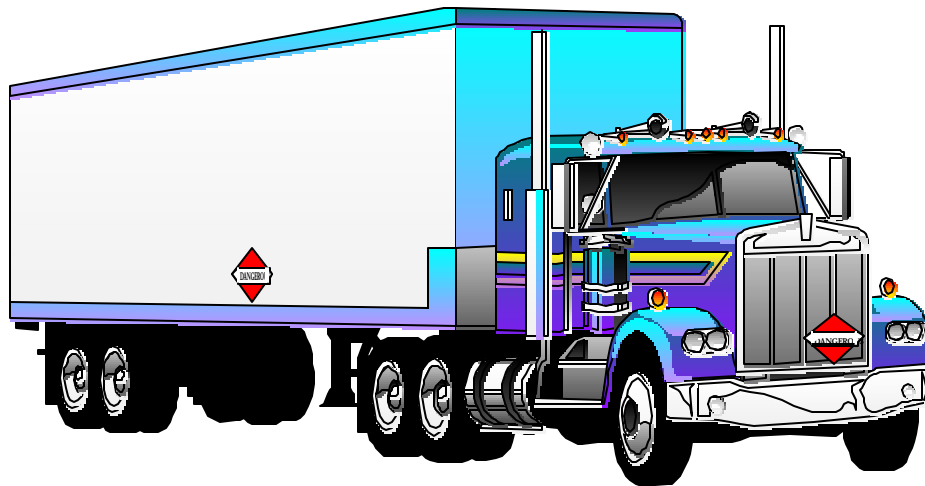

Hazardous Materials Truck Survey

Montgomery & Greene Counties, Ohio



April, 1995

Montgomery/Greene County Local Emergency Response Council
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INTRODUCTION

Movement of goods by truck has become an increasingly vital part of keeping the national economy in good working order. Affected in part by changes in business methods such as on-time delivery, abandonment of many railroads, the completion of the interstate highway network, and by improvements to other nationally and regionally important highways, long distance and regional truck shipments have increased tremendously over the last 20 years. This trend is expected to continue. The American Trucking Association estimated at its 1993 Freight Planning Conference the United States will experience a 25% increase in intercity truck freight tonnage and a 24% increase in overall truck freight tonnage between 1992 and 2000.

Many hazardous materials are shipped by truck. With the overall increase projected in truck shipments, it can be assumed that an increased amount of hazardous materials will also be shipped over the highways each year. Accidents involving hazardous materials can and do occur. This study is a beginning step toward determining the type and frequency of hazardous material shipments being transported by truck on area roadways within Montgomery and Greene Counties.

The Montgomery/Greene County Local Emergency Response Council (MGCLERC) is responsible for hazardous materials emergency response planning within Montgomery and Greene Counties. The Miami Valley Regional Planning Commission (MVRPC) is the metropolitan planning organization (MPO) responsible for overall transportation planning within Montgomery, Greene, and Miami Counties, including monitoring traffic volumes on the road network. This study was undertaken by MVRPC for MGCLERC with the aid of a grant from the Hazardous Materials Transportation Act (HMTA) to the MGCLERC.

PLACARD REQUIREMENTS

The Hazardous Materials Regulations of the Department of Transportation (DOT) require placarding of trucks and trailers carrying hazardous materials. Hazardous materials must be identified on shipping papers regardless of the quantity shipped. Trucks must be marked on front, rear, and both sides with the hazard name at least four inches tall. Explosives, extremely toxic materials, and high-strength radioactives in any amount must be marked, along with highly toxic, flammable and oxidizing materials, corrosive liquids, and both flammable and non-flammable compressed gases in quantities of 1,000 pounds or more. A bill of lading indicating mixed hazards totaling more than 1,000 pounds carries a “**DANGEROUS**” marking, and is marked as well for explosives, extremely toxic, and high strength radioactive materials when they are present. Other than for radioactive materials, a multiple-hazard material is marked only with the name of the most severe hazard present. However, a vehicle or bulk container carrying materials of various hazard classes must be marked with all applicable placards.

METHOD OF SURVEY

The hazardous material (Haz/Mat) truck survey was conducted between the hours of 8:00 a.m. and 4:00 p.m. on three separate days in October 1994. Due to limited funding, the survey was restricted to ten locations on four of the six major freeways within the Montgomery/Greene Emergency Planning District. The freeways surveyed included Interstate Route 70, Interstate Route 75, Interstate Route 675, and US Route 35. The locations of the survey points are shown in Figure 1. Two major factors contributing to the choice of locations was the availability of a pedestrian-safe area on a bridge over the freeway and the availability of necessary services for the comfort of the survey personnel. Interstate Route 71 was excluded because the four miles of it within the planning district is located in the extreme southeastern corner and traverses a very sparsely populated farming area. State Route 4 was excluded due to the lack of a pedestrian-safe area on either of its two bridge overpasses.

Four members of the survey team were stationed at each location and recorded the following information for each direction of travel:

- ! Total number of trucks observed
- ! Total number of trucks observed with hazardous materials placards
- ! Placard types and numbers

Placards were recorded according to the number or word seen on the placard. A truck with multiple placards was recorded as a single observation, although each placard number or word was recorded in order to characterize the mixed shipment. The data were recorded in 15-minute intervals in order to allow analysis by time as well as location. For the purposes of this particular report, analysis will be limited to the 8-hour total.

Due to limited funding, this study did not attempt to determine the accuracy of the placarding of the trucks observed. Information on placarding violations can be obtained from the Public Utilities Commission of Ohio (PUCO), the agency responsible for enforcement of placarding rules for transportation vessels.

OVERALL SURVEY RESULTS

The findings of the survey are summarized in Table 1. This table lists the following information by survey location and freeway direction:

- ! Total number of trucks observed during the 8-hour period
- ! Total number of trucks with Haz/Mat placards
- ! Haz/Mat trucks as a percent of all trucks
- ! Most frequent placard observations

**TABLE 1
SUMMARY OF TRUCK SURVEY RESULTS FOR EACH LOCATION**

LOCATION	TRUCKS OBSERVED 8-HOUR PERIOD	HAZ/MAT TRUCKS OBSERVED 8-HOUR PERIOD	HAZ/MAT PERCENT OF ALL TRUCKS	MOST FREQUENTLY OBSERVED PLACARD*	NUMBER OF OBSERVATIONS OF MOST FREQUENT PLACARD
I-75 NB	2,523	109	4.3	1203	15
I-75 SB	2,585	112	4.3	1203	14
NB OFF RAMP	274	27	9.9	1863	17
NB ON RAMP	44	2	4.5	(1)	1
SB OFF RAMP	25	0	0.0	NONE	0
SB ON RAMP	246	24	9.8	1863	15
I-75 @ NORTHWOODS BOULEVARD	5,697	274	4.8	1203	40
I-75 NB	3,143	204	6.5	1203	47
I-75 SB	3,111	185	5.9	1203	43
I-75 @ TIMBER LANE	6,254	389	6.2	1203	90
I-75 NB	2,445	170	7.0	1203	54
I-75 SB	2,841	168	5.9	1203	56
I-75 @ SELLARS ROAD	5,286	338	6.4	1203	110
I-75 NB	3,302	227	6.9	1203	68
I-75 SB	3,089	194	6.3	1203	93
I-75 @ AUSTIN ROAD	6,391	421	6.6	1203	161
I-70 EB	2,640	109	4.1	1203	15
I-70 WB	2,905	129	4.4	1203	20
I-70 @ CRESTWAY DRIVE	5,545	238	4.3	1203	35
I-70 EB	2,798	94	3.4	1987	21
I-70 WB	2,819	99	3.5	1987	17
I-70 @ BELLEFONTAINE ROAD	5,617	193	3.4	1987	38
I-675 NB	970	39	4.0	1203	13
I-675 SB	906	30	3.3	1203	10
I-675 @ McEWEN ROAD	1,876	69	3.7	1203	23
I-675 NB	849	25	2.9	CORROSIVE	6
I-675 SB	788	24	3.0	9259	10
NB ON RAMP FROM US-35	272	6	2.2	1203	3
SB OFF RAMP TO US-35 EB	73	0	0.0	NONE	0
SB OFF RAMP TO US-35 WB	182	1	0.5	1203	1
I-675 @ LYNDELL/HONEYLOCUST PED. BRIDGE	2,164	56	2.6	9259	10
US-35 EB	1,088	37	3.4	1863	15
US-35 WB	1,256	41	3.3	1203	12
US-35 @ BURNS/JACKSON PED. BRIDGE	2,344	78	3.3	1203	22
US-35 EB	373	40	10.7	1863	17
US-35 WB	424	47	11.1	1863	16
US-35 @ UNION ROAD	797	87	10.9	1863	33

* See Appendix B for description of placard ID.

(1) Flammable Gas/Nonflammable Gas and Flammable Solid were each observed once.

Source: Survey conducted by MVRPC and MGCLERC - October, 1994.

A total of 213 different types of placards or placard combinations were observed at the ten survey locations. Appendix A contains a complete listing of the types and numbers of placards observed at each survey location by direction of travel and provides sum totals for all locations. Appendix B is a key which identifies the substances associated with the most frequently observed placards. Information on additional placard numbers or types can be obtained from the U.S. Department of Transportation Emergency Response Guidebook.

As shown in Table 2, over half of the different types of placards or placard combinations were observed only once during the survey period. As a group, they represented 5.5% of the total placard observations. An additional one-third of the placard types were observed 2-9 times. Only nine placard types were observed more than 50 times, and of those, only four were observed more than 100 times each. The four placard types observed more than 100 times accounted for approximately 45% of all observed placards. The study shows a wide variety of hazardous material shipments on area freeways, but only a few types of such shipments are made with a very high frequency. The primary focus of local hazardous materials response planning should be on the types of shipments with higher frequencies. Area fire, law enforcement, and medical responders should, however, be made aware of the wide variety in the types shipments on our freeway system.

MOST FREQUENTLY OBSERVED PLACARD TYPES

Figure 2 shows the ten most frequently observed placard types during the course of the study. These hazardous materials constituted just under two-thirds (63.8%) of all observations, and were among the most common at all locations. This section discusses these hazardous materials.

Table 3 lists the most frequently observed placards during the survey period. The numbers are shown as a total for each survey location and as a total for each direction of travel.

Placard #**1203** (Motor Fuel) was the most frequently observed placard overall and at eight of the ten locations. The 534 observations of placard #1203 were approximately 25% of all observations. Shipments related to Ohio River terminals in Cincinnati and refineries in Lima and Findlay probably contributed to the total. The most common motor fuel shipment, however, is assumed to be regional distribution from bulk terminals in northeast Dayton and in the Cincinnati area to the numerous filling stations in the area. Higher numbers of placard #1203 were observed along each of the I-75 survey locations and the highest numbers occurred at the locations furthest to the south.

Placard "**FLAMMABLE**" was the second most frequently observed placard overall, with 154 observations. This placard was observed most frequently at the two locations on I-70 and at Sellars Road on I-75. It represents a mixed load of flammable materials with a total quantity of more than 1,000 pounds, rather than a bulk shipment of a particular material.

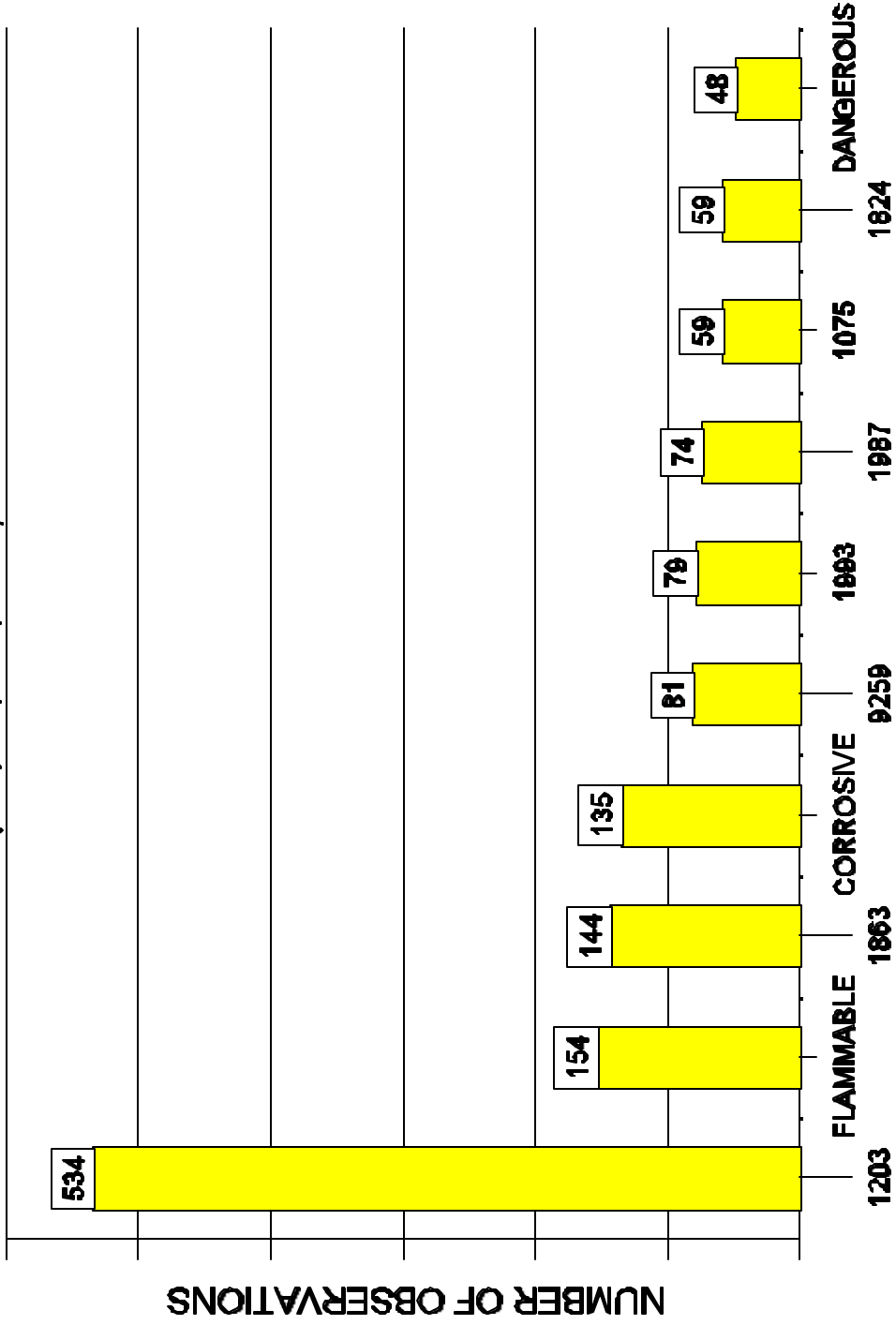
TABLE 2
DISTRIBUTION OF PLACARD TYPES BY OBSERVATION FREQUENCY
OVERALL AND BY EACH LOCATION

	NUMBER OF TIMES OBSERVED								
	1	2	3-4	5-9	10-19	20-49	50-99	100+	TOTAL*
NORTHWOODS BOULEVARD									
Number of Placard Types	41	3	8	8	4	2	0	0	66
Percent of Placard Types	61.2	4.5	11.9	13.4	6.0	3.0	0.0	0.0	100.0
Percent of All Observations	15.0	2.2	9.5	19.7	23.0	28.1	0.0	0.0	97.5
TIMBER LANE									
Number of Placard Types	28	9	6	8	6	3	1	0	61
Percent of Placard Types	45.9	11.5	9.8	13.1	9.8	4.9	1.6	0.0	100.0
Percent of All Observations	7.2	4.6	5.4	13.1	20.6	20.0	23.1	0.0	94.0
SELLARS ROAD									
Number of Placard Types	55	11	3	7	4	1	0	1	78
Percent of Placard Types	67.9	13.8	3.8	9.0	5.1	1.3	0.0	1.3	100.0
Percent of All Observations	16.3	4.1	3.0	12.4	15.4	9.2	0.0	32.5	92.9
AUSTIN ROAD									
Number of Placard Types	48	7	9	2	6	3	0	1	80
Percent of Placard Types	60.0	13.0	11.3	2.5	7.5	3.8	0.0	1.3	100.0
Percent of All Observations	11.4	5.2	6.9	2.4	16.9	17.3	0.0	38.2	98.3
CRESTWAY DRIVE									
Number of Placard Types	40	7	11	3	0	4	0	0	65
Percent of Placard Types	61.5	10.8	16.9	4.6	0.0	6.2	0.0	0.0	100.0
Percent of All Observations	16.8	5.9	16.8	9.2	0.0	48.3	0.0	0.0	97.0
BELLEFONTAINE ROAD									
Number of Placard Types	29	9	7	6	1	2	0	0	54
Percent of Placard Types	53.7	16.7	13.0	11.1	1.9	3.7	0.0	0.0	100.0
Percent of All Observations	15.0	9.3	11.9	19.2	7.8	33.7	0.0	0.0	96.9
MCEWEN ROAD									
Number of Placard Types	6	2	5	1	1	1	0	0	16
Percent of Placard Types	37.5	12.5	31.3	6.3	6.3	6.3	0.0	0.0	100.0
Percent of All Observations	8.7	5.8	26.0	8.7	15.9	33.3	0.0	0.0	98.4
LYNDELL DRIVE PED.BRIDGE									
Number of Placard Types	7	2	2	1	2	0	0	0	14
Percent of Placard Types	50.0	14.3	14.3	7.1	14.3	0.0	0.0	0.0	100.0
Percent of All Observations	12.5	7.1	10.7	16.0	53.6	0.0	0.0	0.0	99.9
BURNS/JACKSON PED. BRIDGE									
Number of Placard Types	16	1	2	3	1	1	0	0	24
Percent of Placard Types	66.7	4.2	8.3	12.5	4.2	4.2	0.0	0.0	100.0
Percent of All Observations	20.5	2.6	7.7	19.2	20.5	28.2	0.0	0.0	98.7
UNION ROAD									
Number of Placard Types	5	5	1	1	0	2	0	0	14
Percent of Placard Types	35.7	35.7	7.1	7.1	0.0	14.3	0.0	0.0	100.0
Percent of All Observations	5.7	11.5	4.6	5.7	0.0	71.3	0.0	0.0	98.8
OVERALL									
Number of Placard Types	118	30	22	16	10	8	5	4	213
Percent of Placard Types	55.4	14.1	10.3	7.5	4.7	3.8	2.3	1.9	100.0
Percent of All Observations	5.5	2.8	3.5	5.2	6.3	11.5	16.4	45.1	96.3

*Total for "Percent of All Observations" column does not equal 100% due to omission of "Unknown/Unidentified" category.
Source: Survey conducted by MVRPC and MGCLERC - October, 1994.

FIGURE 2 - TOP TEN OBSERVED PLACARDS OVERALL

(I-75, I-70, I-675, US-35)



Note: Due to multiple count locations on freeways, some placarded trucks traveling through the region were counted at more than one location.
 This chart indicates the most frequently observed placards overall and is not a truck count, per se.
 Source: Survey conducted by MVRPC and MGCLERC - October, 1994.

**TABLE 3
MOST FREQUENTLY OBSERVED PLACARDS BY FREEWAY LOCATION**

LOCATION	1203	FLAM*	1863	CORR*	9259	1993	1987	1075	1824	DANG*	1073	1263	F/N GAS*	1977
I-75 NB	15	9	3	8	5	10	0	2	3	1	4	2	1	4
I-75 SB	14	6	2	10	6	8	0	3	1	2	2	2	2	3
NB OFF RAMP	7	0	17	0	0	0	0	1	0	0	0	0	1	0
NB ON RAMP	0	0	0	0	0	0	0	0	0	0	0	0	1	0
SB OFF RAMP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
SB ON RAMP	4	1	15	0	0	0	0	1	0	0	0	0	1	0
I-75 @ NORTHWOODS BOULEVARD	40	16	37	18	11	18	0	7	4	3	6	4	6	7
I-75 NB	47	6	15	14	10	10	4	6	12	2	4	4	3	6
I-75 SB	43	15	17	11	6	6	3	5	2	10	1	4	6	6
I-75 @ TIMBER LANE	90	21	32	25	16	16	7	11	14	12	5	8	9	12
I-75 NB	54	16	3	1	2	6	0	4	10	3	7	3	0	5
I-75 SB	56	15	9	5	5	4	0	2	8	3	5	4	0	0
I-75 @ SELLARS ROAD	110	31	12	6	7	10	0	8	18	6	12	7	0	5
I-75 NB	68	12	10	15	21	11	0	6	16	5	7	3	0	2
I-75 SB	93	4	1	15	1	2	0	5	5	5	3	2	3	1
I-75 @ AUSTIN ROAD	161	16	11	30	22	13	0	11	21	10	10	5	3	3
I-70 EB	15	12	1	7	0	3	13	1	0	1	1	2	0	0
I-70 WB	20	17	1	15	0	5	16	3	0	6	0	2	0	0
I-70 @ CRESTWAY DRIVE	35	29	2	22	0	8	29	4	0	7	1	4	0	0
I-70 EB	5	10	0	3	0	3	21	3	0	2	1	5	1	0
I-70 WB	4	17	1	12	0	2	17	0	0	5	1	1	2	0
I-70 @ BELLEFONTAINE ROAD	9	27	1	15	0	5	38	3	0	7	2	6	3	0
I-675 NB	13	3	0	2	6	3	0	2	1	0	1	0	2	0
I-675 SB	10	1	0	1	5	3	0	2	0	0	0	0	2	0
I-675 @ McEWEN ROAD	23	4	0	3	11	6	0	4	1	0	1	0	4	0
I-675 NB	4	2	0	6	5	0	0	3	0	0	0	0	0	0
I-675 SB	7	0	0	2	10	1	0	0	0	0	0	0	1	0
NB ON RAMP FROM US-35	3	1	0	1	0	0	0	0	0	0	0	0	0	0
SB OFF RAMP TO US-35	0	0	0	0	0	0	0	0	0	0	0	0	0	0
SB OFF RAMP TO US-35	1	0	0	0	0	0	0	0	0	0	0	0	0	0
I-675 @ LYNDELL/HONEYLOCUST PED. BRIDGE	15	3	0	9	15	1	0	3	0	0	0	0	1	0
US-35 EB	10	1	15	0	0	2	0	1	1	1	0	0	4	0
US-35 WB	12	4	1	3	0	0	0	4	0	0	0	0	1	0
US-35 @ BURNS/JACKSON PED. BRIDGE	22	5	16	3	0	2	0	5	1	1	0	0	5	0
US-35 EB	16	0	17	0	0	0	0	1	0	2	0	0	0	0
US-35 WB	13	2	16	4	0	0	0	4	0	0	0	0	0	0
US-35 @ UNION ROAD	29	2	33	4	0	0	0	4	0	2	0	0	0	0

*FLAM=Flammable; CORR=Corrosive; DANG=Dangerous; F/N GAS=Flammable/Nonflammable Gas.
Source: Survey conducted by MVRPC and MGCLERC - October, 1994.

TABLE 3
(CONTINUED)

LOCATION	N GAS*	2055	2187	3082	3077	1830	1760	F SOL*	POISON	1963	1789	F GAS*	DI CORR*
I-75 NB	1	3	5	1	1	2	2	3	1	1	0	0	0
I-75 SB	1	3	2	4	0	3	1	0	2	0	1	1	1
NB OFF RAMP	0	0	0	0	0	0	0	0	0	0	0	0	0
NB ON RAMP	0	0	0	0	0	0	0	1	0	0	0	0	0
SB OFF RAMP	0	0	0	0	0	0	0	0	0	0	0	0	0
SB ON RAMP	0	0	0	0	0	0	0	1	0	0	0	0	0
I-75 @ NORTHWOODS BOULEVARD	2	6	7	5	1	5	3	5	3	1	1	1	1
I-75 NB	0	4	2	5	2	0	2	2	1	0	1	1	0
I-75 SB	3	2	2	1	0	2	3	2	2	0	3	0	2
I-75 @ TIMBER LANE	3	6	4	6	2	2	5	4	3	0	4	1	2
I-75 NB	1	2	1	0	0	1	0	1	0	0	0	0	0
I-75 SB	0	3	1	1	1	1	1	0	0	0	1	1	3
I-75 @ SELLARS ROAD	1	5	3	1	0	2	3	1	0	0	1	1	3
I-75 NB	0	3	0	4	1	2	1	0	1	0	1	2	1
I-75 SB	3	2	2	0	0	1	2	0	0	2	1	2	0
I-75 @ AUSTIN ROAD	3	5	2	4	1	3	3	0	1	2	2	4	1
I-70 EB	2	0	0	1	1	0	0	1	0	3	0	1	0
I-70 WB	0	0	0	0	3	1	0	0	0	0	0	0	0
I-70 @ CRESTWAY DRIVE	2	0	0	1	4	1	0	1	0	3	0	1	0
I-70 EB	1	0	0	1	1	0	1	0	1	4	0	2	0
I-70 WB	2	0	0	0	4	0	0	0	3	0	0	0	2
I-70 @ BELLEFONTAINE ROAD	3	0	0	1	5	0	1	0	4	4	0	2	2
I-675 NB	2	0	1	0	0	1	0	0	0	0	1	0	0
I-675 SB	1	0	0	0	0	0	0	0	0	2	1	0	0
I-675 @ McEWEN ROAD	3	0	1	0	0	1	0	0	0	2	2	0	0
I-675 NB	1	0	0	0	2	0	0	0	0	0	0	0	0
I-675 SB	1	0	0	0	0	0	0	0	0	0	0	0	0
NB ON RAMP FROM US-35	0	0	1	0	0	0	0	0	0	0	0	0	0
SB OFF RAMP TO US-35	0	0	0	0	0	0	0	0	0	0	0	0	0
SB OFF RAMP TO US-35	0	0	0	0	0	0	0	0	0	0	0	0	0
I-675 @ LYNDELL/HONEYLOCUST PED. BRIDGE	2	0	1	0	2	0	0	0	0	0	0	0	0
US-35 EB	0	0	0	0	0	0	1	0	0	0	0	0	0
US-35 WB	3	0	1	0	0	0	0	1	0	0	0	1	0
US-35 @ BURNS/JACKSON PED. BRIDGE	3	0	1	0	0	0	0	1	0	0	0	1	0
US-35 EB	1	0	0	0	0	0	0	0	0	0	1	0	0
US-35 WB	1	0	1	0	2	0	0	0	1	0	0	0	0
US-35 @ UNION ROAD	2	0	1	0	2	0	0	0	1	0	1	0	0

*N GAS = North American Numbering System; F GAS = FIMMABLE GAS; POISON = POISON; DI CORR = DIAMETER CORRECTION
 Source: Survey conducted by MVRPC and MGCLERC - October, 1994. See Appendix B for description of placard ID.

Placard #1863 (Aviation Fuel) was the third most frequently observed placard overall, having been observed 144 times. The placard was observed most frequently at the two northern I-75 locations and on US-35. It was observed three times on I-70 and was not observed on I-675. Many of the observations on I-75 are related to fuel shipments to the Dayton International Airport. The number of placard #1863 observed at each location increased further north along the freeway. A large number were exiting to and entering from Northwoods Boulevard. It should also be noted that the Moraine Airpark and Dayton General South Airport are also accessible from the I-75 corridor to the south. The observations on US-35 were probably related to fuel shipments to the Airborne facility in Wilmington, as almost all of the trucks bearing placard #1863 exited to or entered from US-68.

Placard "CORROSIVE" was the fourth most frequently observed placard overall, having 135 observations. This placard was observed most frequently at the Austin Road, Timber Lane, and Northwoods Boulevard locations on I-75 and at the two locations on I-70. It represents a mixed load of corrosive materials with a total quantity of more than 1,000 pounds, rather than a bulk shipment of a particular material.

Placard #9259 (Elevated Temperature Material - above 212E but below its flash point) was the fifth most frequently observed placard overall, having been observed 81 times. The placard was observed most frequently at the southernmost location on I-75, the two locations north of downtown Dayton on I-75, and at the two locations on I-675. It was not observed at all on I-70 or US-35.

Placard #1993 (usually Diesel Fuel or Fuel Oil) was the sixth most frequently observed placard overall, having been observed 79 times. The four I-75 locations account for 57 of the 79 total observations, each having 10-20 observations. This placard was the third most frequently observed on I-675 at McEwen Road, having been seen six times. It should be noted that no observations were recorded for US-35 at Union Road, which seems unusual due to its location in relation to farming operations and areas without natural gas service.

Placard #1987 (Alcohol) was the seventh most frequently observed placard overall, having been observed 74 times. All but seven of those observations occurred on I-70, with the only other location being the first survey point south of I-70 (Timber Lane) on I-75. The frequency relationship between the two I-70 locations suggests that most of these were probably through shipments and only a few may have had an origin or destination within the area.

Placard #1075 (Liquefied Petroleum Gas) and placard #1824 (Caustic Soda) were the eighth most frequently observed placards overall, each having been observed 59 times. The four locations on I-75 had the highest frequency of observations for placard #1075, each ranging from 7-11. The nine observations on US-35 made placard #1075 the third most frequently observed placard on that freeway. All but two observations of placard #1824 were made on I-75. The three locations south of I-70 had the most observations and they were primarily northbound shipments.

Placard "**DANGEROUS**" was the tenth most frequently observed placard overall, having been observed 48 times. This placard was most frequently observed at the Timber Lane and Austin Road locations on I-75 and at the two locations on I-70. This placard was not observed at the I-675 locations. It represents a mixed load of more than 1,000 pounds of materials with a variety of hazard classes and none of the quantities of any particular material or hazard class exceeding 1,000 pounds.

Overall, motor fuel (#1203), aviation fuel (#1863), fuel oil (#1993), and liquified petroleum gas (#1075) accounted for 38% of the total observations. These placards represent types of vehicle and heating fuel, illustrating the importance of trucking in the distribution of fuel. It should also be noted that fuel shipments account for a significant percentage of all Haz/Mat shipments. While they are common and we are familiar with them, they still present a risk. Local emergency planning efforts and training should reflect these findings.

RESULTS BY FREEWAY

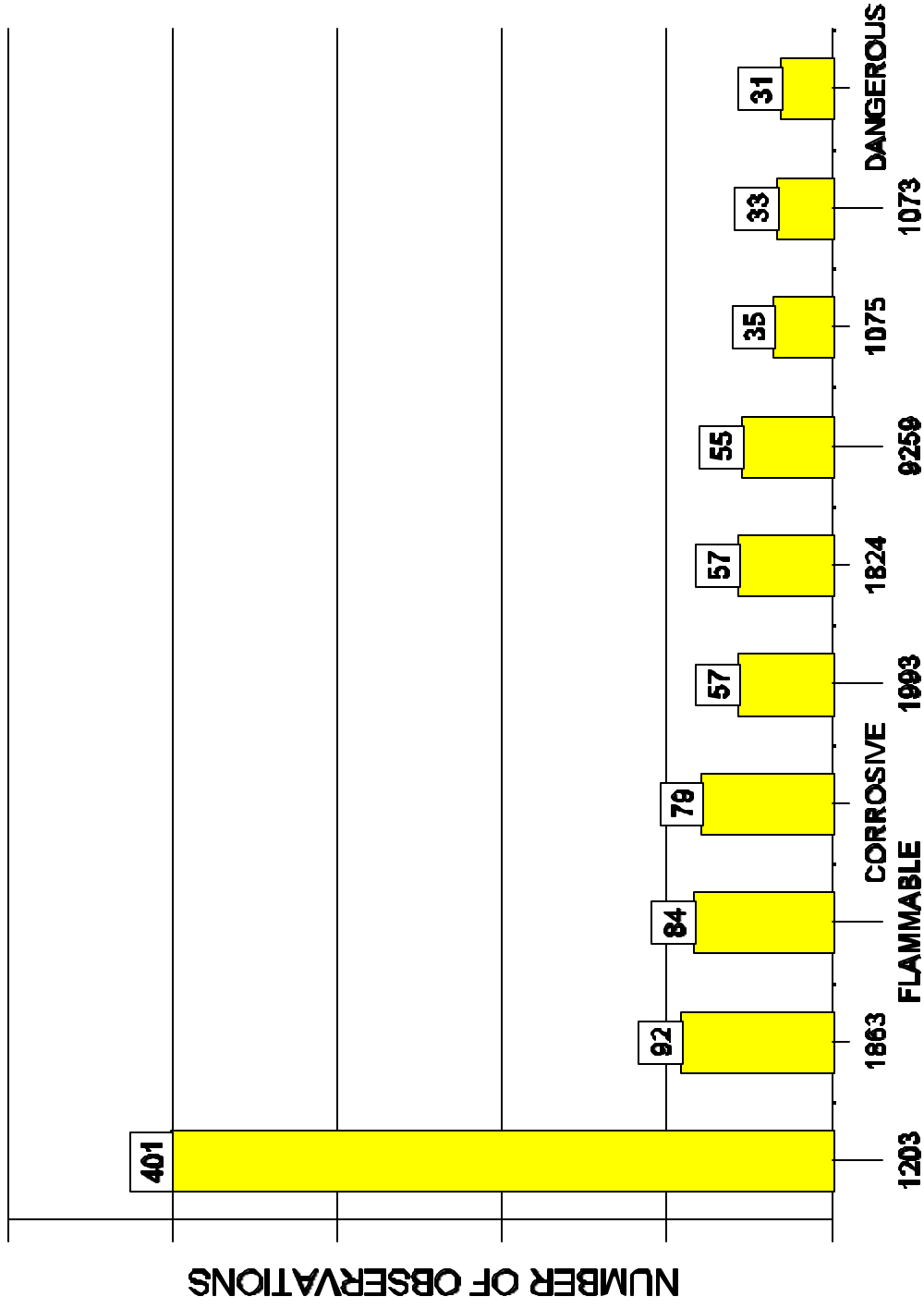
Table 4 summarizes total trucks and total Haz/Mat trucks observed on each freeway. Percentage of total truck observations that were Haz/Mat is included. The top ten observed placards for the individual freeways are illustrated in Figures 3 through 6.

**TABLE 4
TOTAL AND HAZ/MAT TRUCK OBSERVATIONS
I-75, I-70, I-675, & US-35
GREENE & MONTGOMERY COUNTIES, OHIO**

FREEWAY	TOTAL TRUCKS		HAZ/MAT TRUCKS		
	NUMBER OF SITES	TOTAL OBSERVATIONS	NUMBER OF SITES	TOTAL OBSERVATIONS	PERCENT OF TOTAL
I-75	4	23,628	4	1,422	6
I-70	2	11,162	2	431	3.9
I-675	2	4,040	2	125	3.1
US-35	2	3,141	2	165	5.3
TOTAL	10	41,971	10	2,143	5.1

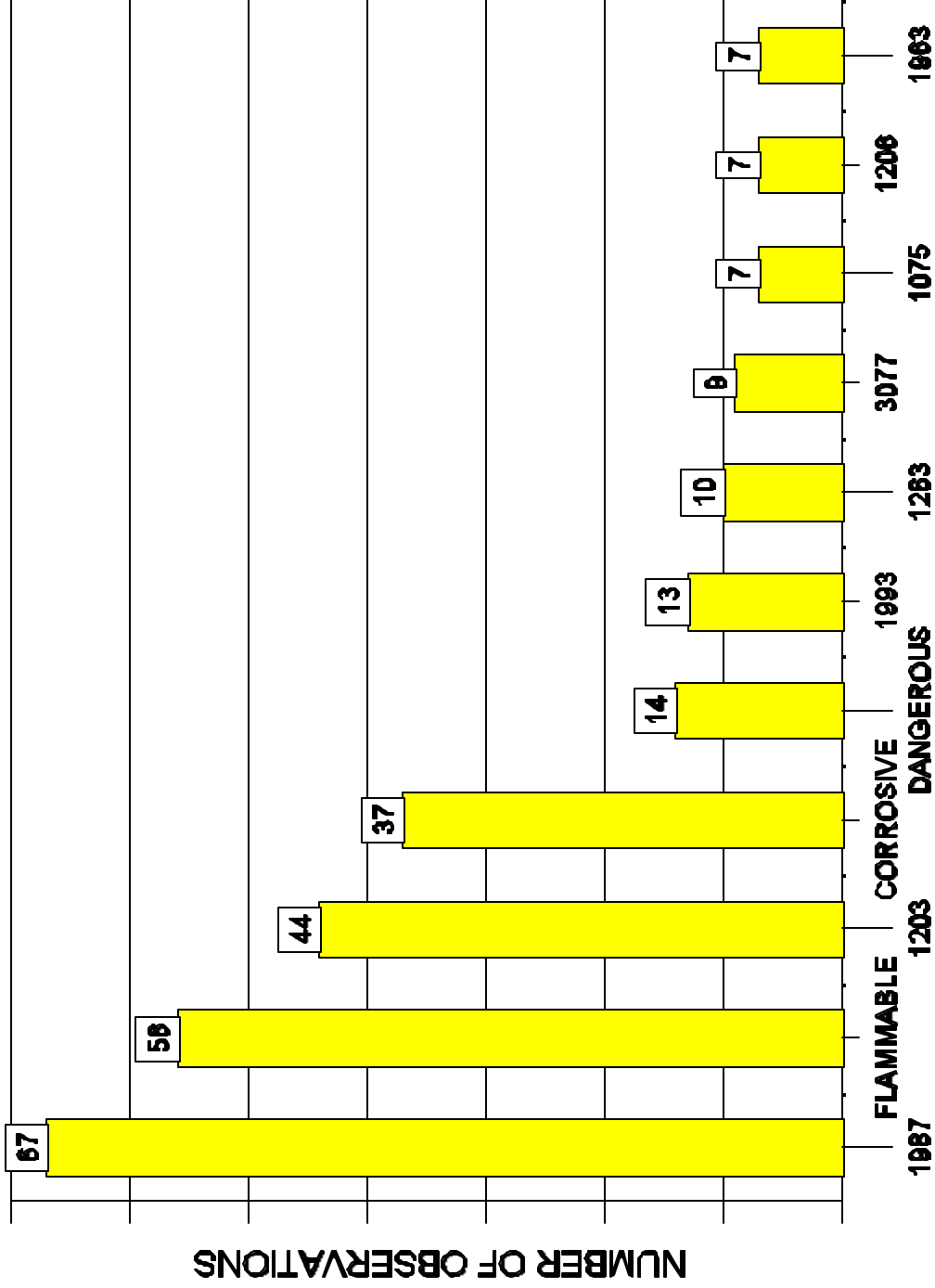
Source: Survey conducted by MVRPC and MGCLERC, October, 1994.

FIGURE 3 - TOP TEN OBSERVED PLACARDS: I-75



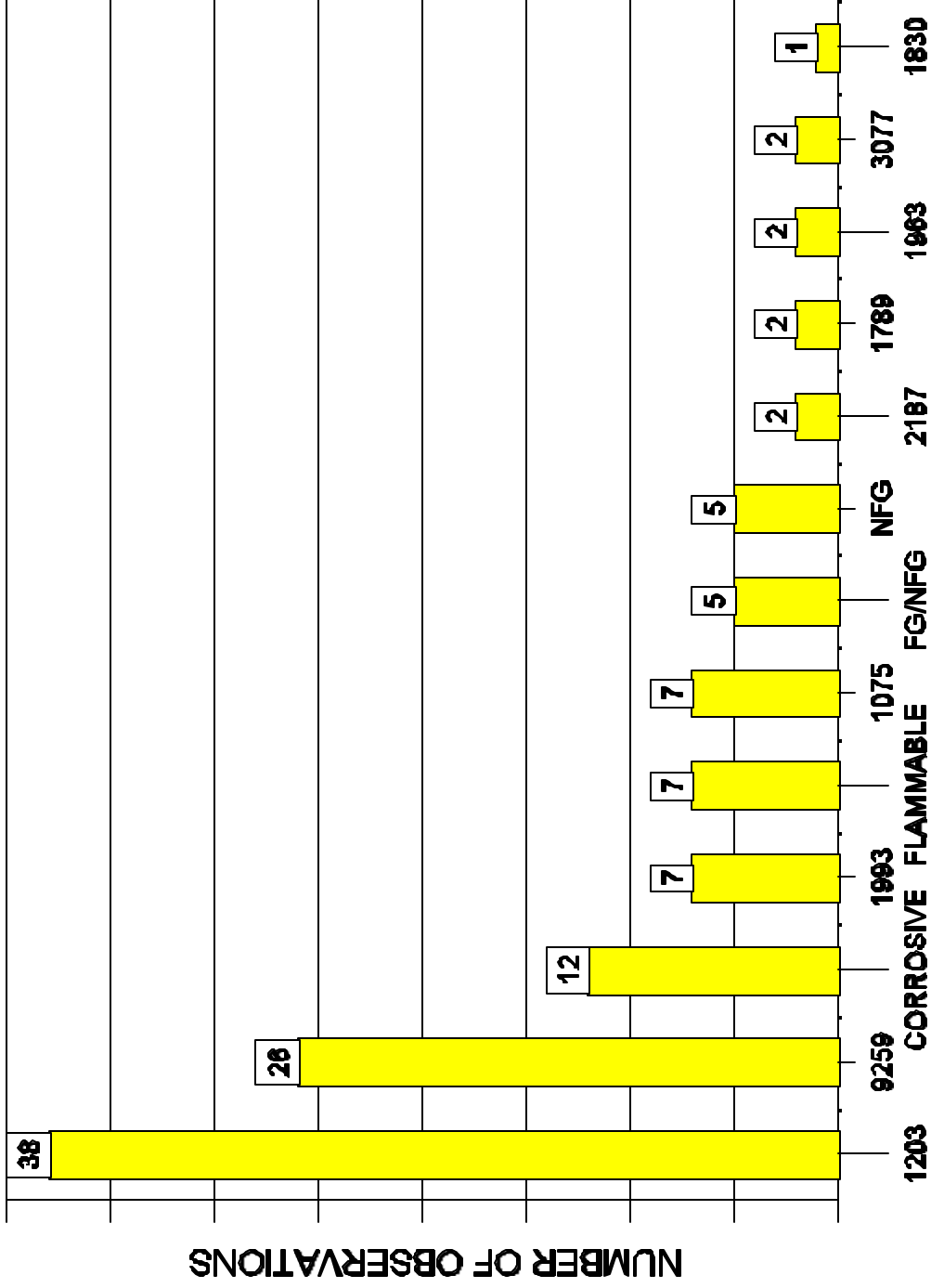
Note: Due to multiple count locations on freeways, some placarded trucks traveling through the region were counted at more than one location. This chart indicates the most frequently observed placards overall and is not a truck count, per se.
 Source: Survey conducted by MVRPC and MGCLERC - October, 1994.

FIGURE 4 - TOP TEN OBSERVED PLACARDS: I-70



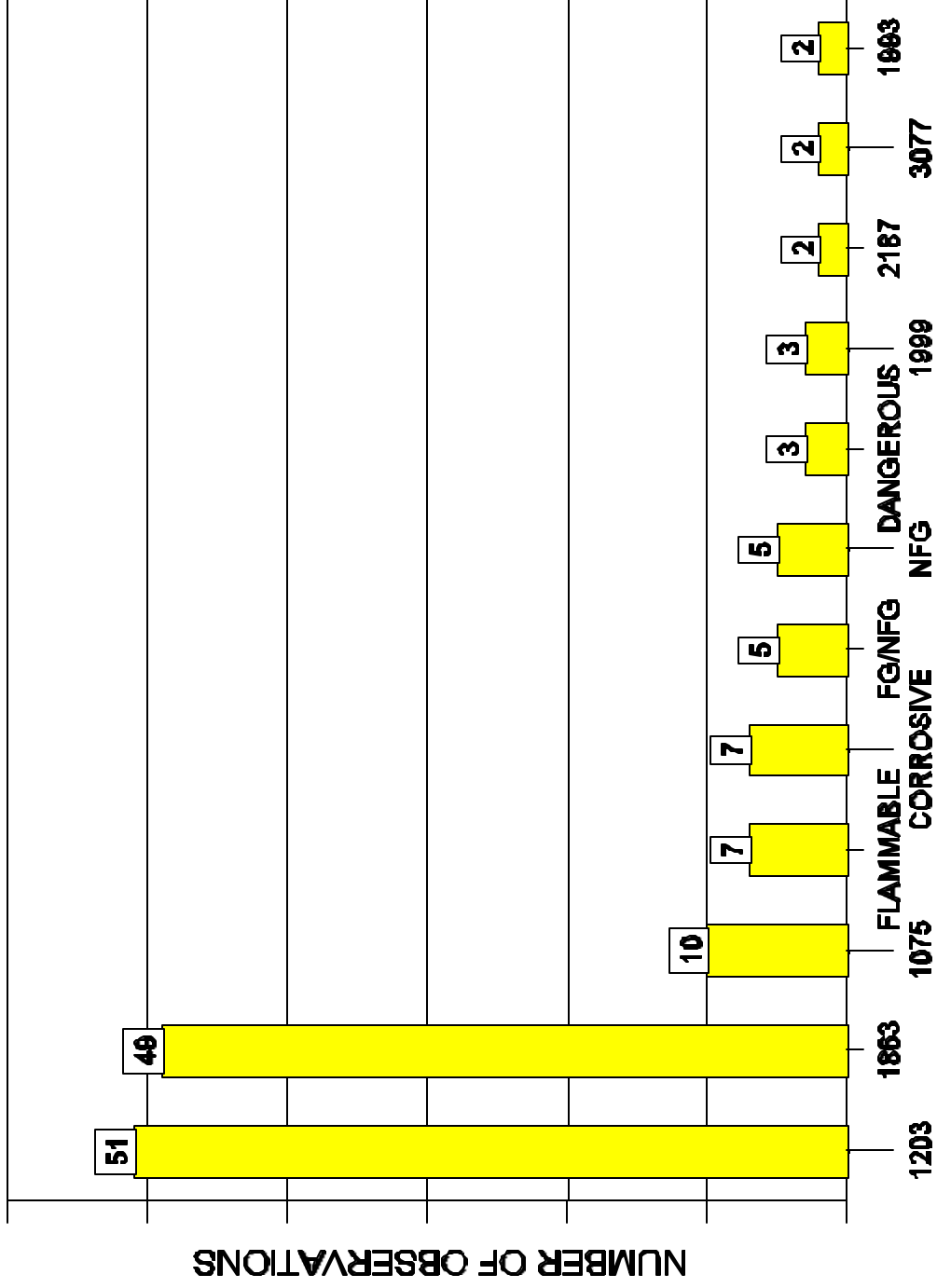
Note: Due to multiple count locations on freeways, some placarded trucks traveling through the region were counted at more than one location. This chart indicates the most frequently observed placards overall and is not a truck count, per se.
 Source: Survey conducted by MVRPC and MGCLERC - October, 1994.

FIGURE 5 - TOP TEN OBSERVED PLACARDS: I-675



Note: Due to multiple count locations on freeways, some placarded trucks traveling through the region were counted at more than one location. This chart indicates the most frequently observed placards overall and is not a truck count, per se.
 Source: Survey conducted by MVRPC and MGCLERC - October, 1994.

FIGURE 6 - TOP TEN OBSERVED PLACARDS: US-35



Note: Due to multiple count locations on freeways, some placarded trucks traveling through the region were counted at more than one location. This chart indicates the most frequently observed placards overall and is not a truck count, per se.
 Source: Survey conducted by MVRPC and MGCLERC - October, 1994.

Interstate Route 75 was the freeway with the most truck traffic, and both the highest number and percentage of placarded shipments. A combined total of 23,628 trucks were observed at the four survey locations. The total number of trucks observed with placards on I-75 was 1,422, accounting for approximately 6% of all I-75 truck traffic. Motor fuel (#1203) was the most frequently observed placard at all four locations. Aviation fuel (#1863), **FLAMMABLE**, and **CORROSIVE** were respectively the second, third, and fourth most frequent.

Interstate Route 70 was only slightly lower than I-75 in the amount of overall truck traffic, but had a relatively lower percentage of placarded trucks. A total of 11,162 trucks were observed at the two survey locations. The total number of trucks observed with placards was 431, accounting for approximately 4% of all truck traffic. Alcohol (#1987) was the most frequently observed placard overall. **FLAMMABLE**, motor fuel (#1203), and **CORROSIVE** were respectively the second, third, and fourth most frequent.

US Route 35 had the lowest overall total truck traffic observed. A total of 3,141 trucks were observed at the two survey locations. The 165 placarded trucks observed constituted approximately 5% of the total truck traffic. Motor fuel (#1203) and aviation fuel (#1863) were the most frequently observed placards.

Interstate Route 675 had a higher number of total trucks than US-35, but the lowest number of placarded trucks of all four freeways. A total of 4,040 trucks were observed at the two survey locations. The total number of placarded trucks observed was 125, accounting for approximately 3% of total truck traffic. Motor fuel (#1203) was the most frequently observed placard and elevated temperature material (#9259) was the second highest.

RESULTS BY LOCATION

I-75 at Austin Road had both the highest total truck traffic and placarded truck traffic of all ten survey locations. It had the highest percentage of placarded trucks compared to all trucks (6.7%) for the four survey locations on I-75, and was second overall. Motor fuel (#1203) was the most common hazardous material observed, accounting for approximately 38% of all placards observed. Placards **CORROSIVE**, elevated temperature material (#9259), and caustic soda solution (#1824) were the second, third, and fourth most frequently observed, respectively. As shown on Table 2, 80 different types of placards were observed, of which 48 were observed only once. The single observations, however, only accounted for approximately 11% of all placarded trucks observed.

I-75 at Timber Lane had the second highest totals for truck traffic and placarded truck traffic for all ten survey locations. It had the fourth highest overall percentage of placarded trucks compared to all trucks (6.3%). Motor fuel (#1203) was the most common hazardous material shipment, accounting for approximately 23% of all placards observed. Aviation fuel (#1863), **CORROSIVE**, and **FLAMMABLE** were the second, third, and fourth most frequently observed, respectively. As shown on Table 2, 61 different types of placards were observed, of which 28 were observed only once. The

single observations, however, only accounted for approximately 7% of all placarded trucks observed. Such a low percentage of single observations could suggest this location is along the shipping route of some of the more commonly observed placarded materials. Many of the common hazardous materials used or produced by businesses within heavily industrialized northern Montgomery County pass this location heading to I-70 east and west or along I-75 north or south to a destination.

I-75 at Sellars Road had the sixth highest total for truck traffic, but third highest total for placarded truck traffic for all ten survey locations. It had the third highest overall percentage of placarded trucks compared to all trucks (6.5%). Motor fuel (**#1203**) was the most common hazardous material shipment, accounting for approximately 32% of all placarded shipments observed. Placards **FLAMMABLE** and caustic soda solution (**#1824**) were the second and third most frequently observed, respectively accounting for 9% and 5% of all hazardous material shipments. Placards aviation fuel (**#1863**) and liquid oxygen (**#1073**) tied for the fourth most frequently observed. As shown on Table 2, 78 different types of placards were observed, of which 53 were observed only once. The single observations accounted for approximately 15% of all placarded trucks observed.

I-75 at Northwoods Boulevard had the third highest total for truck traffic and fourth highest total for placarded truck traffic for all ten survey locations. It had the fifth highest overall percentage of placarded trucks compared to all trucks (4.9%). Motor fuel (**#1203**) and aviation fuel (**#1863**) were the most common hazardous material shipments. Together, they accounted for approximately 28% of all placarded shipments observed. Almost all of the aviation fuel trucks observed used the interchange for access to the Dayton Municipal Airport. Placards **CORROSIVE**, fuel oil (**#1993**), and **FLAMMABLE** were the third, fourth, and fifth most frequently observed, respectively, each accounting for approximately 6% of all hazardous material shipments. As shown on Table 2, 67 different types of placards were observed, of which 41 were observed only once. The single observations accounted for approximately 15% of all placarded trucks observed.

I-70 at Bellefontaine Road had the fourth highest total for truck traffic and sixth highest total for placarded truck traffic for all ten survey locations. It had the eighth highest overall percentage of placarded trucks compared to all trucks (3.5%). Alcohol (**#1987**) was the most common hazardous material shipment, accounting for approximately 20% of all placarded shipments observed. Placards **FLAMMABLE** and **CORROSIVE** were the second and third most frequently observed, respectively accounting for 14% and 8% of all hazardous material shipments. As shown on Table 2, 54 different types of placards were observed, of which 29 were observed only once. The single observations accounted for approximately 15% of all placarded trucks observed.

I-70 at Crestway Drive had the fifth highest total for all truck traffic and for placarded truck traffic for all ten survey locations. It had the sixth highest overall percentage of placarded trucks compared to all trucks (4.3%). Motor fuel (**#1203**) was the most common hazardous material shipment, accounting for approximately 15% of all placarded shipments observed. Placards **FLAMMABLE** and alcohol (**#1987**) were the second and third most frequently observed, respectively, each accounting for approximately 12% of all hazardous material shipments. Placard **CORROSIVE** was also observed

frequently, accounting for approximately 9% of the hazardous material shipments. As shown on Table 2, 65 different types of placards were observed, of which 40 were observed only once. The single observations accounted for approximately 17% of all placarded trucks observed.

US-35 at the Burns/Jackson Pedestrian Bridge had the seventh highest total for all truck traffic and eighth highest total for placarded truck traffic for all ten survey locations. It had the ninth highest overall percentage of placarded trucks compared to all trucks (3.4%). Motor fuel (**#1203**) was the most common hazardous material shipment, accounting for approximately 28% of all placarded shipments observed. Aviation fuel (**#1863**) was the second most frequently observed, accounting for approximately 20% of all hazardous material shipments. As shown on Table 2, 24 different types of placards were observed, of which 16 were observed only once. The single observations accounted for approximately 20% of all placarded trucks observed.

I-675 at the Lyndell/Honeylocust Pedestrian Bridge had the eighth highest total for all truck traffic and the lowest total for placarded truck traffic for all ten survey locations. It had the lowest overall percentage of placarded trucks compared to all trucks (2.6%). Elevated temperature material (**#9259**) and motor fuel (**#1203**) were the most common hazardous material shipments, each accounting for approximately 27% of all placarded shipments observed. **CORROSIVE** was the only other frequently observed placard, accounting for approximately 16% of all hazardous material shipments. As shown on Table 2, 14 different types of placards were observed, of which 7 were observed only once. The single observations accounted for approximately 13% of all placarded trucks observed.

I-675 at McEwen Road had the ninth highest total for both total truck traffic and placarded truck traffic for all ten survey locations. It had the seventh highest overall percentage of placarded trucks compared to all trucks (3.7%). Motor fuel (**#1203**) was the most common hazardous material shipment, accounting for approximately 33% of all placarded shipments observed. Elevated temperature material (**#9259**) was the only other frequently observed placard, accounting for approximately 16% of all hazardous material shipments. As shown on Table 2, 16 different types of placards were observed, of which 6 were observed only once. The single observations accounted for approximately 9% of all placarded trucks observed.

US-35 at Union Road had the lowest total for all truck traffic and seventh highest total for placarded truck traffic for all ten survey locations. It had the highest overall percentage of placarded trucks compared to all trucks (11.0%). Aviation fuel (**#1863**) was the most common hazardous material shipment, accounting for approximately 38% of all placarded shipments observed. Motor fuel (**#1203**) was the second most frequently observed, accounting for approximately 33% of all hazardous material shipments. As shown on Table 2, 14 different types of placards were observed, of which 5 were observed only once. The single observations accounted for approximately 6% of all placarded trucks observed. Three fuels (**#1203**, **#1863**, and **#1075**) accounted for 75% of all hazardous materials shipments at this location.

SUMMARY

Numbers of Trucks

- ! The survey locations on I-75 had the highest number of trucks.
- ! Compared to I-75, I-70 had only a slightly lower amount of total truck traffic, but a significantly lower amount of placarded truck traffic.
- ! The US-35 location at Union Road had the highest percentage of placarded trucks to total trucks.
- ! The four locations on I-75 had the next four highest percentages of placarded trucks to total trucks.
- ! Both the largest number of trucks and largest number of placarded trucks were observed at the Austin Road location on I-75.
- ! The second-highest number of both trucks and placarded trucks were observed at the Timber Lane location on I-75.
- ! Both the number and percentage of placarded trucks on I-75 dropped north of I-70.
- ! I-675 had the lowest overall percentage of placarded trucks of the four freeways observed.

Types of Placards

- ! Motor fuel (#1203) was, by far, the most frequent Haz/Mat shipment, accounting for approximately 25% of the total observed.
- ! Motor fuel (#1203) was the most frequent Haz/Mat shipment observed at seven of the ten survey locations.
- ! One of the significant Haz/Mat shipments in the area is aviation fuel (#1863), trucked along US-35 and US-68 east to the Airborne facility in Wilmington & along I-75 north to the Dayton Municipal Airport.
- ! Fuel (#1203, #1863, #1993, and #1075) accounts for approximately 40% of the Haz/Mat shipments observed.

- ! Elevated temperature material (#9259) was second to motor fuel (#1203) in frequency at the two locations on I-675.

- ! The four most frequently observed placards, motor fuel (#1203), FLAMMABLE, aviation fuel (#1863), and CORROSIVE, accounted for almost half of all the placarded trucks observed.

- ! Alcohol (#1987) was the most frequently observed placard on I-70, but rarely seen on other freeways. Most of the trucks appeared to be through-shipments rather than originating or ending within the area.

- ! Multiple placard trucks accounted for 3.4% of all observations.

- ! A total of 213 different placard types and/or placard combinations were observed.

This study should be considered a beginning step in monitoring hazardous materials shipments in the Greene and Montgomery County area. Monitoring of these four major freeways should be continued, as well as additional monitoring on other freeways and the major surface street network. Future studies should attempt to expand the time period of the survey to include some 24-hour observations, and various times of the year.

The results of this study will be distributed to local emergency response entities and will be used by the Montgomery/Greene County Local Emergency Response Council to conduct hazard analysis and risk assessment along these freeway corridors.

APPENDIX A

**PLACARD OBSERVATIONS
BY
LOCATION**

FULL DATA TABLE

OCTOBER, 1994

HAZARDOUS MATERIALS TRUCK SURVEY

GREENE & MONTGOMERY COUNTIES, OHIO

APPENDIX A PLACARD OBSERVATIONS BY LOCATION

PLACARD MARKINGS	I-75 @													
	NORTHWOODS BOULEVARD						TIMBER LANE		SELLARS ROAD		AUSTIN ROAD			
	NB	SB	NB-OFF	NB-ON	SB-OFF	SB-ON	NB	SB	NB	SB	NB	SB		
Combustible	0	0	0	0	0	0	2	0	0	0	0	0		
Combustible/Flammable/Nonflammable Gas	0	0	0	0	0	0	0	0	0	0	0	0		
Combustible Gas	0	0	0	0	0	0	1	1	0	0	1	0		
Compressed Gas	0	0	0	0	0	0	0	0	0	0	0	0		
Corrosive	8	10	0	0	0	0	14	11	1	5	15	15		
Corrosive/Flammable	0	3	0	0	0	0	2	0	0	0	0	1		
Corrosive/Oxidizer	0	0	0	0	0	0	0	0	0	0	0	0		
Corrosive/1268	0	1	0	0	0	0	0	0	0	0	0	0		
Corrosive/1726	0	1	0	0	0	0	0	0	0	0	0	0		
Danger (Yellow) - Three placards	0	0	0	0	0	0	0	0	0	0	0	0		
Danger/Poisonous	0	0	0	0	0	0	0	0	0	0	0	0		
Dangerous	1	2	0	0	0	0	2	10	3	3	5	5		
Dangerous (Blue)	0	0	0	0	0	0	1	0	0	0	0	0		
Dangerous When Wet	1	0	0	0	0	0	0	0	0	0	0	0		
Dangerous/Corrosive	0	1	0	0	0	0	0	2	0	3	1	0		
Dangerous/Flammable	0	0	0	0	0	0	0	0	0	0	1	0		
Dangerous/Flammable(Blue)/Poison	0	0	0	0	0	0	0	0	0	0	0	0		
Dangerous Gas/Flammable	0	0	0	0	0	0	0	0	0	0	0	0		
Explosive	0	1	0	0	0	0	0	1	0	1	0	0		
Flammable	9	6	0	0	0	1	6	15	16	15	12	4		
Flammable(Blue)	0	0	0	0	0	0	0	0	0	0	0	0		
Flammable(White)	0	0	0	0	0	0	0	0	0	0	0	0		
Flammable/Explosive	0	0	0	0	0	0	0	0	1	0	0	0		
Flammable/Nonflammable Gas	0	0	0	0	0	0	0	0	0	0	0	0		
Flammable/Oxygen	0	1	0	0	0	0	0	0	0	0	0	0		
Flammable/1204	0	0	0	0	0	0	0	0	0	1	0	0		
Flammable/1268	0	0	0	0	0	0	0	0	0	0	0	0		
Flammable/1885	0	0	0	0	0	0	0	0	1	0	0	0		
Flammable Gas	0	1	0	0	0	0	1	0	0	1	2	2		
Flammable Gas/Combustible Gas	0	0	0	0	0	0	0	0	0	0	1	0		
Flammable Gas/Explosive Gas	0	0	0	0	0	0	0	0	0	1	0	0		
Flammable Gas/Nonflammable Gas	1	2	1	1	0	1	3	6	0	0	0	3		
Flammable Gas/Nonflammable Gas/Poison Gas	0	0	0	0	0	0	1	0	0	0	0	0		
Flammable Gas/Oxygen	0	0	0	0	0	0	0	0	0	0	0	0		
Flammable Liquid	0	0	0	0	0	0	0	0	1	0	0	0		
Flammable Solid	3	0	0	1	0	1	2	2	2	1	0	0		
Fuel Oil	0	0	0	0	0	0	2	1	0	0	0	0		
Harmful	1	0	0	0	0	0	1	0	0	0	0	0		
Nonflammable	0	0	0	0	0	0	0	0	0	1	0	0		
Nonflammable Gas	1	1	0	0	0	0	0	3	1	0	0	3		
Nonflammable Gas/Oxidizer	0	0	0	0	0	0	0	0	1	0	0	0		
Nonflammable Gas/Oxygen	1	0	0	0	0	0	0	0	0	0	0	0		
Oil (No Placard)	0	0	0	0	0	0	1	0	0	0	0	0		
Oxidizer	1	1	0	0	0	0	1	3	0	0	1	0		
Oxygen	1	0	0	0	0	0	0	0	0	2	1	0		
Poison	1	2	0	0	0	0	1	2	0	0	1	0		
Poison Gas	0	0	0	0	0	0	0	0	0	0	0	0		
Warning	0	0	0	0	0	0	0	0	0	0	0	1		
1230/1234/1030	0	0	0	0	0	0	0	0	0	0	0	0		
1272/1294	0	0	0	0	0	0	0	1	0	0	0	0		
3092/2831	0	0	0	0	0	0	0	0	0	0	0	0		
0032	0	0	0	0	0	0	0	0	1	0	0	0		
0921	0	0	0	0	0	0	0	0	1	0	0	0		
0983	0	0	0	0	0	0	0	0	1	0	0	0		
1003	0	0	0	0	0	0	0	0	2	0	0	0		
1005	1	1	0	0	0	0	0	0	0	0	0	0		
1017	0	0	0	0	0	0	1	0	1	0	0	0		
1023	0	0	0	0	0	0	0	0	1	0	0	0		
1028	0	0	0	0	0	0	0	0	0	0	0	0		
1030	0	1	0	0	0	0	0	0	0	0	0	0		
1033	0	0	0	0	0	0	0	0	0	0	0	0		
1046	1	0	0	0	0	0	1	0	0	0	0	0		
1049	0	0	0	0	0	0	0	1	0	1	0	0		
1050	0	0	0	0	0	0	0	0	0	0	0	0		
1063	0	0	1	0	0	0	1	1	0	0	1	0		
1067	0	1	0	0	0	0	0	0	0	0	0	0		
1073	4	2	0	0	0	0	4	1	7	5	7	3		
1075	2	3	1	0	0	1	6	5	4	2	6	5		
1077	0	0	0	0	0	0	0	0	0	1	3	0		
1078	0	0	0	0	0	0	1	0	0	0	0	0		
1079	0	0	0	0	0	0	1	0	1	0	1	0		
1089	0	1	0	0	0	0	0	0	0	0	0	0		
1093	0	0	0	0	0	0	0	0	0	0	1	0		
1124	0	0	0	0	0	0	0	0	0	0	0	1		
1133	1	0	0	0	0	0	0	0	0	0	0	0		
1155	0	0	0	0	0	0	1	0	1	0	0	0		

Refer to USDOT 1993 Emergency Response Guidebook for the names of materials represented by placard ID numbers.
Source: Survey conducted by MVRPC and MGCLERC - October, 1994.

APPENDIX A PLACARD OBSERVATIONS BY LOCATION

PLACARD MARKINGS	I-75 @													
	NORTHWOODS BOULEVARD						TIMBER LANE		SELLARS ROAD		AUSTIN ROAD			
	NB	SB	NB-OFF	NB-ON	SB-OFF	SB-ON	NB	SB	NB	SB	NB	SB		
1169	0	0	0	0	0	0	0	0	1	0	0	0		
1170	0	1	0	0	0	0	0	0	1	0	0	1		
1173	0	0	0	0	0	0	0	0	0	0	0	0		
1189	1	0	0	0	0	0	0	0	0	0	0	0		
1193	0	0	0	0	0	0	0	0	0	0	1	0		
1203	15	14	7	0	0	4	47	43	54	56	68	93		
1205	0	0	0	0	0	0	0	0	1	0	0	1		
1206	0	0	0	0	0	0	0	0	0	0	0	0		
1207	0	0	0	0	0	0	0	0	0	0	0	0		
1210	0	0	0	0	0	0	0	0	0	0	0	0		
1223	0	0	0	0	0	0	0	0	1	0	0	0		
1224	0	0	0	0	0	0	0	0	1	0	0	0		
1226	0	0	0	0	0	0	0	0	0	0	0	0		
1230	0	0	0	0	0	0	0	0	0	0	0	1		
1232	0	0	0	0	0	0	0	0	1	0	0	0		
1235	0	0	0	0	0	0	0	0	1	0	0	0		
1240	0	0	0	0	0	0	0	0	0	0	0	0		
1242	0	1	0	0	0	0	0	0	0	0	0	0		
1243	0	0	0	0	0	0	0	0	0	0	0	0		
1256	0	1	0	0	0	0	1	0	0	0	0	0		
1262	0	1	0	0	0	0	0	0	0	0	0	1		
1263	2	2	0	0	0	0	4	4	3	4	3	2		
1266	0	3	0	0	0	0	0	1	0	1	0	1		
1270	0	0	0	0	0	0	0	0	0	0	1	1		
1273	0	0	0	0	0	0	0	0	0	0	0	1		
1278	0	0	0	0	0	0	0	0	0	1	0	0		
1279	0	0	0	0	0	0	0	0	1	0	0	0		
1280	0	0	0	0	0	0	0	1	0	1	0	0		
1281	0	0	0	0	0	0	0	0	0	0	0	0		
1287	0	0	0	0	0	0	0	0	0	0	0	0		
1293	0	0	0	0	0	0	0	0	0	0	0	1		
1294	0	1	0	0	0	0	0	0	1	0	1	1		
1296	0	0	0	0	0	0	0	0	0	0	0	0		
1297	0	0	0	0	0	0	0	0	0	0	0	1		
1299	0	0	0	0	0	0	0	0	0	0	0	0		
1307	0	0	0	0	0	0	0	0	0	0	0	0		
1328	0	0	0	0	0	0	0	0	0	0	0	1		
1340	0	0	0	0	0	0	0	0	0	0	0	0		
1402	0	0	0	0	0	0	0	0	0	0	0	0		
1408	1	0	0	0	0	0	1	0	0	0	0	0		
1553	0	1	0	0	0	0	0	0	0	0	0	0		
1624	0	0	0	0	0	0	0	0	1	0	0	0		
1702	0	0	0	0	0	0	0	0	0	0	1	0		
1709	0	0	0	0	0	0	0	0	0	0	0	1		
1710	0	0	0	0	0	0	0	0	0	0	0	0		
1719	0	0	0	0	0	0	0	0	0	0	0	0		
1728	0	0	0	0	0	0	0	0	0	1	0	0		
1730	0	0	0	0	0	0	0	0	0	0	0	0		
1760	2	1	0	0	0	0	2	3	0	1	1	2		
1780	0	0	0	0	0	0	0	0	0	0	0	0		
1783	0	0	0	0	0	0	0	0	1	0	0	0		
1786	0	1	0	0	0	0	0	0	0	0	0	0		
1788	0	0	0	0	0	0	0	0	0	1	0	0		
1789	0	1	0	0	0	0	1	3	0	1	1	1		
1791	0	1	0	0	0	0	0	0	0	0	0	0		
1802	0	0	0	0	0	0	0	0	0	0	1	0		
1803	0	0	0	0	0	0	0	0	0	1	0	2		
1805	0	0	0	0	0	0	0	0	0	1	0	0		
1806	0	0	0	0	0	0	0	0	0	1	0	0		
1824	3	1	0	0	0	0	12	2	10	8	16	5		
1827	1	0	0	0	0	0	0	0	0	0	0	0		
1829	0	0	0	0	0	0	0	0	0	0	0	2		
1830	2	3	0	0	0	0	0	2	1	1	2	1		
1862	0	0	0	0	0	0	0	0	0	0	0	1		
1863	3	2	17	0	0	15	15	17	3	9	10	1		
1866	1	2	0	0	0	0	0	1	0	1	0	1		
1870	0	0	0	0	0	0	0	0	0	0	1	0		
1877	0	0	0	0	0	0	0	0	0	0	0	1		
1883	0	0	0	0	0	0	0	0	4	0	0	0		
1886	0	0	0	0	0	0	0	0	0	0	0	0		
1887	0	0	0	0	0	0	0	0	0	0	0	0		
1889	0	0	0	0	0	0	0	0	1	0	0	0		
1893	0	0	0	0	0	0	1	0	0	0	0	2		
1894	0	0	0	0	0	0	0	0	0	0	1	0		
1896	0	0	0	0	0	0	0	0	0	0	0	0		
1897	0	0	0	0	0	0	0	0	0	0	1	0		

Refer to USDOT 1993 Emergency Response Guidebook for the names of materials represented by placard ID numbers.
Source: Survey conducted by MVRPC and MGCLERC - October, 1994.

APPENDIX A PLACARD OBSERVATIONS BY LOCATION

PLACARD MARKINGS	I-75 @													
	NORTHWOODS BOULEVARD						TIMBER LANE		SELLARS ROAD		AUSTIN ROAD			
	NB	SB	NB-OFF	NB-ON	SB-OFF	SB-ON	NB	SB	NB	SB	NB	SB		
1902	0	0	0	0	0	0	0	0	0	0	0	0	1	
1903	0	0	0	0	0	0	0	0	0	0	0	0	0	
1906	0	0	0	0	0	0	0	0	0	0	0	0	0	
1942	0	0	0	0	0	0	0	0	0	0	0	0	0	
1951	0	0	0	0	0	0	0	1	0	1	0	0	2	
1953	0	0	0	0	0	0	0	0	0	0	0	0	1	
1959	0	0	0	0	0	0	0	0	0	1	0	0	0	
1963	1	0	0	0	0	0	0	0	0	0	0	0	2	
1966	0	0	0	0	0	0	0	1	0	2	0	0	2	
1977	4	3	0	0	0	0	6	6	5	0	2	1	1	
1987	0	0	0	0	0	0	4	3	0	0	0	0	0	
1991	0	0	0	0	0	0	1	0	0	0	0	0	0	
1993	10	8	0	0	0	0	10	6	6	4	11	2	2	
1994	0	0	0	0	0	0	0	0	0	0	0	0	1	
1997	0	0	0	0	0	0	1	0	0	0	0	1	0	
1999	0	0	0	0	0	0	0	0	0	0	0	0	0	
2014	0	1	0	0	0	0	0	0	0	0	0	0	0	
2023	0	0	0	0	0	0	0	0	1	0	0	0	0	
2024	0	0	0	0	0	0	0	0	0	0	0	1	0	
2028	0	0	0	0	0	0	0	0	0	0	0	0	0	
2031	0	1	0	0	0	0	0	0	0	1	0	1	0	
2053	1	0	0	0	0	0	0	0	0	0	0	0	0	
2055	3	3	0	0	0	0	4	2	2	3	3	2	2	
2056	0	0	0	0	0	0	0	0	0	0	0	1	0	
2070	0	0	0	0	0	0	0	0	0	0	0	0	0	
2078	1	0	0	0	0	0	0	0	0	0	0	3	0	
2187	5	2	0	0	0	0	2	3	1	1	0	0	2	
2208	0	1	0	0	0	0	0	0	0	0	0	0	0	
2211	1	0	0	0	0	0	0	0	0	0	0	0	0	
2315	0	0	0	0	0	0	0	0	0	0	0	0	0	
2448	1	0	0	0	0	0	0	0	0	0	0	0	0	
2488	0	0	0	0	0	0	0	0	1	0	0	0	1	
2489	0	1	0	0	0	0	1	1	0	0	0	1	0	
2586	0	1	0	0	0	0	0	0	0	0	0	0	0	
2810	0	0	0	0	0	0	0	0	0	0	0	0	0	
2831	0	0	0	0	0	0	0	0	0	0	0	0	0	
2849	0	0	0	0	0	0	0	0	0	1	0	0	0	
2924	1	0	0	0	0	0	1	1	0	0	0	1	0	
2953	0	0	0	0	0	0	0	0	0	0	0	0	0	
3032	0	0	0	0	0	0	0	0	2	0	0	0	0	
3035	0	0	0	0	0	0	0	0	1	0	0	0	0	
3055	0	0	0	0	0	0	0	0	0	0	0	0	1	
3065	1	0	0	0	0	0	1	0	0	0	0	2	0	
3077	1	0	0	0	0	0	2	0	0	1	0	1	0	
3082	1	4	0	0	0	0	5	1	0	1	0	4	0	
3088	0	0	0	0	0	0	0	0	0	0	0	1	0	
3092	0	0	0	0	0	0	0	0	0	0	0	0	0	
3255	0	0	0	0	0	0	0	1	0	0	0	0	0	
3901	0	0	0	0	0	0	0	1	0	0	0	0	0	
3909	0	0	0	0	0	0	0	1	0	0	0	0	0	
4082	0	0	0	0	0	0	0	0	0	0	0	0	1	
5360	0	0	0	0	0	0	0	0	0	0	0	1	0	
6501	0	0	0	0	0	0	0	0	0	0	0	0	1	
9209	0	0	0	0	0	0	0	0	1	0	0	0	0	
9229	0	0	0	0	0	0	0	0	1	0	0	0	0	
9250	0	0	0	0	0	0	0	0	0	0	0	0	0	
9251	0	0	0	0	0	0	0	0	0	1	0	0	0	
9258	0	0	0	0	0	0	1	0	0	0	0	0	0	
9259	5	6	0	0	0	0	9	6	2	5	21	1	1	
9276	0	0	0	0	0	0	0	0	0	0	0	0	0	
9290	0	0	0	0	0	0	0	0	1	0	0	0	0	
Unknown/Unidentified	4	2	0	0	0	1	15	8	12	12	1	6	6	
TOTAL	109	112	27	2	0	24	204	185	170	168	227	194		

Refer to USDOT 1993 Emergency Response Guidebook for the names of materials represented by placard ID numbers.
Source: Survey conducted by MVRPC and MGCLERC - October, 1994.

APPENDIX A PLACARD OBSERVATIONS BY LOCATION

PLACARD MARKINGS	I-70 @				I-675 @					US 35 @				TOTAL		
	CRESTWAY DRIVE		BELLFONTAINE ROAD		LYNDELL DRIVE		HONEYLOCUST DR PED. BRIDGE			McEWEN ROAD		BURNS/JACKSON PED. BRIDGE			UNION ROAD	
	EB	WB	EB	WB	NB	SB	NB-ON	SB-35EB	SB-35WB	NB	SB	EB	WB		EB	WB
Combustible	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
Combustible/Flammable/Nonflammable Gas	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
Combustible Gas	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Compressed Gas	1	3	0	0	0	0	0	0	0	0	0	0	0	0	0	4
Corrosive	7	15	3	12	6	2	1	0	0	2	1	0	3	0	4	135
Corrosive/Flammable	0	1	1	1	0	0	0	0	0	0	0	0	0	0	0	9
Corrosive/Oxidizer	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
Corrosive/1268	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
Corrosive/1726	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
Danger (Yellow) - Three placards	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1
Danger/Poisonous	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	1
Dangerous	1	6	2	5	0	0	0	0	0	0	0	1	0	2	0	48
Dangerous (Blue)	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	3
Dangerous When Wet	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
Dangerous/Corrosive	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	9
Dangerous/Flammable	0	1	0	5	0	0	0	0	0	0	0	0	0	0	0	7
Dangerous/Flammable(Blue)/Poison	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1
Dangerous Gas/Flammable	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1
Explosive	2	1	1	0	0	0	0	0	0	0	0	0	0	0	0	7
Flammable	12	17	10	17	2	0	1	0	0	3	1	1	4	0	2	154
Flammable(Blue)	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1
Flammable(White)	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
Flammable/Explosive	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
Flammable/Nonflammable Gas	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
Flammable/Oxygen	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	2
Flammable/1204	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
Flammable/1268	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	1
Flammable/1885	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
Flammable Gas	1	0	2	0	0	0	0	0	0	0	0	1	0	0	0	11
Flammable Gas/Combustible Gas	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
Flammable Gas/Explosive Gas	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
Flammable Gas/Nonflammable Gas	0	0	1	2	0	1	0	0	0	2	2	4	1	0	0	31
Flammable Gas/Nonflammable Gas/Poison Gas	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
Flammable Gas/Oxygen	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	2
Flammable Liquid	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
Flammable Solid	1	0	0	0	0	0	0	0	0	0	0	1	0	0	0	14
Fuel Oil	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3
Harmful	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	3
Nonflammable	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
Nonflammable Gas	2	0	1	2	1	1	0	0	0	2	1	0	3	1	1	24
Nonflammable Gas/Oxidizer	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
Nonflammable Gas/Oxygen	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	3
Oil (No Placard)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
Oxidizer	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	8
Oxygen	0	0	1	0	0	0	0	0	0	0	0	1	0	0	0	6
Poison	0	0	1	3	0	0	0	0	0	0	0	0	0	0	1	12
Poison Gas	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	2
Warning	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
1230/1234/1030	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	1
1272/1294	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
3092/2831	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
0032	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
0921	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
0983	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
1003	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
1005	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
1017	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
1023	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
1028	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	1
1030	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
1033	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1
1046	1	3	0	0	0	0	0	0	0	0	0	0	0	0	0	6
1049	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
1050	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	2
1063	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	5
1067	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
1073	1	0	1	1	0	0	0	0	0	1	0	0	0	0	0	37
1075	1	3	3	0	3	0	0	0	0	2	2	1	4	1	4	59
1077	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4
1078	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	2
1079	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3
1089	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
1093	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
1124	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
1133	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
1155	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2

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Source: Survey conducted by MVRPC and MGCLERC - October, 1994.

APPENDIX A PLACARD OBSERVATIONS BY LOCATION

PLACARD MARKINGS	I-70 @				I-675 @					US 35 @				TOTAL		
	CRESTWAY DRIVE		BELLFONTAINE ROAD		LYNDELL DRIVE		HONEYLOCUST DR		PED. BRIDGE	McEWEN ROAD		BURNS/JACKSON PED. BRIDGE			UNION ROAD	
	EB	WB	EB	WB	NB	SB	NB-ON	SB-35EB	SB-35WB	NB	SB	EB	WB		EB	WB
1169	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
1170	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	4
1173	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1
1189	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
1193	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	2
1203	15	20	5	4	4	7	3	0	1	13	10	10	12	16	13	534
1205	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5
1206	7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	7
1207	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
1210	1	0	2	0	0	0	0	0	0	0	0	0	0	0	0	3
1223	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
1224	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
1226	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	1
1230	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
1232	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
1235	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
1240	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
1242	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
1243	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
1256	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
1262	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
1263	2	2	5	1	0	0	0	0	0	0	0	0	0	0	0	34
1266	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	6
1270	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
1273	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
1278	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	2
1279	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
1280	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
1281	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
1287	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	1
1293	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
1294	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4
1296	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1
1297	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
1299	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1
1307	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1
1328	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
1340	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	2
1402	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1
1408	1	2	1	2	0	0	0	0	0	0	0	0	0	0	0	8
1553	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
1624	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
1702	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
1709	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
1710	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1
1719	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1
1728	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
1730	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
1760	0	0	1	0	0	0	0	0	0	0	0	1	0	0	0	14
1780	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	2
1783	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
1786	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
1788	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
1789	0	0	0	0	0	0	0	0	0	1	1	0	0	1	0	11
1791	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
1802	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
1803	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4
1805	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
1806	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
1824	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	59
1827	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
1829	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
1830	0	1	0	0	1	0	0	0	0	1	0	0	0	0	0	15
1862	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
1863	1	1	0	1	0	0	0	0	0	0	0	15	1	17	16	144
1866	0	2	0	2	0	0	0	0	0	0	0	0	0	0	0	10
1870	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
1877	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
1883	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4
1886	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	1
1887	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
1889	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
1893	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	4
1894	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
1896	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1
1897	4	0	0	1	0	0	0	0	0	0	0	0	0	0	0	6

Refer to USDOT 1993 Emergency Response Guidebook for the names of materials represented by placard ID numbers.
Source: Survey conducted by MVRPC and MGCLERC - October, 1994.

APPENDIX A PLACARD OBSERVATIONS BY LOCATION

PLACARD MARKINGS	I-70 @				I-675 @						US 35 @				TOTAL		
	CRESTWAY DRIVE		BELLFONTAINE ROAD		LYNDELL DRIVE		HONEYLOCUST DR		PED. BRIDGE		McEWEN ROAD		BURNS/JACKSON PED. BRIDGE			UNION ROAD	
	EB	WB	EB	WB	NB	SB	NB-ON	SB-35EB	SB-35WB	NB	SB	EB	WB	EB		WB	
1902	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	
1903	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	3	
1906	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	
1942	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	2	
1951	2	0	2	0	0	0	0	0	0	0	0	0	0	0	0	8	
1953	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	
1959	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	2	
1963	3	0	4	0	0	0	0	0	0	0	2	0	0	0	0	12	
1966	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5	
1977	2	2	0	0	0	0	0	0	0	0	0	0	0	0	0	31	
1987	13	16	21	17	0	0	0	0	0	0	0	0	0	0	0	74	
1991	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	2	
1993	3	5	3	2	0	1	0	0	0	0	3	3	2	0	0	79	
1994	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	
1997	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	
1999	0	0	0	0	0	0	0	0	0	0	0	1	0	1	1	3	
2014	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	
2023	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	
2024	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	
2028	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	
2031	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	
2053	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	
2055	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	22	
2056	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	3	
2070	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1	
2078	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4	
2187	0	0	0	0	0	0	1	0	0	1	0	1	0	1	0	20	
2208	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	
2211	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	2	
2315	0	1	2	0	0	0	0	0	0	0	0	0	0	0	0	3	
2448	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	
2488	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	
2489	0	2	0	3	0	0	0	0	0	0	0	0	0	0	0	9	
2586	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	
2810	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	2	
2831	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	2	
2849	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	
2924	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4	
2953	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1	
3032	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	
3035	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	
3055	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	
3065	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4	
3077	1	3	1	4	2	0	0	0	0	0	0	0	0	0	2	18	
3082	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	18	
3088	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	
3092	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1	
3255	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	
3901	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	
3909	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	
4082	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	
5360	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	
6501	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	
9209	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	
9229	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	
9250	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1	
9251	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	
9258	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	
9259	0	0	0	0	5	10	0	0	0	6	5	0	0	0	0	81	
9276	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1	
9290	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	
Unknown/Unidentified	3	4	4	2	0	0	0	0	0	1	0	0	1	1	0	77	
TOTAL	109	129	94	99	25	24	6	0	1	39	30	37	41	40	47	2143	

Refer to USDOT 1993 Emergency Response Guidebook for the names of materials represented by placard ID numbers.
Source: Survey conducted by MVRPC and MGCLERC - October, 1994.

APPENDIX B

KEY TO MOST FREQUENTLY OBSERVED PLACARDS

These placard ID symbols or numbers are found most frequently within this report. The numbers are directly from the USDOT 1993 Emergency Response Guidebook. The lettered symbols are abbreviations of the hazard class placards used in the tables within this report to conserve space and are not the actual symbols found on the truck placards.

ID	CHEMICAL TYPE
CORR	CORROSIVE
DANG	DANGEROUS
D/CORR	DANGEROUS/CORROSIVE (Mixed Load)
FLAM	FLAMMABLE
F GAS	FLAMMABLE GAS
F/N GAS	FLAMMABLE GAS/NONFLAMMABLE GAS (Mixed Load)
F SOL	FLAMMABLE SOLID
N GAS	NONFLAMMABLE GAS
POISON	POISON
1073	OXYGEN, refrigerated liquid (cryogenic liquid)
1075	LIQUEFIED PETROLEUM PETROLEUM GASSES, liquefied LPG, liquefied petroleum gas
1203	GASOHOL MOTOR SPIRIT PETROL
1206	HEPTANES
1263	ENAMEL LACQUER LACQUER BASE, liquid PAINT, flammable liquid PAINT RELATED MATERIAL, flammable liquid POLISH

APPENDIX B. (continued)

ID	CHEMICAL TYPE
1760	ACID, liquid, n.o.s. ALUMINUM PHOSPHATE SOLUTION ALUMINUM SULFATE SOLUTION AMINOETHOOXYETHANOL AMINOPROPYLDIETHANOLAMINE N-AMINOPROPYLLMORPHOLINE N-AMINOPROPYLPYPERAZINE CAPROIC ACID (HEXANOIC ACID) CHEMICAL KIT CLEANING COMPOUND, liquid, corrosive COMPOUNDS, cleaning liquid (corrosive) COMPOUNDS, TREE or WEED KILLING, liquid (corrosive) CORROSIVE LIQUIDS, n.o.s. COSMETICS, corrosive liquid, n.o.s. DICHLOROPROPIONIC ACID 2,2-DICHLOROPROPIONIC ACID ETHYL PHOSPHONOTHIOIC DICHLORIDE, anhydrous ETHYL PHOSPHORODICHLORIDATE FERROUS CHLORIDE SOLUTION HEXANOIC ACID ISOPENTANOIC ACID MEDICINES, corrosive, liquid, n.o.s. METHYL PHOSPHONOTHIOIC DICHLORIDE MORPHOLINE, aqueous, mixture NITRIC ACID, other than fuming, with not more than 40% acid ORM-B, n.o.s. PAINT, corrosive liquid PAINT RELATED MATERIAL, corrosive liquid TEXTILE TREATING COMPOUND TITANIUM SULFATE SOLUTION VALERIC ACID, (n-PENTANOIC ACID)
1789	HYDROCHLORIC ACID SOLUTION HYDROGEN CHLORIDE SOLUTION MURIATIC ACID
1824	CAUSTIC SODA, solution CAUSTIC SODA SOLUTION SODIUM HYDRATE SODIUM HYDROXIDE SOLUTION

APPENDIX B. (continued)

ID	CHEMICAL TYPE
1830	SULFURIC ACID
1863	FUEL, AVIATION, turbine engine
1963	HELIUM, refrigerated liquid (cryogenic liquid)
1977	NITROGEN, refrigerated liquid (cryogenic liquid)
1987	ALCOHOL, denatured ALCOHOL, NONTOXIC, n.o.s. ALCOHOLS, n.o.s. DENATURED ALCOHOL
1993	COMBUSTIBLE LIQUID, n.o.s. COMPOUNDS, TREE OR WEED KILLING, liquid(flammable) COSMETICS, flammable liquid n.o.s. CREOSOTE, coal tar DIESEL FUEL ETHYL NITRATE FLAMMABLE LIQUIDS, n.o.s. FUEL OIL INSECTICIDE, liquid, n.o.s. MEDICINES, flammable, liquid, n.o.s. REFRIGERATING MACHINE
2055	STYRENE MONOMER, inhibited
2187	CARBON DIOXIDE, refrigerated liquid (cryogenic liquid)
3077	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, solid, n.o.s. OTHER REGULATED SUBSTANCES, solid, n.o.s.
3082	ENVIRONMENTALLY HAZARDOUS MATERIAL liquid, n.o.s. OTHER REGULATED SUBSTANCES liquid, n.o.s.
9259	ELEVATED TEMPERATURE MATERIAL liquid, n.o.s. (at or above 100 C (212 F) and below its flash point)