

United States  
Environmental Protection  
Agency

Office of Policy  
Analysis (PM-220)  
Washington, D.C. 20460

EPA-230-06-89-062  
December 1989

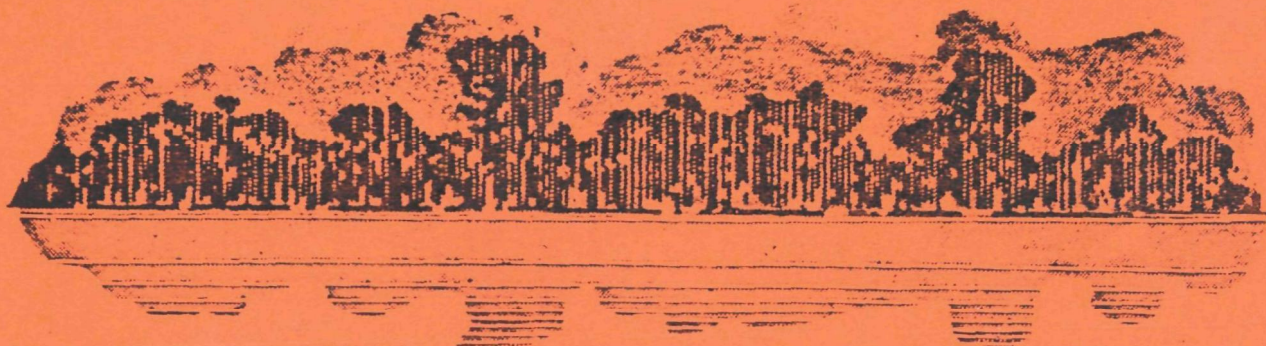


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# Acute Hazardous Events Data Base (1989)

## Appendices to Final Report

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**Acute Hazardous Events  
Data Base (1989)  
Appendices to Final Report**

**Prepared for:**

**Office of Policy Analysis  
Office of Policy, Planning and Evaluation  
U. S. Environmental Protection Agency**

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**EPA Contract No. 68-W8-0038**

**December 1989**

**APPENDIX A**

**DATA BASE ENTRY FORM AND FORMAT SHEETS**

## **APPENDIX A**

**A-1 AHE Event Database Entry Form**

**A-2 AHE Event Database Entry Format**

**ACUTE HAZARDOUS EVENTS FILE**  
(Circle Codes Where Appropriate)**DATABASE ENTRY FORM**

Page 1

1. Source > ID >
2. Date of Event > / /
3. Time of Day: Hour > Mins >
4. Event Situation > P/T  
Comment >
5. COMFAC ID > / / /
6. Company Name >
7. Event Location: City >  
State >
8. Substances Involved:  
#1: State > SO/LQ/GS/SW/LW/GW/UU/UW Name >  
#2: State > SO/LQ/GS/SW/LW/GW/UU/UW Name >  
#3: State > SO/LQ/GS/SW/LW/GW/UU/UW Name >  
Comment >
9. Quantity Released/Concentration:  
Quantity #1 > Units > GA/LB/TN/CF  
Quantity #2 > Units > GA/LB/TN/CF  
Quantity #3 > Units > GA/LB/TN/CF  
Total Quantity > Units > GA/LB/TN/CF  
  
Concentration #1 > Units > PC/PM  
Concentration #2 > Units > PC/PM  
Concentration #3 > Units > PC/PM
10. Affected Media: Air > Y/N/U  
Water > Y/N/U  
Land > Y/N/U  
  
\*\*\*\*\* FOR IN-TRANSIT EVENTS CONTINUE WITH 11. \*\*\*\*\*  
\*\*\*\*\* FOR FIXED FACILITY EVENTS CONTINUE WITH 13. \*\*\*\*\*
11. In-Transit Mode > R/T/B/P/O
12. In-Transit Accident Cause > CO/LK/DR/TT/OT/UU  
Comment >

\*\*\*\*\* CONTINUE WITH 16 \*\*\*\*\*

## Exhibit A-1 (continued)

## ACUTE HAZARDOUS EVENTS FILE

## DATABASE ENTRY FORM

Page 2

13. Location of Event at Fixed Facility &gt; PR/ST/VA/HC/DP/NV/OT/UU

Comment &gt;

14. Primary Cause of Event &gt; EF/OE/CC/FI/AV/HP/SL/PW/DR/OT/UU

Comment &gt;

15. Event Context &gt; UP/DN/LL/SS/MT/OT/UU

Comment &gt;

\*\*\*\*\* FILL IN 16 THROUGH 23 FOR ALL EVENTS \*\*\*\*\*

16. End Effects: Effect #1 &gt; SP/FI/VR/EX/OT/UU

Effect #2 &gt; SP/FI/VR/EX/OT/UU

Effect #3 &gt; SP/FI/VR/EX/OT/UU

Effect #4 &gt; SP/FI/VR/EX/OT/UU

17. Injuries &gt; Y/R/N/U

Number of People Injured &gt;

Number of People Hospitalized &gt;

18. Deaths &gt; Y/R/N/U

Number of Deaths &gt;

19. Evacuation Required &gt; Y/R/N/U

Number of People Evacuated &gt;

Number of Non-workers Evacuated &gt;

Comment &gt;

20. Property Damage &gt; Y/R/N/U

Amount &gt;

Affected Property &gt; NA/VE/BG/TK/EQ/OT/UU

Comment &gt;

21. Environmental Damage &gt; Y/N/U

Comment &gt;

22. Remedial Actions &gt;

23. General Comments &gt;

## ACUTE HAZARDOUS EVENTS FILE

## DATABASE ENTRY FORMAT

Field Type

1. **Source:** <3 character database identifier> c3  
**ID:** <Any record identifier from dataset> c15  
-- Each record MUST have a unique ID in order for it to be retrieved by the database for editing.
  2. **Date of Event:** <MM/DD/YY> d8  
Enter -  
MM - Number of Month  
DD - Number of Day  
YY - Number of Year  
-- Always enter 2 digits: "01" instead of "1".  
-- If the date is unknown, leave this blank. If the month and/or day is not known, enter "01" where necessary.
  3. **Time of Day:** <Hours:Minutes> n2:n2  
-- Use the 24 hour clock convention.
  4. **Event Situation:** <P/T> c1  
Circle one -  
P - If event occurred in a fixed facility  
T - If event occurred during transit  
-- A response MUST be selected.  
-- Note that a fixed facility is any facility whose primary function is NOT transportation. Thus, a crop dusting plane would be a fixed facility.  
-- A pipeline may be either a mode of transportation or part of a fixed facility. There is no good rule of thumb for this; if it is not clear, ask.
- Comment:** c70

## Exhibit A-2 (continued)

## ACUTE HAZARDOUS EVENTS FILE

## DATABASE ENTRY FORMAT

Field Type

5. **COMFAC ID:** c15
- Look up the COMPANY/FACility ID on the list of company names and locations supplied. For fixed facility events, you must match the company name AND the city. For transit events, you need only match the company name. If you do not find a match, leave this field blank.
6. **Company Name: <Name>** c50
- Enter this ONLY if you did NOT find a COMFAC ID.
- Use standard abbreviations on attached list.
7. **Location of Event: <City, State>** c20,c2
- Enter this ONLY if:
- . The event is in-transit, OR
  - . You did not find a COMFAC ID
- Use two letter Post Office state abbreviations
8. **Substances Involved:** (1) <Physical State, Name> c2,c50  
                               (2) <Physical State, Name> c2,c50  
                               (3) <Physical State, Name> c2,c50

Circle one of the following codes for physical state -

SO - for Solid	SW - for Solid Waste
LQ - for Liquid	LW - for Liquid Waste
GS - for Gas	GW - for Gaseous Waste
UU - for Unknown	UW - for Waste of Unknown State

-- A response MUST be selected for each substance coded.

-- In general, code the state of the substance immediately after it was released. The following tricky cases are provided to clarify this rule:

- . A material that is stored as a liquid, but which vaporizes immediately upon release is coded as a Gas.
- . A material that spills as a liquid and later evaporates, either partially or completely, is coded as a Liquid.
- . A solid that is released to a waterbody and subsequently dissolves is coded as a Solid.



## ACUTE HAZARDOUS EVENTS FILE

## DATABASE ENTRY FORMAT

Field Type

- Exception: any material that explodes or burns should be coded as the state it was in immediately before the explosion or fire.

Enter the name of the substance, up to 50 characters

- If more than three substances are reported, enter the three with the largest reported quantities here and place the remainder (with quantities) in the Substance Comments field. Be sure you are comparing the same units when determining the 3 largest. (Assume 7.5 lb per gallon)
- Look up substance names on the list provided to verify spelling. Some substances have multiple names; if this is the case, the list may indicate the correct name to enter. Do not assume that substances with different endings that are otherwise similar are the same (e.g. butane and butene are different substances)
- If the substance appears to be a mixture, code the chemicals separately, put the quantity in total quantity, and put "MIXTURE" in the Substance Comments field.

Comments:

c140

- Use this Comment for Question 9 also.

9. Quantity Released/Concentration: <Quant, Units> n9,c2  
<Conc, Units> n9,c2

Enter a numeric quantity (up to 9 digits) for each substance reported.

- If no quantity is reported for a substance, leave the field blank. If a qualitative description of the quantity is given (e.g. "a small puddle") put it in the Substance Comments field.
- The capacity of a tank or vehicle should NOT be used as the upper end of a range (i.e. from zero to capacity) if no other information on quantity released is given. Place capacities in the Substance Comments field.
- If quantity is given in drums or barrels, use the following conversion factors to code them as gallons:

1 drum = 55 gallons  
1 barrel = 42 gallons

## Exhibit A-2 (continued)

## ACUTE HAZARDOUS EVENTS FILE

## DATABASE ENTRY FORMAT

Field Type

-- Enter the total quantity ONLY if:

- . There are two or more substances and only the total is reported, OR
- . There are more than three substances reported with quantities.
- . The substance is a mixture (see Question 8)

Circle the appropriate units -

GA - Gallons  
 LB - Pounds  
 TN - Tons  
 CF - Cubic Feet

Enter a concentration for each substance reported. If a concentration is not reported, leave the field blank.

Circle the appropriate units -

PC - Percent  
 PM - Parts per million

## 10. Affected Media:

Air: <Y/N/U>	c1
Water: <Y/N/U>	c1
Land: <Y/N/U>	c1

Circle one -

Y - Yes  
 N - No  
 U - Unknown

-- A response MUST be selected for each media.

-- Coding Conventions:

- . If fire or explosion is coded as one of the END EFFECTS (Question 16), then AIR should be considered to be the only media affected, unless otherwise indicated by the data.
- . If a substance is discharged to the sewer and no other information about affected media is given, then WATER should be assumed to be the only media affected.

ACUTE HAZARDOUS EVENTS FILE

DATABASE ENTRY FORMAT

Field Type

11. In-Transit Mode: <R/T/B/P/O>

c1

Circle one -

- R - Rail
- T - Truck
- B - Barge
- P - Pipeline
- O - Other (Specify)

- A response MUST be selected if the event is in-transit.
- If two modes seem to be involved (e.g. a truck/train collision) circle the mode of the vehicle containing the substance released, and enter the second mode in the Transit Comments field.

12. In-Transit Accident Cause: <CO/LK/DR/OT/UU>

c2

Circle one -

- CO - Collision
- LK - Leak
- DR - Derailment
- TT - Truck Turnover
- OT - Other (Specify)
- UU - Unknown

- A response MUST be selected if the event is in-transit.
- Note that Derailment may only be coded when In-Transit Mode is Rail. Likewise, Truck Turnover may only be coded when In-Transit Mode is Truck.

Comment:

c70

- Use this Comment for Questions 11 and 12.

## Exhibit A-2 (continued)

## ACUTE HAZARDOUS EVENTS FILE

## DATABASE ENTRY FORMAT

Field Type

## 13. Location of Event at Fixed Facility:

&lt;PR/ST/VA/HC/DP/NV/OT/UU&gt;

c2

Circle one -

PR - Process  
ST - Storage  
VA - Valves, Piping, and Misc. Fittings  
HC - Heating, Cooling, and Ventilation  
DP - Disposal and Pollution Control  
NV - Vehicle Not in Transit  
OT - Other (Specify)  
UU - Unknown

-- A response MUST be selected if the event is in a fixed facility.

-- Coding Conventions:

- . The following locations are coded as Process: cropdusters, pesticide spray trucks, process vessels, process related equipment, mixing and blending tanks, compressors, pumps, recovery units, condensers, and rupture disks.
- . The following locations are coded as Storage: tanks, drums, barrels, warehouses, nurse tanks or rigs, and cylinders.
- . The following locations are coded as Valves, Pipes, and Misc. Fittings: flanges, seals, nipples, pipes, hoses, lines, and valves.
- . The following locations are coded as Heating, Cooling, and Ventilation: boilers, furnaces, heat exchangers, refrigeration units or systems, and air conditioning.
- . The following locations are coded as Disposal and Pollution Control: landfills, sewers, scrubbers, strippers, venturris, baghouse or fabric filters, flares, incinerators, ponds, lagoons, waste piles, and abatement systems.
- . The following locations are coded as Other: loading and unloading areas, parking lots, transformers, capacitors, misc. buildings, houses, laboratories, offices, wells, and pools.

Comment:

c70

ACUTE HAZARDOUS EVENTS FILE

DATABASE ENTRY FORMAT

Field Type

14. Primary Cause of Event:

<EF/OE/CC/FI/AV/HP/SL/PW/DR/OT/UU>

c2

Circle one -

EF - Equipment Failure  
OE - Operator Error (Human Error)  
CC - Upset Condition  
FI - Fire/Explosion  
AV - Arson or Vandalism  
HP - Overheating or Overpressurization  
SL - Sparking or Lightning  
PW - Power Related  
DR - Disposal Related  
OT - Other (Specify)  
UU - Unknown

-- A response MUST be selected if the event is in a fixed facility.

-- Coding Conventions:

- . Leaking vessels and corrosion are coded as Equipment Failure.
- . Accidental spills are coded as Operator Error
- . Unanticipated or runaway reactions are coded as Upset Condition
- . Power failures or surges are coded as Power Related
- . Clogged pipes are coded as Other.
- . Any natural phenomena, such as floods or earthquakes, are coded as Other.

Comment:

c70

## Exhibit A-2 (continued)

## ACUTE HAZARDOUS EVENTS FILE

## DATABASE ENTRY FORMAT

Field Type

15. Event Context: &lt;UP/DN/LL/SS/MT/OT/UU&gt;

c2

Circle one -

UP - Process Start Up  
DN - Process Shut Down  
LL - Loading or Unloading  
SS - Steady State  
MT - Maintenance or Cleaning  
OT - Other (Specify)  
UU - Unknown

-- A response MUST be selected if the event is in a fixed facility.

-- Coding Conventions:

. Steady State should be considered the default for normal operations when none of the other choices apply. Unknown should be coded when no information about event context is given.

. Recharging should be coded as Process Start Up.

Comment:

c70

16. End Effects: &lt;SP/VR/FI/EX/OT/UU&gt;

c2

Circle one -

SP - Spill  
VR - Vapor Release  
FI - Fire  
EX - Explosion  
OT - Other (Specify)  
UU - Unknown

-- Codes MUST be selected for all four effects. If fewer than four end effects are appropriate, code the remaining effects fields as Unknown. Code the most prominent effect first. Code Other effects last, but before Unknown.

ACUTE HAZARDOUS EVENTS FILE

DATABASE ENTRY FORMAT

Field Type

17. Injuries: <Y/R/N/U>

c1

Circle one -

Y - Yes

R - Yes, the number of injuries is unknown

N - No

U - Unknown

-- A response MUST be selected.

Number of People Injured:

n7

Enter the TOTAL number of people injured. Leave this field blank if you selected R,N, or U for Injuries.

-- Include only injuries resulting from the release of chemicals. Do NOT include injuries that resulted from a truck or rail accident (e.g. the driver is injured in a truck collision).

Number of People Hospitalized:

n7

Enter the number of people hospitalized or severely injured. Leave this field blank if you selected R,N, or U for Injuries. If you selected Y, and the severity of the injuries is not reported, code this field as -1.

-- Include only injuries resulting from the release of chemicals. Do NOT include injuries that resulted from a truck or rail accident (e.g. the driver is injured in a truck collision).

18. Deaths: <Y/R/N/U>

c1

Circle one -

Y - Yes

R - Yes, the number of deaths is unknown

N - No

U - Unknown

-- A response MUST be selected.

## Exhibit A-2 (continued)

## ACUTE HAZARDOUS EVENTS FILE

## DATABASE ENTRY FORMAT

Field Type**Number of Deaths:**

n7

Enter the number of people killed. Leave this field blank if you selected R,N, or U for Deaths.

-- Include only deaths resulting from the release of chemicals. Do NOT include deaths that resulted from a truck or rail accident (e.g. the driver is killed in a truck collision).

**19. Evacuation Required: <Y/R/N/U>**

c1

Circle one -

Y - Yes

R - Yes, the number evacuated is unknown

N - No

U - Unknown

-- A response MUST be selected.

**Number of People Evacuated:**

n7

Enter the TOTAL number of people evacuated. Leave this field blank if you selected R,N, or U for Evacuations.

-- If the number evacuated is given in qualitative terms, (e.g. "5 businesses") select R for Evacuations and enter the description in the Evacuation Comments field. An exception to this rule is when the number evacuated is given as a number of families or houses. In that case, select Y for Evacuations, enter the number of families or houses in the Evacuation Comments fields, and calculate Number of People Evacuated by assuming 2.3 persons per house or family. Note that the result must be rounded to an integer.

**Number of Non-workers Evacuated:**

n7

Enter the number of non-workers evacuated. Leave this field blank if you selected R,N, or U for Evacuations. If you selected Y, and you cannot determine whether or not the evacuees were workers, code this field as -1.

**Comment:**

c70



ACUTE HAZARDOUS EVENTS FILE

DATABASE ENTRY FORMAT

Field Type

20. Property Damage: <Y/R/N/U>

c1

Circle one -

- Y - Yes
- R - Yes, dollar amount is unknown
- N - No
- U - Unknown

-- A response MUST be selected.

-- Events involving fire, explosion, collision, or derailment are very likely to involve property damage. Unless there is strong evidence to suggest that no property damage occurred in such an event (in which case, code Property Damage as No), this field should be coded Yes if the dollar amount is known and R if the dollar amount is unknown.

Dollar Amount:

n9

-- Enter amount of damage in dollars. Leave this field blank if you selected R, N, or U for Property Damage.

Affected Property: <NA/VE/BG/TK/EQ/OT/UU>

c2

Circle one -

- NA - Not Applicable
- VE - Vehicle(s)
- BG - Building(s)
- TK - Tank(s)
- EQ - Equipment (not tanks)
- OT - Other (Specify)
- UU - Unknown

-- A response MUST be selected.

-- If you selected N or U for Property Damage, code this field as Not Applicable.

-- If you selected Y or R for Property Damage, and the Affected Property is unknown, code this field as Unknown; DO NOT code Not Applicable with Y or R.

-- If more than one category is applicable, code the most severe or prevalent damage. If you cannot make such a distinction, code The first applicable code in this order: Building(s), Vehicle(s), Tank(s), Equipment (not tanks).

## Exhibit A-2 (continued)

## ACUTE HAZARDOUS EVENTS FILE

## DATABASE ENTRY FORMAT

Field Type

-- Note that in a fire or explosion, the Affected Property is whatever burned or exploded. In collisions and derailments, the Affected Property is Vehicle(s).

Comment: c70

21. Environmental Damage: <Y/N/U> c1

Circle one -

Y - Yes  
N - No  
U - Unknown

-- A response MUST be selected.

-- The fact that a material is known to have entered a water body is not sufficient evidence of damage to code Environmental Damage as Yes. However, such information should be included in the Environmental Damage Comments field, regardless of whether the field is coded Yes or Unknown.

Comment: c70

22. Remedial Action: c140

Enter any remedial actions taken.

23. General Comments: c280

-- Include here any important information which cannot be appropriately coded elsewhere. Do not repeat information included in other comment fields. Information which should be entered here includes:

- . Important industry information
- . Other companies involved
- . Mitigating factors
- . Complicating factors (such as weather conditions)
- . Other agencies notified

-- When coding agencies notified, use the following format:

NOTIFIED: <list of agencies>.

Do NOT abbreviate the word NOTIFIED.

Exhibit A-2 (continued)

ACUTE HAZARDOUS EVENTS FILE

DATABASE ENTRY FORMAT

Field Type

- Separate different parts of the general comments with the appropriate punctuation, but use only one paragraph. (i.e. do not put information in a list or on multiple lines.)
- See general coding instructions for more on coding comments.

APPENDIX B  
DATA SOURCE PROFILES

DATA SOURCES USED FOR ACUTE HAZARDOUS EVENTS DATA BASE

<u>AHE/DB ABBREVIATION:</u>	APR
<u>NAME OF SOURCE:</u>	The Associated Press
<u>NUMBER OF EVENTS USED:</u>	43 (0.4% of total number of AHE/DB events)
<u>PERIOD OF EVENTS USED:</u>	1980 - 1986
<u>INCIDENTS COVERED:</u>	Major accidents of regional and national interest
<u>SOURCE OF INFORMATION:</u>	AP reporters
<u>PURPOSE OF INFORMATION:</u>	News
<u>TYPICAL TYPE OF INCIDENT:</u>	Death, injury or evacuation event
<u>ENVIRONMENTAL MEDIA COVERED:</u>	All
<u>NUMBER OF INCIDENTS PER YEAR:</u>	Several hundred
<u>COMPUTERIZATION:</u>	Yes
<u>COMMENTS:</u>	Some events were duplicated in other news sources (and later eliminated)

DATA SOURCES USED FOR ACUTE HAZARDOUS EVENTS DATA BASE

<u>AHE/DB ABBREVIATION:</u>	BGL
<u>NAME OF SOURCE:</u>	The Boston Globe
<u>NUMBER OF EVENTS USED:</u>	12 (0.1%)
<u>PERIOD OF EVENTS USED:</u>	1985 - 1987
<u>INCIDENTS COVERED:</u>	Major accidents in the Northeast
<u>SOURCE OF INFORMATION:</u>	Boston Globe and wire services reporters
<u>PURPOSE OF INFORMATION:</u>	News
<u>TYPICAL TYPE OF INCIDENT:</u>	Death, injury or evacuation event
<u>ENVIRONMENTAL MEDIA COVERED:</u>	All
<u>NUMBER OF INCIDENTS PER YEAR:</u>	60
<u>COMPUTERIZATION:</u>	No
<u>COMMENTS:</u>	Some events were duplicated in other news sources (and later eliminated)

DATA SOURCES USED FOR ACUTE HAZARDOUS EVENTS DATA BASE

<u>AHE/DB ABBREVIATION:</u>	CAL
<u>NAME OF SOURCE:</u>	California Office of Emergency Services - Pilot Project
<u>NUMBER OF EVENTS USED:</u>	133 (1.2%)
<u>PERIOD OF EVENTS USED:</u>	1984 - 1985
<u>INCIDENTS COVERED:</u>	All toxic accidents in California
<u>SOURCE OF INFORMATION:</u>	Highway patrol, fire departments, or companies needing assistance with clean-up
<u>PURPOSE OF INFORMATION:</u>	Investigating aftereffects of releases and coordinating clean-up efforts
<u>TYPICAL TYPE OF INCIDENT:</u>	Transportation event
<u>ENVIRONMENTAL MEDIA COVERED:</u>	All, with emphasis on land
<u>NUMBER OF INCIDENTS PER YEAR:</u>	About 1,700
<u>COMPUTERIZATION:</u>	Yes
<u>COMMENTS:</u>	Computerized information resulting from a pilot project initiated in July 1984. Very little information provided concerning causative factors or process releases.

DATA SOURCES USED FOR ACUTE HAZARDOUS EVENTS DATA BASE

<u>AHE/DB ABBREVIATION:</u>	CHP
<u>NAME OF SOURCE:</u>	California Highway Patrol
<u>NUMBER OF EVENTS USED:</u>	61 (0.6%)
<u>PERIOD OF EVENTS USED:</u>	1983 - 1985
<u>INCIDENTS COVERED:</u>	Accidents involving hazardous materials on California highways
<u>SOURCE OF INFORMATION:</u>	Report of police officer responding to accident
<u>PURPOSE OF INFORMATION:</u>	Logging police response to emergency situations
<u>TYPICAL TYPE OF INCIDENT:</u>	Transportation event involving a small quantity of released hazardous material
<u>ENVIRONMENTAL MEDIA COVERED:</u>	Mostly land
<u>NUMBER OF INCIDENTS PER YEAR:</u>	200 to 300
<u>COMPUTERIZATION:</u>	No
<u>COMMENTS:</u>	No information provided on property damage, environmental damage or end effects



DATA SOURCES USED FOR ACUTE HAZARDOUS EVENTS DATA BASE

<u>AHE/DB ABBREVIATION:</u>	CHT
<u>NAME OF SOURCE:</u>	Chicago Tribune
<u>NUMBER OF EVENTS USED:</u>	62 (0.6%)
<u>PERIOD OF EVENTS USED:</u>	1980 - 1986
<u>INCIDENTS COVERED:</u>	Major accidents in the upper Mid-west
<u>SOURCE OF INFORMATION:</u>	Chicago Tribune and wire services reporters
<u>PURPOSE OF INFORMATION:</u>	News
<u>TYPICAL TYPE OF INCIDENT:</u>	Death, injury or evacuation event
<u>ENVIRONMENTAL MEDIA COVERED:</u>	All
<u>NUMBER OF INCIDENTS PER YEAR:</u>	60
<u>COMPUTERIZATION:</u>	No
<u>COMMENTS:</u>	Some events were duplicated in other news sources (and later eliminated)

DATA SOURCES USED FOR ACUTE HAZARDOUS EVENTS DATA BASE

<u>AHE/DB ABBREVIATION:</u>	HMS
<u>NAME OF SOURCE:</u>	Department of Transportation's Hazardous Materials Information System
<u>NUMBER OF EVENTS USED:</u>	168 (1.5%)
<u>PERIOD OF EVENTS USED:</u>	1986 - 1987
<u>INCIDENTS COVERED:</u>	Transportation or transportation- related accidents occurring within U.S. borders by intra-state carriers
<u>SOURCE OF INFORMATION:</u>	Written reports filed by carriers within two weeks of accident as required by law
<u>PURPOSE OF INFORMATION:</u>	Notification of federal authorities of any release of hazardous materials during transportation
<u>TYPICAL TYPE OF INCIDENT:</u>	Transportation event involving hazardous material
<u>ENVIRONMENTAL MEDIA COVERED:</u>	Air and land
<u>NUMBER OF INCIDENTS PER YEAR:</u>	Several thousand
<u>COMPUTERIZATION:</u>	Yes
<u>COMMENTS:</u>	Well organized

DATA SOURCES USED FOR ACUTE HAZARDOUS EVENTS DATA BASE

<u>AHE/DB ABBREVIATION:</u>	LAT
<u>NAME OF SOURCE:</u>	Los Angeles Times
<u>NUMBER OF EVENTS USED:</u>	35 (0.3%)
<u>PERIOD OF EVENTS USED:</u>	1980 - 1986
<u>INCIDENTS COVERED:</u>	Major accidents in California and minor accidents in the Los Angeles area
<u>SOURCE OF INFORMATION:</u>	L.A. Times and wire services reporters
<u>PURPOSE OF INFORMATION:</u>	News
<u>TYPICAL TYPE OF INCIDENT:</u>	Death, injury or evacuation event
<u>ENVIRONMENTAL MEDIA COVERED:</u>	All
<u>NUMBER OF INCIDENTS PER YEAR:</u>	70
<u>COMPUTERIZATION:</u>	No
<u>COMMENTS:</u>	Some events were duplicated in other news sources (and later eliminated)

DATA SOURCES USED FOR ACUTE HAZARDOUS EVENTS DATA BASE

<u>AHE/DB ABBREVIATION:</u>	MMA
<u>NAME OF SOURCE:</u>	Marsh and McLennon
<u>NUMBER OF EVENTS USED:</u>	46 (0.4%)
<u>PERIOD OF EVENTS USED:</u>	1956 - 1984
<u>INCIDENTS COVERED:</u>	The U.S. portion of MMA's listing of the 100 largest industrial accidents, measured by property damage and economic loss. Strongly emphasizes petroleum facilities, though also includes chemicals processing.
<u>SOURCE OF INFORMATION:</u>	MMA's records -- apparently from staff investigations and published accounts
<u>PURPOSE OF INFORMATION:</u>	Safety engineering analysis and consulting services
<u>TYPICAL TYPE OF INCIDENT:</u>	In-plant, with accident either caused by or resulting in fire or explosion, with cost ranging from \$10 million to over \$100 million (in 1985 dollars)
<u>ENVIRONMENTAL MEDIA COVERED:</u>	Mostly air, but liquid spills followed by ignition also frequent
<u>NUMBER OF INCIDENTS PER YEAR:</u>	3 to 4
<u>COMPUTERIZATION:</u>	No
<u>COMMENTS:</u>	Most events after 1979 were duplicated in other news sources (and later eliminated).

DATA SOURCES USED FOR ACUTE HAZARDOUS EVENTS DATA BASE

<u>AHE/DB ABBREVIATION:</u>	NJE, NJ2
<u>NAME OF SOURCE:</u>	New Jersey Department of Environmental Protection
<u>NUMBER OF EVENTS USED:</u>	513 (4.7%)
<u>PERIOD OF EVENTS USED:</u>	1980 - 1986
<u>INCIDENTS COVERED:</u>	Air releases occurring in New Jersey
<u>SOURCE OF INFORMATION:</u>	Usually fire or police department reports
<u>PURPOSE OF INFORMATION:</u>	Unknown
<u>TYPICAL TYPE OF INCIDENT:</u>	Large release resulting in evacuations, injuries, fire or explosion
<u>ENVIRONMENTAL MEDIA COVERED:</u>	Air
<u>NUMBER OF INCIDENTS PER YEAR:</u>	100 to 150
<u>COMPUTERIZATION:</u>	Currently developing system
<u>COMMENTS:</u>	No information provided about the cause of the event

DATA SOURCES USED FOR ACUTE HAZARDOUS EVENTS DATA BASE

<u>AHE/DB ABBREVIATION:</u>	NRC
<u>NAME OF SOURCE:</u>	National Response Center
<u>NUMBER OF EVENTS USED:</u>	7,705 (70.5%)
<u>PERIOD OF EVENTS USED:</u>	1982 - 1987
<u>INCIDENTS COVERED:</u>	All hazardous chemical accidents in which the quantity of material released exceeds the reportable quantity (RQ)
<u>SOURCE OF INFORMATION:</u>	Private citizen or company reports of incidents in which the quantity released is greater than the RQ for the substance involved
<u>PURPOSE OF INFORMATION:</u>	To provide a single point of notification of federal authorities of all dangerous releases of hazardous materials
<u>TYPICAL TYPE OF INCIDENT:</u>	In-plant event due to equipment failure involving CERCLA chemicals
<u>ENVIRONMENTAL MEDIA COVERED:</u>	Air affected in approximately three-quarters of events, land affected in approximately one-fifth of events and water in fewer than one-tenth
<u>NUMBER OF INCIDENTS PER YEAR:</u>	About 10,000
<u>COMPUTERIZATION:</u>	Yes
<u>COMMENTS:</u>	Operated by US Coast Guard. Little data provided on event duration, property damage, or environmental damage. The data included 7,705 accidental releases of Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) chemicals during 1982 through 1986. Of these, the 2,435 events designated as air releases were all included in the AHE Data Base. One-tenth of the remaining 5,270 events were randomly selected for inclusion in the HAE Data Base. As a result, the 2,962 NRC-origin records in the AHE Data Base represent 7,705 events.

DATA SOURCES USED FOR ACUTE HAZARDOUS EVENTS DATA BASE

<u>AHE/DB ABBREVIATION:</u>	NTP
<u>NAME OF SOURCE:</u>	New Orleans Times-Picayunne
<u>NUMBER OF EVENTS USED:</u>	102 (0.9%)
<u>PERIOD OF EVENTS USED:</u>	1980 - 1986
<u>INCIDENTS COVERED:</u>	Major accidents along the Gulf Coast and minor accidents in the New Orleans area
<u>SOURCE OF INFORMATION:</u>	New Orleans Times-Picayunne and wire services reporters
<u>PURPOSE OF INFORMATION:</u>	News
<u>TYPICAL TYPE OF INCIDENT:</u>	Death, injury or evacuation events. Smaller local events tend to be transportation related collisions or in-plant releases leading to small-scale evacuations.
<u>ENVIRONMENTAL MEDIA COVERED:</u>	All
<u>NUMBER OF INCIDENTS PER YEAR:</u>	33
<u>COMPUTERIZATION:</u>	No
<u>COMMENTS:</u>	Some events were duplicated in other news sources (and later eliminated)

DATA SOURCES USED FOR ACUTE HAZARDOUS EVENTS DATA BASE

<u>AHE/DB ABBREVIATION:</u>	NYA
<u>NAME OF SOURCE:</u>	New York Attorney General's Office
<u>NUMBER OF EVENTS USED:</u>	433 (4.0%)
<u>PERIOD OF EVENTS USED:</u>	1982 - 1985
<u>INCIDENTS COVERED:</u>	Toxic chemical releases in New York State
<u>SOURCE OF INFORMATION:</u>	Unknown
<u>PURPOSE OF INFORMATION:</u>	Attorney General's review of toxic chemical hazards in New York
<u>TYPICAL TYPE OF INCIDENT:</u>	Three quarters were spills to ground nearby, one-fifth were spills to water-ways, and approximately one-tenth were air releases
<u>ENVIRONMENTAL MEDIA COVERED:</u>	All, particularly land
<u>NUMBER OF INCIDENTS PER YEAR:</u>	260
<u>COMPUTERIZATION:</u>	Yes
<u>COMMENTS:</u>	Reports summarized annually by the Attorney General's office starting in 1986



DATA SOURCES USED FOR ACUTE HAZARDOUS EVENTS DATA BASE

<u>AHE/DB ABBREVIATION:</u>	NYT
<u>NAME OF SOURCE:</u>	New York Times
<u>NUMBER OF EVENTS USED:</u>	90 (0.8%)
<u>PERIOD OF EVENTS USED:</u>	1965 - 1987
<u>INCIDENTS COVERED:</u>	Major accidents in the Northeast
<u>SOURCE OF INFORMATION:</u>	N.Y. Times and wire services reporters
<u>PURPOSE OF INFORMATION:</u>	News
<u>TYPICAL TYPE OF INCIDENT:</u>	Death, injury or evacuation event
<u>ENVIRONMENTAL MEDIA COVERED:</u>	All
<u>NUMBER OF INCIDENTS PER YEAR:</u>	10 to 15
<u>COMPUTERIZATION:</u>	Yes; full text on-line
<u>COMMENTS:</u>	Some events were duplicated in other news sources (and later eliminated)

DATA SOURCES USED FOR ACUTE HAZARDOUS EVENTS DATA BASE

<u>AHE/DB ABBREVIATION:</u>	OHE
<u>NAME OF SOURCE:</u>	Ohio Environmental Protection Agency
<u>NUMBER OF EVENTS USED:</u>	252 (2.3%)
<u>PERIOD OF EVENTS USED:</u>	1981 - 1985
<u>INCIDENTS COVERED:</u>	Chemical releases in Ohio, about 50 percent of which are citizen-reported events involving non-hazardous materials
<u>SOURCE OF INFORMATION:</u>	Company (if serious release) or citizen complaint
<u>PURPOSE OF INFORMATION:</u>	Priority-setting tool for investigating companies
<u>TYPICAL TYPE OF INCIDENT:</u>	Equipment failure or transportation event releasing anhydrous ammonia, sulfuric acid, or hydrochloric acid
<u>ENVIRONMENTAL MEDIA COVERED:</u>	All
<u>NUMBER OF INCIDENTS PER YEAR:</u>	200 to 300
<u>COMPUTERIZATION:</u>	Yes
<u>COMMENTS:</u>	Well organized system backed up by hard copies which are easily accessible through incident report numbers

## DATA SOURCES USED FOR ACUTE HAZARDOUS EVENTS DATA BASE

<u>AHE/DB ABBREVIATION:</u>	PEI
<u>NAME OF SOURCE:</u>	PEI Associates
<u>NUMBER OF EVENTS USED:</u>	80 (0.7%)
<u>PERIOD OF EVENTS USED:</u>	1981 - 1986
<u>INCIDENTS COVERED:</u>	NRC events involving deaths, injuries, or large toxic releases
<u>SOURCE OF INFORMATION:</u>	Review of selected events from the NRC Data Base
<u>PURPOSE OF INFORMATION:</u>	Developing methodology for assessing accidental release potential of Premanufacturing Notification chemicals
<u>TYPICAL TYPE OF INCIDENT:</u>	Evenly split between spills and vapor releases, with 15 percent of events involving fires or explosions.
<u>ENVIRONMENTAL MEDIA COVERED:</u>	All, particularly air and land
<u>NUMBER OF INCIDENTS PER YEAR:</u>	30
<u>COMPUTERIZATION:</u>	No
<u>COMMENTS:</u>	

DATA SOURCES USED FOR ACUTE HAZARDOUS EVENTS DATA BASE

<u>AHE/DB ABBREVIATION:</u>	RG7
<u>NAME OF SOURCE:</u>	U.S. Environmental Protection Agency, Region VII, Emergency Planning and Response Branch
<u>NUMBER OF EVENTS USED:</u>	504 (4.6%)
<u>PERIOD OF EVENTS USED:</u>	1979 - 1985
<u>INCIDENTS COVERED:</u>	Chemical spills in EPA Region VII
<u>SOURCE OF INFORMATION:</u>	About 60 percent are from the company involved; the rest come from state agencies, the NRC, and private citizens
<u>PURPOSE OF INFORMATION:</u>	Preparing summary reports for the team responding to the incident
<u>TYPICAL TYPE OF INCIDENT:</u>	All types of incidents, from very small to very large
<u>ENVIRONMENTAL MEDIA COVERED:</u>	Evenly distributed among all media
<u>NUMBER OF INCIDENTS PER YEAR:</u>	About 1,500
<u>COMPUTERIZATION:</u>	Yes
<u>COMMENTS:</u>	Well organized system

DATA SOURCES USED FOR ACUTE HAZARDOUS EVENTS DATA BASE

<u>AHE/DB ABBREVIATION:</u>	TXA
<u>NAME OF SOURCE:</u>	Texas Air Control Board
<u>NUMBER OF EVENTS USED:</u>	428 (3.9%)
<u>PERIOD OF EVENTS USED:</u>	1980 - 1986
<u>INCIDENTS COVERED:</u>	Air releases in Texas with majority of records not listing chemicals involved. Of those listed, about 65% are hazardous.
<u>SOURCE OF INFORMATION:</u>	Companies within Texas required by law to report all upsets and maintenance-related releases
<u>PURPOSE OF INFORMATION:</u>	Scheduling necessary inspections to the plants and modifying regulatory action based upon the type and frequency of releases
<u>TYPICAL TYPE OF INCIDENT:</u>	Equipment failure or maintenance related event
<u>ENVIRONMENTAL MEDIA COVERED:</u>	Air only
<u>NUMBER OF INCIDENTS PER YEAR:</u>	Several thousand
<u>COMPUTERIZATION:</u>	Yes
<u>COMMENTS:</u>	Little information provided on environmental impacts, causes, property damage, injuries or evacuations

DATA SOURCES USED FOR ACUTE HAZARDOUS EVENTS DATA BASE

<u>AHE/DB ABBREVIATION:</u>	UPI
<u>NAME OF SOURCE:</u>	United Press International
<u>NUMBER OF EVENTS USED:</u>	236 (2.2%)
<u>PERIOD OF EVENTS USED:</u>	1980 - 1985
<u>INCIDENTS COVERED:</u>	Major accidents of regional and national interest
<u>SOURCE OF INFORMATION:</u>	UPI reporters
<u>PURPOSE OF INFORMATION:</u>	News
<u>TYPICAL TYPE OF INCIDENT:</u>	Death, injury or evacuation event
<u>ENVIRONMENTAL MEDIA COVERED:</u>	All
<u>NUMBER OF INCIDENTS PER YEAR:</u>	Several hundred
<u>COMPUTERIZATION:</u>	Yes; full text on-line
<u>COMMENTS:</u>	Some events were duplicated in other news sources (and later eliminated)

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APPENDIX C  
CHEMICALS IN THE AHE DATABASE

SUMMARY OF SUBSTANCES  
APPEARING IN THE ACUTE HAZARDS DATA BASE

SUBSTANCE	SIC	LIST **	1st CAS #	2nd CAS #	3rd CAS #	# OF TIMES IN ALL EVENTS	# OF TIMES IN DEATH EVENTS	# OF TIMES IN INJURY EVENTS	# OF TIME IN EVAC. EVENTS
1,1,2-TRICHLOROETHANE	2869	1222	79-00-5			5	0	0	0
1,1-DICHLOROETHANE	2869	1212	75-34-3			30	0	0	0
1,1-DIMETHYLHYDRAZINE	2869	2222	57-14-7			1	0	0	0
1,2-DIMETHYLCYCLOHEXANE	2865	1111	2207-01-4	6876-23-9		0	0	0	0
1-NAPHTHYL N-METHYLCARBAMATE	2879	1221	63-25-2			6	0	1	0
2,2-DIBROMO-3-NITROPROPIONAMIDE	2869	1111	10222-01-2			1	0	0	1
2,4,5-TRICHLOROPHENOXYACETIC ACID	2879	1212	93-76-5			1	0	0	0
2,4-DICHLOROPHENOXYACETIC ACID	2879	1222	94-75-7			17	0	2	1
2-DIAZO-1-NAPHTHOL-5-SULFONIC ACID	2865	1111	23890-27-9			1	0	0	0
2-NITROPROPANE	2869	1222	79-46-9			1	1	0	0
2-PHENYL ETHANOL	2865	1111	60-12-8			1	0	0	0
4,4-ISOPROPYLLIDENEDIPHENOL	2865	1121	80-05-7			1	0	0	0
A-METHYL STYRENE	2821	1111	98-83-9			1	0	0	0
ABS RESIN	2821	1111	9003-56-9			1	0	0	0
ACEPHATE	2869	1111	30560-19-1			0	0	0	0
ACETALDEHYDE	2869	1222	75-07-0			11	1	2	5
ACETALDEHYDE HOMOPOLYMER	2869	1111	9002-91-9			1	0	0	0
ACETAMIDE	2879	1111	51218-45-2			4	0	0	0
ACETATE	2869	1111				2	0	0	0
ACETIC ACETATE	2869	1111				10	0	0	0
ACETIC ACID	2869	1211	64-19-7			59	0	8	1
ACETIC ANHYDRIDE	2869	1211	108-24-7			20	0	6	5
ACETONE	2869	1222	67-64-1			119	1	5	3
ACETONITRILE	2869	1222	75-05-8			11	0	0	0
ACETOPHENONE	2865	1212	98-86-2			1	0	0	0
ACETYL CHLORIDE	2869	1212	75-36-5			1	0	0	0
ACETYLENE	2813	1111	74-86-2			6	2	2	2
ACROLEIN	2869	2222	107-02-8			11	0	0	3
ACRYLAMIDE	2869	2222	79-06-1			5	0	2	1
ACRYLATE	2869	1111	10344-93-1			3	0	0	1
ACRYLIC ACID	2869	1221	79-10-7			26	0	2	1
ACRYLIC RESIN	2821	1111	9003-01-4			2	0	1	0
ACRYLONITRILE	2869	2222	107-13-1			83	1	9	6

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SUMMARY OF SUBSTANCES  
APPEARING IN THE ACUTE HAZARDS DATA BASE

SUBSTANCE	SIC	LIST **	1st CAS #	2nd CAS #	3rd CAS #	# OF TIMES IN ALL EVENTS	# OF TIMES IN DEATH EVENTS	# OF TIMES IN INJURY EVENTS	# OF TIME IN EVAC. EVENTS
ALACHLOR	2879	1111	15972-60-8			13	0	0	0
ALCOHOL (DENATURED)	2869	1111				13	0	0	1
ALDEHYDE	2869	1111				1	0	0	0
ALDICARB	2879	2212	116-06-3			1	0	0	1
ALDICARB OXIDE	2879	1111				1	0	0	0
ALDICARB OXIME	2879	1111				1	0	1	1
ALDRIN	2879	2222	309-00-2			2	0	0	1
ALKYD RESIN	2821	1111				11	0	0	0
ALKYL DIMETHYLBENZYL AMMONIUM CHLORIDE	2865	1111	8001-54-5			0	0	0	0
ALKYLARYL POLYETHER ALCOHOL	2869	1111				1	0	1	0
ALKYLBENZENE SULFONATE	2865	1111	42615-29-2	25496-01-9		1	0	0	0
ALLETHRIN	2879	1111	584-79-2			1	0	0	0
ALLYL ALCOHOL	2869	2212	107-18-6			15	1	3	1
ALLYL CHLORIDE	2869	1221	107-05-1			1	0	0	0
ALLYL GLYCIDYL ETHER	2869	1111	106-92-3			1	0	1	0
ALUMINUM	3300	1121	7429-90-5			15	0	1	1
ALUMINUM CHLORIDE	2819	1111	7446-70-0			3	0	0	2
ALUMINUM CHLOROHYDRATE	2819	1111	12042-91-0			1	0	0	1
ALUMINUM HYDRIDE	2819	1111	7784-21-6			2	0	0	0
ALUMINUM PHOSPHIDE	2819	2212	20859-73-8			6	1	1	3
ALUMINUM SODIUM SULFATE						1	0	0	0
ALUMINUM SULFATE	2819	1211	10043-01-3			12	0	0	0
AMMONIA	2873	2221	7664-41-7			131	2	26	21
AMMONIA (ANHYDROUS)	2873	2221	7664-41-7			628	1	65	67
AMMONIUM	2873	1111	57757-50-3			1	0	0	0
AMMONIUM CHLORIDE	2819	1211	12125-02-9			4	0	1	2
AMMONIUM DICHLORIDE	2819	1111				0	0	0	0
AMMONIUM DICHROMATE	2819	1211	7789-09-5			1	1	1	0
AMMONIUM DIFLUORIDE	2819	1211	1341-49-7			0	0	0	0
AMMONIUM DISULFIDE	2819	1111				1	0	0	0
AMMONIUM HYDROXIDE	2819	1211	1336-21-6			21	0	3	0
AMMONIUM NITRATE	2873	1121	6484-52-2			15	0	2	6
AMMONIUM NITRATE UREA	2873	1111	15978-77-5			2	0	0	0

SUMMARY OF SUBSTANCES  
APPEARING IN THE ACUTE HAZARDS DATA BASE

SUBSTANCE	SIC	LIST **	1st CAS #	2nd CAS #	3rd CAS #	# OF TIMES IN ALL EVENTS	# OF TIMES IN DEATH EVENTS	# OF TIMES IN INJURY EVENTS	# OF TIME IN EVAC. EVENTS
AMMONIUM PERSULFATE	2819	1111	7727-54-0			5	0	2	2
AMMONIUM PHOSPHATE	2873	1111	7722-76-1	7783-28-0	10361-65-6	1	0	0	0
AMMONIUM SALT	2819	1111				10	0	0	0
AMMONIUM SULFATE	2873	1121	7783-20-2	7803-63-6		3	0	1	0
AMMONIUM SULFIDE	2819	1211	12124-99-1	12135-76-1	12259-92-6	3	0	1	1
AMMONIUM SULFITE	2819	1211	10192-30-0			1	0	0	0
AMMONIUM THIOSULFATE	2819	1211	7783-18-8	10103-43-2		15	0	1	0
ANILINE	2865	2222	62-53-3			15	0	3	2
ANTIMONY PENTACHLORIDE	2819	1211	7647-18-9			3	0	1	2
ANTIMONY TRICHLORIDE	2819	1211	10025-91-9			1	0	0	0
ANTIMONY TRIOXIDE	2819	1211	1309-64-4			1	0	1	0
ARGON	2813	1111	7440-37-1			2	0	0	1
ARSENATE	3300	1212	7778-39-4			1	0	0	0
ARSENIC	3300	1222	7440-38-2			2	0	0	1
ARSENIC PENTOXIDE	2819	2212	1303-28-2			1	0	0	0
ASBESTOS	3292	1221	1332-21-4			10	0	1	2
ASPHALT	2911	1111	8052-42-4			3	1	2	2
ASPHALTIC OIL	2911	1111				0	0	0	0
ATRAZINE	2879	1111	1912-24-9			23	0	1	1
AZIDODINITROETHANE	2869	1111				1	0	1	1
AZODI-ISOBUTYRONITRILE	2869	1111	78-67-1			2	0	0	0
BALAN	2879	1111	1861-40-1			2	0	0	0
BANUEAL 720	2879	1111	8068-77-7			1	0	0	0
BANVEL	2879	1211	1918-00-9			2	0	0	0
BATASAN	2879	2111	900-95-8			1	0	1	0
BAYGON	2879	1121	114-26-1			1	0	0	0
BENZENE	2865	1222	71-43-2			98	2	11	8
BENZOYL PEROXIDE	2865	1121	94-36-0			2	0	0	0
BENZYL BROMOACETATE	2865	1111	5437-45-6			1	0	1	0
BENZYL CHLORIDE	2865	2222	100-44-7	25168-05-2		7	0	2	1
BIS (2-ETHYLHEXYL) PHTHALATE	2869	1222	117-81-7			21	0	0	0
BLADEX	2879	1212	757-58-4	21725-46-2		1	0	0	0
BORON TRIBROMIDE			10294-33-4			1	0	0	1

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SUMMARY OF SUBSTANCES  
APPEARING IN THE ACUTE HAZARDS DATA BASE

SUBSTANCE	SIC	LIST **	1st CAS #	2nd CAS #	3rd CAS #	# OF TIMES IN ALL EVENTS	# OF TIMES IN DEATH EVENTS	# OF TIMES IN INJURY EVENTS	# OF TIME IN EVAC. EVENTS
BORON TRIFLUORIDE	2819	2111	7637-07-2			2	0	1	1
BORON TRISULFATE	2819	1111				1	0	0	0
BROMIDE CHLORIDE						0	0	0	0
BROMINE	2819	2111	7726-95-6			5	0	2	5
BROMOCHLOROETHANE	2869	1111	107-04-0			1	0	1	1
BRONZE	3300	1111	12597-70-5			1	0	0	0
BUTADIENE	2869	2121	106-99-0			29	1	4	7
BUTANE	2869	1111	106-97-8			4	0	2	1
BUTANETHIOL	2869	1111	109-79-5	75-66-1	513-53-1	0	0	0	0
BUTENE	2869	1111	25167-67-3			3	0	0	1
BUTYL ACETATE	2869	1212	123-86-4			12	0	2	2
BUTYL ACRYLATE	2869	1121	141-32-2	106-63-8		3	0	0	0
BUTYL ALCOHOL	2869	1222	71-36-3			6	1	2	2
BUTYL CELLOSOLVE	2869	1111	111-76-2			1	0	0	0
BUTYL CREOSOL	2869	1111	2409-55-4	2219-82-1	2219-72-9	10	0	0	0
BUTYL ISOCYANATE	2869	1111	111-36-4			4	0	1	1
BUTYL METHACRYLATE	2869	1111	97-88-1			1	0	0	0
BUTYNOL	2869	1111	2028-63-9			1	0	0	0
CADMIUM	2819	1222	7440-43-9			2	0	0	0
CADMIUM HYDROXIDE	2819	1111	21041-95-2	29736-89-8		10	0	0	0
CADMIUM NITRATE	2819	1111	10325-94-7			10	0	0	0
CALCIUM BROMIDE	2819	1111	7789-41-5			1	0	0	0
CALCIUM CARBIDE	2819	1211	75-20-7			14	0	2	1
CALCIUM CARBONATE			1317-65-3			1	0	0	1
CALCIUM CHLORIDE	2819	1111	10043-52-4	10035-04-8	15606-71-0	2	0	1	1
CALCIUM HYDROXIDE	2819	1111	1305-62-0			1	0	0	0
CALCIUM HYPOCHLORITE	2819	1211	7778-54-3			18	0	5	2
CALCIUM NITRATE	2819	1111	10124-37-5			5	0	0	0
CALCIUM OXIDE	2819	1111	1305-78-8			16	0	1	0
CALCIUM SILICIDE	2819	1111	12013-55-7	12013-56-8		1	0	0	1
CALIFORNIUM 252	3300	1111	13981-17-4			1	0	0	0
CAMPBORIZED NAPTHLENE	2869	1111				0	0	0	0
CARBOFURAN	2879	2211	1563-66-2			14	0	0	1

SUMMARY OF SUBSTANCES  
APPEARING IN THE ACUTE HAZARDS DATA BASE

SUBSTANCE	SIC	LIST **	1st CAS #	2nd CAS #	3rd CAS #	# OF TIMES IN ALL EVENTS	# OF TIMES IN DEATH EVENTS	# OF TIMES IN INJURY EVENTS	# OF TIME IN EVAC. EVENTS
CARBON BLACK	2895	1111	1333-86-4			1	0	0	0
CARBON DIOXIDE	2813	1111	124-38-9			6	0	1	1
CARBON DISULFIDE	2869	2222	75-15-0			9	0	2	2
CARBON MONOXIDE	2813	1111	630-08-8			20	3	5	3
CARBON TETRACHLORIDE	2869	1222	56-23-5			35	0	1	0
CARBOXIN	2879	1111	5234-68-4			1	0	1	0
CHLORDANE	2879	2222	57-74-9	12789-03-6		20	0	4	2
CHLORINATED ISOCYANATE	2869	1111				1	0	0	0
CHLORINATED SODIUM CYANIDE	2819	1111				1	0	0	0
CHLORINE	2812	2221	7782-50-5			750	4	121	89
CHLORINE DIOXIDE	2819	1121	10049-04-4			2	0	1	0
CHLOROACETIC ACID	2869	2121	79-11-8			1	0	0	0
CHLOROBENZENE	2865	1222	108-90-7			27	0	1	1
CHLORODIFLUOROMETHANE	2899	1111	75-45-6			1	0	0	1
CHLOROETHANE	2869	1221	75-00-3			13	0	0	0
CHLOROFORM	2869	2222	67-66-3			12	0	0	1
CHLOROPICRIN	2869	1111	76-06-2			2	0	2	0
CHLOROSULFONIC ACID	2819	1211	7790-94-5			5	0	0	2
CHLOROTHIOFORMATE	----	1111	16890-85-0			1	0	0	0
CHLOROTRIFLUOROMETHYL PYRIDINE	2869	1111				1	0	0	0
CHLORPYRIFOS	2879	1211	2921-88-2			38	0	0	0
CHROMATE	2819	1111	13907-45-4			2	0	1	0
CHROMIC ACID	2819	1111	7738-94-5			52	0	3	3
CHROMIC OXIDE	2819	1111	1308-38-9			1	0	0	0
CHROMIUM	3300	1222	7440-47-3			30	0	0	0
CHROMIUM HYDROXIDE	2819	1111	1308-14-1	59330-19-7	12626-43-6	10	0	0	0
CHROMYL CHLORIDE	2819	1111	14977-61-8			1	0	0	0
CITRONELLOL ACETATE	2869	1111	150-84-5			1	0	0	0
COAL TAR	2865	1111	8007-45-2	65996-89-6	8030-30-6	2	1	2	0
COBALT	2819	2121	7440-48-4			1	0	0	0
COPPER	3300	1221	7440-50-8			23	0	1	0
COPPER OXIDE	2819	1111	1317-38-0	1317-39-1		1	0	0	0
COPPER SULFATE	2819	1211	7758-98-7	1344-73-6	17599-81-4	36	0	1	1

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APPEARING IN THE ACUTE HAZARDS DATA BASE

SUBSTANCE	SIC	LIST **	1st CAS #	2nd CAS #	3rd CAS #	# OF TIMES IN ALL EVENTS	# OF TIMES IN DEATH EVENTS	# OF TIMES IN INJURY EVENTS	# OF TIME IN EVAC. EVENTS
CREOSOTE	2865	1212	8001-58-9			56	0	0	0
CREOSOTE, COAL TAR	2865	1212	8001-58-9			40	0	0	0
CREOSOTE, WOOD	2861	1111	8021-39-4			2	0	0	0
CRESYLIC ACID	2865	1222	1319-77-3	108-39-4	95-48-7	6	0	4	0
CRUDE OIL	2911	1111	8002-05-9			4	0	2	2
CUMENE	2865	1222	98-82-8			16	0	0	0
CUMENE HYDROPEROXIDE	2865	1222	80-15-9			1	0	0	0
CUPRIC AMMONIUM CARBONATE	2819	1111	33113-08-5			1	0	0	0
CUPRIC CHLORIDE	2819	1211	7447-39-4			1	0	0	0
CYANIDE	2819	1222	57-12-5			21	0	4	3
CYANOETHYL CAPROLACTAM	2869	1111				1	0	0	0
CYCLOHEXANE	2865	1222	110-82-7	108-94-1		40	0	1	2
CYCLOHEXANONE	2865	1212	108-94-1			3	0	0	0
CYCLOHEXYL MERCAPTAN	2865	1111	1569-69-3			2	0	0	0
CYCLOHEXYLAMINE	2865		108-91-8			1	0	0	1
DACTHAL	2879	1111	1861-32-1			1	0	0	0
DDT	2865	1212	50-29-3			4	0	1	2
DI-2-ETHYLHEXYL PEROXYDICARBONATE	2865	1111	16111-62-9			1	0	0	0
DI-N-PROPYLAMINE		1212	142-84-7			10	0	0	0
DI-XYLENE	2865	1111	1633-22-3	2319-97-3		1	0	0	0
DIALLYL MALEATE	2869	1111	999-21-3			1	0	0	0
DIAMINODIPHENYLMETHANE	2869	1121	101-77-9			11	0	0	0
DIAZINON	2879	1211	333-41-5			25	0	1	1
DIAZON						1	0	1	1
DIBROMOCHLOROPROPANE	2879	1222	96-12-8	67708-83-2		1	0	0	0
DICHLOROBENZENE	2865	1221	25321-22-6			12	0	1	0
DICHLORODIFLUOROMETHANE	2869	1212	75-71-8			6	0	0	0
DICHLOROETHANE	2869	1111	1300-21-6			1	0	0	0
DICHLOROETHYL ETHER	2869	2222	111-44-4			2	0	0	0
DICHLOROETHYLENE	2869	1111	25323-30-2			1	0	0	0
DICHLOROFUOROMETHANE	2869	1111	75-43-4			2	0	0	1
DICHLOROPHENOL	2865	1111	25167-81-1			1	0	0	0
DICHLOROPROPANE	2869	1211	26638-19-7			3	0	1	1

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SUBSTANCE	SIC	LIST **	1st CAS #	2nd CAS #	3rd CAS #	# OF TIMES IN ALL EVENTS	# OF TIMES IN DEATH EVENTS	# OF TIMES IN INJURY EVENTS	# OF TIME IN EVAC. EVENTS
DICHLOROSILANE	2819	1111	4109-96-0			1	0	0	1
DICYCLOPENTADIENE	2865	1111	77-73-6			11	0	0	0
DIESEL FUEL	2911	1111	68334-30-5			6	1	4	4
DIETHYL CARBONATE	2869	1111	105-58-8			1	0	0	0
DIETHYL CHLOROFORMATE	2869	1111				1	0	0	0
DIETHYL METHYLPHOSPHONOTHIOATE	2879	1111	2511-10-6			1	0	0	0
DIETHYLALUMINUM CHLORIDE	2819	1111	96-10-6			1	0	0	0
DIETHYLALUMINUM HYDRIDE	2819	1111	871-27-2			1	0	0	0
DIETHYLAMINE	2869	1211	109-89-7			2	0	1	0
DIETHYLENE TRIAMINE	2869	1111	111-40-0			3	0	2	0
DIETHYLPHOSPHITE	2869	1111	762-04-9			1	0	0	0
DIFLUOROMETHANE	2869	1111	75-10-5			1	0	0	1
DIISOBUTYLAMINE	2869	1111	110-96-3			1	0	0	1
DIISOBUTYLENE	2869	1111	25167-70-8			1	0	0	0
DIISONONYL ADIPATE	2869	1111	33703-08-1			1	0	0	0
DIISOPROPANOL AMINE	2869	1111	110-97-4			10	0	0	0
DIISOPROPYL ETHER	2869	1111	108-20-3			2	0	0	0
DIMETHOATE	2879	2212	60-51-5			2	0	1	0
DIMETHYL BENZYL ALCOHOL	2865	1111	536-50-5	617-94-7	5788-09-0	1	0	0	0
DIMETHYL CARBONATE	2869	1111	616-38-6			2	0	0	0
DIMETHYL ETHER	2869	1111	115-10-6			4	0	0	0
DIMETHYL FORMAMIDE	2869	1111	68-12-2			1	0	0	0
DIMETHYL PHOSPHOROCHLORIDOTHIOATE	2879	2111	2524-03-0			1	0	0	0
DIMETHYL PHTHALATE	2865	2222	131-11-3			1	0	0	0
DIMETHYL SULFATE	2869	2222	77-78-1			1	0	0	0
DIMETHYL SULFIDE	2869	2111	75-18-3			3	0	0	1
DIMETHYL SULFOXIDE	2869	1111	67-68-5			3	0	2	1
DIMETHYL TEREPHTHALATE	2869	1111	120-61-6			1	0	0	0
DIMETHYLAMINE (ANHYDROUS)	2869	1212	124-40-3			8	0	2	3
DIMETHYLCYCLOHEXYLAMINE	2865	1111	98-94-2			10	0	0	0
DINITROPHENOL	2865		25550-58-7			1	0	1	1
DINITROTOLUENE	2865	1211	25321-14-6			1	0	0	0
DIOCTYL PHTHALATE	2865	2222	117-84-0			1	0	0	0

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SUBSTANCE	SIC	LIST **	1st CAS #	2nd CAS #	3rd CAS #	# OF TIMES IN ALL EVENTS	# OF TIMES IN DEATH EVENTS	# OF TIMES IN INJURY EVENTS	# OF TIME IN EVAC. EVENTS
DIOCTYL SODIUM SULFOSUCCINATE	2869	1111	1639-66-3			1	0	0	0
DIOXANE	2869		123-91-1			2	0	0	1
DIOXIN	2865	1111				1	0	1	0
DIPHENYLMETHANE DIISOCYANATE	2865	1121	101-68-8	26447-40-5		1	0	1	1
DIPHENYLOXAZOLE	2865	1111	92-71-7			1	0	1	1
DIPROPYLENE GLYCOL MONOMETHYL ETHER	2869	1111	34590-94-8			1	0	0	0
DODECYLBENZENE	2865	1111	123-01-3			1	0	0	0
DODECYLBENZENE SULFONIC ACID	2865	1211	27176-87-0	11067-81-5		11	0	0	0
ENDOSULFAM	2879	2212	115-29-7	33213-65-9		3	0	2	2
EPICHLOROHYDRIN	2879	2222	106-89-8			20	0	0	0
EPOXY RESIN	2821	1111	68413-40-1	66587-57-3	73049-40-8	2	0	1	0
ETHANE	1321	1111	74-84-0			1	0	0	0
ETHYL ACETATE	2869	1212	141-78-6			17	0	2	1
ETHYL ACRYLATE	2869	1222	140-88-5			37	1	6	5
ETHYL ACRYLIC						1	0	0	1
ETHYL ALCOHOL	2869	1111	64-17-5			23	2	4	4
ETHYL BENZENE	2865	1221	100-41-4			4	0	0	1
ETHYL CHLOROFORMATE	2869	1121	541-41-3			2	0	0	0
ETHYL ETHER	2869	1212	60-29-7			11	0	0	2
ETHYL HEXANOL	2869	1111	104-76-7			1	0	0	0
ETHYL MERCAPTAN	2869	1111	75-08-1			5	0	0	2
ETHYL SILICATE	2869		78-10-4			1	0	1	0
ETHYLAMINE	2869	1211	75-04-7			3	1	1	0
ETHYLENE	2869	1121	74-85-1			44	1	3	0
ETHYLENE DIAMINE	2869	2211	107-15-3			22	0	0	4
ETHYLENE DIAMINE TETRAACETIC ACID	2869	1211	60-00-4			11	0	0	0
ETHYLENE DIBROMIDE	2869	1222	106-93-4			12	0	0	0
ETHYLENE DICHLORIDE	2869	1222	107-06-2	106-93-4		78	0	1	1
ETHYLENE GLYCOL	2869	1121	107-21-1			29	0	2	2
ETHYLENE GLYCOL MONOETHYL ETHER	2869	1121	110-80-5			2	0	0	2
ETHYLENE GLYCOL MONOETHYL ETHER ACETATE	2869	1111	111-15-9			10	0	0	0
ETHYLENE GLYCOL MONOHEXYL ETHER	2869	1111	112-25-4			1	0	0	0
ETHYLENE GLYCOL MONOMETHYL ETHER	2869	1121	109-86-4			1	0	0	0

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SUBSTANCE	SIC	LIST **	1st CAS #	2nd CAS #	3rd CAS #	# OF TIMES IN ALL EVENTS	# OF TIMES IN DEATH EVENTS	# OF TIMES IN INJURY EVENTS	# OF TIME IN EVAC. EVENTS
ETHYLENE OXIDE	2869	2222	75-21-8			215	0	4	9
FERRIC CHLORIDE	2819	1211	7705-08-0			50	0	3	3
FERRIC SULFATE	2819	1211	10028-22-5			1	0	0	0
FERROUS CHLORIDE	2819	1211	7758-94-3			20	0	0	0
FIBERGLAS	3296	1111				1	0	1	0
FICAM		1111	22781-23-3			1	0	0	1
FLINT (SILICA OR QUARTZ)	3295	1111	14808-60-7			1	0	0	0
FLUBORIC ACID						0	0	0	0
FLUE DUST		1111	67711-90-4			1	0	1	0
FLUORIDE	2819	1111	16984-48-8			16	0	0	0
FLUORINE	2819	2212	7782-41-4			4	0	2	1
FLUOROCARBON	2869	1111	11126-05-9			4	0	2	2
FLUROSILICIC ACID	2819	1111	16961-83-4			12	0	1	0
FLUROSULFONIC ACID	2819	1111	7789-21-1			1	0	1	1
FLUOROTRIFLUOROMETHYL PYRIDENE	2869	1111				1	0	0	0
FORMALDEHYDE	2869	2222	50-00-0			62	1	4	7
FORMIC ACID	2869	1211	64-18-6			15	0	1	2
FUMARIC ACID	2869	1211	110-17-8			2	0	1	1
FURAN	2865	2212	110-00-9			1	0	0	0
FURFURAL	2865	1212	98-01-1			12	0	1	0
GASOLINE	2911	1111	8006-61-9			4	1	3	3
GLUCONIC ACID	2869	1111	526-95-4	133-42-6		1	0	1	0
GLYCERINE	2869	1111	56-81-5			2	0	0	0
GUTHION	2879	2211	86-50-0			1	0	0	1
HELENA		1111				1	0	0	0
HEPTANE	2869	1111	142-82-5			1	0	0	1
HEPTANOL KETONE	2869	1111				1	0	0	0
HEXACHLOROBENZENE	2865	1222	118-74-1			1	0	0	0
HEXACHLOROBUTADIENE	2869	1121	87-68-3			1	0	0	0
HEXACHLOROCYCLOPENTADIENE	2865	2222	77-47-4			1	0	1	0
HEXADIENE	2869	1111	592-42-7	592-45-0		11	0	0	0
HEXAMETHYL DISILAZANE	2869	1111	999-97-3			1	1	0	0
HEXAMINE	2869	1111	100-97-0			10	0	0	0

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SUBSTANCE	SIC	LIST **	1st CAS #	2nd CAS #	3rd CAS #	# OF TIMES IN ALL EVENTS	# OF TIMES IN DEATH EVENTS	# OF TIMES IN INJURY EVENTS	# OF TIME IN EVAC. EVENTS
HEXANE	2869	1111	110-54-3			33	2	3	3
HEXYLETHYLDICHLORIDE	2869	1111				1	0	0	0
HEXYLMETHYLAMINE	2869	1111	35161-70-7			1	0	0	0
HYDRAZINE	2869	2222	302-01-2			14	0	1	1
HYDRAZINE (ANHYDROUS)	2819	2222	302-01-2			0	0	0	0
HYDROBROMIC ACID	2819	1111	10035-10-6			4	0	1	4
HYDROCHLORIC ACID	2819	1211	7647-01-0			530	1	64	76
HYDROCHLORIC ACID (ANHYDROUS)	2819	2221	7647-01-0			1	0	0	0
HYDROFLUORIC ACID	2819	2222	7664-39-3			39	2	8	5
HYDROGEN	2813	1111	1333-74-0			19	1	9	7
HYDROGEN CYANIDE	2819	2222	74-90-8	24993-07-5		25	0	5	7
HYDROGEN PEROXIDE	2819	2111	7722-84-1			13	0	4	2
HYDROGEN SULFIDE	2819	2212	7783-06-4			125	2	9	12
HYDROXIDE	2810	1111				10	0	0	0
HYDROXYLETHYL ACRYLATE	2821	1111	818-61-1			1	0	0	0
HYDROXYPROPYL METHACRYLATE	2869	1111	923-26-2	2761-09-3		1	0	0	0
HYPOCHLORITE	2819	1111	7778-66-7	7681-52-9	7778-54-3	3	0	1	2
IRON	3300	1111	7439-89-6			1	0	0	0
IRON PENTACARBONYL	2869		13463-40-6			1	0	0	1
ISOBUTANE	2869	1111	75-28-5			4	0	1	3
ISOBUTYL ACETATE	2869	1211	110-19-0			2	0	1	1
ISOBUTYL ALCOHOL	2869	1212	78-83-1			12	0	0	0
ISOBUTYLENE	2869	1111	115-11-7			2	0	0	0
ISOCYANATE	2865	1111	71000-82-3			10	0	0	0
ISOPENTANE	2869	1111	78-78-4			3	0	0	1
ISOPHORONE	2865	1211	78-59-1			11	0	0	0
ISOPHTHALIC ACID	2865	1111	121-91-5			3	0	0	0
ISOPHTHALONITRILE	2865	1111	626-17-5			1	0	0	0
ISOPRENE	2869	1211	78-79-5			8	0	0	0
ISOPROPYL ACETATE	2869	1111	108-21-4			4	0	0	0
ISOPROPYL ALCOHOL	2869	1121	67-63-0			11	1	2	3
ISOPROPYL CHLORIDE	2869	1111	75-29-6			1	0	0	0
ISOPROPYLAMINE	2869	1111	75-31-0			1	0	0	0

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SUBSTANCE	SIC	LIST **	1st CAS #	2nd CAS #	3rd CAS #	# OF TIMES IN ALL EVENTS	# OF TIMES IN DEATH EVENTS	# OF TIMES IN INJURY EVENTS	# OF TIME IN EVAC. EVENTS
ISOPROPYLAMINE GLYSOPHATE	2879	1111				1	0	0	0
KELTHANE	2879	1221	115-32-2			3	0	1	0
KEROSENE	2911	1111	8008-20-6	70892-10-3		11	1	1	2
LACTIC ACID	2869	1111	50-21-5			0	0	0	0
LANNATE	2879	2212	16752-77-5			1	0	0	1
LATEX	2821	1111	9016-00-6			12	0	0	0
LEAD	3300	1222	7439-92-1			15	0	1	2
LEAD ACETATE	2819	1212	301-04-2	546-67-8		1	0	0	0
LEAD CHROMATE	2819	1111	7758-97-6			1	0	0	0
LEAD MONOXIDE	2819	1111	1317-36-8			1	0	0	1
LEAD OXIDE	2819	1111	1335-25-7			4	0	1	0
LEAD STYPHNATE	2819	1111	15245-44-0			2	0	0	1
LEAD SULFIDE	2819	1211	1314-87-0	12179-39-4		1	0	0	0
LEUCOPHOR	2879	1111				1	0	0	0
LINDANE	2879	2222	58-89-9			3	0	1	2
LINSEED OIL	2076	1111	8001-26-1			2	0	0	0
LIQUEFIED NATURAL GAS	2911	1111	64741-48-6			2	0	1	1
LITHIUM	2819	1111	7439-93-2			3	0	0	0
LITHIUM HYDRIDE	2819	2111	7580-67-8			1	0	1	0
LITHIUM OXIDE	2819	1111	12057-24-8	12031-80-0		1	0	0	0
M-CRESOL	2865	1222	108-39-4			10	0	0	0
M-NITRO-P-TOLUIDENE	2865	1111	119-32-4			1	0	0	0
M-XYLENE	2865	1222	108-38-3			83	0	1	0
MAGNESIUM	3300	1111	7439-95-4			6	1	1	2
MAGNESIUM CHLORIDE	2819	1111	7786-30-3	7791-18-6	15230-53-2	1	0	0	0
MAGNESIUM OXIDE	2819	1111	1309-48-4			1	0	0	0
MALATHION	2879	1211	121-75-5			27	2	6	5
MALEIC ACID	2865	1211	110-16-7			10	0	0	0
MALEIC ANHYDRIDE	2865	1222	108-31-6			13	1	2	1
MALIC ACID						0	0	0	0
MERCAPTAN	2869	1111				9	0	2	1
MERCURIC THIOCYANATE	2869	1211	592-85-8			0	0	0	0
MERCURY	2819	1222	7439-97-6			78	0	0	0

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SUBSTANCE	SIC	LIST **	1st CAS #	2nd CAS #	3rd CAS #	# OF TIMES IN ALL EVENTS	# OF TIMES IN DEATH EVENTS	# OF TIMES IN INJURY EVENTS	# OF TIME IN EVAC. EVENTS
MESITYL OXIDE	2869	1111	141-79-7			1	0	1	0
METHACRYLIC ACID	----	1111	79-41-4			2	0	0	0
METHANE	2869	1222	74-82-8			8	2	2	3
METHANE DIISOCYANATE	2869	1111				2	0	1	0
METHOXYCHLOR	2865	1222	72-43-5			1	0	0	0
METHYL ACETATE	2869		79-20-9			1	0	0	1
METHYL ALCOHOL	2869	1222	67-56-1			189	3	8	9
METHYL BIS ACRYLAMIDE	2821	1111				1	0	0	0
METHYL BROMIDE	2869	2222	74-83-9	16519-97-4		4	1	3	3
METHYL CHLORIDE	2869	1222	74-87-3			331	0	2	5
METHYL CHLOROFORMATE	2869	2212	79-22-1			2	0	0	0
METHYL ETHYL KETONE	2869	1222	78-93-3			86	4	7	4
METHYL ETHYL KETONE PEROXIDE	2869	1212	1338-23-4			2	0	1	1
METHYL IODIDE	2819	1222	74-88-4			4	0	1	0
METHYL ISOBUTYL KETONE	2869	1222	108-10-1			22	1	2	1
METHYL ISOCYANATE	2869	2222	624-83-9			2	0	1	1
METHYL MERCAPTAN	2869	2212	74-93-1			22	0	3	1
METHYL METHACRYLATE	2821	1222	80-62-6			24	0	5	5
METHYL PARATHION	2879	2212	298-00-0			2	0	0	1
METHYL THIAZOLE	2869	1111	693-95-8	3581-87-1	3581-89-3	0	0	0	0
METHYL-TERT-BUTYL ETHER	2869	1121	1634-04-4			2	0	0	0
METHYLACRYLATE	2821	1121	96-33-3			5	1	3	2
METHYLAMINE	2869	1211	74-89-5			16	0	0	0
METHYLENE CHLORIDE	2869	1222	75-09-2			114	1	8	6
MINERAL OIL	2911	1111	8042-47-5			2	0	0	0
MOLYBDENUM	1061	1111	7439-98-7			1	0	0	0
MONOALUMINUM PHOSPHATE	2819	1111	7784-30-7			2	0	0	0
MONOCHLOROFLUOROMETHANE	2869	1111	593-70-4			1	0	0	0
MONOETHANOLAMINE	2869	1111	141-43-5			3	0	1	2
MONOISOBUTYL AMINE	2869	1211	78-81-9			1	0	0	0
MONOVINYLCETYLENE	2869	1111	689-97-4			0	0	0	0
MORPHINE	2833	1111	57-27-2			1	0	1	0
MORPHOLINE	2865	1111	110-91-8			2	1	1	0

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MURETHANE	2821	1111	9009-54-5			1	0	0	1
N,N-PROPYLENE MERCAPTAN	2869	1111				1	0	0	0
N-(AMINOETHYL) PIPERAZINE	2865	1111	140-31-8			1	0	0	0
NAPHTHA	2865	1111	8030-30-6	8052-41-3	8032-32-4	50	2	7	5
NAPHTHALENE	2865	1222	91-20-3	1146-65-2		16	1	1	1
NATURAL GAS	2911	1111	8006-14-2	64741-48-6		2	0	0	1
NEODOL	2869	1111				1	0	0	0
NEOPRENE	2822	1121	126-99-8			3	1	2	2
NETRIENE DIHYDRIDE		1111				1	0	0	1
NICKEL	2819	2221	7440-02-0			3	0	0	0
NICKEL NITRATE	2819	1111	13138-45-9			10	0	0	0
NICKEL SULFATE	2819	1211	7786-81-4			11	0	0	1
NITAN		1111	2152-34-3			2	0	0	0
NITRIC ACID	2873	2221	7697-37-2			185	4	18	20
NITRIC OXIDE	2819	2212	10102-43-9			25	0	0	1
NITROBENZENE	2865	2222	98-95-3			4	2	1	0
NITROCELLULOSE	2821	1111	9004-70-0			10	1	4	4
NITROCELLULOSE GLYCERIN	2865	1111				1	0	1	0
NITROCHLOROBENZENE	2865	1111	25167-93-5			2	0	1	1
NITRODIPHENYLAMINE	2865	1111	119-75-5	836-30-6	34344-88-2	1	0	0	0
NITROETHANE	2869	1111	79-24-3			1	1	1	0
NITROGEN	2813	1111	7727-37-9			33	2	7	5
NITROGEN DIOXIDE	2813	2212	10102-44-0			16	0	1	4
NITROGEN OXIDE	2813	1111	10024-97-2			7	0	3	1
NITROGLYCERINE	2892	1222	55-63-0			1	1	1	0
NITROPHENYLAMINODIETHANOL	2892	1111				1	0	0	0
NOVOLAC PHENOLIC RESIN	2821	1111				1	0	0	0
NYLON	2821	1111	24993-04-2			1	0	0	1
O-CHLOROPHENOL	2865	1212	95-57-8			2	0	1	0
O-NITROCHLOROBENZENE	2865	1111	88-73-3			1	0	1	1
O-NITROTOLUENE	2865	1211	88-72-2			10	0	0	0
O-XYLENE	2865	1222	95-47-6			8	0	0	0
OCTYL ALCOHOL	2869	1111	111-87-5	104-76-7		3	0	1	1

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SUBSTANCE	SIC	LIST **	1st CAS #	2nd CAS #	3rd CAS #	# OF TIMES IN ALL EVENTS	# OF TIMES IN DEATH EVENTS	# OF TIMES IN INJURY EVENTS	# OF TIME IN EVAC. EVENTS
OCTYL MERCAPTAN	2869	1111	111-88-6			1	0	0	0
ORTHENE	2879	1111	30560-19-1			3	0	1	1
ORTHLENE		1111				1	0	0	0
OXYGEN	2813	1111	7782-44-7			5	1	1	1
P-CRESOL	2865	1222	106-44-5			1	0	0	1
P-CYME	2865	1111	99-87-6			10	0	0	0
P-DICHLOROBENZENE	2865	1222	106-46-7			1	0	0	0
P-DIISOPROPYL BENZENE	2865	1111	100-18-5			1	0	0	0
P-NITROCHLOROBENZENE	2865	1111	100-00-5			0	0	0	0
P-XYLENE	2865	1222	106-42-3			31	0	0	0
PARADENE	2821	1111				1	0	0	0
PARA FORMALDEHYDE	2869	1211	30525-89-4			2	0	0	0
PARAHYDROMERCLURIBENZATE	2865	1111				1	0	0	0
PARAQUAT	2879	2111	1910-42-5	4685-14-7		6	0	3	4
PARATHION	2879	2222	56-38-2			12	0	6	6
PENTACHLOROPHENOL	2865	2222	87-86-5			26	0	2	2
PENTAERYTHRITOL TETRACRYLATE	2869	1111	4986-89-4			1	0	1	1
PENTANE	2869	1111	109-66-0			4	0	2	2
PERCHLORIC ACID	2819	1111	7601-90-3			1	0	1	0
PERMETHANE	2869	1111				1	0	0	0
PEROXIDE	2819	1111				5	0	1	0
PEROXIMON F 100		1111	2781-00-2			1	0	0	1
PETROLEUM	2911	1111	8002-05-9			2	0	0	0
PETROLEUM DISTILLATE	2911	1111	64741-59-9	64741-44-2		0	0	0	0
PHENOL	2865	2222	108-95-2			69	1	5	7
PHENOL ACETONE	2865	1111	35238-34-7			1	0	0	0
PHENOL FORMALDEHYDE	2865	1111	9003-35-4			3	0	0	0
PHENOL-MELAMINE-FORMALDEHYDE RESIN	2821	1111	25917-04-8			1	0	0	0
PHENOLIC RESIN	2821	1111				13	0	1	0
PHENYLDICHLOROARSINE	2865	2212	696-28-6			1	0	0	0
PHENYLMERCURIC ACETATE	2874	2212	62-38-4			3	0	1	1
PHOSGENE	2869	2222	75-44-5			29	2	10	9
PHOSPHATE	2819	1111	14265-44-2	68891-72-5		5	0	1	1

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SUBSTANCE	SIC	LIST **	1st CAS #	2nd CAS #	3rd CAS #	# OF TIMES IN ALL EVENTS	# OF TIMES IN DEATH EVENTS	# OF TIMES IN INJURY EVENTS	# OF TIME IN EVAC. EVENTS
PHOSPHATE ACID	2819	1111				1	0	0	0
PHOSPHINE	2819	2212	7803-51-2			3	0	1	2
PHOSPHORIC ACID	2874	1221	7664-38-2			254	0	12	10
PHOSPHORUS	2819	2221	7723-14-0			40	1	3	2
PHOSPHORUS CHLORIDATE OTHEDATE	2819	1111				1	0	0	0
PHOSPHORUS OXYCHLORIDE	2819	2211	10025-87-3			7	0	5	3
PHOSPHORUS PENTASULFIDE	2819	1212	1314-80-3			6	0	2	3
PHOSPHORUS TRICHLORIDE	2819	2211	7719-12-2			11	0	2	6
PHTHALIC ANHYDRIDE	2865	1222	85-44-9			16	0	3	1
PICRIC ACID			88-89-1			2	0	0	2
PITCH	2865	1111	65996-93-2	61789-60-4		1	0	0	0
POLYACRYLAMIDE	2821	1111	9003-05-8			1	0	0	0
POLYCHLORINATED BIPHENYLS	2821	1221	1336-36-3	11096-82-5	11097-69-1	15	0	2	1
POLYDICHLOROHYDRIN	2821	1111				1	0	1	0
POLYESTER	2821	1111				2	0	0	0
POLYESTER RESIN	2821	1111				4	0	0	0
POLYETHER	2821	1111	66455-31-0			2	0	0	0
POLYETHER POLYOL	2821	1111				1	0	0	0
POLYETHYLENE	2821	1111	9002-88-4			10	1	3	4
POLYGLYCOL	2869	1111	25322-68-3			1	0	0	0
POLYGLYCOL ETHER	2821	1111				1	0	0	0
POLYMERIC DIPHENOL	2821	1121	92-52-4			1	0	1	0
POLYOXYLENE POLYOL	2821	1111				1	0	0	0
POLYPROPYLENE	2821	1111	9003-07-0			11	1	3	3
POLYSTYRENE	2821	1111	9003-53-6			13	1	6	5
POLYURETHANE	2821	1111				4	0	1	1
POLYURETHANE FOAM	2821	1111	9009-54-5			1	0	0	0
POLYVINYL ACETATE	2821	1111	9003-20-7			2	0	0	0
POLYVINYL CHLORIDE	2821	1111	9002-86-2			16	2	4	8
POTASSIUM	2819	1111	7440-09-7			1	1	1	0
POTASSIUM CARBONATE	2812	1111	584-08-7	298-14-6		6	0	1	0
POTASSIUM CHLORIDE	2819	1111	7447-40-7	24359-76-0		1	0	0	0
POTASSIUM CHROMATE	2819	1211	7789-00-6			1	0	0	0

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POTASSIUM CYANIDE	2819	2212	151-50-8			35	0	1	1
POTASSIUM FERRICYANATE	2819	1111	13943-58-3			1	0	1	1
POTASSIUM FERRICYANIDE	2819	1111	13746-66-2			1	0	1	1
POTASSIUM HYDROXIDE	2812	1211	1310-58-3			39	0	2	2
POTASSIUM NITRATE	2819	1111	7757-79-1			12	0	1	0
POTASSIUM PERMANGANATE	2819	1211	7722-64-7			3	0	0	2
POTASSIUM PERSULFATE	2819	1111	7727-21-1			3	0	0	1
PRIMATOL M		1111	5915-41-3			1	0	0	0
PROPANE	2911	1111	74-98-6			11	0	2	4
PROPARGITE	----	1211	2312-35-8			1	0	0	0
PROPARGYL ALCOHOL	2869	1212	107-19-7			2	0	0	0
PROPIONALDEHYDE	2869	1121	123-38-6			1	0	0	0
PROPIONIC ACID	2869	1211	79-09-4			0	0	0	0
PROPOXYLATED BISPHENOL A	2865	1111	37353-75-6			0	0	0	0
PROPYL ACETATE	2869	1111	109-60-4			1	0	0	0
PROPYL ALCOHOL	2869	1111	71-23-8			4	0	0	0
PROPYL MERCAPTAN	2869	1111	107-03-9			1	0	1	0
PROPYLENE	2869	1121	115-07-1			16	1	1	2
PROPYLENE DICHLORIDE	2869	1222	78-87-5	536-54-2	26638-19-7	1	0	1	1
PROPYLENE GLYCOL	2869	1111	57-55-6			4	0	1	1
PROPYLENE OXIDE	2869	2221	75-56-9			11	0	0	2
PROPYLENE TETRAMER	2869	1111	6842-15-5			1	0	0	0
PROPYLENEIMINE	2865	2222	75-55-8			1	0	0	0
PROWL	2873	1111	40487-42-1			1	0	0	0
PYRETHRIN	2879	1211	8003-34-7	121-29-9	121-21-1	2	0	0	2
PYRIDINE	2865	1222	110-86-1			12	0	3	5
REFINERY GASES	2911	1111	68607-11-4			1	1	1	1
RUBBER	2822	1111	9006-04-6			6	0	0	2
SALICYLIC ACID	2865	1111	69-72-7			1	0	0	0
SATAN	2879	1111				1	0	0	0
SENCOR	2879	1111	21087-64-9			1	0	0	0
SILANE	2819	1111	7803-62-5			3	0	0	0
SILICON	2819	1111	7440-21-3			10	0	0	0

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APPEARING IN THE ACUTE HAZARDS DATA BASE

SUBSTANCE	SIC	LIST **	1st CAS #	2nd CAS #	3rd CAS #	# OF TIMES IN ALL EVENTS	# OF TIMES IN DEATH EVENTS	# OF TIMES IN INJURY EVENTS	# OF TIME IN EVAC. EVENTS
SILICON TETRACHLORIDE	2819	1111	10026-04-7			1	0	1	1
SILVER CHLORIDE	2819	1111	7783-90-6			1	0	0	0
SILVER CYANIDE	2819	1212	506-64-9			1	0	1	1
SILVER NITRATE	2819	1211	7761-88-8			1	0	0	0
SILVEX	2879	1212	93-72-1			1	0	1	1
SODIUM	3300	1211	7440-23-5			3	0	2	2
SODIUM BISULFITE	2819	1211	7631-90-5			12	0	0	0
SODIUM BROMATE	2819	1111	7789-38-0			1	0	0	0
SODIUM CARBONATE	2812	1111	144-55-8	497-19-8	13363-41-2	9	0	0	1
SODIUM CHLORATE	2819	1111	7775-09-9			3	0	0	1
SODIUM CHLORIDE	2819	1111	7647-14-5			5	0	0	0
SODIUM CHLORITE	2819	1111	7758-19-2			2	1	0	1
SODIUM CHROMATE	2819	1211	7775-11-3	10588-01-9		12	0	0	0
SODIUM CYANIDE	2819	2212	143-33-9	1934-75-4		29	0	3	3
SODIUM DICHLORO-S-TRIAZINE	2869	1111	2893-78-9			1	0	0	1
SODIUM DICHROMATE	2819	1211	10588-01-9			10	0	0	0
SODIUM FORMATE	2819	1111	141-53-7			1	0	0	1
SODIUM HYDROGEN SULFATE	2819	1111	7681-38-1			5	0	1	2
SODIUM HYDROSULFITE	2819	1111	7775-14-6			3	0	2	1
SODIUM HYDROXIDE	2812	1221	1310-73-2			488	1	26	12
SODIUM HYPOCHLORITE	2842	1211	7681-52-9			67	0	3	3
SODIUM NITRATE	2819	1111	7631-99-4			16	2	3	1
SODIUM NITRITE	2819	1211	7632-00-0			12	0	1	0
SODIUM PERMANGANATE	2819	1111	10101-50-5			1	0	0	0
SODIUM PERSULFATE	2819		7775-27-1			2	0	0	2
SODIUM SILICATE	2819	1111	1344-09-8			2	0	1	0
SODIUM SULFATE	2819	1121	7757-82-6			1	0	0	0
SODIUM SULFIDE	2819	1211	16721-80-5			4	1	2	2
STYRENE	2865	1221	100-42-5			144	1	13	12
STYRENE OXIDE	2865		96-09-3			1	0	0	1
SULFAMIC ACID	2819	1111	5329-14-6			1	0	0	0
SULFITE	2819	1111	14265-45-3			1	0	0	0
SULFONIC ACID	2819	1111				1	0	0	0

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SULFUR	3300	1111	7704-34-9			27	1	3	4
SULFUR CHLORIDE	2819	1111	10025-67-9			37	0	3	2
SULFUR DIOXIDE	2819	1111	7446-09-5			59	0	10	8
SULFUR TRIOXIDE	2819	2111	7446-11-9			18	0	3	3
SULFUR VANADIUM PENTOXIDE	2819	1111				0	0	0	0
SULFURIC ACID	2819	2221	7664-93-9			1045	4	61	30
SULFURIC ACID (ANHYDROUS)	2819	2221	7664-93-9			1	0	0	0
SULFURYL CHLORIDE	2819	1111	7791-25-5			1	0	0	0
SUTAN	2879	1111	2008-41-5			1	0	0	0
SUTAZINE	2879	1111	8070-81-3			1	0	0	0
TALLOW NITRILE	2077	1111	61790-28-1			1	0	0	0
TAR	2911	1111	8007-45-2			1	0	0	0
TEARGAS	2869	1111				1	0	1	0
TERASIL ORANGE 4RL	2879	1111				1	0	0	0
TEREPHTHALIC ACID	2865	1121	100-21-0	70084-95-6		10	0	0	0
TERT-BUTANOL	2869	1121	75-65-0			1	0	0	0
TERT-BUTYL MERCAPTAN	2869	1111	75-66-1			1	0	0	0
TERT-BUTYL PEROXYISOPROPYL BENZENE	2865	1111				1	0	0	1
TERT-BUTYLPERBENZOATE	2865	1111	614-45-9			1	0	0	0
TERT-BUTYLPEROXYPHTHALATE	2865	1111	15042-77-0			1	0	0	0
TETRACHLOROETHANE	2869	1111	25322-20-7	79-34-5		25	0	0	0
TETRACHLOROETHYLENE	2869	1222	127-18-4			145	0	3	2
TETRAETHYL LEAD	2869	2212	78-00-2			25	1	3	2
TETRAHYDROFURAN	2869	1212	109-99-9			21	0	3	0
TETRAPOTASSIUM DIPHOSPHATE	2819	1111	7320-34-5			1	0	0	0
THIABENDAZOLE	2865	1111	148-79-8			1	0	0	0
THIOGLYCOLIC ACID	2869		68-11-1			1	0	1	0
THIONYL CHLORIDE	2819	1111	7719-09-7			4	0	3	3
THIOPHENE	2865	1111	110-02-1			1	0	1	0
THIRAM	2879	1212	137-26-8			1	0	1	0
THISODIAN		1111				1	0	1	0
TIN OXIDE	2819	1111	1332-29-2	12169-15-2	12298-99-6	2	0	0	0
TIN TETRACHLORIDE	2819	1111	7646-78-8			1	0	0	0

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TITANIUM	3300	1111	7440-32-6			2	0	0	0
TITANIUM DIOXIDE	2819	1121	13463-67-7	1317-80-2	1317-70-0	3	0	0	0
TITANIUM TETRACHLORIDE	2819	2121	7550-45-0			11	0	0	3
TOLUENE	2865	1222	108-88-3			215	7	15	10
TOLUENE DIISOCYANATE	2865	2221	584-84-9	26471-62-5		43	2	11	10
TOXAPHENE	2879	2222	8001-35-2			4	0	0	3
TRIAZINE	2865	1111	101-05-3			1	0	0	0
TRIAZOLE	2865	1111	288-88-0	37306-44-8		1	0	1	0
TRICHLORIDE	----	1111	18434-33-8			1	0	0	0
TRICHLORO-S-TRIAZINETRIONE	2865	1111	87-90-1			11	0	0	1
TRICHLOROETHANE	2869	1222	71-55-6			25	1	3	2
TRICHLOROETHYLENE	2869	1222	79-01-6			73	1	4	3
TRICHLOROPHENYLSILANE	2865	2111	98-13-5			1	0	0	0
TRIETHYL BUTANE	2869	1111				1	0	0	0
TRIETHYLALUMINUM	2819	1111	97-93-8			1	0	0	0
TRIETHYLAMINE	2869	1211	121-44-8			3	0	1	0
TRIETHYLENE GLYCOL	2869	1111	112-27-6			2	0	0	0
TRIETHYLPHOSPHITE	2869	1111	122-52-1			1	0	0	0
TRIFLUOROMETHANE	2869	1111	75-46-7			1	0	0	0
TRIFLUOROTOLUENE	2865	1111	98-08-8			1	0	0	1
TRIFLURALIN	2874	1121	1582-09-8			3	0	1	0
TRIMETHYLAMINE (ANHYDROUS)	2869	1211	75-50-3			5	0	2	1
TRIMETHYLOLETHANE	2869	1111	77-85-0			1	0	0	0
TRIPETHIOLPROPANE		1111				1	0	0	0
TURDOW (AMDON 101)	2879	1111	1918-02-1			1	0	0	0
TURPENTINE	2911	1111	9005-90-7			2	0	0	0
URANIUM	2819	1111	7440-61-1			2	0	1	0
URANIUM HEXAFLUORIDE	2819	1111	7783-81-5			7	1	2	0
URANIUM OXIDE	2819	1111	1344-57-6	11113-93-2	19525-15-6	3	1	1	0
URANIUM TETRAFLUORIDE	2819	1111	10049-14-6			1	0	0	0
UREA	2873	1111	57-13-6			5	1	0	0
UREA AMMONIUM NITRATE	2873	1111				5	0	0	0
UREA FORMALDEHYDE	2821	1111	9011-05-6			1	0	0	0

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SUBSTANCE	SIC	LIST **	1st CAS #	2nd CAS #	3rd CAS #	# OF TIMES IN ALL EVENTS	# OF TIMES IN DEATH EVENTS	# OF TIMES IN INJURY EVENTS	# OF TIME IN EVAC. EVENTS
URETHANE	2821	1222	51-79-6			2	1	1	2
URETHANE RESIN	2821	1111	9009-54-5			1	0	1	1
VANADIUM	1094	1111	7440-62-2			1	0	0	0
VANADIUM PENTOXIDE	2819	2212	1314-62-1			2	0	0	0
VAPAM	2879	1111	137-42-8	6734-80-1		2	0	1	1
VINYL	2821	1111				2	0	1	1
VINYL ACETATE	2869	2221	108-05-4			67	0	2	4
VINYL ALCOHOL	2869	1111	9002-89-5	557-75-5		1	0	0	0
VINYL CHLORIDE	2869	1222	75-01-4			202	2	7	14
VINYL TOLUENE	2821	1111	25013-15-4			11	0	0	1
VINYLDENE	2869	1111	2143-69-3			1	0	0	0
VINYLDENE CHLORIDE	2869	1222	75-35-4			11	0	0	0
WAX	2911	1111	71808-29-2			0	0	0	0
WD-40 OIL	2911	1111	83764-86-7			0	0	0	0
WEEDON	2879	1211	2545-59-7			1	0	0	0
XYLENE	2865	1222	1330-20-7			34	1	4	7
XYLENOL	2865	1211	1300-71-6			2	0	0	0
ZINC	3300	1221	7440-66-6			5	1	2	0
ZINC CYANIDE	2819	1212	557-21-1			1	0	1	0
ZINC DIALKYL DITHIOPHOSPHATE	2869	1111	68457-79-4			1	0	0	0
ZINC OXIDE	2819	1111	1314-13-2	20431-17-8	1314-22-3	1	0	0	0
ZINC PHOSPHATE	2819	1111	7779-90-0			1	0	0	0
ZINC SULFATE	2819	1211	7733-02-0	38899-67-1		1	0	0	0
ZIRCONIUM	3300	1111	7440-67-7			1	0	0	0
*** Total ***						10466	121	981	914

APPENDIX D

DATA BASE SUMMARY FOR ALL EVENTS

## APPENDIX D

Appendix D contains the following exhibits:

- D-1 Encyclopedia of Data for All Events
- D-2 Summary of Death, Injury, Evacuation, and Property Damage Reports Associated with All Events
- D-3 Substances Most Frequently Reported in All Events
- D-4 Day of the Week/Time of Day Analysis for All Events at Primary Producers
- D-5 RQ and Quantity/RQ Analysis for All Events
- D-6 Quantity Released as a Function of Event Characteristics for All Events -- By Number of Events and Quantity Released
- D-7 Encyclopedia of Data for All Events at Primary Producers
- D-8 Summary of Death, Injury, Evacuation, and Property Damage Reports Associated with All Events at Primary Producers
- D-9 Substances Most Frequently Reported in All Events at Primary Producers
- D-10 Encyclopedia of Data for All Events at Secondary Producers
- D-11 Summary of Death, Injury, Evacuation, and Property Damage Reports Associated with All Events at Secondary Producers
- D-12 Substances Most Frequently Reported in All Events at Secondary Producers
- D-13 Encyclopedia of Data for All Events at Distributors
- D-14 Summary of Death, Injury, Evacuation, and Property Damage Reports Associated with All Events at Distributors
- D-15 Substances Most Frequently Reported in All Events at Distributors
- D-16 Encyclopedia of Data for All Events at End Users
- D-17 Summary of Death, Injury, Evacuation, and Property Damage Reports Associated with All Events at End Users
- D-18 Substances Most Frequently Reported in All Events at End Users
- D-19 Encyclopedia of Data for All Events at Waste Disposers
- D-20 Summary of Death, Injury, Evacuation, and Property Damage Reports Associated with All Events at Waste Disposers
- D-21 Substances Most Frequently Reported in All Events at Waste Disposers
- D-22 Encyclopedia of Data Summary for All Events by Facility Type -- By Number of Events and Quantity Released
- D-23 Encyclopedia of Data for All Events Involving Commodity Chemicals
- D-24 Encyclopedia of Data for All Events Involving Specialty Chemicals

## Exhibit D-1

ENCYCLOPEDIA OF DATA FOR  
ALL EVENTS

## ALL EVENTS (10933)

	No. of Events	% of Total	Quantity Released	% of Total
<b>SUBSTANCE STATE *</b>				
Solid	435	4.0%	6,476,072	1.6%
Liquid	8,032	73.5%	276,293,909	69.1%
Gas	2,961	27.1%	8,768,502	2.2%
Unknown	10,633	97.3%	250,425	0.1%
Solid Waste	65	0.6%	53,553	0.0%
Liquid Waste	428	3.9%	97,872,502	24.5%
Gas Waste	71	0.7%	459,431	0.1%
Unknown Waste	14	0.1%	46,880	0.0%
Total Solid	500	4.6%	6,529,625	1.6%
Total Liquid	8,460	77.4%	374,166,411	93.6%
Total Gas	3,032	27.7%	9,227,933	2.3%
<b>AIR MEDIA AFFECTED?</b>				
Yes	4,824	44.1%	109,230,648	27.3%
No	2,684	24.6%	105,070,697	26.3%
Unknown	3,425	31.3%	185,292,884	46.4%
<b>WATER MEDIA AFFECTED?</b>				
Yes	2,108	19.3%	160,149,600	40.1%
No	5,817	53.2%	114,438,067	28.6%
Unknown	3,008	27.5%	125,006,562	31.3%
<b>LAND MEDIA AFFECTED?</b>				
Yes	5,126	46.9%	271,889,039	68.0%
No	3,141	28.7%	21,824,072	5.5%
Unknown	2,666	24.4%	105,881,118	26.5%
<b>FIXED FACILITY</b>				
IN-TRANSIT	7,760	71.0%	346,172,098	86.6%
	3,173	29.0%	53,422,131	13.4%
<b>FIXED LOCATION</b>				
Process Vessel	1,738	22.4%	18,078,159	5.2%
Storage Vessel	2,180	28.1%	260,149,571	75.2%
Valves/Pipes	1,968	25.4%	18,959,263	5.5%
Disposal	530	6.8%	20,487,386	5.9%
Heating/Cooling	146	1.9%	487,396	0.1%
Vehicle Not in Transit	218	2.8%	24,628,230	7.1%
Other	275	3.5%	444,461	0.1%
Unknown	705	9.1%	2,937,632	0.9%
<b>FIXED CAUSE</b>				
Equipment Failure	3,641	46.9%	110,887,880	32.0%
Operator Error	1,415	18.2%	159,055,495	46.0%
Upset Conditions	375	4.8%	2,818,211	0.8%
Fire/Explosion	401	5.2%	19,545,363	5.7%
Arson/Vandalism	68	0.9%	1,685,552	0.5%
Disposal Related	28	0.4%	63,301	0.0%
High Pressure/Temp	158	2.0%	3,129,763	0.9%
Power Related	129	1.7%	682,357	0.2%
Sparking/Lightning	22	0.3%	23,628,383	6.8%
Other	580	7.5%	18,393,552	5.3%
Unknown	943	12.2%	6,282,241	1.8%

## Exhibit D-1

ENCYCLOPEDIA OF DATA FOR  
ALL EVENTS

	ALL EVENTS (10933)			
	No. of Events	% of Total	Quantity Released	% of Total
<b>EVENT CONTEXT</b>				
Loading/Unloading	1,256	16.2%	113,324,328	32.7%
Steady State	3,960	51.0%	206,242,651	59.6%
Start-Up	138	1.8%	6,110,108	1.8%
Shut Down	89	1.2%	1,073,080	0.3%
Maintenance	241	3.1%	2,465,837	0.7%
Other	138	1.8%	296,153	0.1%
Unknown	1,938	25.0%	16,659,941	4.8%
<b>IN-TRANSIT MODE</b>				
Truck	1,543	48.6%	9,890,414	18.5%
Rail	1,375	43.3%	11,911,913	22.3%
Barge	143	4.5%	5,810,078	10.9%
Pipeline	89	2.8%	25,777,430	48.3%
Other	23	0.7%	32,296	0.1%
<b>IN-TRANSIT CAUSE</b>				
Leak	1,468	46.3%	6,872,454	12.9%
Collision	368	11.6%	10,569,402	19.8%
Derailment	207	6.5%	4,763,178	8.9%
Truck Turnover	220	6.9%	1,599,204	3.0%
Other	732	23.1%	28,741,722	53.8%
Unknown	178	5.6%	876,171	1.6%
<b>END EFFECTS **</b>				
Spill	7,463	68.3%	365,866,563	91.6%
Vapor Release	4,295	39.3%	26,842,434	6.7%
Fire	735	6.7%	55,211,780	13.8%
Explosion	319	2.9%	53,470,783	13.4%
Other	32	0.3%	714,408	0.2%
<b>DEATHS?</b>				
Yes	114	1.0%	24,905,580	6.2%
No	10,175	93.1%	334,757,451	83.8%
Unknown	644	5.9%	39,931,198	10.0%
<b>INJURIES?</b>				
Yes	994	9.1%	52,435,570	13.1%
No	9,040	82.7%	302,635,295	75.7%
Unknown	899	8.2%	44,523,364	11.1%
<b>EVACUATION?</b>				
Yes	829	7.6%	29,217,507	7.3%
No	5,067	46.4%	214,016,623	53.6%
Unknown	5,037	46.1%	156,360,099	39.1%
<b>PROPERTY DAMAGE?</b>				
Yes	1,473	13.5%	96,695,181	24.2%
No	4,722	43.2%	115,013,793	28.8%
Unknown	4,738	43.3%	187,885,255	47.0%

## Exhibit D-1

ENCYCLOPEDIA OF DATA FOR  
ALL EVENTS

## ALL EVENTS (10933)

	No. of Events	% of Total	Quantity Released	% of Total
<b>PROPERTY TYPE</b>				
Buildings	189	12.8%	17,545,267	18.1%
Vehicles	661	44.9%	40,186,993	41.6%
Tanks	97	6.6%	3,687,210	3.8%
Other Equipment	194	13.2%	9,493,645	9.8%
Other	22	1.5%	57,905	0.1%
Unknown	310	21.1%	25,724,161	26.6%
<b>ENVIRONMENTAL DAMAGE?</b>				
Yes	277	2.5%	49,722,076	12.4%
No	3,639	33.3%	97,366,766	24.4%
Unknown	7,017	64.2%	252,505,387	63.2%
<b>SOURCES</b>				
APR	43	0.4%	34,675	0.0%
BGL	12	0.1%	242,250	0.1%
CAL	133	1.2%	994,569	0.3%
CHP	61	0.6%	964,475	0.2%
CHT	62	0.6%	4,960,163	1.2%
CWK	2	0.0%	8,500	0.0%
HMS	168	1.5%	923,642	0.2%
LAT	35	0.3%	1,149,144	0.3%
MMA	46	0.4%	29,890,563	7.5%
NJ2	412	3.8%	18,515,586	4.6%
NJE	101	0.9%	240,060	0.1%
NRC	7,705	70.5%	189,772,814	47.5%
NTP	102	0.9%	1,445,765	0.4%
NYA	433	4.0%	97,296,233	24.4%
NYT	90	0.8%	1,957,474	0.5%
OHE	252	2.3%	1,227,236	0.3%
PEI	80	0.7%	951,336	0.2%
RG7	504	4.6%	38,707,493	9.7%
TXA	428	3.9%	3,825,478	1.0%
UPI	236	2.2%	5,577,003	1.4%
<b>OTHER NEWSPAPERS</b>				
	28	0.3%	909,770	0.2%
<b>TOTAL</b>	<b>10,933</b>		<b>399,594,229</b>	

\* The total number of events in this category can exceed 10933 because events can involve up to three substances.

\*\* The total number of events in this category can exceed 10933 because events can have up to four coded end effects.



## Exhibit D-2

SUMMARY OF DEATH, INJURY, EVACUATION, AND PROPERTY DAMAGE REPORTS  
ALL EVENTS

DEATHS	Number of Events	Number Killed	Average per Event
All Death Events	114		
Number of Deaths Known	112	288	2.6
INJURIES	Number of Events	Number Injured	Average per Event
All Injury Events	994		
Number of Injuries Known	966	10,803	11.2
Severity Known	533	6,434	12.1
Serious		1,472	5.0
Minor		4,962	20.7
EVACUATIONS	Number of Events	Number Evacuated	Average per Event
All Evacuation Events	829		
Number of Evacuees Known	405	435,851	1,076.2
Type Known	288	308,822	1,072.3
Residents		280,250	973.1
Workers		28,572	99.2
PROPERTY DAMAGE	Number of Events	Value of Damage	Average per Event
All Property Damage Events	1,473		
Value of Damage Known	265	\$ 1,387 mil.	\$ 5.2 mil.

## Exhibit D-3

SUBSTANCES MOST FREQUENTLY REPORTED  
ALL EVENTS (10933 Events)

RANK	CHEM TYPE	SUBSTANCE NAME	NUMBER OF EVENTS	QUANTITY RELEASED
1		SULFURIC ACID	1,045	70,097,694
2		CHLORINE	750	182,907
3		AMMONIA (ANHYDROUS)	628	3,569,711
4		HYDROCHLORIC ACID	530	5,416,514
5		SODIUM HYDROXIDE	488	30,454,552
6		METHYL CHLORIDE	330	187,419
7		PHOSPHORIC ACID	254	2,807,019
8		UNKNOWN	245	2,121,939
9		TOLUENE	215	2,137,992
10		ETHYLENE OXIDE	215	2,698,023
11		VINYL CHLORIDE	202	250,110
12		METHYL ALCOHOL	189	7,321,262
13		NITRIC ACID	185	4,110,549
14		TETRACHLOROETHYLENE	145	828,663
15		STYRENE	144	520,660
16		AMMONIA	131	1,977,861
17		HYDROGEN SULFIDE	125	1,167,942
18		ACETONE	119	1,056,318
19		METHYLENE CHLORIDE	114	141,309
20		BENZENE	98	1,777,925
21		METHYL ETHYL KETONE	86	333,650

## Exhibit D-4

DAY OF THE WEEK/TIME OF DAY ANALYSIS  
ALL EVENTS (PRIMARY PRODUCERS -- 4324 EVENTS)

	NUMBER OF EVENTS	QUANTITY RELEASED	HOURS PER WEEK	EVENTS PER HOUR	QUANTITY PER HOUR
DAY OF THE WEEK					
Monday	771	37,184,687	24	32.1	1,549,362
Tuesday	722	64,548,593	24	30.1	2,689,525
Wednesday	710	13,287,196	24	29.6	553,633
Thursday	668	3,107,024	24	27.8	129,459
Friday	643	7,374,338	24	26.8	307,264
Saturday	383	3,900,384	24	16.0	162,516
Sunday	424	2,868,355	24	17.7	119,515
Unknown	3	54	24	0.1	2
TIME OF DAY					
Unknown	901	26,803,148	NA	NA	NA
AM	1,146	11,035,741	42	27.3	262,756
DAY	0	0	84	0.0	0
PM	1,623	74,643,709	42	38.6	1,777,231
SHIFT *					
On shift	1,962	76,499,995	60	32.7	1,275,000
Off shift	2,359	55,770,582	108	39.3	929,510
Unknown	3	54	NA	NA	NA
TOTAL	4,324	132,270,631	168	25.7	787,325

\* On shift is defined as 6AM to 6PM, Monday through Friday; all other hours of the week are off shift.

## Exhibit D-5

DISTRIBUTION OF EVENTS BY REPORTABLE QUANTITY  
ALL EVENTS

RQ	SUBSTANCE 1		DISTRIBUTION OF RQS	
	NUMBER OF EVENTS	PERCENT OF EVENTS	NUMBER	PERCENT
1	1,113	18.2%	193	27.6%
10	729	11.9%	68	9.7%
100	856	14.0%	111	15.9%
1000	2,170	35.5%	169	24.1%
5000	1,247	20.4%	159	22.7%
TOTAL	6115	100.0%	700	100.0%

DISTRIBUTION OF EVENTS BY RATIO OF QUANTITY TO REPORTABLE QUANTITY  
ALL EVENTS

Q/RQ RANGE	SUBSTANCE 1	
	NUMBER OF EVENTS	PERCENT OF EVENTS
0-1	1,889	30.9%
1-10	2,184	35.7%
10-100	1,241	20.3%
100-1000	512	8.4%
>1000	289	4.7%
TOTAL	6115	100.0%

ENCYCLOPEDIA OF DATA	QUANTITY RELEASED - ALL EVENTS		(By Quantity Range in Lbs.)						
	Total Quantity Released	1-10 % of Total	11-100 % of Total	101-1K % of Total	1K-10K % of Total	10K-25K % of Total	25K-50K % of Total	50K-100K % of Total	>100K % of Total
FIXED FACILITY	346,172,098	0.0%	0.0%	0.2%	1.7%	2.4%	3.2%	3.0%	89.5%
IN-TRANSIT	53,422,131	0.0%	0.0%	0.4%	2.6%	4.6%	8.1%	5.5%	78.7%
FIXED LOCATION									
Process Vessel	18,078,159	0.0%	0.1%	1.0%	6.5%	9.2%	11.1%	4.8%	67.4%
Storage Vessel	260,149,571	0.0%	0.0%	0.1%	0.8%	1.1%	1.3%	2.1%	94.7%
Valves/Pipes	18,959,263	0.0%	0.1%	1.1%	9.6%	10.5%	20.1%	14.6%	44.1%
Disposal	20,487,386	0.0%	0.0%	0.2%	1.0%	3.3%	2.7%	1.6%	91.2%
Heating/Cooling	487,396	0.0%	0.2%	4.4%	26.3%	8.4%	19.5%	12.7%	28.5%
Vehicles Not in Transit	24,628,230	0.0%	0.0%	0.1%	0.6%	1.2%	2.0%	0.3%	95.9%
Other	444,461	0.0%	0.2%	3.7%	28.7%	58.9%	8.4%	0.0%	0.0%
Unknown	2,937,632	0.0%	0.2%	1.1%	11.2%	16.2%	26.1%	37.5%	7.6%
FIXED CAUSE									
Equipment Failure	110,887,880	0.0%	0.0%	0.4%	2.8%	3.7%	4.2%	4.2%	84.9%
Operator Error	159,055,495	0.0%	0.0%	0.1%	0.8%	1.3%	2.5%	1.6%	93.7%
Upset Conditions	2,818,211	0.0%	0.1%	1.5%	7.2%	11.2%	11.2%	4.2%	64.5%
Fire/Explosion	19,545,363	0.0%	0.0%	0.1%	0.8%	0.5%	0.4%	1.6%	96.7%
Arson/Vandalism	1,685,552	0.0%	0.0%	0.1%	10.4%	2.2%	12.6%	8.0%	66.7%
Disposal Related	63,301	0.0%	0.0%	0.2%	67.2%	32.6%	0.0%	0.0%	0.0%
High Pressure/Temp	3,129,763	0.0%	0.1%	0.6%	1.4%	9.7%	3.9%	4.9%	79.5%
Power Related	682,357	0.0%	0.3%	1.5%	6.1%	17.4%	46.3%	8.1%	20.3%
Sparking/Lightning	23,628,383	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%
Other	18,393,552	0.0%	0.0%	0.2%	2.3%	2.3%	4.8%	4.5%	85.9%
Unknown	6,282,241	0.0%	0.1%	1.0%	8.5%	10.3%	10.2%	27.5%	42.3%

D-8

Exhibit D-6A

September 1989

## Exhibit D-6A (continued)

ENCYCLOPEDIA OF DATA	QUANTITY RELEASED - ALL EVENTS		(By Quantity Range in Lbs.)						
	Total Quantity Released	1-10 % of Total	11-100 % of Total	101-1K % of Total	1K-10K % of Total	10K-25K % of Total	25K-50K % of Total	50K-100K % of Total	>100K % of Total
<b>EVENT CONTEXT</b>									
Loading/Unloading	113,324,328	0.0%	0.0%	0.1%	1.2%	1.3%	2.9%	1.8%	92.7%
Steady State	206,242,651	0.0%	0.0%	0.2%	1.4%	2.2%	2.0%	2.7%	91.5%
Start-Up	6,110,108	0.0%	0.0%	0.1%	0.6%	4.3%	8.7%	2.5%	83.7%
Shut Down	1,073,080	0.0%	0.1%	0.6%	4.9%	3.5%	7.0%	0.0%	83.9%
Maintenance	2,465,837	0.0%	0.1%	0.6%	3.2%	4.5%	7.7%	5.0%	78.8%
Other	296,153	0.0%	0.7%	5.5%	30.5%	63.3%	0.0%	0.0%	0.0%
Unknown	16,659,941	0.0%	0.1%	1.0%	8.7%	9.5%	16.4%	16.7%	47.8%
<b>IN-TRANSIT MODE</b>									
Truck	9,890,414	0.0%	0.1%	1.4%	11.4%	16.7%	31.4%	8.0%	31.1%
Rail	11,911,913	0.0%	0.1%	0.4%	1.2%	3.8%	8.9%	17.8%	67.9%
Barge	5,810,078	0.0%	0.0%	0.3%	0.8%	3.9%	1.6%	0.0%	93.4%
Pipeline	25,777,430	0.0%	0.0%	0.0%	0.3%	0.8%	0.2%	0.0%	98.8%
Other	32,296	0.0%	0.3%	5.2%	17.0%	77.4%	0.0%	0.0%	0.0%
<b>IN-TRANSIT CAUSE</b>									
Leak	6,872,454	0.0%	0.1%	1.5%	5.2%	10.3%	19.4%	14.2%	49.4%
Collision	10,569,402	0.0%	0.0%	0.3%	2.7%	8.7%	10.2%	13.6%	64.5%
Derailment	4,763,178	0.0%	0.0%	0.0%	0.3%	1.4%	2.5%	1.6%	94.2%
Truck Turnover	1,599,204	0.0%	0.1%	0.8%	17.7%	19.2%	21.5%	14.8%	25.8%
Other	28,741,722	0.0%	0.0%	0.2%	1.4%	1.3%	4.4%	0.4%	92.3%
Unknown	876,171	0.0%	0.0%	0.8%	6.6%	19.0%	19.0%	9.0%	45.7%
<b>TOTAL QUANTITY (In Pounds)</b>	<b>399,594,229</b>	<b>4.0%</b>	<b>74,222</b>	<b>914,670</b>	<b>7,367,052</b>	<b>10,692,403</b>	<b>15,377,560</b>	<b>13,439,260</b>	<b>351,724,966</b>

ENCYCLOPEDIA OF DATA	NUMBER OF EVENTS - ALL EVENTS		(By Quantity Range in Lbs.)								
			Total	1-10	11-100	101-1K	1K-10K	10K-25K	25K-50K	50K-100K	>100K
			No. of Events	% of Total	% of Total	% of Total	% of Total	% of Total	% of Total	% of Total	% of Total
FIXED FACILITY	5,934	8.4%	17.8%	27.6%	27.2%	8.0%	5.2%	2.6%	3.2%		
IN-TRANSIT	1,873	13.0%	19.9%	28.1%	19.4%	8.6%	6.6%	2.1%	2.3%		
FIXED LOCATION											
Process Vessel	1,389	11.5%	21.5%	28.8%	24.1%	7.6%	3.8%	1.0%	1.7%		
Storage Vessel	1,665	3.8%	10.3%	28.4%	30.3%	9.4%	5.4%	4.8%	7.6%		
Valves/Pipes	1,746	9.5%	20.6%	25.1%	28.1%	6.4%	6.6%	2.2%	1.4%		
Disposal	370	9.5%	17.3%	27.8%	24.3%	12.2%	4.1%	1.4%	3.5%		
Heating/Cooling	94	8.5%	20.2%	35.1%	27.7%	3.2%	3.2%	1.1%	1.1%		
Vehicles Not in Transit	177	8.5%	18.6%	33.9%	22.6%	7.9%	7.3%	0.6%	0.6%		
Other	160	23.1%	15.6%	25.6%	26.3%	8.8%	0.6%	0.0%	0.0%		
Unknown	333	3.9%	25.5%	27.3%	25.2%	7.5%	5.4%	4.5%	0.6%		
FIXED CAUSE											
Equipment Failure	3,026	9.7%	18.6%	28.4%	25.9%	7.7%	4.4%	2.3%	3.0%		
Operator Error	1,168	2.7%	12.2%	26.0%	32.7%	10.2%	8.8%	3.1%	4.3%		
Upset Conditions	289	8.7%	20.8%	35.6%	22.2%	7.3%	3.1%	0.7%	1.7%		
Fire/Explosion	104	7.7%	17.3%	26.0%	26.9%	4.8%	1.9%	3.9%	11.5%		
Arson/Vandalism	42	0.0%	7.1%	4.8%	61.9%	7.1%	11.9%	4.8%	2.4%		
Disposal Related	17	5.9%	0.0%	5.9%	82.4%	5.9%	0.0%	0.0%	0.0%		
High Pressure/Temp	133	6.8%	28.6%	34.6%	12.0%	12.0%	2.3%	1.5%	2.3%		
Power Related	102	8.8%	34.3%	21.6%	12.8%	9.8%	10.8%	1.0%	1.0%		
Sparking/Lightning	6	0.0%	33.3%	33.3%	16.7%	0.0%	0.0%	0.0%	16.7%		
Other	469	16.8%	17.7%	22.8%	26.9%	5.5%	5.3%	2.4%	2.6%		
Unknown	578	7.1%	19.2%	29.1%	27.3%	7.4%	2.9%	4.5%	2.4%		

ENCYCLOPEDIA OF DATA	NUMBER OF EVENTS - ALL EVENTS								
	(By Quantity Range in lbs.)								
	Total No. of Events	1-10 % of Total	11-100 % of Total	101-1K % of Total	1K-10K % of Total	10K-25K % of Total	25K-50K % of Total	50K-100K % of Total	>100K % of Total
EVENT CONTEXT									
Loading/Unloading	1,127	1.3%	13.9%	31.9%	33.5%	7.4%	8.0%	2.3%	1.7%
Steady State	3,045	10.9%	19.1%	26.0%	24.4%	8.7%	4.0%	2.8%	4.1%
Start-Up	101	14.9%	18.8%	20.8%	12.9%	12.9%	12.9%	2.0%	5.0%
Shut Down	76	7.9%	38.2%	22.4%	23.7%	2.6%	2.6%	0.0%	2.6%
Maintenance	171	19.9%	28.1%	25.7%	11.7%	3.5%	2.9%	1.2%	7.0%
Other	107	16.8%	23.4%	29.0%	21.5%	9.4%	0.0%	0.0%	0.0%
Unknown	1,307	5.8%	15.2%	28.8%	31.9%	7.4%	5.7%	3.1%	2.1%
IN-TRANSIT MODE									
Truck	1,170	9.0%	16.8%	31.6%	23.9%	9.3%	7.8%	1.1%	0.6%
Rail	523	23.5%	28.5%	19.1%	7.1%	5.5%	5.5%	5.2%	5.5%
Barge	106	0.0%	20.8%	42.5%	20.8%	10.4%	1.9%	0.0%	3.8%
Pipeline	64	21.9%	7.8%	10.9%	35.9%	17.2%	1.6%	0.0%	4.7%
Other	10	10.0%	10.0%	40.0%	30.0%	10.0%	0.0%	0.0%	0.0%
IN-TRANSIT CAUSE									
Leak	813	16.9%	25.8%	31.6%	12.6%	5.7%	5.0%	1.7%	0.7%
Collision	250	0.4%	4.0%	25.6%	25.6%	22.0%	12.4%	7.2%	2.8%
Derailment	62	19.4%	21.0%	4.8%	6.5%	6.5%	4.8%	1.6%	35.5%
Truck Turnover	181	11.6%	18.2%	18.8%	32.6%	11.1%	5.0%	2.2%	0.6%
Other	506	14.0%	20.2%	30.0%	22.9%	4.6%	6.7%	0.4%	1.2%
Unknown	61	1.6%	8.2%	26.2%	31.2%	21.3%	8.2%	1.6%	1.6%
TOTAL EVENTS	7,807	739	1,430	2,166	1,976	637	431	194	234



## Exhibit D-7

ENCYCLOPEDIA OF DATA FOR  
PRIMARY PRODUCERS

## ALL EVENTS (4324)

	No. of Events	% of Total	Quantity Released	% of Total
<b>SUBSTANCE STATE *</b>				
Solid	93	2.2%	1,011,961	0.8%
Liquid	2,441	56.5%	114,791,632	86.8%
Gas	1,946	45.0%	5,935,599	4.5%
Unknown	4,990	115.4%	62	0.0%
Solid Waste	20	0.5%	481	0.0%
Liquid Waste	121	2.8%	2,335,197	1.8%
Gas Waste	39	0.9%	451,561	0.3%
Unknown Waste	2	0.1%	1,880	0.0%
Total Solid	113	2.6%	1,012,442	0.8%
Total Liquid	2,562	59.3%	117,126,829	88.6%
Total Gas	1,985	45.9%	6,387,160	4.8%
<b>AIR MEDIA AFFECTED?</b>				
Yes	2,543	58.8%	10,589,677	8.0%
No	763	17.7%	84,989,454	64.3%
Unknown	1,018	23.5%	36,691,500	27.7%
<b>WATER MEDIA AFFECTED?</b>				
Yes	905	20.9%	14,557,493	11.0%
No	2,429	56.2%	95,006,877	71.8%
Unknown	990	22.9%	22,706,261	17.2%
<b>LAND MEDIA AFFECTED?</b>				
Yes	1,395	32.3%	114,722,659	86.7%
No	1,732	40.1%	8,423,278	6.4%
Unknown	1,197	27.7%	9,124,694	6.9%
<b>FIXED FACILITY</b>				
IN-TRANSIT	3,803	88.0%	127,429,395	96.3%
	521	12.1%	4,841,236	3.7%
<b>FIXED LOCATION</b>				
Process Vessel	1,150	30.2%	5,700,031	4.5%
Storage Vessel	751	19.8%	106,807,459	83.8%
Valves/Pipes	1,114	29.3%	9,885,531	7.8%
Disposal	284	7.5%	3,109,618	2.4%
Heating/Cooling	96	2.5%	297,769	0.2%
Vehicle Not in Transit	70	1.8%	368,695	0.3%
Other	41	1.1%	31,240	0.0%
Unknown	297	7.8%	1,229,052	1.0%
<b>FIXED CAUSE</b>				
Equipment Failure	1,928	50.7%	74,641,629	58.6%
Operator Error	615	16.2%	29,109,380	22.8%
Upset Conditions	233	6.1%	1,757,058	1.4%
Fire/Explosion	90	2.4%	280,452	0.2%
Arson/Vandalism	5	0.1%	90,063	0.1%
Disposal Related	19	0.5%	33,526	0.0%
High Pressure/Temp	119	3.1%	522,954	0.4%
Power Related	100	2.6%	418,606	0.3%
Sparking/Lightning	8	0.2%	3,328	0.0%
Other	218	5.7%	16,906,752	13.3%
Unknown	468	12.3%	3,665,647	2.9%

## Exhibit D-7 (continued)

ENCYCLOPEDIA OF DATA FOR  
PRIMARY PRODUCERS

## ALL EVENTS (4324)

	No. of Events	% of Total	Quantity Released	% of Total
<b>EVENT CONTEXT</b>				
Loading/Unloading	517	13.6%	9,049,902	7.1%
Steady State	2,025	53.3%	109,892,177	86.2%
Start-Up	101	2.7%	1,064,938	0.8%
Shut Down	62	1.6%	150,757	0.1%
Maintenance	93	2.5%	375,247	0.3%
Other	60	1.6%	210,863	0.2%
Unknown	945	24.9%	6,685,511	5.3%
<b>IN-TRANSIT MODE</b>				
Truck	254	48.8%	2,084,533	43.1%
Rail	147	28.2%	2,060,541	42.6%
Barge	82	15.7%	641,080	13.2%
Pipeline	37	7.1%	54,107	1.1%
Other	1	0.2%	975	0.0%
<b>IN-TRANSIT CAUSE</b>				
Leak	239	45.9%	2,013,766	41.6%
Collision	89	17.1%	745,561	15.4%
Derailment	12	2.3%	194,000	4.0%
Truck Turnover	23	4.4%	242,410	5.0%
Other	152	29.2%	1,613,474	33.3%
Unknown	6	1.2%	32,025	0.7%
<b>END EFFECTS **</b>				
Spill	2,246	51.9%	125,357,789	94.8%
Vapor Release	2,412	55.8%	10,225,755	7.7%
Fire	180	4.2%	1,728,314	1.3%
Explosion	109	2.5%	1,253,881	1.0%
Other	8	0.2%	672,090	0.5%
<b>DEATHS?</b>				
Yes	45	1.0%	326,727	0.3%
No	4,038	93.4%	129,948,472	98.2%
Unknown	241	5.6%	1,995,432	1.5%
<b>INJURIES?</b>				
Yes	259	6.0%	1,947,454	1.5%
No	3,740	86.5%	127,464,172	96.4%
Unknown	325	7.5%	2,859,005	2.2%
<b>EVACUATION?</b>				
Yes	207	4.8%	1,925,889	1.5%
No	2,105	48.7%	108,669,850	82.2%
Unknown	2,012	46.5%	21,674,892	16.4%
<b>PROPERTY DAMAGE?</b>				
Yes	322	7.5%	3,437,127	2.6%
No	2,088	48.3%	90,163,451	68.2%
Unknown	1,914	44.3%	38,670,053	29.2%

## Exhibit D-7 (continued)

ENCYCLOPEDIA OF DATA FOR  
PRIMARY PRODUCERS

## ALL EVENTS (4324)

	No. of Events	% of Total	Quantity Released	% of Total
PROPERTY TYPE	53	16.5%	292,975	8.5%
Buildings	102	31.7%	1,257,886	36.6%
Vehicles	36	11.2%	1,183,115	34.4%
Tanks	72	22.4%	154,911	4.5%
Other Equipment	5	1.6%	281	0.0%
Other	54	16.8%	547,959	15.9%
Unknown				
ENVIRONMENTAL DAMAGE?	45	1.0%	316,317	0.2%
Yes	1,597	36.9%	86,566,000	65.5%
No	2,682	62.0%	45,388,314	34.3%
Unknown				
SOURCES	4	0.1%	0	0.0%
APR	0	0.0%	0	0.0%
BGL	2	0.1%	50	0.0%
CAL	1	0.0%	172,500	0.1%
CHP	8	0.2%	2,000	0.0%
CHT	1	0.0%	3,500	0.0%
CWK	1	0.0%	0	0.0%
HMS	7	0.2%	525,005	0.4%
LAT	7	0.2%	185,550	0.1%
MMA	118	2.7%	360,396	0.3%
NJ2	36	0.8%	113,887	0.1%
NJE	3,232	74.8%	104,259,992	78.8%
NRC	41	1.0%	612,863	0.5%
NTP	110	2.5%	18,483,027	14.0%
NYA	40	0.9%	276,850	0.2%
NYT	98	2.3%	591,166	0.5%
OHE	59	1.4%	646,129	0.5%
PEI	128	3.0%	2,447,452	1.9%
RG7	386	8.9%	3,342,879	2.5%
TXA	36	0.8%	224,491	0.2%
UPI				
OTHER NEWSPAPERS	9	0.2%	22,894	0.0%
TOTAL	4,324		132,270,631	

\* The total number of events in this category can exceed 4324 because events can involve up to three substances.

\*\* The total number of events in this category can exceed 4324 because events can have up to four coded end effects.

September 1989

Exhibit D-8

**SUMMARY OF DEATH, INJURY, EVACUATION, AND PROPERTY DAMAGE REPORTS**  
**PRIMARY PRODUCERS ALL EVENTS**

<b>DEATHS</b>	<b>Number of</b>	<b>Number</b>	<b>Average</b>
	<b>Events</b>	<b>Killed</b>	<b>per Event</b>
All Death Events	45		2.8
Number of Deaths Known	44	125	
<b>INJURIES</b>	<b>Number of</b>	<b>Number</b>	<b>Average</b>
	<b>Events</b>	<b>Injured</b>	<b>per Event</b>
	259		13.1
	255	3,343	14.5
	129	1,865	6.1
All Injury Events		502	29.6
Number of Injuries Known		1,363	
Severity Known			
Serious			
Minor			
<b>EVACUATIONS</b>	<b>Number of</b>	<b>Number</b>	<b>Average</b>
	<b>Events</b>	<b>Evacuated</b>	<b>per Event</b>
	207		1,019.2
	77	78,480	1,100.9
	55	60,548	987.6
All Evacuation Events		54,320	113.2
Number of Evacuees Known		6,228	
Type Known			
Residents			
Workers			
<b>PROPERTY DAMAGE</b>	<b>Number of</b>	<b>Value of</b>	<b>Average</b>
	<b>Events</b>	<b>Damage</b>	<b>per Event</b>
	322		
All Property Damage Events	29	375 mil.	13.0 mil.
Value of Damage Known		\$	

## Exhibit D-9

SUBSTANCES MOST FREQUENTLY REPORTED  
PRIMARY PRODUCERS (4324 Events)

## ALL EVENTS

RANK	CHEM TYPE	SUBSTANCE NAME	NUMBER OF EVENTS	QUANTITY RELEASED
1		SULFURIC ACID	486	64,714,327
2		CHLORINE	479	83,499
3		AMMONIA (ANHYDROUS)	277	889,416
4		METHYL CHLORIDE	260	171,204
5		ETHYLENE OXIDE	179	62,067
6		VINYL CHLORIDE	165	91,333
7		HYDROCHLORIC ACID	157	965,772
8		SODIUM HYDROXIDE	112	16,084,461
9		TOLUENE	102	1,860,210
10		BENZENE	81	1,470,425
11		NITRIC ACID	79	1,066,413
12		TETRACHLOROETHYLENE	72	779,367
13		ETHYLENE DICHLORIDE	65	531,718
14		HYDROGEN SULFIDE	57	1,031,753
15		METHYL ALCOHOL	56	754,882
16		PHENOL	55	354,815
17		METHYLENE CHLORIDE	53	29,998
18		AMMONIA	48	115,515
19		UNKNOWN	48	1,190,839
20		ACRYLONITRILE	44	975,815
21		SULFUR DIOXIDE	44	887,771

ENCYCLOPEDIA OF DATA FOR  
SECONDARY PRODUCERS

## ALL EVENTS (1522)

	No. of Events	% of Total	Quantity Released	% of Total
<b>SUBSTANCE STATE *</b>				
Solid	78	5.1%	2,003,493	1.3%
Liquid	1,248	82.0%	81,196,045	50.6%
Gas	288	18.9%	353,776	0.2%
Unknown	1,178	77.4%	1,008	0.0%
Solid Waste	7	0.5%	264	0.0%
Liquid Waste	83	5.5%	76,214,439	47.5%
Gas Waste	3	0.2%	530	0.0%
Unknown Waste	1	0.1%	0	0.0%
Total Solid	85	5.6%	2,003,757	1.3%
Total Liquid	1,331	87.5%	157,410,484	98.1%
Total Gas	291	19.1%	354,306	0.2%
<b>AIR MEDIA AFFECTED?</b>				
Yes	455	29.9%	26,646,841	16.6%
No	420	27.6%	8,923,585	5.6%
Unknown	647	42.5%	124,971,901	77.8%
<b>WATER MEDIA AFFECTED?</b>				
Yes	477	31.3%	78,684,430	49.0%
No	637	41.9%	2,465,085	1.5%
Unknown	408	26.8%	79,392,812	49.5%
<b>LAND MEDIA AFFECTED?</b>				
Yes	683	44.9%	107,376,818	66.9%
No	439	28.8%	5,658,344	3.5%
Unknown	400	26.3%	47,507,165	29.6%
<b>FIXED FACILITY IN-TRANSIT</b>				
Fixed Location	1,431	94.0%	136,841,273	85.2%
Process Vessel	91	6.0%	23,701,054	14.8%
Storage Vessel	286	20.0%	3,472,961	2.5%
Valves/Pipes	493	34.5%	129,387,089	94.6%
Disposal	331	23.1%	3,035,685	2.2%
Heating/Cooling	97	6.8%	215,976	0.2%
Vehicle Not in Transit	9	0.6%	4,668	0.0%
Other	55	3.8%	395,609	0.3%
Unknown	34	2.4%	29,024	0.0%
<b>FIXED CAUSE</b>				
Equipment Failure	126	8.8%	300,261	0.2%
Operator Error	686	47.9%	8,756,183	6.4%
Upset Conditions	287	20.1%	121,660,454	88.9%
Fire/Explosion	60	4.2%	634,298	0.5%
Arson/Vandalism	114	8.0%	2,354,395	1.7%
Disposal Related	3	0.2%	900	0.0%
High Pressure/Temp	1	0.1%	0	0.0%
Power Related	18	1.3%	2,094,837	1.5%
Sparkling/Lightning	12	0.8%	5,853	0.0%
Other	3	0.2%	55	0.0%
Unknown	126	8.8%	1,056,380	0.8%
	121	8.5%	277,918	0.2%

## Exhibit D-10 (continued)

ENCYCLOPEDIA OF DATA FOR  
SECONDARY PRODUCERS

## ALL EVENTS (1522)

	No. of Events	% of Total	Quantity Released	% of Total
<b>EVENT CONTEXT</b>	269	18.8%	76,226,081	55.7%
Loading/Unloading	766	53.5%	55,809,422	40.8%
Steady State	14	1.0%	2,072,568	1.5%
Start-Up	4	0.3%	867	0.0%
Shut Down	29	2.0%	82,666	0.1%
Maintenance	40	2.8%	67,430	0.1%
Other	309	21.6%	2,582,239	1.9%
Unknown				
<b>IN-TRANSIT MODE</b>	35	38.5%	422,499	1.8%
Truck	44	48.4%	27,055	0.1%
Rail	10	11.0%	0	0.0%
Barge	1	1.1%	23,250,000	98.1%
Pipeline	1	1.1%	1,500	0.0%
Other				
<b>IN-TRANSIT CAUSE</b>	43	47.3%	35,058	0.2%
Leak	4	4.4%	327,000	1.4%
Collision	10	11.0%	0	0.0%
Derailment	4	4.4%	54,630	0.2%
Truck Turnover	26	28.6%	23,262,678	98.2%
Other	4	4.4%	21,688	0.1%
Unknown				
<b>END EFFECTS **</b>	1,153	75.8%	158,172,839	98.5%
Spill	426	28.0%	3,613,660	2.3%
Vapor Release	131	8.6%	2,189,703	1.4%
Fire	65	4.3%	4,329,513	2.7%
Explosion	3	0.2%	5	0.0%
Other				
<b>DEATHS?</b>	17	1.1%	450	0.0%
Yes	1,430	94.0%	134,878,547	84.0%
No	75	4.9%	25,663,330	16.0%
Unknown				
<b>INJURIES?</b>	125	8.2%	2,602,051	1.6%
Yes	1,300	85.4%	134,069,493	83.5%
No	97	6.4%	23,870,783	14.9%
Unknown				
<b>EVACUATION?</b>	104	6.8%	666,907	0.4%
Yes	674	44.3%	87,763,630	54.7%
No	744	48.9%	72,111,790	44.9%
Unknown				
<b>PROPERTY DAMAGE?</b>	204	13.4%	28,255,233	17.6%
Yes	624	41.0%	7,165,786	4.5%
No	694	45.6%	125,121,308	77.9%
Unknown				

## Exhibit D-10 (continued)

ENCYCLOPEDIA OF DATA FOR  
SECONDARY PRODUCERS

## ALL EVENTS (1522)

	No. of Events	% of Total	Quantity Released	% of Total
PROPERTY TYPE	44	21.6%	79,241	0.3%
Buildings	19	9.3%	371,130	1.3%
Vehicles	25	12.3%	2,355,100	8.3%
Tanks	61	29.9%	2,122,175	7.5%
Other Equipment	5	2.5%	18,510	0.1%
Other	49	24.0%	23,309,077	82.5%
Unknown				
ENVIRONMENTAL DAMAGE?	53	3.5%	23,504,964	14.6%
Yes	482	31.7%	4,440,693	2.8%
No	987	64.9%	132,596,670	82.6%
Unknown				
SOURCES	4	0.3%	0	0.0%
APR	4	0.3%	0	0.0%
BGL	8	0.5%	26,716	0.0%
CAL	0	0.0%	0	0.0%
CHP	13	0.9%	2,000,000	1.3%
CHT	0	0.0%	0	0.0%
CWK	1	0.1%	0	0.0%
HMS	4	0.3%	0	0.0%
LAT	2	0.1%	48,750	0.0%
MMA	52	3.4%	14,273	0.0%
NJ2	11	0.7%	1,126	0.0%
NJE	1,137	74.7%	56,228,220	35.0%
NRC	6	0.4%	59,625	0.0%
NTP	94	6.2%	77,095,231	48.0%
NYA	13	0.9%	270,573	0.2%
NYT	37	2.4%	183,842	0.1%
OHE	10	0.7%	83,567	0.1%
PEI	86	5.7%	24,510,439	15.3%
RG7	6	0.4%	1,049	0.0%
TXA	31	2.0%	17,041	0.0%
UPI				
OTHER NEWSPAPERS	3	0.2%	1,875	0.0%
TOTAL	1,522		160,542,327	

\* The total number of events in this category can exceed 1522 because events can involve up to three substances.

\*\* The total number of events in this category can exceed 1522 because events can have up to four coded end effects.



## Exhibit D-11

SUMMARY OF DEATH, INJURY, EVACUATION, AND PROPERTY DAMAGE REPORTS  
SECONDARY PRODUCERS

## ALL EVENTS

	Number of Events	Number Killed	Average per Event
DEATHS	17	25	1.6
All Death Events	16		
Number of Deaths Known			
INJURIES	Number of Events	Number Injured	Average per Event
All Injury Events	125	1,942	16.7
Number of Injuries Known	116	1,373	20.5
Severity Known	67	343	7.8
Serious		1,030	44.8
Minor			
EVACUATIONS	Number of Events	Number Evacuated	Average per Event
All Evacuation Events	104	37,855	805.4
Number of Evacuees Known	47	29,243	812.3
Type Known	36	19,160	532.2
Residents		10,083	280.1
Workers			
PROPERTY DAMAGE	Number of Events	Value of Damage	Average per Event
All Property Damage Events	204	82 mil.	\$ 2.5 mil.
Value of Damage Known	33	\$	

## Exhibit D-12

SUBSTANCES MOST FREQUENTLY REPORTED  
SECONDARY PRODUCERS (1522 Events)

## ALL EVENTS

RANK	CHEM TYPE	SUBSTANCE NAME	NUMBER OF EVENTS	QUANTITY RELEASED
1		SULFURIC ACID	170	1,216,133
2		CHLORINE	107	49,168
3		AMMONIA (ANHYDROUS)	79	165,359
4		PHOSPHORIC ACID	77	867,800
5		HYDROCHLORIC ACID	76	541,473
6		SODIUM HYDROXIDE	53	352,488
7		UNKNOWN	42	9,176
8		STYRENE	37	160,635
9		METHYL CHLORIDE	33	13,450
10		METHYL ALCOHOL	33	4,134,900
11		SOLVENT	32	111,600
12		MERCURY	32	281
13		CREOSOTE, COAL TAR	30	37,130
14		CHROMIC ANHYDRIDE	30	23,760
15		CHROMIUM	28	4,340
16		AMMONIA	27	62,855
17		NAPHTHA	26	316,500
18		COPPER	23	0
19		NITRIC ACID	23	9,610
20		PENTACHLOROPHENOL	22	28,125
21		CREOSOTE	20	23,130

## Exhibit D-13

ENCYCLOPEDIA OF DATA FOR  
DISTRIBUTORS

	ALL EVENTS (2689)			
	No. of Events	% of Total	Quantity Released	% of Total
<b>SUBSTANCE STATE *</b>				
Solid	108	4.0%	3,152,538	8.0%
Liquid	2,344	87.2%	18,268,279	46.6%
Gas	360	13.4%	648,797	1.7%
Unknown	1,987	73.9%	81,229	0.2%
Solid Waste	11	0.4%	30,000	0.1%
Liquid Waste	61	2.3%	16,515,757	42.1%
Gas Waste	3	0.1%	0	0.0%
Unknown Waste	3	0.1%	7,500	0.0%
Total Solid	119	4.4%	3,182,538	8.1%
Total Liquid	2,405	89.4%	34,784,036	88.7%
Total Gas	363	13.5%	648,797	1.7%
<b>AIR MEDIA AFFECTED?</b>				
Yes	859	31.9%	26,535,446	67.6%
No	828	30.8%	5,757,290	14.7%
Unknown	1,002	37.3%	6,946,627	17.7%
<b>WATER MEDIA AFFECTED?</b>				
Yes	228	8.5%	23,681,366	60.4%
No	1,660	61.7%	7,888,142	20.1%
Unknown	801	29.8%	7,669,855	19.6%
<b>LAND MEDIA AFFECTED?</b>				
Yes	1,787	66.5%	30,955,924	78.9%
No	384	14.3%	4,354,662	11.1%
Unknown	518	19.3%	3,928,777	10.0%
<b>FIXED FACILITY</b>				
IN-TRANSIT	813	30.2%	21,521,791	54.9%
	1,876	69.8%	17,717,572	45.2%
<b>FIXED LOCATION</b>				
Process Vessel	72	8.9%	657,582	3.1%
Storage Vessel	369	45.4%	1,934,774	9.0%
Valves/Pipes	189	23.3%	1,997,749	9.3%
Disposal	7	0.9%	16,500,500	76.7%
Heating/Cooling	5	0.6%	1,541	0.0%
Vehicle Not in Transit	77	9.5%	156,176	0.7%
Other	43	5.3%	204,559	1.0%
Unknown	51	6.3%	68,910	0.3%
<b>FIXED CAUSE</b>				
Equipment Failure	352	43.3%	2,538,669	11.8%
Operator Error	213	26.2%	1,656,045	7.7%
Upset Conditions	12	1.5%	33,754	0.2%
Fire/Explosion	40	4.9%	16,551,238	76.9%
Arson/Vandalism	21	2.6%	226,228	1.1%
Disposal Related	0	0.0%	0	0.0%
High Pressure/Temp	7	0.9%	22,093	0.1%
Power Related	11	1.4%	118,825	0.6%
Sparking/Lightning	2	0.3%	0	0.0%
Other	93	11.4%	241,810	1.1%
Unknown	62	7.6%	133,129	0.6%

## Exhibit D-13 (continued)

ENCYCLOPEDIA OF DATA FOR  
DISTRIBUTORS

	ALL EVENTS (2689)			
	No. of Events	% of Total	Quantity Released	% of Total
EVENT CONTEXT				
Loading/Unloading	306	37.6%	2,117,546	9.8%
Steady State	322	39.6%	18,299,846	85.0%
Start-Up	4	0.5%	156,083	0.7%
Shut Down	4	0.5%	112,620	0.5%
Maintenance	24	3.0%	52,145	0.2%
Other	11	1.4%	750	0.0%
Unknown	142	17.5%	782,801	3.6%
IN-TRANSIT MODE				
Truck	687	36.6%	3,389,556	19.1%
Rail	1,126	60.0%	9,030,037	51.0%
Barge	16	0.9%	2,826,968	16.0%
Pipeline	43	2.3%	2,468,815	13.9%
Other	4	0.2%	2,196	0.0%
IN-TRANSIT CAUSE				
Leak	923	49.2%	2,602,019	14.7%
Collision	131	7.0%	6,899,971	38.9%
Derailment	169	9.0%	3,974,803	22.4%
Truck Turnover	113	6.0%	408,772	2.3%
Other	452	24.1%	3,640,772	20.6%
Unknown	88	4.7%	191,235	1.1%
END EFFECTS **				
Spill	2,236	83.2%	21,710,784	55.3%
Vapor Release	702	26.1%	5,903,597	15.1%
Fire	143	5.3%	20,315,792	51.8%
Explosion	42	1.6%	17,530,215	44.7%
Other	9	0.3%	188	0.0%
DEATHS?				
Yes	14	0.5%	804,052	2.1%
No	2,570	95.6%	37,723,460	96.1%
Unknown	105	3.9%	711,851	1.8%
INJURIES?				
Yes	316	11.8%	20,514,575	52.3%
No	2,190	81.4%	13,053,816	33.3%
Unknown	183	6.8%	5,670,972	14.5%
EVACUATION?				
Yes	214	8.0%	22,573,496	57.5%
No	1,159	43.1%	6,470,204	16.5%
Unknown	1,316	48.9%	10,195,663	26.0%
PROPERTY DAMAGE?				
Yes	503	18.7%	29,021,392	74.0%
No	1,134	42.2%	2,346,746	6.0%
Unknown	1,052	39.1%	7,871,225	20.1%

## Exhibit D-13 (continued)

ENCYCLOPEDIA OF DATA FOR  
DISTRIBUTORS

## ALL EVENTS (2689)

	No. of Events	% of Total	Quantity Released	% of Total
<b>PROPERTY TYPE</b>				
Buildings	31	6.2%	16,674,725	57.5%
Vehicles	324	64.4%	12,033,246	41.5%
Tanks	5	1.0%	750	0.0%
Other Equipment	5	1.0%	51,100	0.2%
Other	5	1.0%	14,276	0.1%
Unknown	134	26.6%	247,295	0.9%
<b>ENVIRONMENTAL DAMAGE?</b>				
Yes	40	1.5%	20,955,332	53.4%
No	838	31.2%	2,507,805	6.4%
Unknown	1,811	67.4%	15,776,226	40.2%
<b>SOURCES</b>				
APR	11	0.4%	75	0.0%
BGL	4	0.2%	227,250	0.6%
CAL	9	0.3%	41,913	0.1%
CHP	0	0.0%	0	0.0%
CHT	12	0.5%	1,516,425	3.9%
CWK	1	0.0%	5,000	0.0%
HMS	163	6.1%	923,626	2.4%
LAT	4	0.2%	12,413	0.0%
MMA	1	0.0%	150,000	0.4%
NJ2	64	2.4%	16,749,756	42.7%
NJE	18	0.7%	68,488	0.2%
NRC	2,024	75.3%	6,488,054	16.5%
NTP	25	0.9%	291,020	0.7%
NYA	44	1.6%	55,805	0.1%
NYT	11	0.4%	226,351	0.6%
OHE	36	1.3%	204,808	0.5%
PEI	5	0.2%	102,840	0.3%
RG7	175	6.5%	9,467,295	24.1%
TXA	7	0.3%	4,000	0.0%
UPI	69	2.6%	2,344,244	6.0%
OTHER NEWSPAPERS	6	0.2%	360,000	0.9%
<b>TOTAL</b>	<b>2,689</b>		<b>39,239,363</b>	

\* The total number of events in this category can exceed 2689 because events can involve up to three substances.

\*\* The total number of events in this category can exceed 2689 because events can have up to four coded end effects.

**SUMMARY OF DEATH, INJURY, EVACUATION, AND PROPERTY DAMAGE REPORTS  
DISTRIBUTORS**

**ALL EVENTS**

<b>DEATHS</b>	<b>Number of Events</b>	<b>Number Killed</b>	<b>Average per Event</b>
All Death Events	14		
Number of Deaths Known	14	22	1.6
<b>INJURIES</b>	<b>Number of Events</b>	<b>Number Injured</b>	<b>Average per Event</b>
All Injury Events	316		
Number of Injuries Known	311	2,735	8.8
Severity Known	218	1,992	9.1
Serious		282	3.1
Minor		1,710	13.4
<b>EVACUATIONS</b>	<b>Number of Events</b>	<b>Number Evacuated</b>	<b>Average per Event</b>
All Evacuation Events	214		
Number of Evacuees Known	120	165,761	1,381.3
Type Known	91	144,391	1,586.7
Residents		140,180	1,540.4
Workers		4,211	46.3
<b>PROPERTY DAMAGE</b>	<b>Number of Events</b>	<b>Value of Damage</b>	<b>Average per Event</b>
All Property Damage Events	503		
Value of Damage Known	155	\$ 30 mil.	\$ 0.2 mil.

## Exhibit D-15

SUBSTANCES MOST FREQUENTLY REPORTED  
DISTRIBUTORS (2689 Events)

## ALL EVENTS

RANK	CHEM TYPE	SUBSTANCE NAME	NUMBER OF EVENTS	QUANTITY RELEASED
1		SULFURIC ACID	240	2,906,774
2		SODIUM HYDROXIDE	208	1,577,422
3		HYDROCHLORIC ACID	163	386,675
4		AMMONIA (ANHYDROUS)	149	2,117,765
5		PHOSPHORIC ACID	94	71,576
6		METHYL ALCOHOL	78	2,423,285
7		TOLUENE	77	103,144
8		CHLORINE	62	7,153
9		STYRENE	54	15,975
10		VINYL ACETATE	46	26,604
11		UNKNOWN	45	23,446
12		NITRIC ACID	39	205,211
13		METHYL ETHYL KETONE	37	21,345
14		ACRYLONITRILE	35	31,300
15		FERTILIZER	33	498,707
16		ACETONE	33	3,150
17		M-XYLENE	31	33,380
18		METHYLENE CHLORIDE	30	71,604
19		PULP MILL WASTE	30	80
20		POTASSIUM HYDROXIDE	24	78,008
21		HAZARDOUS WASTE	24	16,537,613

## Exhibit D-16

ENCYCLOPEDIA OF DATA FOR  
END USERS

## ALL EVENTS (1239)

	No. of Events	% of Total	Quantity Released	% of Total
<b>SUBSTANCE STATE *</b>				
Solid	64	5.2%	89,560	0.4%
Liquid	1,065	86.0%	24,665,113	95.6%
Gas	190	15.3%	185,344	0.7%
Unknown	1,098	88.6%	160,000	0.6%
Solid Waste	9	0.7%	4,170	0.0%
Liquid Waste	50	4.0%	546,048	2.1%
Gas Waste	21	1.7%	7,340	0.0%
Unknown Waste	0	0.0%	0	0.0%
Total Solid	73	5.9%	93,730	0.4%
Total Liquid	1,115	90.0%	25,211,161	97.7%
Total Gas	211	17.0%	192,684	0.8%
<b>AIR MEDIA AFFECTED?</b>				
Yes	444	35.8%	10,847,731	42.1%
No	387	31.2%	3,352,432	13.0%
Unknown	408	32.9%	11,595,719	45.0%
<b>WATER MEDIA AFFECTED?</b>				
Yes	298	24.1%	15,120,262	58.6%
No	604	48.8%	5,529,125	21.4%
Unknown	337	27.2%	5,146,495	20.0%
<b>LAND MEDIA AFFECTED?</b>				
Yes	635	51.3%	9,013,754	34.9%
No	309	24.9%	2,462,540	9.6%
Unknown	295	23.8%	14,319,588	55.5%
<b>FIXED FACILITY</b>				
IN-TRANSIT	1,066	86.0%	25,305,080	98.1%
	173	14.0%	490,802	1.9%
<b>FIXED LOCATION</b>				
Process Vessel	156	14.6%	2,793,356	11.0%
Storage Vessel	345	32.4%	17,385,349	68.7%
Valves/Pipes	232	21.8%	3,338,060	13.2%
Disposal	75	7.0%	259,744	1.0%
Heating/Cooling	33	3.1%	183,230	0.7%
Vehicle Not in Transit	8	0.8%	8,250	0.0%
Other	81	7.6%	86,978	0.3%
Unknown	136	12.8%	1,250,113	4.9%
<b>FIXED CAUSE</b>				
Equipment Failure	494	46.3%	16,973,491	67.1%
Operator Error	215	20.2%	5,835,508	23.1%
Upset Conditions	33	3.1%	195,560	0.8%
Fire/Explosion	69	6.5%	286,254	1.1%
Arson/Vandalism	21	2.0%	117,108	0.5%
Disposal Related	5	0.5%	1,650	0.0%
High Pressure/Temp	7	0.7%	700	0.0%
Power Related	3	0.3%	138,975	0.6%
Sparking/Lightning	4	0.4%	0	0.0%
Other	69	6.5%	119,426	0.5%
Unknown	146	13.7%	1,636,408	6.5%



## Exhibit D-16 (continued)

ENCYCLOPEDIA OF DATA FOR  
END USERS

## ALL EVENTS (1239)

	No. of Events	% of Total	Quantity Released	% of Total
<b>EVENT CONTEXT</b>				
Loading/Unloading	88	8.3%	1,504,065	5.9%
Steady State	555	52.1%	15,982,205	63.2%
Start-Up	11	1.0%	415,889	1.6%
Shut Down	16	1.5%	21,336	0.1%
Maintenance	81	7.6%	1,581,745	6.3%
Other	9	0.8%	9,007	0.0%
Unknown	306	28.7%	5,790,833	22.9%
<b>IN-TRANSIT MODE</b>				
Truck	141	81.5%	461,314	94.0%
Rail	4	2.3%	15,100	3.1%
Barge	11	6.4%	7,880	1.6%
Pipeline	6	3.5%	4,508	0.9%
Other	11	6.4%	2,000	0.4%
<b>IN-TRANSIT CAUSE</b>				
Leak	57	33.0%	94,723	19.3%
Collision	13	7.5%	88,351	18.0%
Derailment	2	1.2%	15,000	3.1%
Truck Turnover	15	8.7%	20,580	4.2%
Other	52	30.1%	95,948	19.6%
Unknown	34	19.7%	176,200	35.9%
<b>END EFFECTS **</b>				
Spill	936	75.5%	24,864,504	96.4%
Vapor Release	355	28.7%	1,160,888	4.5%
Fire	111	9.0%	344,990	1.3%
Explosion	40	3.2%	656,363	2.5%
Other	3	0.2%	3,480	0.0%
<b>DEATHS?</b>				
Yes	20	1.6%	25,313	0.1%
No	1,127	91.0%	22,714,840	88.1%
Unknown	92	7.4%	3,055,729	11.9%
<b>INJURIES?</b>				
Yes	127	10.3%	860,921	3.3%
No	1,003	81.0%	21,621,044	83.8%
Unknown	109	8.8%	3,313,917	12.9%
<b>EVACUATION?</b>				
Yes	120	9.7%	754,253	2.9%
No	625	50.4%	7,111,495	27.6%
Unknown	494	39.9%	17,930,134	69.5%
<b>PROPERTY DAMAGE?</b>				
Yes	136	11.0%	1,045,799	4.1%
No	510	41.2%	13,139,941	50.9%
Unknown	593	47.9%	11,610,142	45.0%

## Exhibit D-16 (continued)

ENCYCLOPEDIA OF DATA FOR  
END USERS

## ALL EVENTS (1239)

	No. of Events	% of Total	Quantity Released	% of Total
<b>PROPERTY TYPE</b>				
Buildings	29	21.3%	492,501	47.1%
Vehicles	23	16.9%	110,851	10.6%
Tanks	12	8.8%	50,070	4.8%
Other Equipment	26	19.1%	150,420	14.4%
Other	5	3.7%	1,838	0.2%
Unknown	40	29.4%	240,119	23.0%
<b>ENVIRONMENTAL DAMAGE?</b>				
Yes	35	2.8%	2,960,497	11.5%
No	407	32.9%	2,601,797	10.1%
Unknown	797	64.3%	20,233,588	78.4%
<b>SOURCES</b>				
APR	7	0.6%	0	0.0%
BGL	1	0.1%	15,000	0.1%
CAL	4	0.3%	826	0.0%
CHP	0	0.0%	0	0.0%
CHT	6	0.5%	150,000	0.6%
CWK	0	0.0%	0	0.0%
HMS	1	0.1%	8	0.0%
LAT	6	0.5%	500	0.0%
MMA	2	0.2%	0	0.0%
NJ2	99	8.0%	102,534	0.4%
NJE	20	1.6%	2,634	0.0%
NRC	793	64.0%	19,280,362	74.7%
NTP	8	0.7%	18,000	0.1%
NYA	129	10.4%	1,074,530	4.2%
NYT	5	0.4%	412	0.0%
OHE	53	4.3%	175,313	0.7%
PEI	2	0.2%	46,500	0.2%
RG7	55	4.4%	1,708,003	6.6%
TXA	4	0.3%	50,000	0.2%
UPI	40	3.2%	2,758,760	10.7%
OTHER NEWSPAPERS	4	0.3%	412,500	1.6%
<b>TOTAL</b>	<b>1,239</b>		<b>25,795,882</b>	

\* The total number of events in this category can exceed 1239 because events can involve up to three substances.

\*\* The total number of events in this category can exceed 1239 because events can have up to four coded end effects.

## Exhibit D-17

SUMMARY OF DEATH, INJURY, EVACUATION, AND PROPERTY DAMAGE REPORTS  
END USERS

## ALL EVENTS

DEATHS	Number of Events	Number Killed	Average per Event
All Death Events	20		
Number of Deaths Known	20	50	2.5
INJURIES	Number of Events	Number Injured	Average per Event
All Injury Events	127		
Number of Injuries Known	121	929	7.7
Severity Known	56	471	8.4
Serious		190	4.8
Minor		281	17.6
EVACUATIONS	Number of Events	Number Evacuated	Average per Event
All Evacuation Events	120		
Number of Evacuees Known	59	31,656	536.5
Type Known	36	21,048	584.7
Residents		16,588	460.8
Workers		4,460	123.9
PROPERTY DAMAGE	Number of Events	Value of Damage	Average per Event
All Property Damage Events	136		
Value of Damage Known	8 \$	67 mil.	\$ 8.4 mil.

## Exhibit D-18

SUBSTANCES MOST FREQUENTLY REPORTED  
END USERS (1239 Events)

## ALL EVENTS

RANK	CHEM TYPE	SUBSTANCE NAME	NUMBER OF EVENTS	QUANTITY RELEASED
1		SULFURIC ACID	99	853,122
2		AMMONIA (ANHYDROUS)	74	280,192
3		SODIUM HYDROXIDE	72	10,862,406
4		HYDROCHLORIC ACID	69	1,935,575
5		CHLORINE	64	20,162
6		UNKNOWN	59	848,625
7		PESTICIDE	46	18,861
8		TETRACHLOROETHYLENE	33	16,395
9		ACETONE	32	187,880
10		CHLORPYRIFOS	24	1,183
11		CHROMIC ACID	23	32,430
12		SODIUM HYPOCHLORITE	23	40,075
13		HYDROGEN SULFIDE	22	11,059
14		SOLVENT	21	20,961
15		NITRIC ACID	21	2,819,000
16		MERCURY	21	50
17		CHLORDANE	19	830
18		AMMONIA	17	1,501,952
19		FERTILIZER	16	157,500
20		TRANSFORMER OIL	16	66,182
21		HERBICIDE	14	1,732
22		SULFUR CHLORIDE	14	5,210
23		PHOSPHORIC ACID	14	300

## Exhibit D-19

ENCYCLOPEDIA OF DATA FOR  
WASTE RELATED

	ALL EVENTS (154)			
	No. of Events	% of Total	Quantity Released	% of Total
<b>SUBSTANCE STATE *</b>				
Solid	4	2.6%	0	0.0%
Liquid	83	53.9%	1,729,170	71.1%
Gas	29	18.8%	24,289	1.0%
Unknown	123	79.9%	0	0.0%
Solid Waste	12	7.8%	5,000	0.2%
Liquid Waste	55	35.7%	631,248	25.9%
Gas Waste	3	2.0%	0	0.0%
Unknown Waste	3	2.0%	0	0.0%
Total Solid	16	10.4%	5,000	0.2%
Total Liquid	138	89.6%	2,360,418	97.0%
Total Gas	32	20.8%	24,289	1.0%
<b>AIR MEDIA AFFECTED?</b>				
Yes	60	39.0%	56,612	2.3%
No	20	13.0%	1,580	0.1%
Unknown	74	48.1%	2,374,875	97.6%
<b>WATER MEDIA AFFECTED?</b>				
Yes	12	7.8%	553,425	22.8%
No	72	46.8%	1,809,484	74.4%
Unknown	70	45.5%	70,158	2.9%
<b>LAND MEDIA AFFECTED?</b>				
Yes	110	71.4%	1,797,453	73.9%
No	16	10.4%	29,266	1.2%
Unknown	28	18.2%	606,348	24.9%
<b>FIXED FACILITY</b>				
IN-TRANSIT	126	81.8%	2,364,224	97.2%
	28	18.2%	68,843	2.8%
<b>FIXED LOCATION</b>				
Process Vessel	6	4.8%	22,501	1.0%
Storage Vessel	38	30.2%	1,934,988	81.8%
Valves/Pipes	27	21.4%	6,960	0.3%
Disposal	49	38.9%	378,790	16.0%
Heating/Cooling	0	0.0%	0	0.0%
Vehicle Not in Transit	0	0.0%	0	0.0%
Other	1	0.8%	20,625	0.9%
Unknown	5	4.0%	360	0.0%
<b>FIXED CAUSE</b>				
Equipment Failure	48	38.1%	1,937,391	82.0%
Operator Error	27	21.4%	376,750	15.9%
Upset Conditions	4	3.2%	27,500	1.2%
Fire/Explosion	28	22.2%	360	0.0%
Arson/Vandalism	3	2.4%	0	0.0%
Disposal Related	2	1.6%	20,625	0.9%
High Pressure/Temp	0	0.0%	0	0.0%
Power Related	1	0.8%	98	0.0%
Sparking/Lightning	0	0.0%	0	0.0%
Other	10	7.9%	1,500	0.1%
Unknown	3	2.4%	0	0.0%

## Exhibit D-19 (continued)

ENCYCLOPEDIA OF DATA FOR  
WASTE RELATED

	ALL EVENTS (154)			
	No. of Events	% of Total	Quantity Released	% of Total
<b>EVENT CONTEXT</b>				
Loading/Unloading	28	22.2%	431,525	18.3%
Steady State	70	55.6%	1,920,864	81.3%
Start-Up	0	0.0%	0	0.0%
Shut Down	0	0.0%	0	0.0%
Maintenance	2	1.6%	0	0.0%
Other	0	0.0%	0	0.0%
Unknown	26	20.6%	11,835	0.5%
<b>IN-TRANSIT MODE</b>				
Truck	27	96.4%	68,843	100.0%
Rail	1	3.6%	0	0.0%
Barge	0	0.0%	0	0.0%
Pipeline	0	0.0%	0	0.0%
Other	0	0.0%	0	0.0%
<b>IN-TRANSIT CAUSE</b>				
Leak	13	46.4%	24,375	35.4%
Collision	1	3.6%	0	0.0%
Derailment	0	0.0%	0	0.0%
Truck Turnover	1	3.6%	2,888	4.2%
Other	12	42.9%	41,580	60.4%
Unknown	1	3.6%	0	0.0%
<b>END EFFECTS **</b>				
Spill	103	66.9%	2,403,778	98.8%
Vapor Release	38	24.7%	53,724	2.2%
Fire	33	21.4%	5,360	0.2%
Explosion	5	3.3%	0	0.0%
Other	2	1.3%	0	0.0%
<b>DEATHS?</b>				
Yes	3	2.0%	0	0.0%
No	120	77.9%	2,432,317	100.0%
Unknown	31	20.1%	750	0.0%
<b>INJURIES?</b>				
Yes	13	8.4%	1,375,500	56.5%
No	107	69.5%	1,053,779	43.3%
Unknown	34	22.1%	3,788	0.2%
<b>EVACUATION?</b>				
Yes	9	5.8%	24,098	1.0%
No	50	32.5%	591,691	24.3%
Unknown	95	61.7%	1,817,278	74.7%
<b>PROPERTY DAMAGE?</b>				
Yes	13	8.4%	1,350,000	55.5%
No	41	26.6%	70,871	2.9%
Unknown	100	64.9%	1,012,196	41.6%

## Exhibit D-19 (continued)

ENCYCLOPEDIA OF DATA FOR  
WASTE RELATED

## ALL EVENTS (154)

	No. of Events	% of Total	Quantity Released	% of Total
<b>PROPERTY TYPE</b>				
Buildings	2	15.4%	0	0.0%
Vehicles	1	7.7%	0	0.0%
Tanks	2	15.4%	0	0.0%
Other Equipment	3	23.1%	0	0.0%
Other	0	0.0%	0	0.0%
Unknown	5	38.5%	1,350,000	100.0%
<b>ENVIRONMENTAL DAMAGE?</b>				
Yes	3	2.0%	0	0.0%
No	32	20.8%	44,621	1.8%
Unknown	119	77.3%	2,388,446	98.2%
<b>SOURCES</b>				
APR	1	0.7%	0	0.0%
BGL	0	0.0%	0	0.0%
CAL	1	0.7%	5,000	0.2%
CHP	1	0.7%	24,000	1.0%
CHT	0	0.0%	0	0.0%
CWK	0	0.0%	0	0.0%
HMS	0	0.0%	0	0.0%
LAT	0	0.0%	0	0.0%
MMA	0	0.0%	0	0.0%
NJ2	28	18.2%	0	0.0%
NJE	6	3.9%	1,500	0.1%
NRC	93	60.4%	1,769,459	72.7%
NTP	0	0.0%	0	0.0%
NYA	9	5.8%	529,845	21.8%
NYT	2	1.3%	0	0.0%
OHE	5	3.3%	41,575	1.7%
PEI	1	0.7%	22,500	0.9%
RG7	5	3.3%	39,188	1.6%
TXA	0	0.0%	0	0.0%
UPI	2	1.3%	0	0.0%
OTHER NEWSPAPERS	0	0.0%	0	0.0%
<b>TOTAL</b>	<b>154</b>		<b>2,433,067</b>	

\* The total number of events in this category can exceed 154 because events can involve up to three substances.

\*\* The total number of events in this category can exceed 154 because events can have up to four coded end effects.

## Exhibit D-20

SUMMARY OF DEATH, INJURY, EVACUATION, AND PROPERTY DAMAGE REPORTS  
WASTE RELATED

## ALL EVENTS

DEATHS	Number of Events	Number Killed	Average per Event
All Death Events	3		
Number of Deaths Known	3	7	2.3
INJURIES	Number of Events	Number Injured	Average per Event
All Injury Events	13		
Number of Injuries Known	13	76	5.9
Severity Known	3	32	10.7
Serious		1	1.0
Minor		31	15.5
EVACUATIONS	Number of Events	Number Evacuated	Average per Event
All Evacuation Events	9		
Number of Evacuees Known	4	5,400	1,350.0
Type Known	2	3,800	1,900.0
Residents		650	325.0
Workers		3,150	1,575.0
PROPERTY DAMAGE	Number of Events	Value of Damage	Average per Event
All Property Damage Events	13		
Value of Damage Known	2	\$ 1 mil.	\$ 0.6 mil.



## Exhibit D-21

SUBSTANCES MOST FREQUENTLY REPORTED  
WASTE RELATED (154 Events)

## ALL EVENTS

RANK	CHEM TYPE	SUBSTANCE NAME	NUMBER OF EVENTS	QUANTITY RELEASED
1		CHLORINE	12	1,788
2		NITRIC ACID	12	0
3		UNKNOWN	12	3,750
4		HYDROFLUORIC ACID	11	0
5		SODIUM HYDROXIDE	11	370,000
6		WASTE WATER	10	3,750
7		ACID	10	750
8		HAZARDOUS WASTE ACID	10	37,000
9		PHOSPHORIC ACID	10	80
10		TETRACHLOROETHYLENE	10	1,500
11		HYDROCARBONS	9	0
12		COMMERCIAL AND/OR INDUSTRIAL W	6	0
13		SOLVENT	3	35,700
14		SULFURIC ACID	3	46,500
15		METHANE	3	0
16		HOUSEHOLD WASTES	3	0
17		STYRENE	2	0
18		RUBBER	2	0
19		CALCIUM OXIDE	2	5,000
20		METHYL ETHYL KETONE	2	2,888
21		HYDROGEN SULFIDE	2	0
22		LITHIUM	2	0
23		TOLUENE	2	0

## Exhibit D-22a

ENCYCLOPEDIA OF DATA  
BY FACILITY TYPE  
ALL EVENTS

## NUMBER OF EVENTS

	All % of Total	Primary % of Total	Second % of Total	Distrib % of Total	End User % of Total	Waste % of Total
<b>SUBSTANCE STATE *</b>						
Solid	3.5%	2.2%	5.1%	4.0%	5.2%	2.6%
Liquid	72.3%	56.5%	82.0%	87.2%	86.0%	53.9%
Gas	28.3%	45.0%	18.9%	13.4%	15.3%	18.8%
Unknown	94.4%	115.4%	77.4%	73.9%	88.6%	79.9%
Solid Waste	0.6%	0.5%	0.5%	0.4%	0.7%	7.8%
Liquid Waste	3.7%	2.8%	5.5%	2.3%	4.0%	35.7%
Gas Waste	0.7%	0.9%	0.2%	0.1%	1.7%	2.0%
Unknown Waste	0.1%	0.1%	0.1%	0.1%	0.0%	2.0%
Total Solid	4.1%	2.6%	5.6%	4.4%	5.9%	10.4%
Total Liquid	76.1%	59.3%	87.5%	89.4%	90.0%	89.6%
Total Gas	29.0%	45.9%	19.1%	13.5%	17.0%	20.8%
<b>AIR MEDIA AFFECTED?</b>						
Yes	43.9%	58.8%	29.9%	31.9%	35.8%	39.0%
No	24.4%	17.7%	27.6%	30.8%	31.2%	13.0%
Unknown	31.7%	23.5%	42.5%	37.3%	32.9%	48.1%
<b>WATER MEDIA AFFECTED?</b>						
Yes	19.3%	20.9%	31.3%	8.5%	24.1%	7.8%
No	54.4%	56.2%	41.9%	61.7%	48.8%	46.8%
Unknown	26.3%	22.9%	26.8%	29.8%	27.2%	45.5%
<b>LAND MEDIA AFFECTED?</b>						
Yes	46.4%	32.3%	44.9%	66.5%	51.3%	71.4%
No	29.0%	40.1%	28.8%	14.3%	24.9%	10.4%
Unknown	24.6%	27.7%	26.3%	19.3%	23.8%	18.2%
<b>FIXED FACILITY</b>						
IN-TRANSIT	72.9%	88.0%	94.0%	30.2%	86.0%	81.8%
	27.1%	12.1%	6.0%	69.8%	14.0%	18.2%
<b>FIXED LOCATION</b>						
Process Vessel	23.1%	30.2%	20.0%	8.9%	14.6%	4.8%
Storage Vessel	27.6%	19.8%	34.5%	45.4%	32.4%	30.2%
Valves/Pipes	26.2%	29.3%	23.1%	23.3%	21.8%	21.4%
Disposal	7.1%	7.5%	6.8%	0.9%	7.0%	38.9%
Heating/Cooling	2.0%	2.5%	0.6%	0.6%	3.1%	0.0%
Vehicle Not in Transit	2.9%	1.8%	3.8%	9.5%	0.8%	0.0%
Other	2.8%	1.1%	2.4%	5.3%	7.6%	0.8%
Unknown	8.5%	7.8%	8.8%	6.3%	12.8%	4.0%
<b>FIXED CAUSE</b>						
Equipment Failure	48.5%	50.7%	47.9%	43.3%	46.3%	38.1%
Operator Error	18.8%	16.2%	20.1%	26.2%	20.2%	21.4%
Upset Conditions	4.7%	6.1%	4.2%	1.5%	3.1%	3.2%
Fire/Explosion	4.7%	2.4%	8.0%	4.9%	6.5%	22.2%
Arson/Vandalism	0.7%	0.1%	0.2%	2.6%	2.0%	2.4%
Disposal Related	0.4%	0.5%	0.1%	0.0%	0.5%	1.6%
High Pressure/Temp	2.1%	3.1%	1.3%	0.9%	0.7%	0.0%
Power Related	1.8%	2.6%	0.8%	1.4%	0.3%	0.8%
Sparking/Lightning	0.2%	0.2%	0.2%	0.3%	0.4%	0.0%
Other	7.1%	5.7%	8.8%	11.4%	6.5%	7.9%
Unknown	11.1%	12.3%	8.5%	7.6%	13.7%	2.4%

## Exhibit D-22a (continued)

ENCYCLOPEDIA OF DATA  
BY FACILITY TYPE

ALL EVENTS	NUMBER OF EVENTS					
	All % of Total	Primary % of Total	Second % of Total	Distrib % of Total	End User % of Total	Waste % of Total
<b>EVENT CONTEXT</b>						
Loading/Unloading	16.7%	13.6%	18.8%	37.6%	8.3%	22.2%
Steady State	51.6%	53.3%	53.5%	39.6%	52.1%	55.6%
Start-Up	1.8%	2.7%	1.0%	0.5%	1.0%	0.0%
Shut Down	1.2%	1.6%	0.3%	0.5%	1.5%	0.0%
Maintenance	3.2%	2.5%	2.0%	3.0%	7.6%	1.6%
Other	1.7%	1.6%	2.8%	1.4%	0.8%	0.0%
Unknown	23.9%	24.9%	21.6%	17.5%	28.7%	20.6%
<b>IN-TRANSIT MODE</b>						
Truck	42.5%	48.8%	38.5%	36.6%	81.5%	96.4%
Rail	49.2%	28.2%	48.4%	60.0%	2.3%	3.6%
Barge	4.4%	15.7%	11.0%	0.9%	6.4%	0.0%
Pipeline	3.2%	7.1%	1.1%	2.3%	3.5%	0.0%
Other	0.6%	0.2%	1.1%	0.2%	6.4%	0.0%
<b>IN-TRANSIT CAUSE</b>						
Leak	47.4%	45.9%	47.3%	49.2%	33.0%	46.4%
Collision	8.9%	17.1%	4.4%	7.0%	7.5%	3.6%
Derailment	7.2%	2.3%	11.0%	9.0%	1.2%	0.0%
Truck Turnover	5.8%	4.4%	4.4%	6.0%	8.7%	3.6%
Other	25.8%	29.2%	28.6%	24.1%	30.1%	42.9%
Unknown	5.0%	1.2%	4.4%	4.7%	19.7%	3.6%
<b>END EFFECTS **</b>						
Spill	67.2%	51.9%	75.8%	83.2%	75.5%	66.9%
Vapor Release	39.6%	55.8%	28.0%	26.1%	28.7%	24.7%
Fire	0.6%	4.2%	8.6%	5.3%	9.0%	21.4%
Explosion	2.6%	2.5%	4.3%	1.6%	3.2%	3.3%
Other	0.3%	0.2%	0.2%	0.3%	0.2%	1.3%
<b>DEATHS?</b>						
Yes	1.0%	1.0%	1.1%	0.5%	1.6%	2.0%
No	93.5%	93.4%	94.0%	95.6%	91.0%	77.9%
Unknown	5.5%	5.6%	4.9%	3.9%	7.4%	20.1%
<b>INJURIES?</b>						
Yes	8.5%	6.0%	8.2%	11.8%	10.3%	8.4%
No	84.0%	86.5%	85.4%	81.4%	81.0%	69.5%
Unknown	7.5%	7.5%	6.4%	6.8%	8.8%	22.1%
<b>EVACUATION?</b>						
Yes	6.6%	4.8%	6.8%	8.0%	9.7%	5.8%
No	46.5%	48.7%	44.3%	43.1%	50.4%	32.5%
Unknown	47.0%	46.5%	48.9%	48.9%	39.9%	61.7%
<b>PROPERTY DAMAGE?</b>						
Yes	11.9%	7.5%	13.4%	18.7%	11.0%	8.4%
No	44.3%	48.3%	41.0%	42.2%	41.2%	26.6%
Unknown	43.9%	44.3%	45.6%	39.1%	47.9%	64.9%

## Exhibit D-22a (continued)

ENCYCLOPEDIA OF DATA  
BY FACILITY TYPE

## ALL EVENTS

## NUMBER OF EVENTS

	All % of Total	Primary % of Total	Second % of Total	Distrib % of Total	End User % of Total	Waste % of Total
PROPERTY TYPE						
Buildings	13.5%	16.5%	21.6%	6.2%	21.3%	15.4%
Vehicles	39.8%	31.7%	9.3%	64.4%	16.9%	7.7%
Tanks	6.8%	11.2%	12.3%	1.0%	8.8%	15.4%
Other Equipment	14.2%	22.4%	29.9%	1.0%	19.1%	23.1%
Other	1.7%	1.6%	2.5%	1.0%	3.7%	0.0%
Unknown	23.9%	16.8%	24.0%	26.6%	29.4%	38.5%
ENVIRONMENTAL DAMAGE?						
Yes	1.8%	1.0%	3.5%	1.5%	2.8%	2.0%
No	33.8%	36.9%	31.7%	31.2%	32.9%	20.8%
Unknown	64.4%	62.0%	64.9%	67.4%	64.3%	77.3%
SOURCES						
APR	0.3%	0.1%	0.3%	0.4%	0.6%	0.7%
BGL	0.1%	0.0%	0.3%	0.2%	0.1%	0.0%
CAL	0.2%	0.1%	0.5%	0.3%	0.3%	0.7%
CHP	0.0%	0.0%	0.0%	0.0%	0.0%	0.7%
CHT	0.4%	0.2%	0.9%	0.5%	0.5%	0.0%
CWK	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
HMS	1.7%	0.0%	0.1%	6.1%	0.1%	0.0%
LAT	0.2%	0.2%	0.3%	0.2%	0.5%	0.0%
MMA	0.1%	0.2%	0.1%	0.0%	0.2%	0.0%
NJ2	3.6%	2.7%	3.4%	2.4%	8.0%	18.2%
NJE	0.9%	0.8%	0.7%	0.7%	1.6%	3.9%
NRC	73.3%	74.8%	74.7%	75.3%	64.0%	60.4%
NTP	0.8%	1.0%	0.4%	0.9%	0.7%	0.0%
NYA	3.9%	2.5%	6.2%	1.6%	10.4%	5.8%
NYT	0.7%	0.9%	0.9%	0.4%	0.4%	1.3%
OHE	2.3%	2.3%	2.4%	1.3%	4.3%	3.3%
PEI	0.8%	1.4%	0.7%	0.2%	0.2%	0.7%
RG7	4.5%	3.0%	5.7%	6.5%	4.4%	3.3%
TXA	4.1%	8.9%	0.4%	0.3%	0.3%	0.0%
UPI	1.8%	0.8%	2.0%	2.6%	3.2%	1.3%
OTHER NEWSPAPERS	0.2%	0.2%	0.2%	0.2%	0.3%	0.0%
TOTAL	9,928	4,324	1,522	2,689	1,239	154

\* The total percentage of events in this category can exceed 100% because events can involve up to three substances.

\*\* The total percentage of events in this category can exceed 100% because events can have up to four coded end effects.

## Exhibit D-22b

ENCYCLOPEDIA OF DATA  
BY FACILITY TYPE

## QUANTITY RELEASED

## ALL EVENTS

	All % of Total	Primary % of Total	Second % of Total	Distrib % of Total	End User % of Total	Waste % of Total
<b>SUBSTANCE STATE *</b>						
Solid	1.7%	0.8%	1.3%	8.0%	0.4%	0.0%
Liquid	66.8%	86.8%	50.6%	46.6%	95.6%	71.1%
Gas	2.0%	4.5%	0.2%	1.7%	0.7%	1.0%
Unknown	0.1%	0.0%	0.0%	0.2%	0.6%	0.0%
Solid Waste	0.0%	0.0%	0.0%	0.1%	0.0%	0.2%
Liquid Waste	26.7%	1.8%	47.5%	42.1%	2.1%	25.9%
Gas Waste	0.1%	0.3%	0.0%	0.0%	0.0%	0.0%
Unknown Waste	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Total Solid	1.8%	0.8%	1.3%	8.1%	0.4%	0.2%
Total Liquid	93.5%	88.6%	98.1%	88.7%	97.7%	97.0%
Total Gas	2.1%	4.8%	0.2%	1.7%	0.8%	1.0%
<b>AIR MEDIA AFFECTED?</b>						
Yes	20.7%	8.0%	16.6%	67.6%	42.1%	2.3%
No	28.6%	64.3%	5.6%	14.7%	13.0%	0.1%
Unknown	50.7%	27.7%	77.8%	17.7%	45.0%	97.6%
<b>WATER MEDIA AFFECTED?</b>						
Yes	36.8%	11.0%	49.0%	60.4%	58.6%	22.8%
No	31.3%	71.8%	1.5%	20.1%	21.4%	74.4%
Unknown	31.9%	17.2%	49.5%	19.6%	20.0%	2.9%
<b>LAND MEDIA AFFECTED?</b>						
Yes	73.2%	86.7%	66.9%	78.9%	34.9%	73.9%
No	5.8%	6.4%	3.5%	11.1%	9.6%	1.2%
Unknown	21.0%	6.9%	29.6%	10.0%	55.5%	24.9%
<b>FIXED FACILITY</b>						
IN-TRANSIT	87.0%	96.3%	85.2%	54.9%	98.1%	97.2%
	13.0%	3.7%	14.8%	45.2%	1.9%	2.8%
<b>FIXED LOCATION</b>						
Process Vessel	4.0%	4.5%	2.5%	3.1%	11.0%	1.0%
Storage Vessel	82.1%	83.8%	94.6%	9.0%	68.7%	81.8%
Valves/Pipes	5.8%	7.8%	2.2%	9.3%	13.2%	0.3%
Disposal	6.5%	2.4%	0.2%	76.7%	1.0%	16.0%
Heating/Cooling	0.2%	0.2%	0.0%	0.0%	0.7%	0.0%
Vehicle Not in Transit	0.3%	0.3%	0.3%	0.7%	0.0%	0.0%
Other	0.1%	0.0%	0.0%	1.0%	0.3%	0.9%
Unknown	0.9%	1.0%	0.2%	0.3%	4.9%	0.0%
<b>FIXED CAUSE</b>						
Equipment Failure	33.5%	58.6%	6.4%	11.8%	67.1%	82.0%
Operator Error	50.6%	22.8%	88.9%	7.7%	23.1%	15.9%
Upset Conditions	0.8%	1.4%	0.5%	0.2%	0.8%	1.2%
Fire/Explosion	6.2%	0.2%	1.7%	76.9%	1.1%	0.0%
Arson/Vandalism	0.1%	0.1%	0.0%	1.1%	0.5%	0.0%
Disposal Related	0.0%	0.0%	0.0%	0.0%	0.0%	0.9%
High Pressure/Temp	0.8%	0.4%	1.5%	0.1%	0.0%	0.0%
Power Related	0.2%	0.3%	0.0%	0.6%	0.6%	0.0%
Sparking/Lightning	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Other	5.9%	13.3%	0.8%	1.1%	0.5%	0.1%
Unknown	1.8%	2.9%	0.2%	0.6%	6.5%	0.0%

## Exhibit D-22b (continued)

ENCYCLOPEDIA OF DATA  
BY FACILITY TYPE

## ALL EVENTS

## QUANTITY RELEASED

	All % of Total	Primary % of Total	Second % of Total	Distrib % of Total	End User % of Total	Waste % of Total
<b>EVENT CONTEXT</b>						
Loading/Unloading	28.5%	7.1%	55.7%	9.8%	5.9%	18.3%
Steady State	64.4%	86.2%	40.8%	85.0%	63.2%	81.3%
Start-Up	1.2%	0.8%	1.5%	0.7%	1.6%	0.0%
Shut Down	0.1%	0.1%	0.0%	0.5%	0.1%	0.0%
Maintenance	0.7%	0.3%	0.1%	0.2%	6.3%	0.0%
Other	0.1%	0.2%	0.1%	0.0%	0.0%	0.0%
Unknown	5.1%	5.3%	1.9%	3.6%	22.9%	0.5%
<b>IN-TRANSIT MODE</b>						
Truck	13.7%	43.1%	1.8%	19.1%	94.0%	100.0%
Rail	23.8%	42.6%	0.1%	51.0%	3.1%	0.0%
Barge	7.4%	13.2%	0.0%	16.0%	1.6%	0.0%
Pipeline	55.1%	1.1%	98.1%	13.9%	0.9%	0.0%
Other	0.0%	0.0%	0.0%	0.0%	0.4%	0.0%
<b>IN-TRANSIT CAUSE</b>						
Leak	10.2%	41.6%	0.2%	14.7%	19.3%	35.4%
Collision	17.2%	15.4%	1.4%	38.9%	18.0%	0.0%
Derailment	8.9%	4.0%	0.0%	22.4%	3.1%	0.0%
Truck Turnover	1.6%	5.0%	0.2%	2.3%	4.2%	4.2%
Other	61.2%	33.3%	98.2%	20.6%	19.6%	60.4%
Unknown	0.9%	0.7%	0.1%	1.1%	35.9%	0.0%
<b>END EFFECTS **</b>						
Spill	92.3%	94.8%	98.5%	55.3%	96.4%	98.8%
Vapor Release	5.8%	7.7%	2.3%	15.1%	4.5%	2.2%
Fire	0.7%	1.3%	1.4%	51.8%	1.3%	0.2%
Explosion	6.6%	1.0%	2.7%	44.7%	2.5%	0.0%
Other	0.2%	0.5%	0.0%	0.0%	0.0%	0.0%
<b>DEATHS?</b>						
Yes	0.3%	0.3%	0.0%	2.1%	0.1%	0.0%
No	91.0%	98.2%	84.0%	96.1%	88.1%	100.0%
Unknown	8.7%	1.5%	16.0%	1.8%	11.9%	0.0%
<b>INJURIES?</b>						
Yes	7.6%	1.5%	1.6%	52.3%	3.3%	56.5%
No	82.5%	96.4%	83.5%	33.3%	83.8%	43.3%
Unknown	9.9%	2.2%	14.9%	14.5%	12.9%	0.2%
<b>EVACUATION?</b>						
Yes	7.2%	1.5%	0.4%	57.5%	2.9%	1.0%
No	58.5%	82.2%	54.7%	16.5%	27.6%	24.3%
Unknown	34.3%	16.4%	44.9%	26.0%	69.5%	74.7%
<b>PROPERTY DAMAGE?</b>						
Yes	17.5%	2.6%	17.6%	74.0%	4.1%	55.5%
No	31.3%	68.2%	4.5%	6.0%	50.9%	2.9%
Unknown	51.2%	29.2%	77.9%	20.1%	45.0%	41.6%

## Exhibit D-22b (continued)

ENCYCLOPEDIA OF DATA  
BY FACILITY TYPE  
ALL EVENTS

	QUANTITY RELEASED					
	All % of Total	Primary % of Total	Second % of Total	Distrib % of Total	End User % of Total	Waste % of Total
PROPERTY TYPE						
Buildings	27.8%	8.5%	0.3%	57.5%	47.1%	0.0%
Vehicles	21.8%	36.6%	1.3%	41.5%	10.6%	0.0%
Tanks	5.7%	34.4%	8.3%	0.0%	4.8%	0.0%
Other Equipment	3.9%	4.5%	7.5%	0.2%	14.4%	0.0%
Other	0.1%	0.0%	0.1%	0.1%	0.2%	0.0%
Unknown	40.7%	15.9%	82.5%	0.9%	23.0%	100.0%
ENVIRONMENTAL DAMAGE?						
Yes	13.3%	0.2%	14.6%	53.4%	11.5%	0.0%
No	26.7%	65.5%	2.8%	6.4%	10.1%	1.8%
Unknown	60.1%	34.3%	82.6%	40.2%	78.4%	98.2%
SOURCES						
APR	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
BGL	0.1%	0.0%	0.0%	0.6%	0.1%	0.0%
CAL	0.0%	0.0%	0.0%	0.1%	0.0%	0.2%
CHP	0.1%	0.1%	0.0%	0.0%	0.0%	1.0%
CHT	1.0%	0.0%	1.3%	3.9%	0.6%	0.0%
CWK	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
HMS	0.3%	0.0%	0.0%	2.4%	0.0%	0.0%
LAT	0.2%	0.4%	0.0%	0.0%	0.0%	0.0%
MMA	0.1%	0.1%	0.0%	0.4%	0.0%	0.0%
NJ2	4.8%	0.3%	0.0%	42.7%	0.4%	0.0%
NJE	0.1%	0.1%	0.0%	0.2%	0.0%	0.1%
NRC	52.2%	78.8%	35.0%	16.5%	74.7%	72.7%
NTP	0.3%	0.5%	0.0%	0.7%	0.1%	0.0%
NYA	27.0%	14.0%	48.0%	0.1%	4.2%	21.8%
NYT	0.2%	0.2%	0.2%	0.6%	0.0%	0.0%
OHE	0.3%	0.5%	0.1%	0.5%	0.7%	1.7%
PEI	0.3%	0.5%	0.1%	0.3%	0.2%	0.9%
RG7	10.6%	1.9%	15.3%	24.1%	6.6%	1.6%
TXA	0.9%	2.5%	0.0%	0.0%	0.2%	0.0%
UPI	1.5%	0.2%	0.0%	6.0%	10.7%	0.0%
OTHER NEWSPAPERS	0.2%	0.0%	0.0%	0.9%	1.6%	0.0%
TOTAL (in Thousands)	360,281	132,271	160,542	39,239	25,796	2,433

\* The total percentage of quantity released in this category can exceed 100% because events can involve up to three substances.

\*\* The total percentage of quantity released in this category can exceed 100% because events can have up to four coded end effects.

## Exhibit D-23

ENCYCLOPEDIA OF DATA FOR  
COMMODITY CHEMICALS

## ALL EVENTS (8444)

	No. of Events	% of Total	Quantity Released	% of Total
<b>SUBSTANCE STATE *</b>				
Solid	258	3.1%	5,530,292	2.4%
Liquid	6,126	72.6%	203,978,779	89.2%
Gas	2,689	31.9%	7,004,359	3.1%
Unknown	8,037	95.2%	29,414	0.0%
Solid Waste	30	0.4%	6,587	0.0%
Liquid Waste	170	2.0%	2,610,144	1.1%
Gas Waste	61	0.7%	458,311	0.2%
Unknown Waste	1	0.0%	0	0.0%
Total Solid	288	3.4%	5,536,879	2.4%
Total Liquid	6,296	74.6%	206,588,923	90.4%
Total Gas	2,750	32.6%	7,462,670	3.3%
<b>AIR MEDIA AFFECTED?</b>				
Yes	3,940	46.7%	86,920,395	38.0%
No	2,256	26.7%	101,539,887	44.4%
Unknown	2,248	26.6%	40,105,381	17.6%
<b>WATER MEDIA AFFECTED?</b>				
Yes	1,585	18.8%	91,754,774	40.1%
No	4,796	56.8%	108,814,991	47.6%
Unknown	2,063	24.4%	27,995,898	12.3%
<b>LAND MEDIA AFFECTED?</b>				
Yes	3,818	45.2%	155,831,988	68.2%
No	2,725	32.3%	18,656,393	8.2%
Unknown	1,901	22.5%	54,077,282	23.7%
<b>FIXED FACILITY</b>				
IN-TRANSIT	6,036	71.5%	178,513,270	78.1%
	2,408	28.5%	50,052,393	21.9%
<b>FIXED LOCATION</b>				
Process Vessel	1,520	25.2%	16,242,285	9.1%
Storage Vessel	1,666	27.6%	117,942,479	66.1%
Valves/Pipes	1,548	25.7%	14,068,158	7.9%
Disposal	402	6.7%	3,404,120	1.9%
Heating/Cooling	110	1.8%	303,165	0.2%
Vehicle Not in Transit	168	2.8%	24,582,861	13.8%
Other	165	2.7%	272,226	0.2%
Unknown	457	7.6%	1,697,976	1.0%
<b>FIXED CAUSE</b>				
Equipment Failure	2,960	49.0%	104,363,613	58.5%
Operator Error	1,072	17.8%	20,618,406	11.6%
Upset Conditions	299	5.0%	1,608,037	0.9%
Fire/Explosion	184	3.1%	2,549,441	1.4%
Arson/Vandalism	27	0.5%	347,563	0.2%
Disposal Related	22	0.4%	41,026	0.0%
High Pressure/Temp	145	2.4%	3,038,438	1.7%
Power Related	123	2.0%	543,457	0.3%
Sparking/Lightning	15	0.3%	23,628,383	13.2%
Other	508	8.4%	17,565,561	9.8%
Unknown	681	11.3%	4,209,345	2.4%



## Exhibit D-23 (continued)

ENCYCLOPEDIA OF DATA FOR  
COMMODITY CHEMICALS

## ALL EVENTS (8444)

	No. of Events	% of Total	Quantity Released	% of Total
<b>EVENT CONTEXT</b>				
Loading/Unloading	979	16.2%	36,228,682	20.3%
Steady State	3,261	54.0%	122,194,279	68.5%
Start-Up	120	2.0%	6,109,182	3.4%
Shut Down	81	1.3%	1,072,224	0.6%
Maintenance	184	3.1%	2,342,062	1.3%
Other	115	1.9%	294,213	0.2%
Unknown	1,296	21.5%	10,272,628	5.8%
<b>IN-TRANSIT MODE</b>				
Truck	1,036	43.0%	7,880,067	15.7%
Rail	1,159	48.1%	10,893,935	21.8%
Barge	134	5.6%	5,739,253	11.5%
Pipeline	74	3.1%	25,536,467	51.0%
Other	5	0.2%	2,671	0.0%
<b>IN-TRANSIT CAUSE</b>				
Leak	1,150	47.8%	6,645,300	13.3%
Collision	273	11.3%	9,047,959	18.1%
Derailment	160	6.6%	4,034,378	8.1%
Truck Turnover	147	6.1%	1,325,863	2.7%
Other	560	23.3%	28,172,527	56.3%
Unknown	118	4.9%	826,366	1.7%
<b>END EFFECTS **</b>				
Spill	5,523	65.4%	213,479,970	93.4%
Vapor Release	3,650	43.2%	22,900,742	10.0%
Fire	410	4.9%	37,212,171	16.3%
Explosion	217	2.6%	36,209,641	15.8%
Other	21	0.3%	50,095	0.0%
<b>DEATHS?</b>				
Yes	76	0.9%	24,792,380	10.9%
No	7,976	94.5%	165,888,580	72.6%
Unknown	392	4.6%	37,884,703	16.6%
<b>INJURIES?</b>				
Yes	698	8.3%	33,186,858	14.5%
No	7,164	84.8%	154,545,288	67.6%
Unknown	582	6.9%	40,833,517	17.9%
<b>EVACUATION?</b>				
Yes	611	7.2%	11,523,509	5.0%
No	4,074	48.3%	116,661,293	51.0%
Unknown	3,759	44.5%	100,380,861	43.9%
<b>PROPERTY DAMAGE?</b>				
Yes	976	11.6%	74,843,229	32.7%
No	4,068	48.2%	110,965,467	48.6%
Unknown	3,400	40.3%	42,756,967	18.7%

## Exhibit D-23 (continued)

ENCYCLOPEDIA OF DATA FOR  
COMMODITY CHEMICALS

## ALL EVENTS (8444)

	No. of Events	% of Total	Quantity Released	% of Total
<b>PROPERTY TYPE</b>				
Buildings	89	9.1%	916,878	1.2%
Vehicles	485	49.7%	37,818,360	50.5%
Tanks	84	8.6%	3,202,025	4.3%
Other Equipment	130	13.3%	9,249,688	12.4%
Other	15	1.5%	34,867	0.1%
Unknown	174	17.8%	23,621,411	31.6%
<b>ENVIRONMENTAL DAMAGE?</b>				
Yes	195	2.3%	32,803,155	14.4%
No	3,204	37.9%	94,879,121	41.5%
Unknown	5,045	59.8%	100,883,387	44.1%
<b>SOURCES</b>				
APR	30	0.4%	9,075	0.0%
BGL	6	0.1%	216,000	0.1%
CAL	92	1.1%	866,155	0.4%
CHP	39	0.5%	531,074	0.2%
CHT	37	0.4%	4,799,838	2.1%
CWK	2	0.0%	8,500	0.0%
HMS	96	1.1%	848,864	0.4%
LAT	19	0.2%	662,543	0.3%
MMA	34	0.4%	29,853,563	13.1%
NJ2	209	2.5%	594,843	0.3%
NJE	72	0.9%	229,663	0.1%
NRC	6,419	76.0%	137,298,966	60.1%
NTP	75	0.9%	1,212,751	0.5%
NYA	216	2.6%	5,065,839	2.2%
NYT	52	0.6%	1,952,236	0.9%
OHE	178	2.1%	966,235	0.4%
PEI	75	0.9%	901,336	0.4%
RG7	293	3.5%	33,887,800	14.8%
TXA	320	3.8%	2,728,826	1.2%
UPI	161	1.9%	5,246,786	2.3%
OTHER NEWSPAPERS	19	0.2%	684,770	0.3%
<b>TOTAL</b>	<b>8,444</b>		<b>228,565,663</b>	

\* The total number of events in this category can exceed 8444 because events can involve up to three substances.

\*\* The total number of events in this category can exceed 8444 because events can have up to four coded end effects.

## Exhibit D-24

ENCYCLOPEDIA OF DATA FOR  
SPECIALTY CHEMICALS

## ALL EVENTS (834)

	No. of Events	% of Total	Quantity Released	% of Total
<b>SUBSTANCE STATE *</b>				
Solid	86	10.3%	866,753	8.4%
Liquid	894	107.2%	3,925,498	37.9%
Gas	102	12.2%	553,466	5.4%
Unknown	709	85.0%	52,552	0.5%
Solid Waste	8	1.0%	3,866	0.0%
Liquid Waste	29	3.5%	41,663	0.4%
Gas Waste	3	0.4%	0	0.0%
Unknown Waste	1	0.1%	0	0.0%
Total Solid	94	11.3%	870,619	8.4%
Total Liquid	923	110.7%	3,967,161	38.3%
Total Gas	105	12.6%	553,466	5.4%
<b>AIR MEDIA AFFECTED?</b>				
Yes	332	39.8%	1,465,303	14.2%
No	219	26.3%	1,753,571	16.9%
Unknown	283	33.9%	7,130,988	68.9%
<b>WATER MEDIA AFFECTED?</b>				
Yes	190	22.8%	3,700,545	35.8%
No	400	48.0%	5,193,427	50.2%
Unknown	244	29.3%	1,455,890	14.1%
<b>LAND MEDIA AFFECTED?</b>				
Yes	367	44.0%	5,339,664	51.6%
No	181	21.7%	1,951,677	18.9%
Unknown	286	34.3%	3,058,521	29.6%
<b>FIXED FACILITY</b>				
IN-TRANSIT	585	70.1%	9,422,692	91.0%
	249	29.9%	927,170	9.0%
<b>FIXED LOCATION</b>				
Process Vessel	94	16.1%	1,789,437	19.0%
Storage Vessel	186	31.8%	6,220,093	66.0%
Valves/Pipes	99	16.9%	230,231	2.4%
Disposal	45	7.7%	33,914	0.4%
Heating/Cooling	16	2.7%	184,231	2.0%
Vehicle Not in Transit	7	1.2%	30,908	0.3%
Other	64	10.9%	32,300	0.3%
Unknown	74	12.7%	901,578	9.6%
<b>FIXED CAUSE</b>				
Equipment Failure	222	38.0%	586,989	6.2%
Operator Error	112	19.2%	6,258,380	66.4%
Upset Conditions	37	6.3%	595,034	6.3%
Fire/Explosion	55	9.4%	199,954	2.1%
Arson/Vandalism	6	1.0%	90	0.0%
Disposal Related	5	0.9%	0	0.0%
High Pressure/Temp	6	1.0%	48,630	0.5%
Power Related	6	1.0%	138,900	1.5%
Sparking/Lightning	1	0.2%	0	0.0%
Other	36	6.2%	683,119	7.3%
Unknown	99	16.9%	911,596	9.7%

## Exhibit D-24 (continued)

ENCYCLOPEDIA OF DATA FOR  
SPECIALTY CHEMICALS

## ALL EVENTS (834)

	No. of Events	% of Total	Quantity Released	% of Total
<b>EVENT CONTEXT</b>				
Loading/Unloading	86	14.7%	4,753,286	50.5%
Steady State	256	43.8%	3,282,431	34.8%
Start-Up	7	1.2%	48,231	0.5%
Shut Down	3	0.5%	6	0.0%
Maintenance	32	5.5%	34,258	0.4%
Other	14	2.4%	440	0.0%
Unknown	187	32.0%	1,304,040	13.8%
<b>IN-TRANSIT MODE</b>				
Truck	168	67.5%	289,691	31.2%
Rail	71	28.5%	488,246	52.7%
Barge	4	1.6%	70,000	7.6%
Pipeline	2	0.8%	50,008	5.4%
Other	4	1.6%	29,225	3.2%
<b>IN-TRANSIT CAUSE</b>				
Leak	110	44.2%	64,272	6.9%
Collision	25	10.0%	207,763	22.4%
Derailment	10	4.0%	428,500	46.2%
Truck Turnover	20	8.0%	88,877	9.6%
Other	45	18.1%	107,284	11.6%
Unknown	39	15.7%	30,474	3.3%
<b>END EFFECTS **</b>				
Spill	657	78.8%	9,606,616	92.8%
Vapor Release	274	32.9%	1,121,653	10.8%
Fire	100	12.0%	1,143,868	11.1%
Explosion	31	3.7%	643,627	6.2%
Other	8	1.0%	663,450	6.4%
<b>DEATHS?</b>				
Yes	13	1.6%	131,000	1.3%
No	705	84.5%	9,945,588	96.1%
Unknown	116	13.9%	273,274	2.6%
<b>INJURIES?</b>				
Yes	90	10.8%	646,133	6.2%
No	602	72.2%	9,170,859	88.6%
Unknown	142	17.0%	532,870	5.2%
<b>EVACUATION?</b>				
Yes	93	11.2%	899,986	8.7%
No	355	42.6%	2,397,010	23.2%
Unknown	386	46.3%	7,052,866	68.1%
<b>PROPERTY DAMAGE?</b>				
Yes	138	16.6%	1,597,290	15.4%
No	260	31.2%	1,192,293	11.5%
Unknown	436	52.3%	7,560,279	73.1%

## Exhibit D-24 (continued)

ENCYCLOPEDIA OF DATA FOR  
SPECIALTY CHEMICALS

## ALL EVENTS (834)

	No. of Events	% of Total	Quantity Released	% of Total
<b>PROPERTY TYPE</b>				
Buildings	20	14.5%	32,889	2.1%
Vehicles	46	33.3%	685,188	42.9%
Tanks	6	4.4%	485,185	30.4%
Other Equipment	29	21.0%	226,337	14.2%
Other	3	2.2%	23,000	1.4%
Unknown	34	24.6%	144,691	9.1%
<b>ENVIRONMENTAL DAMAGE?</b>				
Yes	38	4.6%	111,087	1.1%
No	193	23.1%	1,017,009	9.8%
Unknown	603	72.3%	9,221,766	89.1%
<b>SOURCES</b>				
APR	5	0.6%	25,000	0.2%
BGL	0	0.0%	0	0.0%
CAL	22	2.6%	67,260	0.7%
CHP	4	0.5%	2,025	0.0%
CHT	5	0.6%	2,825	0.0%
CWK	0	0.0%	0	0.0%
HMS	11	1.3%	602	0.0%
LAT	5	0.6%	480,413	4.6%
MMA	3	0.4%	0	0.0%
NJ2	47	5.6%	252,673	2.4%
NJE	19	2.3%	11,813	0.1%
NRC	474	56.8%	7,400,940	71.5%
NTP	16	1.9%	230,014	2.2%
NYA	39	4.7%	99,789	1.0%
NYT	11	1.3%	12,325	0.1%
OHE	31	3.7%	90,491	0.9%
PEI	7	0.8%	116,105	1.1%
RG7	60	7.2%	1,141,638	11.0%
TXA	41	4.9%	44,906	0.4%
UPI	30	3.6%	146,043	1.4%
OTHER NEWSPAPERS	4	0.5%	225,000	2.2%
<b>TOTAL</b>	<b>834</b>		<b>10,349,862</b>	

\* The total number of events in this category can exceed 834 because events can involve up to three substances.

\*\* The total number of events in this category can exceed 834 because events can have up to four coded end effects.

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APPENDIX E

DATA BASE SUMMARY FOR DEATH OR INJURY EVENTS

## APPENDIX E

Appendix E contains the following exhibits:

- E-1 Encyclopedia of Data for Death or Injury Events
- E-2 Substances Most Frequently Reported in Death or Injury Events
- E-3 Day of the Week/Time of Day Analysis for Death or Injury Events at Primary Producers
- E-4 RQ and Quantity/RQ Analysis for Death or Injury Events
- E-5 Quantity Released as a Function of Event Characteristics for Death or Injury Events -- By Number of Events and Quantity Released
- E-6 Encyclopedia of Data for Death or Injury Events at Primary Producers
- E-7 Substances Most Frequently Reported in Death or Injury Events at Primary Producers
- E-8 Encyclopedia of Data for Death or Injury Events at Secondary Producers
- E-9 Substances Most Frequently Reported in Death or Injury Events at Secondary Producers
- E-10 Encyclopedia of Data for Death or Injury Events at Distributors
- E-11 Substances Most Frequently Reported in Death or Injury Events at Distributors
- E-12 Encyclopedia of Data for Death or Injury Events at End Users
- E-13 Substances Most Frequently Reported in Death or Injury Events at End Users
- E-14 Encyclopedia of Data for Death or Injury Events at Waste Disposers
- E-15 Substances Most Frequently Reported in Death or Injury Events at Waste Disposers
- E-16 Encyclopedia of Data Summary for Death or Injury Events by Facility Type -- By Number of Events and Quantity Released
- E-17 Encyclopedia of Data for Death or Injury Events Involving Commodity Chemicals
- E-18 Encyclopedia of Data for Death or Injury Events Involving Specialty Chemicals
- E-19 Encyclopedia of Data Segregated by Events with Deaths versus Events with Injuries

ENCYCLOPEDIA OF DATA FOR  
DEATH/INJURY EVENTS

DEATH/INJURY EVENTS (1019)

	No. of Events	% of Total	Quantity Released	% of Total
SUBSTANCE STATE *				
Solid	121	11.9%	2,113,100	4.0%
Liquid	732	71.8%	32,228,219	61.4%
Gas	322	31.6%	624,124	1.2%
Unknown	1,856	182.1%	202,621	0.4%
Solid Waste	3	0.3%	13,000	0.0%
Liquid Waste	18	1.8%	16,876,226	32.2%
Gas Waste	2	0.2%	0	0.0%
Unknown Waste	3	0.3%	45,000	0.1%
Total Solid	124	12.2%	2,126,100	4.1%
Total Liquid	750	73.6%	49,104,445	93.5%
Total Gas	324	31.8%	624,124	1.2%
AIR MEDIA AFFECTED?				
Yes	834	81.8%	49,582,455	94.5%
No	43	4.2%	145,468	0.3%
Unknown	142	13.9%	2,767,047	5.3%
WATER MEDIA AFFECTED?				
Yes	118	11.6%	43,820,994	83.5%
No	487	47.8%	3,476,791	6.6%
Unknown	414	40.6%	5,197,185	9.9%
LAND MEDIA AFFECTED?				
Yes	428	42.0%	25,877,644	49.3%
No	247	24.2%	1,056,130	2.0%
Unknown	344	33.8%	25,561,196	48.7%
FIXED FACILITY				
IN-TRANSIT	638	62.6%	46,637,337	88.8%
	381	37.4%	5,857,633	11.2%
FIXED LOCATION				
Process Vessel	141	22.1%	2,848,502	6.1%
Storage Vessel	191	29.9%	2,795,407	6.0%
Valves/Pipes	101	15.8%	621,874	1.3%
Disposal	19	3.0%	16,515,487	35.4%
Heating/Cooling	11	1.7%	1,600	0.0%
Vehicle Not in Transit	27	4.2%	23,662,817	50.7%
Other	36	5.6%	63,664	0.1%
Unknown	112	17.6%	127,986	0.3%
FIXED CAUSE				
Equipment Failure	197	30.9%	2,753,703	5.9%
Operator Error	122	19.1%	967,892	2.1%
Upset Conditions	36	5.6%	135,824	0.3%
Fire/Explosion	122	19.1%	16,753,281	35.9%
Arson/Vandalism	14	2.2%	60,750	0.1%
Disposal Related	0	0.0%	0	0.0%
High Pressure/Temp	17	2.7%	2,161,015	4.6%
Power Related	7	1.1%	45,176	0.1%
Sparking/Lightning	14	2.2%	23,626,500	50.7%
Other	13	2.0%	63,088	0.1%
Unknown	96	15.1%	70,108	0.2%



## Exhibit E-1 (continued)

ENCYCLOPEDIA OF DATA FOR  
DEATH/INJURY EVENTS

## DEATH/INJURY EVENTS (1019)

	No. of Events	% of Total	Quantity Released	% of Total
<b>EVENT CONTEXT</b>				
Loading/Unloading	105	16.5%	24,024,910	51.5%
Steady State	254	39.8%	18,876,729	40.5%
Start-Up	25	3.9%	2,790,774	6.0%
Shut Down	5	0.8%	45,500	0.1%
Maintenance	40	6.3%	220,068	0.5%
Other	5	0.8%	750	0.0%
Unknown	204	32.0%	678,606	1.5%
<b>IN-TRANSIT MODE</b>				
Truck	252	66.1%	1,651,192	28.2%
Rail	105	27.6%	3,746,644	64.0%
Barge	10	2.6%	453,263	7.7%
Pipeline	9	2.4%	6,238	0.1%
Other	5	1.3%	296	0.0%
<b>IN-TRANSIT CAUSE</b>				
Leak	177	46.5%	516,302	8.8%
Collision	87	22.8%	1,193,631	20.4%
Derailment	23	6.0%	931,625	15.9%
Truck Turnover	21	5.5%	245,657	4.2%
Other	56	14.7%	2,522,460	43.1%
Unknown	17	4.5%	447,958	7.7%
<b>END EFFECTS **</b>				
Spill	576	56.5%	32,221,680	61.4%
Vapor Release	645	63.3%	7,285,725	13.9%
Fire	255	25.0%	45,066,245	85.9%
Explosion	180	17.7%	44,616,163	85.0%
Other	6	0.6%	242	0.0%
<b>DEATHS?</b>				
Yes	114	11.2%	24,905,580	47.4%
No	850	83.4%	24,902,527	47.4%
Unknown	55	5.4%	2,686,863	5.1%
<b>INJURIES?</b>				
Yes	994	97.6%	52,435,570	99.9%
No	19	1.9%	55,650	0.1%
Unknown	6	0.6%	3,750	0.0%
<b>EVACUATION?</b>				
Yes	334	32.8%	22,877,998	43.6%
No	323	31.7%	2,838,798	5.4%
Unknown	362	35.5%	26,778,174	51.0%
<b>PROPERTY DAMAGE?</b>				
Yes	469	46.0%	48,499,148	92.4%
No	183	18.0%	1,007,431	1.9%
Unknown	367	36.0%	2,988,391	5.7%

## Exhibit E-1 (continued)

ENCYCLOPEDIA OF DATA FOR  
DEATH/INJURY EVENTS

## DEATH/INJURY EVENTS (1019)

	No. of Events	% of Total	Quantity Released	% of Total
<b>PROPERTY TYPE</b>				
Buildings	114	24.3%	17,390,400	35.9%
Vehicles	159	33.9%	27,349,967	56.4%
Tanks	27	5.8%	70,860	0.2%
Other Equipment	47	10.0%	2,052,135	4.2%
Other	10	2.1%	24,620	0.1%
Unknown	112	23.9%	1,611,166	3.3%
<b>ENVIRONMENTAL DAMAGE?</b>				
Yes	57	5.6%	18,371,847	35.0%
No	112	11.0%	727,625	1.4%
Unknown	850	83.4%	33,395,498	63.6%
<b>SOURCES</b>				
APR	12	1.2%	0	0.0%
BGL	7	0.7%	242,250	0.5%
CAL	36	3.5%	152,267	0.3%
CHP	6	0.6%	430,375	0.8%
CHT	41	4.0%	3,705,325	7.1%
CWK	1	0.1%	5,000	0.0%
HMS	100	9.8%	645,136	1.2%
LAT	27	2.7%	200,456	0.4%
MMA	12	1.2%	24,009,300	45.7%
NJ2	88	8.6%	16,637,347	31.7%
NJE	30	2.9%	4,713	0.0%
NRC	363	35.6%	3,040,793	5.8%
NTP	41	4.0%	905,575	1.7%
NYA	32	3.1%	111,262	0.2%
NYT	66	6.5%	599,974	1.1%
OHE	29	2.9%	118,712	0.2%
PEI	8	0.8%	24,963	0.1%
RG7	13	1.3%	60,188	0.1%
TXA	7	0.7%	450,250	0.9%
UPI	84	8.2%	358,565	0.7%
OTHER NEWSPAPERS	16	1.6%	792,519	1.5%
<b>TOTAL</b>	<b>1,019</b>		<b>52,494,970</b>	

\* The total number of events in this category can exceed 1019 because events can involve up to three substances.

\*\* The total number of events in this category can exceed 1019 because events can have up to four coded end effects.

## Exhibit E-2

SUBSTANCES MOST FREQUENTLY REPORTED  
DEATH/INJURY EVENTS (1019 Events)

RANK	CHEM TYPE	SUBSTANCE NAME	NUMBER OF EVENTS	QUANTITY RELEASED
1		CHLORINE	121	47,028
2		AMMONIA (ANHYDROUS)	66	414,346
3		HYDROCHLORIC ACID	64	296,650
4		SULFURIC ACID	62	1,690,977
5		UNKNOWN	48	203,903
6		AMMONIA	26	57,633
7		SODIUM HYDROXIDE	26	159,094
8		NITRIC ACID	18	149,266
9		PESTICIDE	18	16,225
10		TOLUENE	16	27,563
11		STYRENE	14	52,601
12		PHOSPHORIC ACID	12	2,166
13		TOLUENE DIISOCYANATE	12	16,146
14		BENZENE	11	7,800
15		EXPLOSIVES	11	3,000
16		SULFUR DIOXIDE	10	1,277
17		PHOSGENE	10	6,800
18		SOLVENT	9	11,663
19		ACRYLONITRILE	9	900,000
20		HYDROGEN SULFIDE	9	38
21		METHYLENE CHLORIDE	9	4,116
22		HYDROGEN	9	0
23		ACID	9	45,421
24		HYDROFLUORIC ACID	9	270,562

## Exhibit E-3

DAY OF THE WEEK/TIME OF DAY ANALYSIS  
 DEATH/INJURY EVENTS (PRIMARY PRODUCERS -- 267 EVENTS)

	NUMBER OF EVENTS	QUANTITY RELEASED	HOURS PER WEEK	EVENTS PER HOUR	QUANTITY PER HOUR
DAY OF THE WEEK					
Monday	36	652,586	24	1.5	27,191
Tuesday	49	663,241	24	2.0	27,635
Wednesday	45	48,412	24	1.9	2,017
Thursday	56	278,411	24	2.3	11,600
Friday	45	168,028	24	1.9	7,001
Saturday	16	93,802	24	0.7	3,908
Sunday	20	63,974	24	0.8	2,666
Unknown	0	0	24	0.0	0
TIME OF DAY					
Unknown	49	299,232	NA	NA	NA
AM	60	74,407	42	1.4	1,772
DAY	0	0	84	0.0	0
PM	122	1,162,635	42	2.9	27,682
SHIFT *					
On shift	133	1,051,266	60	2.2	17,521
Off shift	134	917,188	108	2.2	15,286
Unknown	0	0	NA	NA	NA
TOTAL	267	1,968,454	168	1.6	11,717

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 \* On shift is defined as 6AM to 6PM, Monday through Friday; all other hours of the week are off shift.

## Exhibit E-4

DISTRIBUTION OF EVENTS BY REPORTABLE QUANTITY  
DEATH/INJURY EVENTS

RQ	SUBSTANCE 1		DISTRIBUTION OF RQS	
	NUMBER OF EVENTS	PERCENT OF EVENTS	NUMBER	PERCENT
1	27	7.3%	193	27.6%
10	84	22.6%	68	9.7%
100	82	22.1%	111	15.9%
1000	114	30.7%	169	24.1%
5000	64	17.3%	159	22.7%
TOTAL	371	100.0%	700	100.0%

DISTRIBUTION OF EVENTS BY RATIO OF QUANTITY TO REPORTABLE QUANTITY  
DEATH/INJURY EVENTS

Q/RQ RANGE	SUBSTANCE 1	
	NUMBER OF EVENTS	PERCENT OF EVENTS
0-1	134	36.1%
1-10	94	25.3%
10-100	90	24.3%
100-1000	36	9.7%
>1000	17	4.6%
TOTAL	371	100.0%

## Exhibit E-5A

ENCYCLOPEDIA OF DATA	QUANTITY RELEASED - DEATH/INJURY EVENTS (By Quantity Range in Lbs.)								
	Total Quantity Released	1-10 % of Total	11-100 % of Total	101-1K % of Total	1K-10K % of Total	10K-25K % of Total	25K-50K % of Total	50K-100K % of Total	>100K % of Total
FIXED FACILITY	46,637,337	0.0%	0.0%	0.1%	0.4%	0.7%	1.1%	1.3%	96.5%
IN-TRANSIT	5,857,633	0.0%	0.0%	0.4%	1.9%	5.0%	11.1%	5.4%	76.1%
FIXED LOCATION									
Process Vessel	2,848,502	0.0%	0.0%	0.3%	1.8%	2.9%	1.7%	3.3%	90.0%
Storage Vessel	2,795,407	0.0%	0.0%	0.5%	2.2%	2.5%	10.5%	10.4%	73.9%
Valves/Pipes	621,874	0.0%	0.2%	1.2%	8.5%	18.6%	13.3%	32.6%	25.7%
Disposal	16,515,487	0.0%	0.0%	0.0%	0.0%	0.1%	0.0%	0.0%	99.9%
Heating/Cooling	1,600	0.0%	0.0%	0.0%	100.0%	0.0%	0.0%	0.0%	0.0%
Vehicles Not in Transit	23,662,817	0.0%	0.0%	0.0%	0.0%	0.0%	0.1%	0.0%	99.8%
Other	63,664	0.0%	0.0%	4.9%	0.0%	36.1%	58.9%	0.0%	0.0%
Unknown	127,966	0.0%	0.2%	1.6%	4.5%	13.3%	0.0%	0.0%	80.5%
FIXED CAUSE									
Equipment Failure	2,753,703	0.0%	0.1%	0.6%	3.3%	2.7%	4.1%	15.3%	73.9%
Operator Error	967,892	0.0%	0.1%	1.0%	3.4%	11.6%	3.4%	7.8%	72.8%
Upset Conditions	135,824	0.0%	0.1%	2.6%	7.1%	20.3%	69.9%	0.0%	0.0%
Fire/Explosion	16,753,281	0.0%	0.0%	0.0%	0.1%	0.3%	0.2%	0.0%	99.4%
Arson/Vandalism	60,750	0.0%	0.0%	0.0%	0.0%	19.8%	80.3%	0.0%	0.0%
Disposal Related	0	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
High Pressure/Temp	2,161,015	0.0%	0.0%	0.1%	0.3%	0.7%	2.3%	4.2%	92.6%
Power Related	45,176	0.0%	0.4%	0.0%	0.0%	0.0%	99.6%	0.0%	0.0%
Sparking/Lightning	23,626,500	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%
Other	63,088	0.0%	0.1%	0.0%	0.0%	28.5%	71.3%	0.0%	0.0%
Unknown	70,108	0.0%	0.1%	8.3%	30.0%	24.3%	37.4%	0.0%	0.0%

# Exhibit E5A (continued)

ENCYCLOPEDIA OF DATA	QUANTITY RELEASED - DEATH/INJURY EVENTS (By Quantity Range in Lbs.)								
	Total Quantity Released	1-10 % of Total	11-100 % of Total	101-1K % of Total	1K-10K % of Total	10K-25K % of Total	25K-50K % of Total	50K-100K % of Total	>100K % of Total
<b>EVENT CONTEXT</b>									
Loading/Unloading	24,024,910	0.0%	0.0%	0.0%	0.2%	0.3%	0.5%	0.0%	99.0%
Steady State	18,876,729	0.0%	0.0%	0.1%	0.4%	0.7%	1.0%	1.8%	96.0%
Start-Up	2,790,774	0.0%	0.0%	0.0%	0.4%	0.5%	1.8%	0.0%	97.3%
Shut Down	45,500	0.0%	0.0%	1.1%	0.0%	0.0%	98.9%	0.0%	0.0%
Maintenance	220,068	0.0%	0.1%	0.8%	6.4%	13.2%	14.8%	0.0%	64.8%
Other	750	0.0%	0.0%	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Unknown	678,606	0.0%	0.1%	1.3%	7.1%	9.1%	9.4%	35.7%	37.3%
<b>IN-TRANSIT MODE</b>									
Truck	1,651,192	0.0%	0.1%	1.2%	5.3%	13.9%	24.6%	10.2%	44.8%
Rail	3,746,644	0.0%	0.0%	0.0%	0.5%	1.1%	5.1%	4.0%	89.3%
Barge	453,263	0.0%	0.0%	0.2%	0.5%	5.5%	11.0%	0.0%	82.7%
Pipeline	6,238	0.1%	2.1%	25.7%	72.1%	0.0%	0.0%	0.0%	0.0%
Other	296	2.7%	33.8%	63.5%	0.0%	0.0%	0.0%	0.0%	0.0%
<b>IN-TRANSIT CAUSE</b>									
Leak	516,302	0.0%	0.2%	2.3%	5.7%	19.9%	30.1%	0.0%	41.8%
Collision	1,193,631	0.0%	0.0%	0.5%	2.7%	12.4%	22.4%	22.2%	39.8%
Derailment	931,625	0.0%	0.0%	0.1%	0.2%	2.4%	4.0%	0.0%	93.3%
Truck Turnover	245,657	0.0%	0.0%	0.0%	8.1%	9.2%	61.4%	21.4%	0.0%
Other	2,522,460	0.0%	0.0%	0.2%	0.8%	0.0%	0.0%	0.0%	99.1%
Unknown	447,958	0.0%	0.0%	0.4%	1.9%	0.0%	8.4%	0.0%	89.3%
<b>TOTAL QUANTITY (in Pounds)</b>	<b>52,494,970</b>	<b>318</b>	<b>4,783</b>	<b>63,329</b>	<b>292,402</b>	<b>615,249</b>	<b>1,139,537</b>	<b>904,250</b>	<b>49,475,102</b>

# Exhibit E-5B

September 1989

ENCYCLOPEDIA OF DATA	NUMBER OF EVENTS - DEATH/INJURY EVENTS (By Quantity Range in Lbs.)									
	Total	1-10	11-100	101-1K	1K-10K	10K-25K	25K-50K	50K-100K	>100K	
	No. of Events	% of Total	% of Total	% of Total	% of Total	% of Total	% of Total	% of Total	% of Total	
FIXED FACILITY	280	5.7%	20.7%	35.7%	19.3%	7.1%	4.6%	2.5%	4.3%	
IN-TRANSIT	205	15.6%	19.0%	25.9%	15.1%	7.8%	8.3%	2.4%	5.9%	
FIXED LOCATION										
Process Vessel	65	6.2%	20.0%	36.9%	21.5%	7.7%	1.5%	1.5%	4.6%	
Storage Vessel	104	8.7%	14.4%	36.5%	20.2%	4.8%	7.7%	2.9%	4.8%	
Valves/Pipes	66	3.0%	31.8%	24.2%	21.2%	10.6%	3.0%	4.6%	1.5%	
Disposal	6	0.0%	0.0%	50.0%	16.7%	16.7%	0.0%	0.0%	16.7%	
Heating/Cooling	1	0.0%	0.0%	0.0%	100.0%	0.0%	0.0%	0.0%	0.0%	
Vehicles Not in Transit	12	0.0%	25.0%	50.0%	8.3%	0.0%	8.3%	0.0%	8.3%	
Other	12	8.3%	8.3%	66.7%	0.0%	8.3%	8.3%	0.0%	0.0%	
Unknown	14	0.0%	35.7%	35.7%	14.3%	7.1%	0.0%	0.0%	7.1%	
FIXED CAUSE										
Equipment Failure	121	4.1%	24.8%	33.9%	22.3%	4.1%	2.5%	4.1%	4.1%	
Operator Error	67	7.5%	20.9%	37.3%	16.4%	10.5%	1.5%	1.5%	4.5%	
Upset Conditions	21	9.5%	14.3%	38.1%	14.3%	9.5%	14.3%	0.0%	0.0%	
Fire/Explosion	21	0.0%	9.5%	47.6%	19.1%	9.5%	4.8%	0.0%	9.5%	
Arson/Vandalism	2	0.0%	0.0%	0.0%	0.0%	50.0%	50.0%	0.0%	0.0%	
Disposal Related	0	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	
High Pressure/Temp	11	9.1%	27.3%	18.2%	9.1%	9.1%	9.1%	9.1%	9.1%	
Power Related	4	0.0%	75.0%	0.0%	0.0%	0.0%	25.0%	0.0%	0.0%	
Sparking/Lightning	2	0.0%	0.0%	0.0%	50.0%	0.0%	0.0%	0.0%	50.0%	
Other	5	40.0%	20.0%	0.0%	0.0%	20.0%	20.0%	0.0%	0.0%	
Unknown	26	3.9%	7.7%	53.9%	26.9%	3.9%	3.9%	0.0%	0.0%	



# Exhibit E-5B (continued)

ENCYCLOPEDIA OF DATA	NUMBER OF EVENTS - DEATH/INJURY EVENTS (By Quantity Range in Lbs.)								
	Total No. of Events	1-10 % of Total	11-100 % of Total	101-1K % of Total	1K-10K % of Total	10K-25K % of Total	25K-50K % of Total	50K-100K % of Total	>100K % of Total
<b>EVENT CONTEXT</b>									
Loading/Unloading	71	7.0%	23.9%	39.4%	15.5%	7.0%	4.2%	0.0%	2.8%
Steady State	110	6.4%	22.7%	34.6%	18.2%	7.3%	4.6%	3.6%	2.7%
Start-Up	13	0.0%	7.7%	15.4%	30.8%	7.7%	7.7%	0.0%	30.8%
Shut Down	2	0.0%	0.0%	50.0%	0.0%	0.0%	50.0%	0.0%	0.0%
Maintenance	18	11.1%	22.2%	27.8%	16.7%	11.1%	5.6%	0.0%	5.6%
Other	1	0.0%	0.0%	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Unknown	65	3.1%	16.9%	38.5%	24.6%	6.2%	3.1%	4.6%	3.1%
<b>IN-TRANSIT MODE</b>									
Truck	149	13.4%	19.5%	30.9%	16.8%	8.7%	7.4%	2.0%	1.3%
Rail	40	25.0%	15.0%	5.0%	10.0%	5.0%	12.5%	5.0%	22.5%
Barge	6	0.0%	0.0%	33.3%	16.7%	16.7%	16.7%	0.0%	16.7%
Pipeline	7	14.3%	42.9%	28.6%	14.3%	0.0%	0.0%	0.0%	0.0%
Other	3	33.3%	33.3%	33.3%	0.0%	0.0%	0.0%	0.0%	0.0%
<b>IN-TRANSIT CAUSE</b>									
Leak	93	23.7%	23.7%	31.2%	9.7%	6.5%	4.3%	0.0%	1.1%
Collision	47	0.0%	12.8%	21.3%	21.3%	17.0%	14.9%	8.5%	4.3%
Derailment	9	0.0%	0.0%	11.1%	11.1%	11.1%	11.1%	0.0%	55.6%
Truck Turnover	11	9.1%	0.0%	0.0%	36.4%	9.1%	36.4%	9.1%	0.0%
Other	33	24.2%	27.3%	24.2%	15.2%	0.0%	0.0%	0.0%	9.1%
Unknown	12	8.3%	16.7%	41.7%	16.7%	0.0%	8.3%	0.0%	8.3%
<b>TOTAL EVENTS</b>	<b>485</b>	<b>48</b>	<b>97</b>	<b>153</b>	<b>85</b>	<b>36</b>	<b>30</b>	<b>12</b>	<b>24</b>

## Exhibit E-6

ENCYCLOPEDIA OF DATA FOR  
PRIMARY PRODUCERS

## DEATH/INJURY EVENTS (267)

	No. of Events	% of Total	Quantity Released	% of Total
<b>SUBSTANCE STATE *</b>				
Solid	20	7.5%	13,325	0.7%
Liquid	172	64.4%	1,617,033	82.2%
Gas	128	47.9%	200,864	10.2%
Unknown	476	178.3%	0	0.0%
Solid Waste	1	0.4%	0	0.0%
Liquid Waste	4	1.5%	0	0.0%
Gas Waste	0	0.0%	0	0.0%
Unknown Waste	0	0.0%	0	0.0%
 Total Solid	 21	 7.9%	 13,325	 0.7%
Total Liquid	176	65.9%	1,617,033	82.2%
Total Gas	128	47.9%	200,864	10.2%
 <b>AIR MEDIA AFFECTED?</b>				
Yes	242	90.6%	1,646,398	83.6%
No	4	1.5%	5,254	0.3%
Unknown	21	7.9%	316,802	16.1%
 <b>WATER MEDIA AFFECTED?</b>				
Yes	32	12.0%	990,170	50.3%
No	125	46.8%	546,092	27.7%
Unknown	110	41.2%	432,192	22.0%
 <b>LAND MEDIA AFFECTED?</b>				
Yes	62	23.2%	835,503	42.4%
No	87	32.6%	468,128	23.8%
Unknown	118	44.2%	664,823	33.8%
 <b>FIXED FACILITY</b>				
IN-TRANSIT	234	87.6%	1,178,999	59.9%
	33	12.4%	789,455	40.1%
 <b>FIXED LOCATION</b>				
Process Vessel	65	27.8%	112,154	9.5%
Storage Vessel	59	25.2%	690,401	58.6%
Valves/Pipes	52	22.2%	247,900	21.0%
Disposal	4	1.7%	0	0.0%
Heating/Cooling	4	1.7%	1,600	0.1%
Vehicle Not in Transit	10	4.3%	6,067	0.5%
Other	5	2.1%	2	0.0%
Unknown	35	15.0%	120,875	10.3%
 <b>FIXED CAUSE</b>				
Equipment Failure	94	40.2%	576,019	48.9%
Operator Error	35	15.0%	310,835	26.4%
Upset Conditions	13	5.6%	47,403	4.0%
Fire/Explosion	36	15.4%	27,000	2.3%
Arson/Vandalism	2	0.9%	0	0.0%
Disposal Related	0	0.0%	0	0.0%
High Pressure/Temp	9	3.9%	112,150	9.5%
Power Related	4	1.7%	45,121	3.8%
Sparking/Lightning	4	1.7%	1,500	0.1%
Other	3	1.3%	78	0.0%
Unknown	34	14.5%	58,893	5.0%

## Exhibit E-6 (continued)

ENCYCLOPEDIA OF DATA FOR  
PRIMARY PRODUCERS

## DEATH/INJURY EVENTS (267)

	No. of Events	% of Total	Quantity Released	% of Total
<b>EVENT CONTEXT</b>				
Loading/Unloading	37	15.8%	69,138	5.9%
Steady State	92	39.3%	228,367	19.4%
Start-Up	10	4.3%	174,419	14.8%
Shut Down	2	0.9%	45,000	3.8%
Maintenance	17	7.3%	213,790	18.1%
Other	1	0.4%	0	0.0%
Unknown	75	32.1%	448,285	38.0%
<b>IN-TRANSIT MODE</b>				
Truck	23	69.7%	162,205	20.6%
Rail	5	15.2%	199,000	25.2%
Barge	4	12.1%	427,250	54.1%
Pipeline	1	3.0%	1,000	0.1%
Other	0	0.0%	0	0.0%
<b>IN-TRANSIT CAUSE</b>				
Leak	11	33.3%	57,000	7.2%
Collision	8	24.2%	70,702	9.0%
Derailment	1	3.0%	194,000	24.6%
Truck Turnover	3	9.1%	82,502	10.5%
Other	8	24.2%	381,751	48.4%
Unknown	2	6.1%	3,500	0.4%
<b>END EFFECTS **</b>				
Spill	96	36.0%	1,041,109	52.9%
Vapor Release	184	68.9%	1,461,643	74.3%
Fire	82	30.7%	884,360	44.9%
Explosion	77	28.8%	768,698	39.1%
Other	0	0.0%	0	0.0%
<b>DEATHS?</b>				
Yes	45	16.9%	326,727	16.6%
No	202	75.7%	1,264,810	64.3%
Unknown	20	7.5%	376,917	19.2%
<b>INJURIES?</b>				
Yes	259	97.0%	1,947,454	98.9%
No	6	2.3%	21,000	1.1%
Unknown	2	0.8%	0	0.0%
<b>EVACUATION?</b>				
Yes	89	33.3%	1,191,824	60.6%
No	64	24.0%	228,602	11.6%
Unknown	114	42.7%	548,028	27.8%
<b>PROPERTY DAMAGE?</b>				
Yes	113	42.3%	1,055,202	53.6%
No	49	18.4%	171,038	8.7%
Unknown	105	39.3%	742,214	37.7%

## Exhibit E-6 (continued)

ENCYCLOPEDIA OF DATA FOR  
PRIMARY PRODUCERS

## DEATH/INJURY EVENTS (267)

	No. of Events	% of Total	Quantity Released	% of Total
<b>PROPERTY TYPE</b>				
Buildings	38	33.6%	233,625	22.1%
Vehicles	18	15.9%	687,367	65.1%
Tanks	14	12.4%	69,850	6.6%
Other Equipment	25	22.1%	44,535	4.2%
Other	2	1.8%	75	0.0%
Unknown	16	14.2%	19,750	1.9%
<b>ENVIRONMENTAL DAMAGE?</b>				
Yes	10	3.8%	174,625	8.9%
No	25	9.4%	40,128	2.0%
Unknown	232	86.9%	1,753,701	89.1%
<b>SOURCES</b>				
APR	0	0.0%	0	0.0%
BGL	0	0.0%	0	0.0%
CAL	1	0.4%	25	0.0%
CHP	0	0.0%	0	0.0%
CHT	7	2.6%	2,000	0.1%
CWK	0	0.0%	0	0.0%
HMS	1	0.4%	0	0.0%
LAT	5	1.9%	45,005	2.3%
MMA	7	2.6%	185,550	9.4%
NJ2	21	7.9%	30,530	1.6%
NJE	12	4.5%	1,000	0.1%
NRC	115	43.1%	580,166	29.5%
NTP	16	6.0%	523,125	26.6%
NYA	7	2.6%	103,782	5.3%
NYT	30	11.2%	246,850	12.5%
OHE	10	3.8%	8,738	0.4%
PEI	5	1.9%	24,813	1.3%
RG7	3	1.1%	7,875	0.4%
TXA	1	0.4%	50,000	2.5%
UPI	19	7.1%	140,851	7.2%
OTHER NEWSPAPERS	7	2.6%	18,144	0.9%
<b>TOTAL</b>	<b>267</b>		<b>1,968,454</b>	

\* The total number of events in this category can exceed 267 because events can involve up to three substances.

\*\* The total number of events in this category can exceed 267 because events can have up to four coded end effects.

## Exhibit E-7

SUBSTANCES MOST FREQUENTLY REPORTED  
PRIMARY PRODUCERS (267 Events)

## DEATH/INJURY EVENTS

RANK	CHEM TYPE	SUBSTANCE NAME	NUMBER OF EVENTS	QUANTITY RELEASED
1		CHLORINE	59	22,278
2		AMMONIA (ANHYDROUS)	20	135,989
3		HYDROCHLORIC ACID	17	137,440
4		SULFURIC ACID	17	72,346
5		UNKNOWN	13	0
6		PHOSGENE	7	6,800
7		NITROGEN	6	0
8		NITRIC ACID	6	2,258
9		STYRENE	6	47,250
10		ACRYLONITRILE	5	425,000
11		TOLUENE	5	0
12		HYDROGEN	5	0
13		BENZENE	5	7,800
14		SODIUM HYDROXIDE	5	15,225
15		ACETIC ACID	4	19,563
16		AMMONIA	4	90
17		SULFUR DIOXIDE	4	2
18		METHYL ETHYL KETONE	3	0
19		SULFUR CHLORIDE	3	6,037
20		NITROCELLULOSE	3	100
21		VINYL CHLORIDE	3	0
22		HYDROCARBONS	3	0
23		METHYLENE CHLORIDE	3	0
24		EXPLOSIVES	3	3,000

## Exhibit E-8

ENCYCLOPEDIA OF DATA FOR  
SECONDARY PRODUCERS

## DEATH/INJURY EVENTS (132)

	No. of Events	% of Total	Quantity Released	% of Total
<b>SUBSTANCE STATE *</b>				
Solid	28	21.2%	2,000,000	76.9%
Liquid	74	56.1%	509,559	19.6%
Gas	55	41.7%	91,402	3.5%
Unknown	238	180.3%	0	0.0%
Solid Waste	1	0.8%	0	0.0%
Liquid Waste	0	0.0%	0	0.0%
Gas Waste	0	0.0%	0	0.0%
Unknown Waste	0	0.0%	0	0.0%
Total Solid	29	22.0%	2,000,000	76.9%
Total Liquid	74	56.1%	509,559	19.6%
Total Gas	55	41.7%	91,402	3.5%
<b>AIR MEDIA AFFECTED?</b>				
Yes	116	87.9%	2,501,297	96.1%
No	2	1.5%	93,750	3.6%
Unknown	14	10.6%	7,154	0.3%
<b>WATER MEDIA AFFECTED?</b>				
Yes	13	9.9%	94,585	3.6%
No	59	44.7%	448,034	17.2%
Unknown	60	45.5%	2,059,582	79.2%
<b>LAND MEDIA AFFECTED?</b>				
Yes	39	29.6%	2,478,712	95.3%
No	43	32.6%	98,657	3.8%
Unknown	50	37.9%	24,832	1.0%
<b>FIXED FACILITY</b>				
IN-TRANSIT	123	93.2%	2,535,093	97.4%
	9	6.8%	67,108	2.6%
<b>FIXED LOCATION</b>				
Process Vessel	35	28.5%	2,166,175	85.5%
Storage Vessel	36	29.3%	284,603	11.2%
Valves/Pipes	15	12.2%	82,790	3.3%
Disposal	4	3.3%	1,125	0.0%
Heating/Cooling	4	3.3%	0	0.0%
Vehicle Not in Transit	4	3.3%	100	0.0%
Other	2	1.6%	0	0.0%
Unknown	23	18.7%	300	0.0%
<b>FIXED CAUSE</b>				
Equipment Failure	36	29.3%	453,538	17.9%
Operator Error	19	15.5%	5,724	0.2%
Upset Conditions	7	5.7%	2,655	0.1%
Fire/Explosion	33	26.8%	21,101	0.8%
Arson/Vandalism	2	1.6%	0	0.0%
Disposal Related	0	0.0%	0	0.0%
High Pressure/Temp	4	3.3%	2,048,770	80.8%
Power Related	2	1.6%	55	0.0%
Sparking/Lightning	2	1.6%	0	0.0%
Other	2	1.6%	0	0.0%
Unknown	16	13.0%	3,250	0.1%

## Exhibit E-8 (continued)

ENCYCLOPEDIA OF DATA FOR  
SECONDARY PRODUCERS

## DEATH/INJURY EVENTS (132)

	No. of Events	% of Total	Quantity Released	% of Total
<b>EVENT CONTEXT</b>				
Loading/Unloading	13	10.6%	2,478	0.1%
Steady State	64	52.0%	471,365	18.6%
Start-Up	8	6.5%	2,053,825	81.0%
Shut Down	1	0.8%	500	0.0%
Maintenance	3	2.4%	320	0.0%
Other	0	0.0%	0	0.0%
Unknown	34	27.6%	6,605	0.3%
<b>IN-TRANSIT MODE</b>				
Truck	8	88.9%	57,108	85.1%
Rail	1	11.1%	10,000	14.9%
Barge	0	0.0%	0	0.0%
Pipeline	0	0.0%	0	0.0%
Other	0	0.0%	0	0.0%
<b>IN-TRANSIT CAUSE</b>				
Leak	3	33.3%	16,000	23.8%
Collision	2	22.2%	4,500	6.7%
Derailment	0	0.0%	0	0.0%
Truck Turnover	1	11.1%	39,630	59.1%
Other	2	22.2%	6,978	10.4%
Unknown	1	11.1%	0	0.0%
<b>END EFFECTS **</b>				
Spill	50	37.9%	541,871	20.8%
Vapor Release	93	70.5%	2,445,181	94.0%
Fire	47	35.6%	2,076,334	79.8%
Explosion	32	24.2%	2,060,013	79.2%
Other	1	0.8%	5	0.0%
<b>DEATHS?</b>				
Yes	17	12.9%	450	0.0%
No	111	84.1%	601,751	23.1%
Unknown	4	3.0%	2,000,000	76.9%
<b>INJURIES?</b>				
Yes	125	94.7%	2,602,051	100.0%
No	7	5.3%	150	0.0%
Unknown	0	0.0%	0	0.0%
<b>EVACUATION?</b>				
Yes	45	34.1%	360,083	13.8%
No	37	28.0%	2,102,120	80.8%
Unknown	50	37.9%	139,998	5.4%
<b>PROPERTY DAMAGE?</b>				
Yes	50	37.9%	2,120,506	81.5%
No	25	18.9%	368,361	14.2%
Unknown	57	43.2%	113,334	4.4%

Exhibit E-8 (continued)

ENCYCLOPEDIA OF DATA FOR  
SECONDARY PRODUCERS

DEATH/INJURY EVENTS (132)

	No. of Events	% of Total	Quantity Released	% of Total
PROPERTY TYPE				
Buildings	23	46.0%	68,950	3.3%
Vehicles	4	8.0%	44,130	2.1%
Tanks	1	2.0%	0	0.0%
Other Equipment	12	24.0%	2,003,150	94.5%
Other	1	2.0%	1,125	0.1%
Unknown	9	18.0%	3,151	0.2%
ENVIRONMENTAL DAMAGE?				
Yes	4	3.0%	83,250	3.2%
No	15	11.4%	2,255	0.1%
Unknown	113	85.6%	2,516,696	96.7%
SOURCES				
APR	1	0.8%	0	0.0%
BGL	2	1.5%	0	0.0%
CAL	3	2.3%	3,755	0.1%
CHP	0	0.0%	0	0.0%
CHT	12	9.1%	2,000,000	76.9%
CWK	0	0.0%	0	0.0%
HMS	1	0.8%	0	0.0%
LAT	4	3.0%	0	0.0%
MMA	2	1.5%	48,750	1.9%
NJ2	12	9.1%	0	0.0%
NJE	5	3.8%	713	0.0%
NRC	44	33.3%	190,235	7.3%
NTP	3	2.3%	1,125	0.0%
NYA	10	7.6%	200	0.0%
NYT	10	7.6%	270,573	10.4%
OHE	4	3.0%	82,575	3.2%
PEI	3	2.3%	150	0.0%
RG7	1	0.8%	0	0.0%
TXA	0	0.0%	0	0.0%
UPI	13	9.9%	2,250	0.1%
OTHER NEWSPAPERS	2	1.5%	1,875	0.1%
TOTAL	132		2,602,201	

\* The total number of events in this category can exceed 132 because events can involve up to three substances.

\*\* The total number of events in this category can exceed 132 because events can have up to four coded end effects.



## Exhibit E-9

SUBSTANCES MOST FREQUENTLY REPORTED  
SECONDARY PRODUCERS (132 Events)

## DEATH/INJURY EVENTS

RANK	CHEM TYPE	SUBSTANCE NAME	NUMBER OF EVENTS	QUANTITY RELEASED
1		CHLORINE	20	15,902
2		AMMONIA (ANHYDROUS)	9	6,443
3		AMMONIA	9	55,230
4		UNKNOWN	8	0
5		HYDROCHLORIC ACID	5	1,163
6		TOLUENE DIISOCYANATE	5	208
7		POLYSTYRENE	4	2,000,000
8		ETHYLENE OXIDE	3	112
9		EXPLOSIVES	3	0
10		HYDROGEN	3	0
11		SODIUM HYDROXIDE	3	138
12		CARBON MONOXIDE	3	0
13		NAPHTHA	3	0
14		ACRYLONITRILE	2	75,000
15		POLYETHYLENE	2	0
16		POLYPROPYLENE	2	0
17		METHYL METHACRYLATE	2	40,043
18		HYDROGEN CYANIDE	2	0
19		CYANIDE	2	0
20		HYDROCARBONS	2	0
21		NITROGEN OXIDE	2	0
22		SULFURIC ACID	2	128
23		NITRIC ACID	2	0
24		PLASTIC	2	0
25		METHYLENE CHLORIDE	2	0
26		POLYVINYL CHLORIDE	2	0
27		HYDROFLUORIC ACID	2	270,150
28		ACID	2	0

## Exhibit E-10

ENCYCLOPEDIA OF DATA FOR  
DISTRIBUTORS

## DEATH/INJURY EVENTS (317)

	No. of Events	% of Total	Quantity Released	% of Total
<b>SUBSTANCE STATE *</b>				
Solid	27	8.5%	6,745	0.0%
Liquid	259	81.7%	3,416,590	16.6%
Gas	50	15.8%	324,561	1.6%
Unknown	606	191.2%	52,516	0.3%
Solid Waste	0	0.0%	0	0.0%
Liquid Waste	7	2.2%	16,511,663	80.4%
Gas Waste	0	0.0%	0	0.0%
Unknown Waste	2	0.6%	7,500	0.0%
Total Solid	27	8.5%	6,745	0.0%
Total Liquid	266	83.9%	19,928,253	97.0%
Total Gas	50	15.8%	324,561	1.6%
<b>AIR MEDIA AFFECTED?</b>				
Yes	227	71.6%	19,939,692	97.1%
No	26	8.2%	40,424	0.2%
Unknown	64	20.2%	564,459	2.8%
<b>WATER MEDIA AFFECTED?</b>				
Yes	26	8.2%	18,790,556	91.5%
No	183	57.7%	505,085	2.5%
Unknown	108	34.1%	1,248,934	6.1%
<b>LAND MEDIA AFFECTED?</b>				
Yes	195	61.5%	20,038,102	97.5%
No	49	15.5%	32,756	0.2%
Unknown	73	23.0%	473,717	2.3%
<b>FIXED FACILITY</b>				
IN-TRANSIT	86	27.1%	16,945,187	82.5%
	231	72.9%	3,599,388	17.5%
<b>FIXED LOCATION</b>				
Process Vessel	7	8.1%	150,000	0.9%
Storage Vessel	36	41.9%	48,057	0.3%
Valves/Pipes	15	17.4%	213,065	1.3%
Disposal	1	1.2%	16,500,000	97.4%
Heating/Cooling	0	0.0%	0	0.0%
Vehicle Not in Transit	11	12.8%	31,350	0.2%
Other	6	7.0%	2,247	0.0%
Unknown	10	11.6%	468	0.0%
<b>FIXED CAUSE</b>				
Equipment Failure	25	29.1%	207,540	1.2%
Operator Error	25	29.1%	179,848	1.1%
Upset Conditions	2	2.3%	30,000	0.2%
Fire/Explosion	14	16.3%	16,512,913	97.5%
Arson/Vandalism	2	2.3%	12,000	0.1%
Disposal Related	0	0.0%	0	0.0%
High Pressure/Temp	0	0.0%	0	0.0%
Power Related	0	0.0%	0	0.0%
Sparking/Lightning	0	0.0%	0	0.0%
Other	2	2.3%	10	0.0%
Unknown	16	18.6%	2,876	0.0%

## Exhibit E-10 (continued)

ENCYCLOPEDIA OF DATA FOR  
DISTRIBUTORS

## DEATH/INJURY EVENTS (317)

	No. of Events	% of Total	Quantity Released	% of Total
<b>EVENT CONTEXT</b>				
Loading/Unloading	33	38.4%	261,006	1.5%
Steady State	26	30.2%	16,525,848	97.5%
Start-Up	1	1.2%	150,000	0.9%
Shut Down	0	0.0%	0	0.0%
Maintenance	7	8.1%	5,143	0.0%
Other	0	0.0%	0	0.0%
Unknown	19	22.1%	3,190	0.0%
<b>IN-TRANSIT MODE</b>				
Truck	139	60.2%	343,771	9.6%
Rail	82	35.5%	3,254,503	90.4%
Barge	2	0.9%	188	0.0%
Pipeline	5	2.2%	730	0.0%
Other	3	1.3%	196	0.0%
<b>IN-TRANSIT CAUSE</b>				
Leak	128	55.4%	377,897	10.5%
Collision	33	14.3%	427,053	11.9%
Derailment	15	6.5%	570,750	15.9%
Truck Turnover	11	4.8%	89,025	2.5%
Other	37	16.0%	2,128,373	59.1%
Unknown	7	3.0%	6,290	0.2%
<b>END EFFECTS **</b>				
Spill	258	81.4%	3,959,063	19.3%
Vapor Release	182	57.4%	1,801,817	8.8%
Fire	42	13.3%	17,711,948	86.2%
Explosion	25	7.9%	17,473,965	85.1%
Other	3	1.0%	188	0.0%
<b>DEATHS?</b>				
Yes	14	4.4%	804,052	3.9%
No	296	93.4%	19,703,549	95.9%
Unknown	7	2.2%	36,974	0.2%
<b>INJURIES?</b>				
Yes	316	99.7%	20,514,575	99.9%
No	1	0.3%	30,000	0.2%
Unknown	0	0.0%	0	0.0%
<b>EVACUATION?</b>				
Yes	74	23.3%	19,819,533	96.5%
No	127	40.1%	336,514	1.6%
Unknown	116	36.6%	388,528	1.9%
<b>PROPERTY DAMAGE?</b>				
Yes	161	50.8%	18,486,515	90.0%
No	64	20.2%	294,328	1.4%
Unknown	92	29.0%	1,763,732	8.6%

Exhibit E-10(continued)

ENCYCLOPEDIA OF DATA FOR  
DISTRIBUTORS

DEATH/INJURY EVENTS (317)

	No. of Events	% of Total	Quantity Released	% of Total
PROPERTY TYPE				
Buildings	20	12.4%	16,674,500	90.2%
Vehicles	70	43.5%	1,748,331	9.5%
Tanks	2	1.2%	0	0.0%
Other Equipment	1	0.6%	600	0.0%
Other	2	1.2%	420	0.0%
Unknown	66	41.0%	62,664	0.3%
ENVIRONMENTAL DAMAGE?				
Yes	14	4.4%	18,039,076	87.8%
No	18	5.7%	216,774	1.1%
Unknown	285	89.9%	2,288,725	11.1%
SOURCES				
APR	4	1.3%	0	0.0%
BGL	3	1.0%	227,250	1.1%
CAL	3	1.0%	39,773	0.2%
CHP	0	0.0%	0	0.0%
CHT	7	2.2%	1,508,325	7.3%
CWK	1	0.3%	5,000	0.0%
HMS	96	30.3%	645,120	3.1%
LAT	3	1.0%	12,413	0.1%
MMA	1	0.3%	150,000	0.7%
NJ2	16	5.1%	16,566,562	80.6%
NJE	1	0.3%	750	0.0%
NRC	127	40.1%	649,300	3.2%
NTP	9	2.8%	202,500	1.0%
NYA	2	0.6%	0	0.0%
NYT	7	2.2%	23,851	0.1%
OHE	7	2.2%	1,739	0.0%
PEI	0	0.0%	0	0.0%
RG7	7	2.2%	30,563	0.2%
TXA	0	0.0%	0	0.0%
UPI	20	6.3%	121,429	0.6%
OTHER NEWSPAPERS	3	1.0%	360,000	1.8%
TOTAL	317		20,544,575	

\* The total number of events in this category can exceed 317 because events can involve up to three substances.

\*\* The total number of events in this category can exceed 317 because events can have up to four coded end effects.

## Exhibit E-11

SUBSTANCES MOST FREQUENTLY REPORTED  
DISTRIBUTORS (317 Events)

## DEATH/INJURY EVENTS

RANK	CHEM TYPE	SUBSTANCE NAME	NUMBER OF EVENTS	QUANTITY RELEASED
1		SULFURIC ACID	32	1,540,406
2		AMMONIA (ANHYDROUS)	21	253,721
3		HYDROCHLORIC ACID	21	76,607
4		CHLORINE	14	5,898
5		SODIUM HYDROXIDE	14	120,841
6		NITRIC ACID	7	146,820
7		UNKNOWN	6	1,238
8		CORROSIVE MATERIAL	6	675
9		FLAMMABLE LIQUID	6	543
10		AMMONIA	5	1,875
11		TOLUENE	5	27,375
12		ACETIC ANHYDRIDE	5	255
13		ACETIC ACID	5	23
14		PHOSPHORIC ACID	5	291
15		POISONOUS LIQUID	5	106
16		HYDROFLUORIC ACID	4	412
17		CRESYLIC ACID	4	1,350
18		PHOSPHORUS OXYCHLORIDE	4	13,225
19		CLEANING CHEMICAL	4	278
20		SOLVENT	3	11,288
21		ETHYL ACRYLATE	3	114
22		SULFUR DIOXIDE	3	1,275
23		FORMALDEHYDE	3	195,187
24		PHOSPHORUS	3	22,538
25		VINYL CHLORIDE	3	150,000
26		RESIN	3	787
27		STYRENE	3	1
28		PHENOL	3	22,500
29		METHYL ALCOHOL	3	100,500
30		PAINT	3	413
31		METHYLENE CHLORIDE	3	3,928
32		PESTICIDE	3	30
33		HYDROGEN PEROXIDE	3	30

## Exhibit E-12

ENCYCLOPEDIA OF DATA FOR  
END USERS

## DEATH/INJURY EVENTS (133)

	No. of Events	% of Total	Quantity Released	% of Total
<b>SUBSTANCE STATE *</b>				
Solid	25	18.8%	955	0.1%
Liquid	91	68.4%	709,556	81.6%
Gas	40	30.1%	5,285	0.6%
Unknown	241	181.2%	150,000	17.3%
Solid Waste	0	0.0%	0	0.0%
Liquid Waste	1	0.8%	0	0.0%
Gas Waste	1	0.8%	0	0.0%
Unknown Waste	0	0.0%	0	0.0%
Total Solid	25	18.8%	955	0.1%
Total Liquid	92	69.2%	709,556	81.6%
Total Gas	41	30.8%	5,285	0.6%
<b>AIR MEDIA AFFECTED?</b>				
Yes	118	88.7%	799,183	92.0%
No	0	0.0%	0	0.0%
Unknown	15	11.3%	69,988	8.1%
<b>WATER MEDIA AFFECTED?</b>				
Yes	19	14.3%	157,982	18.2%
No	57	42.9%	466,059	53.6%
Unknown	57	42.9%	245,130	28.2%
<b>LAND MEDIA AFFECTED?</b>				
Yes	55	41.4%	178,050	20.5%
No	36	27.1%	413,780	47.6%
Unknown	42	31.6%	277,341	31.9%
<b>FIXED FACILITY</b>				
IN-TRANSIT	117	88.0%	810,827	93.3%
	16	12.0%	58,344	6.7%
<b>FIXED LOCATION</b>				
Process Vessel	24	20.5%	417,705	51.5%
Storage Vessel	34	29.1%	319,132	39.4%
Valves/Pipes	12	10.3%	69,830	8.6%
Disposal	5	4.3%	612	0.1%
Heating/Cooling	2	1.7%	0	0.0%
Vehicle Not in Transit	0	0.0%	0	0.0%
Other	14	12.0%	765	0.1%
Unknown	26	22.2%	2,783	0.3%
<b>FIXED CAUSE</b>				
Equipment Failure	26	22.2%	140,705	17.4%
Operator Error	35	29.9%	447,922	55.2%
Upset Conditions	4	3.4%	4,410	0.5%
Fire/Explosion	21	18.0%	150,532	18.6%
Arson/Vandalism	6	5.1%	48,750	6.0%
Disposal Related	0	0.0%	0	0.0%
High Pressure/Temp	4	3.4%	95	0.0%
Power Related	1	0.9%	0	0.0%
Sparking/Lightning	4	3.4%	0	0.0%
Other	4	3.4%	18,000	2.2%
Unknown	12	10.3%	413	0.1%

## Exhibit E-12 (continued)

ENCYCLOPEDIA OF DATA FOR  
END USERS

## DEATH/INJURY EVENTS (133)

	No. of Events	% of Total	Quantity Released	% of Total
<b>EVENT CONTEXT</b>				
Loading/Unloading	11	9.4%	22,750	2.8%
Steady State	49	41.9%	200,199	24.7%
Start-Up	4	3.4%	412,500	50.9%
Shut Down	1	0.9%	0	0.0%
Maintenance	10	8.6%	815	0.1%
Other	4	3.4%	750	0.1%
Unknown	38	32.5%	173,813	21.4%
<b>IN-TRANSIT MODE</b>				
Truck	14	87.5%	53,836	92.3%
Rail	0	0.0%	0	0.0%
Barge	0	0.0%	0	0.0%
Pipeline	2	12.5%	4,508	7.7%
Other	0	0.0%	0	0.0%
<b>IN-TRANSIT CAUSE</b>				
Leak	5	31.3%	2,273	3.9%
Collision	4	25.0%	10,363	17.8%
Derailment	0	0.0%	0	0.0%
Truck Turnover	2	12.5%	3,750	6.4%
Other	4	25.0%	4,508	7.7%
Unknown	1	6.3%	37,450	64.2%
<b>END EFFECTS **</b>				
Spill	58	43.6%	300,654	34.6%
Vapor Release	82	61.7%	624,310	71.8%
Fire	42	31.6%	150,880	17.4%
Explosion	27	20.3%	563,662	64.9%
Other	1	0.8%	30	0.0%
<b>DEATHS?</b>				
Yes	20	15.0%	25,313	2.9%
No	102	76.7%	693,446	79.8%
Unknown	11	8.3%	150,412	17.3%
<b>INJURIES?</b>				
Yes	127	95.5%	860,921	99.1%
No	3	2.3%	4,500	0.5%
Unknown	3	2.3%	3,750	0.4%
<b>EVACUATION?</b>				
Yes	56	42.1%	659,015	75.8%
No	44	33.1%	12,836	1.5%
Unknown	33	24.8%	197,320	22.7%
<b>PROPERTY DAMAGE?</b>				
Yes	59	44.4%	581,451	66.9%
No	19	14.3%	22,840	2.6%
Unknown	55	41.4%	264,880	30.5%

## Exhibit E-12 (continued)

ENCYCLOPEDIA OF DATA FOR  
END USERS

## DEATH/INJURY EVENTS (133)

	No. of Events	% of Total	Quantity Released	% of Total
<b>PROPERTY TYPE</b>				
Buildings	20	33.9%	412,500	70.9%
Vehicles	10	17.0%	17,863	3.1%
Tanks	6	10.2%	860	0.2%
Other Equipment	7	11.9%	100	0.0%
Other	3	5.1%	0	0.0%
Unknown	12	20.3%	150,128	25.8%
<b>ENVIRONMENTAL DAMAGE?</b>				
Yes	7	5.3%	5,000	0.6%
No	26	19.6%	434,378	50.0%
Unknown	100	75.2%	429,793	49.5%
<b>SOURCES</b>				
APR	4	3.0%	0	0.0%
BGL	1	0.8%	15,000	1.7%
CAL	1	0.8%	413	0.1%
CHP	0	0.0%	0	0.0%
CHT	6	4.5%	150,000	17.3%
CWK	0	0.0%	0	0.0%
HMS	1	0.8%	8	0.0%
LAT	6	4.5%	500	0.1%
MMA	1	0.8%	0	0.0%
NJ2	30	22.6%	2,283	0.3%
NJE	8	6.0%	750	0.1%
NRC	34	25.6%	185,740	21.4%
NTP	4	3.0%	18,000	2.1%
NYA	8	6.0%	3,780	0.4%
NYT	4	3.0%	412	0.1%
OHE	5	3.8%	5,160	0.6%
PEI	0	0.0%	0	0.0%
RG7	1	0.8%	21,750	2.5%
TXA	0	0.0%	0	0.0%
UPI	18	13.5%	52,875	6.1%
OTHER NEWSPAPERS	1	0.8%	412,500	47.5%
<b>TOTAL</b>	<b>133</b>		<b>869,171</b>	

\* The total number of events in this category can exceed 133 because events can involve up to three substances.

\*\* The total number of events in this category can exceed 133 because events can have up to four coded end effects.



## Exhibit E-13

SUBSTANCES MOST FREQUENTLY REPORTED  
END USERS (133 Events)

## DEATH/INJURY EVENTS

RANK	CHEM TYPE	SUBSTANCE NAME	NUMBER OF EVENTS	QUANTITY RELEASED
1		UNKNOWN	12	165,000
2		CHLORINE	12	350
3		PESTICIDE	11	120
4		HYDROCHLORIC ACID	9	56,250
5		AMMONIA (ANHYDROUS)	6	9,755
6		SULFURIC ACID	5	33,622
7		CHLORDANE	4	750
8		EXPLOSIVES	4	0
9		AMMONIA	3	0
10		SODIUM HYDROXIDE	3	390
11		HERBICIDE	2	0
12		1-NAPHTHYL N-METHYLCARBAMATE	2	2,250
13		METHYL ETHYL KETONE	2	90
14		HYDROGEN CYANIDE	2	0
15		SULFUR DIOXIDE	2	0
16		ACID	2	45,000
17		CARBON MONOXIDE	2	0
18		POLYSTYRENE	2	0
19		MALATHION	2	4,500

Exhibit E-14

ENCYCLOPEDIA OF DATA FOR  
WASTE RELATED

DEATH/INJURY EVENTS (13)

	No. of Events	% of Total	Quantity Released	% of Total
SUBSTANCE STATE *				
Solid	2	15.4%	0	0.0%
Liquid	7	53.9%	1,350,000	98.2%
Gas	13	100.0%	1,500	0.1%
Unknown	14	107.7%	0	0.0%
Solid Waste	0	0.0%	0	0.0%
Liquid Waste	3	23.1%	24,000	1.7%
Gas Waste	0	0.0%	0	0.0%
Unknown Waste	0	0.0%	0	0.0%
Total Solid	2	15.4%	0	0.0%
Total Liquid	10	76.9%	1,374,000	99.9%
Total Gas	13	100.0%	1,500	0.1%
AIR MEDIA AFFECTED?				
Yes	12	92.3%	25,500	1.9%
No	0	0.0%	0	0.0%
Unknown	1	7.7%	1,350,000	98.2%
WATER MEDIA AFFECTED?				
Yes	3	23.1%	24,000	1.7%
No	4	30.8%	1,351,500	98.3%
Unknown	6	46.2%	0	0.0%
LAND MEDIA AFFECTED?				
Yes	4	30.8%	1,374,000	99.9%
No	2	15.4%	1,500	0.1%
Unknown	7	53.9%	0	0.0%
FIXED FACILITY				
IN-TRANSIT	11	84.6%	1,351,500	98.3%
	2	15.4%	24,000	1.7%
FIXED LOCATION				
Process Vessel	2	18.2%	0	0.0%
Storage Vessel	6	54.6%	1,351,500	100.0%
Valves/Pipes	0	0.0%	0	0.0%
Disposal	2	18.2%	0	0.0%
Heating/Cooling	0	0.0%	0	0.0%
Vehicle Not in Transit	0	0.0%	0	0.0%
Other	0	0.0%	0	0.0%
Unknown	1	9.1%	0	0.0%
FIXED CAUSE				
Equipment Failure	3	27.3%	1,351,500	100.0%
Operator Error	1	9.1%	0	0.0%
Upset Conditions	1	9.1%	0	0.0%
Fire/Explosion	5	45.5%	0	0.0%
Arson/Vandalism	0	0.0%	0	0.0%
Disposal Related	0	0.0%	0	0.0%
High Pressure/Temp	0	0.0%	0	0.0%
Power Related	0	0.0%	0	0.0%
Sparking/Lightning	0	0.0%	0	0.0%
Other	0	0.0%	0	0.0%
Unknown	1	9.1%	0	0.0%

## Exhibit E-14 (continued)

ENCYCLOPEDIA OF DATA FOR  
WASTE RELATED

## DEATH/INJURY EVENTS (13)

	No. of Events	% of Total	Quantity Released	% of Total
<b>EVENT CONTEXT</b>				
Loading/Unloading	2	18.2%	0	0.0%
Steady State	5	45.5%	1,351,500	100.0%
Start-Up	0	0.0%	0	0.0%
Shut Down	0	0.0%	0	0.0%
Maintenance	2	18.2%	0	0.0%
Other	0	0.0%	0	0.0%
Unknown	2	18.2%	0	0.0%
<b>IN-TRANSIT MODE</b>				
Truck	2	100.0%	24,000	100.0%
Rail	0	0.0%	0	0.0%
Barge	0	0.0%	0	0.0%
Pipeline	0	0.0%	0	0.0%
Other	0	0.0%	0	0.0%
<b>IN-TRANSIT CAUSE</b>				
Leak	1	50.0%	24,000	100.0%
Collision	1	50.0%	0	0.0%
Derailment	0	0.0%	0	0.0%
Truck Turnover	0	0.0%	0	0.0%
Other	0	0.0%	0	0.0%
Unknown	0	0.0%	0	0.0%
<b>END EFFECTS **</b>				
Spill	4	30.8%	1,374,000	99.9%
Vapor Release	12	92.3%	25,500	1.9%
Fire	6	46.2%	0	0.0%
Explosion	4	30.8%	0	0.0%
Other	0	0.0%	0	0.0%
<b>DEATHS?</b>				
Yes	3	23.1%	0	0.0%
No	10	76.9%	1,375,500	100.0%
Unknown	0	0.0%	0	0.0%
<b>INJURIES?</b>				
Yes	13	100.0%	1,375,500	100.0%
No	0	0.0%	0	0.0%
Unknown	0	0.0%	0	0.0%
<b>EVACUATION?</b>				
Yes	5	38.5%	24,000	1.7%
No	4	30.8%	1,500	0.1%
Unknown	4	30.8%	1,350,000	98.2%
<b>PROPERTY DAMAGE?</b>				
Yes	7	53.9%	1,350,000	98.2%
No	3	23.1%	1,500	0.1%
Unknown	3	23.1%	24,000	1.7%

## Exhibit E-14 (continued)

ENCYCLOPEDIA OF DATA FOR  
WASTE RELATED

## DEATH/INJURY EVENTS (13)

	No. of Events	% of Total	Quantity Released	% of Total
<b>PROPERTY TYPE</b>				
Buildings	2	28.6%	0	0.0%
Vehicles	1	14.3%	0	0.0%
Tanks	2	28.6%	0	0.0%
Other Equipment	0	0.0%	0	0.0%
Other	0	0.0%	0	0.0%
Unknown	2	28.6%	1,350,000	100.0%
<b>ENVIRONMENTAL DAMAGE?</b>				
Yes	1	7.7%	0	0.0%
No	4	30.8%	1,500	0.1%
Unknown	8	61.5%	1,374,000	99.9%
<b>SOURCES</b>				
APR	1	7.7%	0	0.0%
BGL	0	0.0%	0	0.0%
CAL	0	0.0%	0	0.0%
CHP	1	7.7%	24,000	1.7%
CHT	0	0.0%	0	0.0%
CWK	0	0.0%	0	0.0%
HMS	0	0.0%	0	0.0%
LAT	0	0.0%	0	0.0%
MMA	0	0.0%	0	0.0%
NJ2	1	7.7%	0	0.0%
NJE	2	15.4%	1,500	0.1%
NRC	3	23.1%	1,350,000	98.2%
NTP	0	0.0%	0	0.0%
NYA	0	0.0%	0	0.0%
NYT	2	15.4%	0	0.0%
OHE	1	7.7%	0	0.0%
PEI	0	0.0%	0	0.0%
RG7	0	0.0%	0	0.0%
TXA	0	0.0%	0	0.0%
UPI	2	15.4%	0	0.0%
OTHER NEWSPAPERS	0	0.0%	0	0.0%
<b>TOTAL</b>	<b>13</b>		<b>1,375,500</b>	

\* The total number of events in this category can exceed 13 because events can involve up to three substances.

\*\* The total number of events in this category can exceed 13 because events can have up to four coded end effects.

## Exhibit E-15

SUBSTANCES MOST FREQUENTLY REPORTED  
WASTE RELATED (13 Events)

## DEATH/INJURY EVENTS

RANK	CHEM TYPE	SUBSTANCE NAME	NUMBER OF EVENTS	QUANTITY RELEASED
1		CHLORINE	5	1,500
2		TOLUENE	2	0
3		BUTADIENE	1	0
4		HYDROCHLORIC ACID	1	0
5		CALCIUM HYPOCHLORITE	1	0
6		SULFURIC ACID	1	24,000
7		COPPER SULFATE	1	0
8		AMMONIUM PERSULFATE	1	0
9		HYPOCHLORITE	1	0
10		FERRIC CHLORIDE	1	0
11		METHANE	1	0
12		HYDROGEN SULFIDE	1	0
13		HYDROFLUORIC ACID	1	0
14		NITRIC ACID	1	0
15		CALCIUM OXIDE	1	0
16		FLUE DUST	1	0
17		CHLORINATED HYDROCARBONS	1	1,350,000
18		BENZENE	1	0
19		XYLENE	1	0
20		METHYL ETHYL KETONE	1	0

Exhibit E16a

ENCYCLOPEDIA OF DATA  
BY FACILITY TYPE  
DEATH/INJURY EVENTS

	NUMBER OF EVENTS					
	All % of Total	Primary % of Total	Second % of Total	Distrib % of Total	End User % of Total	Waste % of Total
SUBSTANCE STATE *						
Solid	11.8%	7.5%	21.2%	8.5%	18.8%	15.4%
Liquid	70.0%	64.4%	56.1%	81.7%	68.4%	53.9%
Gas	33.2%	47.9%	41.7%	15.8%	30.1%	100.0%
Unknown	182.7%	178.3%	180.3%	191.2%	181.2%	107.7%
Solid Waste	0.2%	0.4%	0.8%	0.0%	0.0%	0.0%
Liquid Waste	1.7%	1.5%	0.0%	2.2%	0.8%	23.1%
Gas Waste	0.1%	0.0%	0.0%	0.0%	0.8%	0.0%
Unknown Waste	0.2%	0.0%	0.0%	0.6%	0.0%	0.0%
Total Solid	12.1%	7.9%	22.0%	8.5%	18.8%	15.4%
Total Liquid	71.7%	65.9%	56.1%	83.9%	69.2%	76.9%
Total Gas	33.3%	47.9%	41.7%	15.8%	30.8%	100.0%
AIR MEDIA AFFECTED?						
Yes	83.0%	90.6%	87.9%	71.6%	88.7%	92.3%
No	3.7%	1.5%	1.5%	8.2%	0.0%	0.0%
Unknown	13.3%	7.9%	10.6%	20.2%	11.3%	7.7%
WATER MEDIA AFFECTED?						
Yes	10.8%	12.0%	9.9%	8.2%	14.3%	23.1%
No	49.7%	46.8%	44.7%	57.7%	42.9%	30.8%
Unknown	39.6%	41.2%	45.5%	34.1%	42.9%	46.2%
LAND MEDIA AFFECTED?						
Yes	41.2%	23.2%	29.6%	61.5%	41.4%	30.8%
No	25.2%	32.6%	32.6%	15.5%	27.1%	15.4%
Unknown	33.6%	44.2%	37.9%	23.0%	31.6%	53.9%
FIXED FACILITY						
IN-TRANSIT	66.2%	87.6%	93.2%	27.1%	88.0%	84.6%
	33.8%	12.4%	6.8%	72.9%	12.0%	15.4%
FIXED LOCATION						
Process Vessel	23.3%	27.8%	28.5%	8.1%	20.5%	18.2%
Storage Vessel	30.0%	25.2%	29.3%	41.9%	29.1%	54.6%
Valves/Pipes	16.5%	22.2%	12.2%	17.4%	10.3%	0.0%
Disposal	2.8%	1.7%	3.3%	1.2%	4.3%	18.2%
Heating/Cooling	1.8%	1.7%	3.3%	0.0%	1.7%	0.0%
Vehicle Not in Transit	4.4%	4.3%	3.3%	12.8%	0.0%	0.0%
Other	4.7%	2.1%	1.6%	7.0%	12.0%	0.0%
Unknown	16.6%	15.0%	18.7%	11.6%	22.2%	9.1%
FIXED CAUSE						
Equipment Failure	32.2%	40.2%	29.3%	29.1%	22.2%	27.3%
Operator Error	20.1%	15.0%	15.5%	29.1%	29.9%	9.1%
Upset Conditions	4.7%	5.6%	5.7%	2.3%	3.4%	9.1%
Fire/Explosion	19.1%	15.4%	26.8%	16.3%	18.0%	45.5%
Arson/Vandalism	2.1%	0.9%	1.6%	2.3%	5.1%	0.0%
Disposal Related	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
High Pressure/Temp	3.0%	3.9%	3.3%	0.0%	3.4%	0.0%
Power Related	1.2%	1.7%	1.6%	0.0%	0.9%	0.0%
Sparking/Lightning	1.8%	1.7%	1.6%	0.0%	3.4%	0.0%
Other	1.9%	1.3%	1.6%	2.3%	3.4%	0.0%
Unknown	13.8%	14.5%	13.0%	18.6%	10.3%	9.1%

## Exhibit E16a (continued)

ENCYCLOPEDIA OF DATA  
BY FACILITY TYPE

## DEATH/INJURY EVENTS

## NUMBER OF EVENTS

	All % of Total	Primary % of Total	Second % of Total	Distrib % of Total	End User % of Total	Waste % of Total
<b>EVENT CONTEXT</b>						
Loading/Unloading	16.8%	15.8%	10.6%	38.4%	9.4%	18.2%
Steady State	41.3%	39.3%	52.0%	30.2%	41.9%	45.5%
Start-Up	4.0%	4.3%	6.5%	1.2%	3.4%	0.0%
Shut Down	0.7%	0.9%	0.8%	0.0%	0.9%	0.0%
Maintenance	6.8%	7.3%	2.4%	8.1%	8.6%	18.2%
Other	0.9%	0.4%	0.0%	0.0%	3.4%	0.0%
Unknown	29.4%	32.1%	27.6%	22.1%	32.5%	18.2%
<b>IN-TRANSIT MODE</b>						
Truck	63.9%	69.7%	88.9%	60.2%	87.5%	100.0%
Rail	30.2%	15.2%	11.1%	35.5%	0.0%	0.0%
Barge	2.1%	12.1%	0.0%	0.9%	0.0%	0.0%
Pipeline	2.8%	3.0%	0.0%	2.2%	12.5%	0.0%
Other	1.0%	0.0%	0.0%	1.3%	0.0%	0.0%
<b>IN-TRANSIT CAUSE</b>						
Leak	50.9%	33.3%	33.3%	55.4%	31.3%	50.0%
Collision	16.5%	24.2%	22.2%	14.3%	25.0%	50.0%
Derailment	5.5%	3.0%	0.0%	6.5%	0.0%	0.0%
Truck Turnover	5.8%	9.1%	11.1%	4.8%	12.5%	0.0%
Other	17.5%	24.2%	22.2%	16.0%	25.0%	0.0%
Unknown	3.8%	6.1%	11.1%	3.0%	6.3%	0.0%
<b>END EFFECTS **</b>						
Spill	54.1%	36.0%	37.9%	81.4%	43.6%	30.8%
Vapor Release	64.2%	68.9%	70.5%	57.4%	61.7%	92.3%
Fire	2.5%	30.7%	35.6%	13.3%	31.6%	46.2%
Explosion	19.1%	28.8%	24.2%	7.9%	20.3%	30.8%
Other	0.6%	0.0%	0.8%	1.0%	0.8%	0.0%
<b>DEATHS?</b>						
Yes	11.5%	16.9%	12.9%	4.4%	15.0%	23.1%
No	83.6%	75.7%	84.1%	93.4%	76.7%	76.9%
Unknown	4.9%	7.5%	3.0%	2.2%	8.3%	0.0%
<b>INJURIES?</b>						
Yes	97.5%	97.0%	94.7%	99.7%	95.5%	100.0%
No	2.0%	2.3%	5.3%	0.3%	2.3%	0.0%
Unknown	0.6%	0.8%	0.0%	0.0%	2.3%	0.0%
<b>EVACUATION?</b>						
Yes	31.2%	33.3%	34.1%	23.3%	42.1%	38.5%
No	32.0%	24.0%	28.0%	40.1%	33.1%	30.8%
Unknown	36.8%	42.7%	37.9%	36.6%	24.8%	30.8%
<b>PROPERTY DAMAGE?</b>						
Yes	45.2%	42.3%	37.9%	50.8%	44.4%	53.9%
No	18.6%	18.4%	18.9%	20.2%	14.3%	23.1%
Unknown	36.2%	39.3%	43.2%	29.0%	41.4%	23.1%

## Exhibit E16a (continued)

ENCYCLOPEDIA OF DATA  
BY FACILITY TYPE

## DEATH/INJURY EVENTS

## NUMBER OF EVENTS

	All % of Total	Primary % of Total	Second % of Total	Distrib % of Total	End User % of Total	Waste % of Total
<b>PROPERTY TYPE</b>						
Buildings	26.4%	33.6%	46.0%	12.4%	33.9%	28.6%
Vehicles	26.4%	15.9%	8.0%	43.5%	17.0%	14.3%
Tanks	6.4%	12.4%	2.0%	1.2%	10.2%	28.6%
Other Equipment	11.5%	22.1%	24.0%	0.6%	11.9%	0.0%
Other	2.1%	1.8%	2.0%	1.2%	5.1%	0.0%
Unknown	26.9%	14.2%	18.0%	41.0%	20.3%	28.6%
<b>ENVIRONMENTAL DAMAGE?</b>						
Yes	4.2%	3.8%	3.0%	4.4%	5.3%	7.7%
No	10.2%	9.4%	11.4%	5.7%	19.6%	30.8%
Unknown	85.6%	86.9%	85.6%	89.9%	75.2%	61.5%
<b>SOURCES</b>						
APR	1.2%	0.0%	0.8%	1.3%	3.0%	7.7%
BGL	0.7%	0.0%	1.5%	1.0%	0.8%	0.0%
CAL	0.9%	0.4%	2.3%	1.0%	0.8%	0.0%
CHP	0.1%	0.0%	0.0%	0.0%	0.0%	7.7%
CHT	3.7%	2.6%	9.1%	2.2%	4.5%	0.0%
CWK	0.1%	0.0%	0.0%	0.3%	0.0%	0.0%
HMS	11.5%	0.4%	0.8%	30.3%	0.8%	0.0%
LAT	2.1%	1.9%	3.0%	1.0%	4.5%	0.0%
MMA	1.3%	2.6%	1.5%	0.3%	0.8%	0.0%
NJ2	9.3%	7.9%	9.1%	5.1%	22.6%	7.7%
NJE	3.3%	4.5%	3.8%	0.3%	6.0%	15.4%
NRC	37.5%	43.1%	33.3%	40.1%	25.6%	23.1%
NTP	3.7%	6.0%	2.3%	2.8%	3.0%	0.0%
NYA	3.1%	2.6%	7.6%	0.6%	6.0%	0.0%
NYT	6.2%	11.2%	7.6%	2.2%	3.0%	15.4%
OHE	3.1%	3.8%	3.0%	2.2%	3.8%	7.7%
PEI	0.9%	1.9%	2.3%	0.0%	0.0%	0.0%
RG7	1.4%	1.1%	0.8%	2.2%	0.8%	0.0%
TXA	0.1%	0.4%	0.0%	0.0%	0.0%	0.0%
UPI	8.4%	7.1%	9.9%	6.3%	13.5%	15.4%
OTHER NEWSPAPERS	1.5%	2.6%	1.5%	1.0%	0.8%	0.0%
<b>TOTAL</b>	<b>862</b>	<b>267</b>	<b>132</b>	<b>317</b>	<b>133</b>	<b>13</b>

\* The total percentage of events in this category can exceed 100% because events can involve up to three substances.

\*\* The total percentage of events in this category can exceed 100% because events can have up to four coded end effects.



## Exhibit E16b

ENCYCLOPEDIA OF DATA  
BY FACILITY TYPE  
DEATH/INJURY EVENTS

	QUANTITY RELEASED					
	All % of Total	Primary % of Total	Second % of Total	Distrib % of Total	End User % of Total	Waste % of Total
<b>SUBSTANCE STATE *</b>						
Solid	7.4%	0.7%	76.9%	0.0%	0.1%	0.0%
Liquid	27.8%	82.2%	19.6%	16.6%	81.6%	98.2%
Gas	2.3%	10.2%	3.5%	1.6%	0.6%	0.1%
Unknown	0.7%	0.0%	0.0%	0.3%	17.3%	0.0%
Solid Waste	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Liquid Waste	60.4%	0.0%	0.0%	80.4%	0.0%	1.7%
Gas Waste	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Unknown Waste	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Total Solid	7.4%	0.7%	76.9%	0.0%	0.1%	0.0%
Total Liquid	88.2%	82.2%	19.6%	97.0%	81.6%	99.9%
Total Gas	2.3%	10.2%	3.5%	1.6%	0.6%	0.1%
<b>AIR MEDIA AFFECTED?</b>						
Yes	91.1%	83.6%	96.1%	97.1%	92.0%	1.9%
No	0.5%	0.3%	3.6%	0.2%	0.0%	0.0%
Unknown	8.4%	16.1%	0.3%	2.8%	8.1%	98.2%
<b>WATER MEDIA AFFECTED?</b>						
Yes	73.3%	50.3%	3.6%	91.5%	18.2%	1.7%
No	12.1%	27.7%	17.2%	2.5%	53.6%	98.3%
Unknown	14.6%	22.0%	79.2%	6.1%	28.2%	0.0%
<b>LAND MEDIA AFFECTED?</b>						
Yes	91.0%	42.4%	95.3%	97.5%	20.5%	99.9%
No	3.7%	23.8%	3.8%	0.2%	47.6%	0.1%
Unknown	5.3%	33.8%	1.0%	2.3%	31.9%	0.0%
<b>FIXED FACILITY</b>						
IN-TRANSIT	83.4%	59.9%	97.4%	82.5%	93.3%	98.3%
	16.6%	40.1%	2.6%	17.5%	6.7%	1.7%
<b>FIXED LOCATION</b>						
Process Vessel	12.5%	9.5%	85.5%	0.9%	51.5%	0.0%
Storage Vessel	11.8%	58.6%	11.2%	0.3%	39.4%	100.0%
Valves/Pipes	2.7%	21.0%	3.3%	1.3%	8.6%	0.0%
Disposal	72.3%	0.0%	0.0%	97.4%	0.1%	0.0%
Heating/Cooling	0.0%	0.1%	0.0%	0.0%	0.0%	0.0%
Vehicle Not in Transit	0.2%	0.5%	0.0%	0.2%	0.0%	0.0%
Other	0.0%	0.0%	0.0%	0.0%	0.1%	0.0%
Unknown	0.6%	10.3%	0.0%	0.0%	0.3%	0.0%
<b>FIXED CAUSE</b>						
Equipment Failure	12.0%	48.9%	17.9%	1.2%	17.4%	100.0%
Operator Error	4.1%	26.4%	0.2%	1.1%	55.2%	0.0%
Upset Conditions	0.4%	4.0%	0.1%	0.2%	0.5%	0.0%
Fire/Explosion	73.2%	2.3%	0.8%	97.5%	18.6%	0.0%
Arson/Vandalism	0.3%	0.0%	0.0%	0.1%	6.0%	0.0%
Disposal Related	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
High Pressure/Temp	9.5%	9.5%	80.8%	0.0%	0.0%	0.0%
Power Related	0.2%	3.8%	0.0%	0.0%	0.0%	0.0%
Sparkling/Lightning	0.0%	0.1%	0.0%	0.0%	0.0%	0.0%
Other	0.1%	0.0%	0.0%	0.0%	2.2%	0.0%
Unknown	0.3%	5.0%	0.1%	0.0%	0.1%	0.0%

## Exhibit E16b (continued)

ENCYCLOPEDIA OF DATA  
BY FACILITY TYPE

## DEATH/INJURY EVENTS

## QUANTITY RELEASED

	All % of Total	Primary % of Total	Second % of Total	Distrib % of Total	End User % of Total	Waste % of Total
<b>EVENT CONTEXT</b>						
Loading/Unloading	1.6%	5.9%	0.1%	1.5%	2.8%	0.0%
Steady State	82.3%	19.4%	18.6%	97.5%	24.7%	100.0%
Start-Up	12.2%	14.8%	81.0%	0.9%	50.9%	0.0%
Shut Down	0.2%	3.8%	0.0%	0.0%	0.0%	0.0%
Maintenance	1.0%	18.1%	0.0%	0.0%	0.1%	0.0%
Other	0.0%	0.0%	0.0%	0.0%	0.1%	0.0%
Unknown	2.8%	38.0%	0.3%	0.0%	21.4%	0.0%
<b>IN-TRANSIT MODE</b>						
Truck	14.1%	20.6%	85.1%	9.6%	92.3%	100.0%
Rail	76.3%	25.2%	14.9%	90.4%	0.0%	0.0%
Barge	9.4%	54.1%	0.0%	0.0%	0.0%	0.0%
Pipeline	0.1%	0.1%	0.0%	0.0%	7.7%	0.0%
Other	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
<b>IN-TRANSIT CAUSE</b>						
Leak	10.5%	7.2%	23.8%	10.5%	3.9%	100.0%
Collision	11.3%	9.0%	6.7%	11.9%	17.8%	0.0%
Derailment	16.9%	24.6%	0.0%	15.9%	0.0%	0.0%
Truck Turnover	4.7%	10.5%	59.1%	2.5%	6.4%	0.0%
Other	55.6%	48.4%	10.4%	59.1%	7.7%	0.0%
Unknown	1.0%	0.4%	0.0%	0.2%	64.2%	0.0%
<b>END EFFECTS **</b>						
Spill	26.4%	52.9%	20.8%	19.3%	34.6%	99.9%
Vapor Release	23.2%	74.3%	94.0%	8.8%	71.8%	1.9%
Fire	7.6%	44.9%	79.8%	86.2%	17.4%	0.0%
Explosion	76.3%	39.1%	79.2%	85.1%	64.9%	0.0%
Other	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
<b>DEATHS?</b>						
Yes	4.2%	16.6%	0.0%	3.9%	2.9%	0.0%
No	86.4%	64.3%	23.1%	95.9%	79.8%	100.0%
Unknown	9.4%	19.2%	76.9%	0.2%	17.3%	0.0%
<b>INJURIES?</b>						
Yes	99.8%	98.9%	100.0%	99.9%	99.1%	100.0%
No	0.2%	1.1%	0.0%	0.2%	0.5%	0.0%
Unknown	0.0%	0.0%	0.0%	0.0%	0.4%	0.0%
<b>EVACUATION?</b>						
Yes	80.6%	60.6%	13.8%	96.5%	75.8%	1.7%
No	9.8%	11.6%	80.8%	1.6%	1.5%	0.1%
Unknown	9.6%	27.8%	5.4%	1.9%	22.7%	98.2%
<b>PROPERTY DAMAGE?</b>						
Yes	86.2%	53.6%	81.5%	90.0%	66.9%	98.2%
No	3.1%	8.7%	14.2%	1.4%	2.6%	0.1%
Unknown	10.6%	37.7%	4.4%	8.6%	30.5%	1.7%

## Exhibit E16b (continued)

ENCYCLOPEDIA OF DATA  
BY FACILITY TYPE

## DEATH/INJURY EVENTS

## QUANTITY RELEASED

	All % of Total	Primary % of Total	Second % of Total	Distrib % of Total	End User % of Total	Waste % of Total
PROPERTY TYPE						
Buildings	73.7%	22.1%	3.3%	90.2%	70.9%	0.0%
Vehicles	10.6%	65.1%	2.1%	9.5%	3.1%	0.0%
Tanks	0.3%	6.6%	0.0%	0.0%	0.2%	0.0%
Other Equipment	8.7%	4.2%	94.5%	0.0%	0.0%	0.0%
Other	0.0%	0.0%	0.1%	0.0%	0.0%	0.0%
Unknown	6.7%	1.9%	0.2%	0.3%	25.8%	100.0%
ENVIRONMENTAL DAMAGE?						
Yes	66.9%	8.9%	3.2%	87.8%	0.6%	0.0%
No	2.5%	2.0%	0.1%	1.1%	50.0%	0.1%
Unknown	30.6%	89.1%	96.7%	11.1%	49.5%	99.9%
SOURCES						
APR	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
BGL	0.9%	0.0%	0.0%	1.1%	1.7%	0.0%
CAL	0.2%	0.0%	0.1%	0.2%	0.1%	0.0%
CHP	0.1%	0.0%	0.0%	0.0%	0.0%	1.7%
CHT	13.4%	0.1%	76.9%	7.3%	17.3%	0.0%
CWK	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
HMS	2.4%	0.0%	0.0%	3.1%	0.0%	0.0%
LAT	0.2%	2.3%	0.0%	0.1%	0.1%	0.0%
MMA	1.4%	9.4%	1.9%	0.7%	0.0%	0.0%
NJ2	60.7%	1.6%	0.0%	80.6%	0.3%	0.0%
NJE	0.0%	0.1%	0.0%	0.0%	0.1%	0.1%
NRC	10.8%	29.5%	7.3%	3.2%	21.4%	98.2%
NTP	2.7%	26.6%	0.0%	1.0%	2.1%	0.0%
NYA	0.4%	5.3%	0.0%	0.0%	0.4%	0.0%
NYT	2.0%	12.5%	10.4%	0.1%	0.1%	0.0%
OHE	0.4%	0.4%	3.2%	0.0%	0.6%	0.0%
PEI	0.1%	1.3%	0.0%	0.0%	0.0%	0.0%
RG7	0.2%	0.4%	0.0%	0.2%	2.5%	0.0%
TXA	0.2%	2.5%	0.0%	0.0%	0.0%	0.0%
UPI	1.2%	7.2%	0.1%	0.6%	6.1%	0.0%
OTHER NEWSPAPERS	2.9%	0.9%	0.1%	1.8%	47.5%	0.0%
TOTAL (in Thousands)	27,360	1,968	2,602	20,545	869	1,376

\* The total percentage of quantity released in this category can exceed 100% because events can involve up to three substances.

\*\* The total percentage of quantity released in this category can exceed 100% because events can have up to four coded end effects.

## Exhibit E-17

ENCYCLOPEDIA OF DATA FOR  
COMMODITY CHEMICALS

## DEATH/INJURY EVENTS (712)

	No. of Events	% of Total	Quantity Released	% of Total
<b>SUBSTANCE STATE *</b>				
Solid	63	8.9%	2,058,143	6.2%
Liquid	535	75.1%	30,316,487	91.3%
Gas	271	38.1%	619,518	1.9%
Unknown	1,258	176.7%	0	0.0%
Solid Waste	0	0.0%	0	0.0%
Liquid Waste	7	1.0%	24,976	0.1%
Gas Waste	1	0.1%	0	0.0%
Unknown Waste	1	0.1%	0	0.0%
Total Solid	63	8.9%	2,058,143	6.2%
Total Liquid	542	76.1%	30,341,463	91.4%
Total Gas	272	38.2%	619,518	1.9%
<b>AIR MEDIA AFFECTED?</b>				
Yes	591	83.0%	32,322,806	97.3%
No	24	3.4%	142,959	0.4%
Unknown	97	13.6%	742,993	2.2%
<b>WATER MEDIA AFFECTED?</b>				
Yes	93	13.1%	27,243,913	82.0%
No	353	49.6%	2,018,339	6.1%
Unknown	266	37.4%	3,946,506	11.9%
<b>LAND MEDIA AFFECTED?</b>				
Yes	284	39.9%	7,287,539	21.9%
No	190	26.7%	1,016,313	3.1%
Unknown	238	33.4%	24,904,906	75.0%
<b>FIXED FACILITY</b>				
IN-TRANSIT	449	63.1%	28,313,312	85.3%
	263	36.9%	4,895,446	14.7%
<b>FIXED LOCATION</b>				
Process Vessel	103	22.9%	2,841,750	10.0%
Storage Vessel	142	31.6%	1,134,107	4.0%
Valves/Pipes	92	20.5%	576,821	2.0%
Disposal	8	1.8%	2,075	0.0%
Heating/Cooling	5	1.1%	1,600	0.0%
Vehicle Not in Transit	20	4.5%	23,631,917	83.5%
Other	19	4.2%	1,174	0.0%
Unknown	60	13.4%	123,868	0.4%
<b>FIXED CAUSE</b>				
Equipment Failure	165	36.8%	1,324,810	4.7%
Operator Error	87	19.4%	940,866	3.3%
Upset Conditions	29	6.5%	91,501	0.3%
Fire/Explosion	64	14.3%	50,576	0.2%
Arson/Vandalism	6	1.3%	60,750	0.2%
Disposal Related	0	0.0%	0	0.0%
High Pressure/Temp	12	2.7%	2,071,015	7.3%
Power Related	7	1.6%	45,176	0.2%
Sparking/Lightning	10	2.2%	23,626,500	83.5%
Other	7	1.6%	63,086	0.2%
Unknown	62	13.8%	39,032	0.1%

## Exhibit E-17 (continued)

ENCYCLOPEDIA OF DATA FOR  
COMMODITY CHEMICALS

## DEATH/INJURY EVENTS (712)

	No. of Events	% of Total	Quantity Released	% of Total
<b>EVENT CONTEXT</b>				
Loading/Unloading	81	18.0%	23,955,669	84.6%
Steady State	185	41.2%	926,954	3.3%
Start-Up	17	3.8%	2,790,199	9.9%
Shut Down	4	0.9%	45,500	0.2%
Maintenance	33	7.4%	212,568	0.8%
Other	0	0.0%	0	0.0%
Unknown	129	28.7%	382,422	1.4%
<b>IN-TRANSIT MODE</b>				
Truck	153	58.2%	1,198,683	24.5%
Rail	92	35.0%	3,266,574	66.7%
Barge	9	3.4%	428,263	8.8%
Pipeline	6	2.3%	1,730	0.0%
Other	3	1.1%	196	0.0%
<b>IN-TRANSIT CAUSE</b>				
Leak	124	47.2%	492,794	10.1%
Collision	60	22.8%	700,188	14.3%
Derailment	19	7.2%	504,125	10.3%
Truck Turnover	17	6.5%	234,405	4.8%
Other	34	12.9%	2,516,843	51.4%
Unknown	9	3.4%	447,091	9.1%
<b>END EFFECTS **</b>				
Spill	410	57.6%	29,794,308	89.7%
Vapor Release	491	69.0%	6,816,561	20.5%
Fire	155	21.8%	28,039,074	84.4%
Explosion	113	15.9%	27,876,148	83.9%
Other	6	0.8%	242	0.0%
<b>DEATHS?</b>				
Yes	76	10.7%	24,792,380	74.7%
No	603	84.7%	5,905,399	17.8%
Unknown	33	4.6%	2,510,979	7.6%
<b>INJURIES?</b>				
Yes	698	98.0%	33,186,858	99.9%
No	10	1.4%	18,150	0.1%
Unknown	4	0.6%	3,750	0.0%
<b>EVACUATION?</b>				
Yes	246	34.6%	5,827,119	17.6%
No	194	27.3%	2,479,359	7.5%
Unknown	272	38.2%	24,902,280	75.0%
<b>PROPERTY DAMAGE?</b>				
Yes	292	41.0%	29,446,830	88.7%
No	140	19.7%	913,306	2.8%
Unknown	280	39.3%	2,848,622	8.6%

## Exhibit E-17 (continued)

ENCYCLOPEDIA OF DATA FOR  
COMMODITY CHEMICALS

## DEATH/INJURY EVENTS (712)

	No. of Events	% of Total	Quantity Released	% of Total
<b>PROPERTY TYPE</b>				
Buildings	60	20.6%	849,900	2.9%
Vehicles	115	39.4%	26,408,884	89.7%
Tanks	23	7.9%	66,200	0.2%
Other Equipment	32	11.0%	2,046,053	7.0%
Other	6	2.1%	1,620	0.0%
Unknown	57	19.5%	74,173	0.3%
<b>ENVIRONMENTAL DAMAGE?</b>				
Yes	40	5.6%	1,824,209	5.5%
No	74	10.4%	710,160	2.1%
Unknown	598	84.0%	30,674,389	92.4%
<b>SOURCES</b>				
APR	8	1.1%	0	0.0%
BGL	4	0.6%	216,000	0.7%
CAL	24	3.4%	148,764	0.5%
CHP	2	0.3%	61,125	0.2%
CHT	23	3.2%	3,545,000	10.7%
CWK	1	0.1%	5,000	0.0%
HMS	55	7.7%	640,024	1.9%
LAT	15	2.1%	200,043	0.6%
MMA	10	1.4%	24,009,300	72.3%
NJ2	48	6.7%	41,287	0.1%
NJE	25	3.5%	3,963	0.0%
NRC	308	43.3%	1,653,512	5.0%
NTP	31	4.4%	675,075	2.0%
NYA	18	2.5%	107,560	0.3%
NYT	39	5.5%	594,736	1.8%
OHE	19	2.7%	104,039	0.3%
PEI	6	0.8%	24,763	0.1%
RG7	8	1.1%	30,375	0.1%
TXA	7	1.0%	450,250	1.4%
UPI	52	7.3%	130,423	0.4%
OTHER NEWSPAPERS	9	1.3%	567,519	1.7%
<b>TOTAL</b>	<b>712</b>		<b>33,208,758</b>	

\* The total number of events in this category can exceed 712 because events can involve up to three substances.

\*\* The total number of events in this category can exceed 712 because events can have up to four coded end effects.

## Exhibit E-18

ENCYCLOPEDIA OF DATA FOR  
SPECIALTY CHEMICALS

## DEATH/INJURY EVENTS (94)

	No. of Events	% of Total	Quantity Released	% of Total
<b>SUBSTANCE STATE *</b>				
Solid	28	29.8%	51,760	7.5%
Liquid	89	94.7%	337,793	48.7%
Gas	22	23.4%	5,779	0.8%
Unknown	143	152.1%	52,500	7.6%
Solid Waste	0	0.0%	0	0.0%
Liquid Waste	0	0.0%	0	0.0%
Gas Waste	0	0.0%	0	0.0%
Unknown Waste	0	0.0%	0	0.0%
Total Solid	28	29.8%	51,760	7.5%
Total Liquid	89	94.7%	337,793	48.7%
Total Gas	22	23.4%	5,779	0.8%
<b>AIR MEDIA AFFECTED?</b>				
Yes	79	84.0%	419,835	60.5%
No	4	4.3%	525	0.1%
Unknown	11	11.7%	273,773	39.4%
<b>WATER MEDIA AFFECTED?</b>				
Yes	11	11.7%	50,130	7.2%
No	42	44.7%	56,127	8.1%
Unknown	41	43.6%	587,876	84.7%
<b>LAND MEDIA AFFECTED?</b>				
Yes	43	45.7%	269,671	38.9%
No	17	18.1%	5,652	0.8%
Unknown	34	36.2%	418,810	60.3%
<b>FIXED FACILITY</b>				
IN-TRANSIT	60	63.8%	160,078	23.1%
	34	36.2%	534,055	76.9%
<b>FIXED LOCATION</b>				
Process Vessel	14	23.3%	31,450	19.7%
Storage Vessel	20	33.3%	62,224	38.9%
Valves/Pipes	3	5.0%	7,740	4.8%
Disposal	1	1.7%	412	0.3%
Heating/Cooling	1	1.7%	0	0.0%
Vehicle Not in Transit	5	8.3%	30,900	19.3%
Other	5	8.3%	23,827	14.9%
Unknown	11	18.3%	3,525	2.2%
<b>FIXED CAUSE</b>				
Equipment Failure	16	26.7%	41,130	25.7%
Operator Error	16	26.7%	26,001	16.2%
Upset Conditions	3	5.0%	30,685	19.2%
Fire/Explosion	15	25.0%	26,612	16.6%
Arson/Vandalism	2	3.3%	0	0.0%
Disposal Related	0	0.0%	0	0.0%
High Pressure/Temp	1	1.7%	5,400	3.4%
Power Related	0	0.0%	0	0.0%
Sparking/Lightning	1	1.7%	0	0.0%
Other	0	0.0%	0	0.0%
Unknown	6	10.0%	30,250	18.9%

Exhibit E-18 (continued)

ENCYCLOPEDIA OF DATA FOR  
SPECIALTY CHEMICALS

	DEATH/INJURY EVENTS (94)			
	No. of Events	% of Total	Quantity Released	% of Total
EVENT CONTEXT				
Loading/Unloading	14	23.3%	54,928	34.3%
Steady State	25	41.7%	61,862	38.6%
Start-Up	4	6.7%	5,775	3.6%
Shut Down	0	0.0%	0	0.0%
Maintenance	3	5.0%	7,500	4.7%
Other	0	0.0%	0	0.0%
Unknown	14	23.3%	30,013	18.8%
IN-TRANSIT MODE				
Truck	23	67.7%	29,047	5.4%
Rail	9	26.5%	480,000	89.9%
Barge	1	2.9%	25,000	4.7%
Pipeline	1	2.9%	8	0.0%
Other	0	0.0%	0	0.0%
IN-TRANSIT CAUSE				
Leak	12	35.3%	5,023	0.9%
Collision	11	32.4%	98,500	18.4%
Derailment	4	11.8%	427,500	80.1%
Truck Turnover	2	5.9%	3,002	0.6%
Other	4	11.8%	30	0.0%
Unknown	1	2.9%	0	0.0%
END EFFECTS **				
Spill	60	63.8%	625,539	90.1%
Vapor Release	63	67.0%	311,068	44.8%
Fire	29	30.9%	338,015	48.7%
Explosion	14	14.9%	108,902	15.7%
Other	0	0.0%	0	0.0%
DEATHS?				
Yes	13	13.8%	131,000	18.9%
No	73	77.7%	537,309	77.4%
Unknown	8	8.5%	25,824	3.7%
INJURIES?				
Yes	90	95.7%	646,133	93.1%
No	4	4.3%	48,000	6.9%
Unknown	0	0.0%	0	0.0%
EVACUATION?				
Yes	35	37.2%	344,612	49.7%
No	34	36.2%	318,397	45.9%
Unknown	25	26.6%	31,124	4.5%
PROPERTY DAMAGE?				
Yes	51	54.3%	652,559	94.0%
No	18	19.2%	35,330	5.1%
Unknown	25	26.6%	6,244	0.9%



## Exhibit E-18 (continued)

ENCYCLOPEDIA OF DATA FOR  
SPECIALTY CHEMICALS

## DEATH/INJURY EVENTS (94)

	No. of Events	% of Total	Quantity Released	% of Total
PROPERTY TYPE				
Buildings	10	19.6%	30,000	4.6%
Vehicles	20	39.2%	537,002	82.3%
Tanks	3	5.9%	4,660	0.7%
Other Equipment	7	13.7%	24,832	3.8%
Other	2	3.9%	23,000	3.5%
Unknown	9	17.7%	33,065	5.1%
ENVIRONMENTAL DAMAGE?				
Yes	9	9.6%	34,250	4.9%
No	8	8.5%	2,438	0.4%
Unknown	77	81.9%	657,445	94.7%
SOURCES				
APR	1	1.1%	0	0.0%
BGL	0	0.0%	0	0.0%
CAL	4	4.3%	1,213	0.2%
CHP	1	1.1%	0	0.0%
CHT	5	5.3%	2,825	0.4%
CWK	0	0.0%	0	0.0%
HMS	5	5.3%	570	0.1%
LAT	4	4.3%	413	0.1%
MMA	1	1.1%	0	0.0%
NJ2	7	7.5%	58,380	8.4%
NJE	5	5.3%	750	0.1%
NRC	19	20.2%	23,384	3.4%
NTP	7	7.5%	227,500	32.8%
NYA	3	3.2%	3,500	0.5%
NYT	7	7.5%	4,825	0.7%
OHE	4	4.3%	885	0.1%
PEI	3	3.2%	22,700	3.3%
RG7	3	3.2%	7,913	1.1%
TXA	0	0.0%	0	0.0%
UPI	11	11.7%	114,275	16.5%
OTHER NEWSPAPERS	4	4.3%	225,000	32.4%
TOTAL	94		694,133	

\* The total number of events in this category can exceed 94 because events can involve up to three substances.

\*\* The total number of events in this category can exceed 94 because events can have up to four coded end effects.

## Exhibit E-19

ENCYCLOPEDIA OF DATA SEGREGATED BY  
EVENTS WITH DEATHS OR INJURIES

-DEATH EVENTS (114)- -INJURY EVENTS (994)-

	No. of Events	% of Total	No. of Events	% of Total
<b>SUBSTANCE STATE *</b>				
Solid	26	22.8%	114	11.5%
Liquid	87	76.3%	716	72.0%
Gas	42	36.8%	313	31.5%
Unknown	185	162.3%	1,813	182.4%
Solid Waste	0	0.0%	3	0.3%
Liquid Waste	1	0.9%	18	1.8%
Gas Waste	0	0.0%	2	0.2%
Unknown Waste	1	0.9%	3	0.3%
Total Solid	26	22.8%	117	11.8%
Total Liquid	88	77.2%	734	73.8%
Total Gas	42	36.8%	315	31.7%
<b>AIR MEDIA AFFECTED?</b>				
Yes	810	710.5%	810	81.5%
No	1	0.9%	43	4.3%
Unknown	2	1.8%	141	14.2%
<b>WATER MEDIA AFFECTED?</b>				
Yes	10	8.8%	117	11.8%
No	29	25.4%	482	48.5%
Unknown	75	65.8%	395	39.7%
<b>LAND MEDIA AFFECTED?</b>				
Yes	30	26.3%	421	42.4%
No	17	14.9%	246	24.8%
Unknown	67	58.8%	327	32.9%
<b>FIXED FACILITY</b>				
IN-TRANSIT	99	86.8%	616	62.0%
	15	13.2%	378	38.0%
<b>FIXED LOCATION</b>				
Process Vessel	28	28.3%	137	22.2%
Storage Vessel	20	20.2%	188	30.5%
Valves/Pipes	9	9.1%	99	16.1%
Disposal	1	1.0%	19	3.1%
Heating/Cooling	2	2.0%	11	1.8%
Vehicle Not in Transit	9	9.1%	25	4.1%
Other	8	8.1%	35	5.7%
Unknown	22	22.2%	102	16.6%
<b>FIXED CAUSE</b>				
Equipment Failure	18	18.2%	194	31.5%
Operator Error	16	16.2%	116	18.8%
Upset Conditions	7	7.1%	35	5.7%
Fire/Explosion	28	28.3%	114	18.5%
Arson/Vandalism	2	2.0%	13	2.1%
Disposal Related	0	0.0%	0	0.0%
High Pressure/Temp	1	1.0%	17	2.8%
Power Related	0	0.0%	7	1.1%
Sparking/Lightning	10	10.1%	12	2.0%
Other	1	1.0%	13	2.1%
Unknown	16	16.2%	95	15.4%

## Exhibit E-19 (continued)

ENCYCLOPEDIA OF DATA SEGREGATED BY  
EVENTS WITH DEATHS OR INJURIES

-DEATH EVENTS (114)-

-INJURY EVENTS (994)-

	No. of Events	% of Total	No. of Events	% of Total
<b>EVENT CONTEXT</b>				
Loading/Unloading	13	13.1%	103	16.7%
Steady State	27	27.3%	251	40.8%
Start-Up	7	7.1%	24	3.9%
Shut Down	0	0.0%	5	0.8%
Maintenance	13	13.1%	38	6.2%
Other	1	1.0%	5	0.8%
Unknown	38	38.4%	190	30.8%
<b>IN-TRANSIT MODE</b>				
Truck	11	73.3%	250	66.1%
Rail	3	20.0%	105	27.8%
Barge	0	0.0%	10	2.7%
Pipeline	1	6.7%	8	2.1%
Other	0	0.0%	5	1.3%
<b>IN-TRANSIT CAUSE</b>				
Leak	0	0.0%	177	46.8%
Collision	10	66.7%	86	22.8%
Derailment	1	6.7%	23	6.1%
Truck Turnover	2	13.3%	20	5.3%
Other	2	13.3%	55	14.6%
Unknown	0	0.0%	17	4.5%
<b>END EFFECTS **</b>				
Spill	36	31.6%	571	57.4%
Vapor Release	56	49.1%	634	63.8%
Fire	69	60.5%	244	24.6%
Explosion	76	66.7%	168	16.9%
Other	0	0.0%	6	0.6%
<b>DEATHS?</b>				
Yes	114	100.0%	89	9.0%
No	0	0.0%	850	85.5%
Unknown	0	0.0%	55	5.5%
<b>INJURIES?</b>				
Yes	89	78.1%	994	100.0%
No	19	16.7%	0	0.0%
Unknown	6	5.3%	0	0.0%
<b>EVACUATION?</b>				
Yes	40	35.1%	330	33.2%
No	33	29.0%	308	31.0%
Unknown	41	36.0%	356	35.8%
<b>PROPERTY DAMAGE?</b>				
Yes	89	78.1%	453	45.6%
No	4	3.5%	182	18.3%
Unknown	21	18.4%	359	36.1%

## Exhibit E-19 (continued)

ENCYCLOPEDIA OF DATA SEGREGATED BY  
EVENTS WITH DEATHS OR INJURIES

-DEATH EVENTS (114)-

-INJURY EVENTS (994)-

	No. of Events	% of Total	No. of Events	% of Total
PROPERTY TYPE				
Buildings	42	47.2%	107	23.6%
Vehicles	19	21.4%	155	34.2%
Tanks	9	10.1%	25	5.5%
Other Equipment	12	13.5%	45	9.9%
Other	1	1.1%	10	2.2%
Unknown	6	6.7%	111	24.5%
ENVIRONMENTAL DAMAGE?				
Yes	4	3.5%	57	5.7%
No	7	6.1%	111	11.2%
Unknown	103	90.4%	103	10.4%
SOURCES				
APR	0	0.0%	12	1.2%
BGL	1	0.9%	7	0.7%
CAL	1	0.9%	36	3.6%
CHP	0	0.0%	6	0.6%
CHT	7	6.1%	40	4.0%
CWK	0	0.0%	1	0.1%
HMS	1	0.9%	100	10.1%
LAT	9	7.9%	26	2.6%
MMA	7	6.1%	12	1.2%
NJ2	9	7.9%	84	8.5%
NJE	3	2.6%	30	3.0%
NRC	10	8.8%	360	36.2%
NTP	10	8.8%	39	3.9%
NYA	10	8.8%	25	2.5%
NYT	16	14.0%	65	6.5%
OHE	3	2.6%	27	2.7%
PEI	3	2.6%	6	0.6%
RG7	3	2.6%	13	1.3%
TXA	0	0.0%	7	0.7%
UPI	20	17.5%	83	8.4%
OTHER NEWSPAPERS	1	0.9%	15	1.5%
TOTAL	114		994	

\* The total number of events in this category can exceed the total number of events because events can involve more than one chemical.

\*\* The total number of events in this category can exceed the total number of events because events can have more than one end effects.

APPENDIX F

DATA BASE SUMMARY FOR EVACUATION EVENTS

## APPENDIX F

Appendix F contains the following exhibits:

- F-1 Encyclopedia of Data for Evacuation Events
- F-2 Substances Most Frequently Reported in Evacuation Events
- F-3 Day of the Week/Time of Day Analysis for Evacuation Events at Primary Producers
- F-4 RQ and Quantity/RQ Analysis for Evacuation Events
- F-5 Quantity Released as a Function of Event Characteristics for Evacuation Events -- By Number of Events and Quantity Released
- F-6 Encyclopedia of Data for Evacuation Events at Primary Producers
- F-7 Substances Most Frequently Reported in Evacuation Events at Primary Producers
- F-8 Encyclopedia of Data for Evacuation Events at Secondary Producers
- F-9 Substances Most Frequently Reported in Evacuation Events at Secondary Producers
- F-10 Encyclopedia of Data for Evacuation Events at Distributors
- F-11 Substances Most Frequently Reported in Evacuation Events at Distributors
- F-12 Encyclopedia of Data for Evacuation Events at End Users
- F-13 Substances Most Frequently Reported in Evacuation Events at End Users
- F-14 Encyclopedia of Data for Evacuation Events at Waste Disposers
- F-15 Substances Most Frequently Reported in Evacuation Events at Waste Disposers
- F-16 Encyclopedia of Data Summary for Evacuation Events by Facility Type -- By Number of Events and Quantity Released
- F-17 Encyclopedia of Data for Evacuation Events Involving Commodity Chemicals
- F-18 Encyclopedia of Data for Evacuation Events Involving Specialty Chemicals

Exhibit F-1

ENCYCLOPEDIA OF DATA FOR  
EVACUATION EVENTS

EVACUATION EVENTS (829)

	No. of Events	% of Total	Quantity Released	% of Total
<b>SUBSTANCE STATE *</b>				
Solid	121	14.6%	211,135	0.7%
Liquid	620	74.8%	9,828,250	33.6%
Gas	281	33.9%	2,245,893	7.7%
Unknown	1,445	174.3%	202,914	0.7%
Solid Waste	1	0.1%	3,450	0.0%
Liquid Waste	16	1.9%	16,544,176	56.6%
Gas Waste	1	0.1%	330	0.0%
Unknown Waste	2	0.2%	0	0.0%
Total Solid	122	14.7%	214,585	0.7%
Total Liquid	636	76.7%	26,372,426	90.3%
Total Gas	282	34.0%	2,246,223	7.7%
<b>AIR MEDIA AFFECTED?</b>				
Yes	774	93.4%	28,611,077	97.9%
No	27	3.3%	305,384	1.1%
Unknown	28	3.4%	301,046	1.0%
<b>WATER MEDIA AFFECTED?</b>				
Yes	111	13.4%	21,315,518	73.0%
No	415	50.1%	1,920,913	6.6%
Unknown	303	36.6%	5,981,076	20.5%
<b>LAND MEDIA AFFECTED?</b>				
Yes	261	31.5%	24,400,658	83.5%
No	310	37.4%	1,563,261	5.4%
Unknown	258	31.1%	3,253,588	11.1%
<b>FIXED FACILITY</b>				
IN-TRANSIT	544	65.6%	19,963,935	68.3%
	285	34.4%	9,253,572	31.7%
<b>FIXED LOCATION</b>				
Process Vessel	106	19.5%	602,434	3.0%
Storage Vessel	191	35.1%	1,974,926	9.9%
Valves/Pipes	78	14.3%	588,295	3.0%
Disposal	26	4.8%	16,567,635	83.0%
Heating/Cooling	9	1.7%	3,938	0.0%
Vehicle Not in Transit	31	5.7%	86,153	0.4%
Other	26	4.8%	25,552	0.1%
Unknown	77	14.2%	115,002	0.6%
<b>FIXED CAUSE</b>				
Equipment Failure	181	33.3%	1,453,485	7.3%
Operator Error	100	18.4%	886,537	4.4%
Upset Conditions	22	4.0%	548,080	2.8%
Fire/Explosion	117	21.5%	16,774,418	84.0%
Arson/Vandalism	18	3.3%	118,850	0.6%
Disposal Related	1	0.2%	0	0.0%
High Pressure/Temp	13	2.4%	27,046	0.1%
Power Related	7	1.3%	46,701	0.2%
Sparking/Lightning	8	1.5%	0	0.0%
Other	17	3.1%	22,599	0.1%
Unknown	60	11.0%	85,219	0.4%

## Exhibit F-1 (continued)

ENCYCLOPEDIA OF DATA FOR  
EVACUATION EVENTS

## EVACUATION EVENTS (829)

	No. of Events	% of Total	Quantity Released	% of Total
<b>EVENT CONTEXT</b>				
Loading/Unloading	52	9.6%	427,326	2.1%
Steady State	304	55.9%	18,166,295	91.0%
Start-Up	24	4.4%	718,196	3.6%
Shut Down	4	0.7%	45,000	0.2%
Maintenance	28	5.2%	138,082	0.7%
Other	5	0.9%	4,750	0.0%
Unknown	127	23.4%	464,286	2.3%
<b>IN-TRANSIT MODE</b>				
Truck	143	50.2%	1,634,155	17.7%
Rail	129	45.3%	6,068,592	65.6%
Barge	9	3.2%	1,525,825	16.5%
Pipeline	3	1.1%	0	0.0%
Other	1	0.4%	25,000	0.3%
<b>IN-TRANSIT CAUSE</b>				
Leak	100	35.1%	1,913,349	20.7%
Collision	61	21.4%	2,667,986	28.8%
Derailment	71	24.9%	1,038,298	11.2%
Truck Turnover	19	6.7%	542,875	5.9%
Other	23	8.1%	2,606,033	28.2%
Unknown	11	3.9%	485,031	5.2%
<b>END EFFECTS **</b>				
Spill	414	49.9%	10,653,582	36.5%
Vapor Release	631	76.1%	7,766,549	26.6%
Fire	268	32.3%	22,406,985	76.7%
Explosion	125	15.1%	19,313,677	66.1%
Other	10	1.2%	53,232	0.2%
<b>DEATHS?</b>				
Yes	40	4.8%	1,131,153	3.9%
No	734	88.5%	26,178,533	89.6%
Unknown	55	6.6%	1,907,821	6.5%
<b>INJURIES?</b>				
Yes	330	39.8%	22,877,998	78.3%
No	449	54.2%	4,989,240	17.1%
Unknown	50	6.0%	1,350,269	4.6%
<b>EVACUATION?</b>				
Yes	829	100.0%	29,217,507	100.0%
No	0	0.0%	0	0.0%
Unknown	0	0.0%	0	0.0%
<b>PROPERTY DAMAGE?</b>				
Yes	399	48.1%	24,102,346	82.5%
No	226	27.3%	1,375,970	4.7%
Unknown	204	24.6%	3,739,191	12.8%



## Exhibit F-1 (continued)

ENCYCLOPEDIA OF DATA FOR  
EVACUATION EVENTS

## EVACUATION EVENTS (829)

	No. of Events	% of Total	Quantity Released	% of Total
<b>PROPERTY TYPE</b>				
Buildings	108	27.1%	17,397,803	72.2%
Vehicles	171	42.9%	5,815,723	24.1%
Tanks	26	6.5%	550,510	2.3%
Other Equipment	27	6.8%	19,025	0.1%
Other	6	1.5%	24,556	0.1%
Unknown	62	15.5%	294,729	1.2%
<b>ENVIRONMENTAL DAMAGE?</b>				
Yes	55	6.6%	18,387,623	62.9%
No	255	30.8%	1,214,186	4.2%
Unknown	519	62.6%	9,615,698	32.9%
<b>SOURCES</b>				
APR	42	5.1%	34,675	0.1%
BGL	9	1.1%	242,250	0.8%
CAL	20	2.4%	119,758	0.4%
CHP	1	0.1%	24,000	0.1%
CHT	37	4.5%	2,906,838	10.0%
CWK	1	0.1%	5,000	0.0%
HMS	26	3.1%	819,510	2.8%
LAT	22	2.7%	1,148,644	3.9%
MMA	8	1.0%	321,050	1.1%
NJ2	77	9.3%	16,568,928	56.7%
NJE	35	4.2%	54,755	0.2%
NRC	142	17.1%	500,713	1.7%
NTP	60	7.2%	1,182,457	4.1%
NYA	11	1.3%	119,457	0.4%
NYT	54	6.5%	756,688	2.6%
OHE	24	2.9%	96,497	0.3%
PEI	4	0.5%	1,535	0.0%
RG7	20	2.4%	410,148	1.4%
TXA	6	0.7%	404,250	1.4%
UPI	208	25.1%	2,837,478	9.7%
OTHER NEWSPAPERS	22	2.7%	662,876	2.3%
<b>TOTAL</b>	<b>829</b>		<b>29,217,507</b>	

\* The total number of events in this category can exceed 829 because events can involve up to three substances.

\*\* The total number of events in this category can exceed 829 because events can have up to four coded end effects.

## Exhibit F-2

SUBSTANCES MOST FREQUENTLY REPORTED  
EVACUATION EVENTS (829 Events)

RANK	CHEM TYPE	SUBSTANCE NAME	NUMBER OF EVENTS	QUANTITY RELEASED
1		CHLORINE	89	52,777
2		HYDROCHLORIC ACID	76	1,508,389
3		AMMONIA (ANHYDROUS)	67	415,086
4		SULFURIC ACID	30	1,641,870
5		UNKNOWN	26	165,563
6		AMMONIA	21	183,612
7		NITRIC ACID	20	152,776
8		PESTICIDE	20	17,457
9		VINYL CHLORIDE	14	150,696
10		STYRENE	12	157,238
11		SODIUM HYDROXIDE	12	40,723
12		HYDROGEN SULFIDE	12	1,669
13		SOLVENT	11	11,700
14		PHOSPHORIC ACID	10	300,563
15		TOLUENE	10	46,875
16		TOLUENE DIISOCYANATE	10	1,058
17		PHOSGENE	9	100
18		METHYL ALCOHOL	9	1,950,000
19		ETHYLENE OXIDE	9	225,026
20		POLYVINYL CHLORIDE	8	0
21		SULFUR DIOXIDE	8	0
22		BENZENE	8	19,500

Exhibit F-3

DAY OF THE WEEK/TIME OF DAY ANALYSIS  
EVACUATION EVENTS (PRIMARY PRODUCERS -- 207 EVENTS)

	NUMBER OF EVENTS	QUANTITY RELEASED	HOURS PER WEEK	EVENTS PER HOUR	QUANTITY PER HOUR
DAY OF THE WEEK					
Monday	39	278,952	24	1.6	11,623
Tuesday	32	625,856	24	1.3	26,077
Wednesday	29	41,045	24	1.2	1,710
Thursday	36	209,876	24	1.5	8,745
Friday	40	211,901	24	1.7	8,829
Saturday	16	485,151	24	0.7	20,215
Sunday	15	73,108	24	0.6	3,046
Unknown	0	0	24	0.0	0
TIME OF DAY					
Unknown	37	277,951	NA	NA	NA
AM	53	581,372	42	1.3	13,842
DAY	0	0	84	0.0	0
PM	85	806,083	42	2.0	19,192
SHIFT *					
On shift	103	869,009	60	1.7	14,483
Off shift	104	1,056,880	108	1.7	17,615
Unknown	0	0	NA	NA	NA
TOTAL	207	1,925,889	168	1.2	11,464

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\* On shift is defined as 6AM to 6PM, Monday through Friday; all other hours of the week are off shift.

## Exhibit F-4

DISTRIBUTION OF EVENTS BY REPORTABLE QUANTITY  
EVACUATION EVENTS

RQ	SUBSTANCE 1		DISTRIBUTION OF RQS	
	NUMBER OF EVENTS	PERCENT OF EVENTS	NUMBER	PERCENT
1	32	12.1%	193	27.6%
10	53	20.1%	68	9.7%
100	68	25.8%	111	15.9%
1000	64	24.2%	169	24.1%
5000	47	17.8%	159	22.7%
TOTAL	264	100.0%	700	100.0%

DISTRIBUTION OF EVENTS BY RATIO OF QUANTITY TO REPORTABLE QUANTITY  
EVACUATION EVENTS

Q/RQ RANGE	SUBSTANCE 1	
	NUMBER OF EVENTS	PERCENT OF EVENTS
0-1	67	25.4%
1-10	70	26.5%
10-100	75	28.4%
100-1000	29	11.0%
>1000	23	8.7%
TOTAL	264	100.0%

## Exhibit F5a

ENCYCLOPEDIA OF DATA	QUANTITY RELEASED - EVACUATION EVENTS								
	(By Quantity Range in Lbs.)								
	Total Quantity Released	1-10 % of Total	11-100 % of Total	101-1K % of Total	1K-10K % of Total	10K-25K % of Total	25K-50K % of Total	50K-100K % of Total	>100K % of Total
FIXED FACILITY	19,963,935	0.0%	0.0%	0.1%	0.9%	1.1%	1.8%	2.9%	93.2%
IN-TRANSIT	9,253,572	0.0%	0.0%	0.2%	0.7%	3.4%	5.3%	6.9%	83.6%
FIXED LOCATION									
Process Vessel	602,434	0.0%	0.0%	0.8%	3.5%	2.3%	0.0%	0.0%	93.4%
Storage Vessel	1,974,926	0.0%	0.0%	0.4%	5.1%	3.5%	11.2%	15.1%	64.7%
Valves/Pipes	588,295	0.0%	0.1%	1.2%	3.5%	17.0%	14.0%	37.0%	27.2%
Disposal	16,567,635	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.4%	99.6%
Heating/Cooling	3,938	0.0%	0.0%	30.2%	69.8%	0.0%	0.0%	0.0%	0.0%
Vehicles Not in Transit	86,153	0.0%	0.1%	2.4%	16.3%	23.2%	58.0%	0.0%	0.0%
Other	25,552	0.0%	0.0%	4.3%	5.7%	90.0%	0.0%	0.0%	0.0%
Unknown	115,002	0.0%	0.2%	1.0%	9.2%	0.0%	0.0%	0.0%	89.6%
FIXED CAUSE									
Equipment Failure	1,453,485	0.0%	0.1%	1.0%	4.3%	3.1%	12.1%	16.7%	62.7%
Operator Error	886,537	0.0%	0.0%	0.4%	4.5%	11.9%	3.7%	16.1%	63.5%
Upset Conditions	549,080	0.0%	0.0%	0.3%	2.9%	0.0%	0.0%	9.4%	87.4%
Fire/Explosion	16,774,418	0.0%	0.0%	0.0%	0.1%	0.1%	0.0%	0.5%	99.3%
Arson/Vandalism	118,850	0.0%	0.0%	0.0%	6.8%	10.1%	83.1%	0.0%	0.0%
Disposal Related	0	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
High Pressure/Temp	27,046	0.0%	0.0%	3.9%	0.0%	96.1%	0.0%	0.0%	0.0%
Power Related	46,701	0.0%	0.2%	0.9%	2.5%	0.0%	96.4%	0.0%	0.0%
Sparking/Lightning	0	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Other	22,599	0.1%	0.3%	4.7%	15.3%	79.7%	0.0%	0.0%	0.0%
Unknown	85,219	0.0%	0.1%	2.4%	27.1%	0.0%	0.0%	70.4%	0.0%

# Exhibit F5a (continued)

ENCYCLOPEDIA OF DATA	QUANTITY RELEASED - EVACUATION EVENTS		(By Quantity Range in Lbs.)						
	Total Quantity Released	1-10 % of Total	11-100 % of Total	101-1K % of Total	1K-10K % of Total	10K-25K % of Total	25K-50K % of Total	50K-100K % of Total	>100K % of Total
<b>EVENT CONTEXT</b>									
Loading/Unloading	427,326	0.0%	0.0%	0.7%	6.5%	20.3%	19.3%	15.8%	37.4%
Steady State	18,166,295	0.0%	0.0%	0.1%	0.5%	0.6%	1.1%	1.6%	96.2%
Start-Up	718,196	0.0%	0.0%	0.1%	0.3%	0.0%	0.0%	0.0%	99.6%
Shut Down	45,000	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%	0.0%	0.0%
Maintenance	138,082	0.0%	0.1%	0.2%	6.1%	21.0%	23.6%	48.9%	0.0%
Other	4,750	0.0%	0.0%	15.8%	84.2%	0.0%	0.0%	0.0%	0.0%
Unknown	464,286	0.0%	0.1%	0.9%	10.1%	0.0%	0.0%	34.5%	54.5%
<b>IN-TRANSIT MODE</b>									
Truck	1,634,155	0.0%	0.0%	0.6%	3.6%	10.0%	21.4%	14.7%	49.7%
Rail	6,068,592	0.0%	0.0%	0.1%	0.1%	1.6%	2.4%	6.6%	89.3%
Barge	1,525,825	0.0%	0.0%	0.1%	0.0%	1.6%	0.0%	0.0%	98.3%
Pipeline	0	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Other	25,000	0.0%	0.0%	0.0%	0.0%	100.0%	0.0%	0.0%	0.0%
<b>IN-TRANSIT CAUSE</b>									
Leak	1,913,349	0.0%	0.0%	0.4%	1.1%	6.2%	6.8%	4.9%	80.7%
Collision	2,667,986	0.0%	0.0%	0.1%	0.7%	4.4%	5.7%	13.8%	75.3%
Derailment	1,038,298	0.0%	0.0%	0.2%	0.5%	5.1%	3.6%	7.2%	83.4%
Truck Turnover	542,875	0.0%	0.0%	0.0%	0.3%	1.9%	12.2%	9.7%	76.0%
Other	2,606,033	0.0%	0.0%	0.0%	0.2%	0.5%	1.3%	2.0%	95.9%
Unknown	485,031	0.0%	0.0%	0.2%	2.5%	0.0%	14.9%	0.0%	82.5%
<b>TOTAL QUANTITY (In Pounds)</b>	<b>29,217,507</b>	<b>147</b>	<b>2,304</b>	<b>40,176</b>	<b>239,907</b>	<b>536,742</b>	<b>845,617</b>	<b>1,217,812</b>	<b>26,334,802</b>

## Exhibit F5b

ENCYCLOPEDIA OF DATA	NUMBER OF EVENTS - EVALUATION EVENTS									(By Quantity Range in Lbs.)
	Total No. of Events	1-10 % of Total	11-100 % of Total	101-1K % of Total	1K-10K % of Total	10K-25K % of Total	25K-50K % of Total	50K-100K % of Total	>100K % of Total	
FIXED FACILITY	202	9.4%	12.9%	32.7%	24.8%	6.9%	4.5%	4.0%	5.0%	
IN-TRANSIT	123	5.7%	11.4%	23.6%	14.6%	13.8%	11.4%	7.3%	12.2%	
FIXED LOCATION										
Process Vessel	39	20.5%	12.8%	41.0%	18.0%	2.6%	0.0%	0.0%	5.1%	
Storage Vessel	75	5.3%	9.3%	28.0%	30.7%	6.7%	8.0%	5.3%	6.7%	
Valves/Pipes	43	7.0%	16.3%	32.6%	16.3%	14.0%	4.7%	7.0%	2.3%	
Disposal	11	9.1%	18.2%	27.3%	27.3%	0.0%	0.0%	9.1%	9.1%	
Heating/Cooling	4	0.0%	0.0%	50.0%	50.0%	0.0%	0.0%	0.0%	0.0%	
Vehicles Not in Transit	12	0.0%	16.7%	41.7%	25.0%	8.3%	8.3%	0.0%	0.0%	
Other	7	28.6%	0.0%	42.9%	14.3%	14.3%	0.0%	0.0%	0.0%	
Unknown	11	9.1%	27.3%	18.2%	36.4%	0.0%	0.0%	0.0%	9.1%	
FIXED CAUSE										
Equipment Failure	95	9.5%	15.8%	34.7%	23.2%	3.2%	5.3%	3.2%	5.3%	
Operator Error	43	11.6%	9.3%	23.3%	30.2%	14.0%	2.3%	4.7%	4.7%	
Upset Conditions	11	0.0%	9.1%	45.5%	27.3%	0.0%	0.0%	9.1%	9.1%	
Fire/Explosion	13	0.0%	7.7%	30.8%	30.8%	7.7%	0.0%	7.7%	15.4%	
Arson/Vandalism	4	0.0%	0.0%	0.0%	25.0%	25.0%	50.0%	0.0%	0.0%	
Disposal Related	0	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	
High Pressure/Temp	7	14.3%	0.0%	57.1%	0.0%	28.6%	0.0%	0.0%	0.0%	
Power Related	5	0.0%	40.0%	20.0%	20.0%	0.0%	20.0%	0.0%	0.0%	
Sparking/Lightning	0	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	
Other	7	28.6%	14.3%	28.6%	14.3%	14.3%	0.0%	0.0%	0.0%	
Unknown	17	11.8%	11.8%	41.2%	29.4%	0.0%	0.0%	5.9%	0.0%	

# Exhibit F5b (continued)

ENCYCLOPEDIA OF DATA	NUMBER OF EVENTS - EVACUATION EVENTS									(By Quantity Range in Lbs.)
	Total	1-10	11-100	101-1K	1K-10K	10K-25K	25K-50K	50K-100K	>100K	
	No. of Events	% of Total	% of Total	% of Total	% of Total	% of Total	% of Total	% of Total	% of Total	
EVENT CONTEXT										
Loading/Unloading	25	0.0%	4.0%	32.0%	28.0%	20.0%	8.0%	4.0%	4.0%	
Steady State	115	10.4%	14.8%	35.7%	21.7%	6.1%	4.4%	3.5%	3.5%	
Start-Up	8	0.0%	12.5%	37.5%	12.5%	0.0%	0.0%	0.0%	37.5%	
Shut Down	1	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%	0.0%	0.0%	
Maintenance	14	21.4%	21.4%	14.3%	14.3%	14.3%	7.1%	7.1%	0.0%	
Other	2	0.0%	0.0%	50.0%	50.0%	0.0%	0.0%	0.0%	0.0%	
Unknown	37	10.8%	10.8%	29.7%	37.8%	0.0%	0.0%	5.4%	5.4%	
IN-TRANSIT MODE										
Truck	77	6.5%	10.4%	29.9%	19.5%	13.0%	13.0%	5.2%	2.6%	
Rail	41	4.9%	14.6%	12.2%	7.3%	12.2%	9.8%	12.2%	26.8%	
Barge	4	0.0%	0.0%	25.0%	0.0%	25.0%	0.0%	0.0%	50.0%	
Pipeline	0	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	
Other	1	0.0%	0.0%	0.0%	0.0%	100.0%	0.0%	0.0%	0.0%	
IN-TRANSIT CAUSE										
Leak	44	4.6%	13.6%	36.4%	13.6%	13.6%	9.1%	2.3%	6.8%	
Collision	31	0.0%	12.9%	16.1%	16.1%	19.4%	12.9%	16.1%	6.5%	
Derailment	21	9.5%	14.3%	14.3%	14.3%	14.3%	4.8%	4.8%	23.8%	
Truck Turnover	7	0.0%	14.3%	0.0%	14.3%	14.3%	28.6%	14.3%	14.3%	
Other	13	23.1%	0.0%	23.1%	7.7%	7.7%	7.7%	7.7%	23.1%	
Unknown	7	0.0%	0.0%	28.6%	28.6%	0.0%	28.6%	0.0%	14.3%	
TOTAL EVENTS										
	325	26	40	95	68	31	23	17	25	



## Exhibit F-6

ENCYCLOPEDIA OF DATA FOR  
PRIMARY PRODUCERS

## EVACUATION EVENTS (207)

	No. of Events	% of Total	Quantity Released	% of Total
<b>SUBSTANCE STATE *</b>				
Solid	9	4.4%	10,000	0.5%
Liquid	124	59.9%	1,194,600	62.0%
Gas	114	55.1%	621,251	32.3%
Unknown	371	179.2%	0	0.0%
Solid Waste	0	0.0%	0	0.0%
Liquid Waste	3	1.5%	450	0.0%
Gas Waste	0	0.0%	0	0.0%
Unknown Waste	0	0.0%	0	0.0%
 Total Solid	 9	 4.4%	 10,000	 0.5%
Total Liquid	127	61.4%	1,195,050	62.1%
Total Gas	114	55.1%	621,251	32.3%
 <b>AIR MEDIA AFFECTED?</b>				
Yes	200	96.6%	1,835,139	95.3%
No	3	1.5%	0	0.0%
Unknown	4	1.9%	90,750	4.7%
 <b>WATER MEDIA AFFECTED?</b>				
Yes	24	11.6%	681,142	35.4%
No	106	51.2%	317,970	16.5%
Unknown	77	37.2%	926,777	48.1%
 <b>LAND MEDIA AFFECTED?</b>				
Yes	46	22.2%	765,351	39.7%
No	84	40.6%	407,809	21.2%
Unknown	77	37.2%	752,729	39.1%
 <b>FIXED FACILITY</b>				
IN-TRANSIT	180	87.0%	1,344,398	69.8%
	27	13.0%	581,491	30.2%
 <b>FIXED LOCATION</b>				
Process Vessel	41	22.8%	28,884	2.2%
Storage Vessel	49	27.2%	902,328	67.1%
Valves/Pipes	46	25.6%	234,819	17.5%
Disposal	9	5.0%	65,800	4.9%
Heating/Cooling	3	1.7%	3,750	0.3%
Vehicle Not in Transit	10	5.6%	1,065	0.1%
Other	2	1.1%	2	0.0%
Unknown	20	11.1%	107,750	8.0%
 <b>FIXED CAUSE</b>				
Equipment Failure	84	46.7%	543,918	40.5%
Operator Error	24	13.3%	170,363	12.7%
Upset Conditions	7	3.9%	484,368	36.0%
Fire/Explosion	22	12.2%	12,000	0.9%
Arson/Vandalism	2	1.1%	0	0.0%
Disposal Related	0	0.0%	0	0.0%
High Pressure/Temp	6	3.3%	15,116	1.1%
Power Related	5	2.8%	46,603	3.5%
Sparking/Lightning	3	1.7%	0	0.0%
Other	4	2.2%	76	0.0%
Unknown	23	12.8%	71,954	5.4%

## Exhibit F-6 (continued)

ENCYCLOPEDIA OF DATA FOR  
PRIMARY PRODUCERS

## EVACUATION EVENTS (207)

	No. of Events	% of Total	Quantity Released	% of Total
<b>EVENT CONTEXT</b>				
Loading/Unloading	18	10.0%	135,012	10.0%
Steady State	101	56.1%	660,471	49.1%
Start-Up	7	3.9%	153,491	11.4%
Shut Down	2	1.1%	45,000	3.4%
Maintenance	8	4.4%	61,630	4.6%
Other	2	1.1%	4,000	0.3%
Unknown	42	23.3%	284,794	21.2%
<b>IN-TRANSIT MODE</b>				
Truck	18	66.7%	183,966	31.6%
Rail	7	25.9%	22,525	3.9%
Barge	1	3.7%	375,000	64.5%
Pipeline	1	3.7%	0	0.0%
Other	0	0.0%	0	0.0%
<b>IN-TRANSIT CAUSE</b>				
Leak	13	48.2%	27,463	4.7%
Collision	9	33.3%	95,028	16.3%
Derailment	1	3.7%	0	0.0%
Truck Turnover	3	11.1%	84,000	14.5%
Other	1	3.7%	375,000	64.5%
Unknown	0	0.0%	0	0.0%
<b>END EFFECTS **</b>				
Spill	71	34.3%	674,854	35.0%
Vapor Release	171	82.6%	1,683,435	87.4%
Fire	61	29.5%	1,331,333	69.1%
Explosion	44	21.3%	1,205,130	62.6%
Other	5	2.4%	12,000	0.6%
<b>DEATHS?</b>				
Yes	17	8.2%	257,000	13.3%
No	177	85.5%	1,291,897	67.1%
Unknown	13	6.3%	376,992	19.6%
<b>INJURIES?</b>				
Yes	89	43.0%	1,191,824	61.9%
No	104	50.2%	670,462	34.8%
Unknown	14	6.8%	63,603	3.3%
<b>EVACUATION?</b>				
Yes	207	100.0%	1,925,889	100.0%
No	0	0.0%	0	0.0%
Unknown	0	0.0%	0	0.0%
<b>PROPERTY DAMAGE?</b>				
Yes	86	41.6%	1,324,500	68.8%
No	49	23.7%	63,523	3.3%
Unknown	72	34.8%	537,866	27.9%

## Exhibit F-6 (continued)

ENCYCLOPEDIA OF DATA FOR  
PRIMARY PRODUCERS

## EVACUATION EVENTS (207)

	No. of Events	% of Total	Quantity Released	% of Total
<b>PROPERTY TYPE</b>				
Buildings	30	34.9%	229,625	17.3%
Vehicles	16	18.6%	515,028	38.9%
Tanks	14	16.3%	549,115	41.5%
Other Equipment	12	14.0%	15,432	1.2%
Other	2	2.3%	75	0.0%
Unknown	12	14.0%	15,225	1.2%
<b>ENVIRONMENTAL DAMAGE?</b>				
Yes	6	2.9%	47,625	2.5%
No	44	21.3%	41,502	2.2%
Unknown	157	75.9%	1,836,762	95.4%
<b>SOURCES</b>				
APR	4	1.9%	0	0.0%
BGL	0	0.0%	0	0.0%
CAL	0	0.0%	0	0.0%
CHP	0	0.0%	0	0.0%
CHT	3	1.5%	2,000	0.1%
CWK	0	0.0%	0	0.0%
HMS	0	0.0%	0	0.0%
LAT	5	2.4%	525,005	27.3%
MMA	5	2.4%	171,050	8.9%
NJ2	15	7.3%	25,537	1.3%
NJE	9	4.4%	900	0.1%
NRC	68	32.9%	168,747	8.8%
NTP	26	12.6%	475,988	24.7%
NYA	4	1.9%	103,000	5.4%
NYT	23	11.1%	243,050	12.6%
OHE	7	3.4%	11,111	0.6%
PEI	3	1.5%	1,535	0.1%
RG7	5	2.4%	69,000	3.6%
TXA	0	0.0%	0	0.0%
UPI	26	12.6%	127,966	6.6%
OTHER NEWSPAPERS	4	1.9%	1,000	0.1%
<b>TOTAL</b>	<b>207</b>		<b>1,925,889</b>	

\* The total number of events in this category can exceed 207 because events can involve up to three substances.

\*\* The total number of events in this category can exceed 207 because events can have up to four coded end effects.

## Exhibit F-7

SUBSTANCES MOST FREQUENTLY REPORTED  
PRIMARY PRODUCERS (207 Events)

## EVACUATION EVENTS

RANK	CHEM TYPE	SUBSTANCE NAME	NUMBER OF EVENTS	QUANTITY RELEASED
1		CHLORINE	38	10,681
2		HYDROCHLORIC ACID	25	228,200
3		AMMONIA (ANHYDROUS)	22	140,668
4		VINYL CHLORIDE	6	1
5		AMMONIA	6	986
6		SULFURIC ACID	6	7,500
7		NITRIC ACID	6	1,125
8		SOLVENT	4	450
9		HYDROGEN	4	28
10		TOLUENE	4	1,875
11		HYDROGEN SULFIDE	4	1,038
12		PHOSGENE	4	100
13		BENZENE	3	19,500
14		NITROGEN	3	0
15		STYRENE	3	45,000
16		TOLUENE DIISOCYANATE	3	0
17		UNKNOWN	3	0
18		METHYLENE CHLORIDE	3	1,875
19		ETHYLENE OXIDE	3	22,526
20		SULFUR CHLORIDE	2	3,037
21		ETHYL ALCOHOL	2	750
22		HYDROGEN CYANIDE	2	550
23		ETHYLENE DIAMINE	2	412
24		SODIUM HYPOCHLORITE	2	248
25		ACETIC ACID	2	375,000
26		BUTADIENE	2	4,050
27		PROPYLENE	2	14,000
28		NEOPRENE	2	15,000
29		SULFUR DIOXIDE	2	0
30		ACROLEIN	2	480,000
31		HYDROBROMIC ACID	2	0
32		BROMINE	2	0
33		ANTIMONY PENTACHLORIDE	2	2,000
34		ETHYL ACRYLATE	2	10,500
35		METHYL ALCOHOL	2	0
36		METHYL CHLORIDE	2	2,116

Exhibit F-8

ENCYCLOPEDIA OF DATA FOR  
SECONDARY PRODUCERS

EVACUATION EVENTS (104)

	No. of Events	% of Total	Quantity Released	% of Total
SUBSTANCE STATE *				
Solid	19	18.3%	0	0.0%
Liquid	63	60.6%	642,824	96.4%
Gas	41	39.4%	23,753	3.6%
Unknown	188	180.8%	0	0.0%
Solid Waste	0	0.0%	0	0.0%
Liquid Waste	0	0.0%	0	0.0%
Gas Waste	1	1.0%	330	0.1%
Unknown Waste	0	0.0%	0	0.0%
Total Solid	19	18.3%	0	0.0%
Total Liquid	63	60.6%	642,824	96.4%
Total Gas	42	40.4%	24,083	3.6%
AIR MEDIA AFFECTED?				
Yes	101	97.1%	415,907	62.4%
No	2	1.9%	236,000	35.4%
Unknown	1	1.0%	15,000	2.3%
WATER MEDIA AFFECTED?				
Yes	15	14.4%	350,375	52.5%
No	54	51.9%	292,366	43.8%
Unknown	35	33.7%	24,166	3.6%
LAND MEDIA AFFECTED?				
Yes	20	19.2%	300,533	45.1%
No	53	51.0%	357,511	53.6%
Unknown	31	29.8%	8,863	1.3%
FIXED FACILITY				
IN-TRANSIT	102	98.1%	662,407	99.3%
	2	1.9%	4,500	0.7%
FIXED LOCATION				
Process Vessel	24	23.5%	6,563	1.0%
Storage Vessel	38	37.3%	531,716	80.3%
Valves/Pipes	9	8.8%	110,875	16.7%
Disposal	5	4.9%	1,215	0.2%
Heating/Cooling	2	2.0%	0	0.0%
Vehicle Not in Transit	6	5.9%	12,038	1.8%
Other	4	3.9%	0	0.0%
Unknown	14	13.7%	0	0.0%
FIXED CAUSE				
Equipment Failure	35	34.3%	607,661	91.7%
Operator Error	17	16.7%	33,966	5.1%
Upset Conditions	5	4.9%	6,830	1.0%
Fire/Explosion	27	26.5%	300	0.1%
Arson/Vandalism	2	2.0%	0	0.0%
Disposal Related	0	0.0%	0	0.0%
High Pressure/Temp	3	2.9%	11,400	1.7%
Power Related	1	1.0%	0	0.0%
Sparking/Lightning	1	1.0%	0	0.0%
Other	2	2.0%	0	0.0%
Unknown	9	8.8%	2,250	0.3%

## Exhibit F-8 (continued)

ENCYCLOPEDIA OF DATA FOR  
SECONDARY PRODUCERS

## EVACUATION EVENTS (104)

	No. of Events	% of Total	Quantity Released	% of Total
<b>EVENT CONTEXT</b>				
Loading/Unloading	6	5.9%	36,413	5.5%
Steady State	66	64.7%	617,831	93.3%
Start-Up	7	6.9%	1,875	0.3%
Shut Down	0	0.0%	0	0.0%
Maintenance	5	4.9%	178	0.0%
Other	0	0.0%	0	0.0%
Unknown	18	17.7%	6,110	0.9%
<b>IN-TRANSIT MODE</b>				
Truck	2	100.0%	4,500	100.0%
Rail	0	0.0%	0	0.0%
Barge	0	0.0%	0	0.0%
Pipeline	0	0.0%	0	0.0%
Other	0	0.0%	0	0.0%
<b>IN-TRANSIT CAUSE</b>				
Leak	1	50.0%	0	0.0%
Collision	1	50.0%	4,500	100.0%
Derailment	0	0.0%	0	0.0%
Truck Turnover	0	0.0%	0	0.0%
Other	0	0.0%	0	0.0%
Unknown	0	0.0%	0	0.0%
<b>END EFFECTS **</b>				
Spill	32	30.8%	645,074	96.7%
Vapor Release	85	81.7%	393,369	59.0%
Fire	39	37.5%	35,925	5.4%
Explosion	17	16.4%	7,875	1.2%
Other	0	0.0%	0	0.0%
<b>DEATHS?</b>				
Yes	3	2.9%	0	0.0%
No	97	93.3%	666,907	100.0%
Unknown	4	3.9%	0	0.0%
<b>INJURIES?</b>				
Yes	44	42.3%	360,083	54.0%
No	56	53.9%	284,324	42.6%
Unknown	4	3.9%	22,500	3.4%
<b>EVACUATION?</b>				
Yes	104	100.0%	666,907	100.0%
No	0	0.0%	0	0.0%
Unknown	0	0.0%	0	0.0%
<b>PROPERTY DAMAGE?</b>				
Yes	42	40.4%	42,803	6.4%
No	38	36.5%	529,631	79.4%
Unknown	24	23.1%	94,473	14.2%

## Exhibit F-8 (continued)

ENCYCLOPEDIA OF DATA FOR  
SECONDARY PRODUCERS

## EVACUATION EVENTS (104)

PROPERTY TYPE	No. of Events	% of Total	Quantity Released	% of Total
Buildings	22	52.4%	7,628	17.8%
Vehicles	3	7.1%	9,000	21.0%
Tanks	2	4.8%	0	0.0%
Other Equipment	7	16.7%	300	0.7%
Other	2	4.8%	1,125	2.6%
Unknown	6	14.3%	24,750	57.8%
ENVIRONMENTAL DAMAGE?				
Yes	7	6.7%	83,250	12.5%
No	41	39.4%	30,283	4.5%
Unknown	56	53.9%	553,374	83.0%
SOURCES				
APR	4	3.9%	0	0.0%
BGL	2	1.9%	0	0.0%
CAL	2	1.9%	3,750	0.6%
CHP	0	0.0%	0	0.0%
CHT	3	2.9%	0	0.0%
CWK	0	0.0%	0	0.0%
HMS	0	0.0%	0	0.0%
LAT	2	1.9%	0	0.0%
MMA	0	0.0%	0	0.0%
NJ2	12	11.5%	0	0.0%
NJE	4	3.9%	0	0.0%
NRC	22	21.2%	24,703	3.7%
NTP	3	2.9%	7,125	1.1%
NYA	2	1.9%	15,000	2.3%
NYT	8	7.7%	270,413	40.6%
OHE	5	4.8%	79,500	11.9%
PEI	1	1.0%	0	0.0%
RG7	3	2.9%	247,500	37.1%
TXA	0	0.0%	0	0.0%
UPI	28	26.9%	17,041	2.6%
OTHER NEWSPAPERS	3	2.9%	1,875	0.3%
TOTAL	104		666,907	

\* The total number of events in this category can exceed 104 because events can involve up to three substances.

\*\* The total number of events in this category can exceed 104 because events can have up to four coded end effects.

## Exhibit F-9

SUBSTANCES MOST FREQUENTLY REPORTED  
SECONDARY PRODUCERS (104 Events)

## EVACUATION EVENTS

RANK	CHEM TYPE	SUBSTANCE NAME	NUMBER OF EVENTS	QUANTITY RELEASED
1		CHLORINE	12	1,700
2		AMMONIA (ANHYDROUS)	9	25,125
3		AMMONIA	6	2,375
4		NITRIC ACID	5	6,503
5		SULFURIC ACID	4	15,000
6		UNKNOWN	4	0
7		HYDROCHLORIC ACID	3	0
8		PLASTIC	3	0
9		TRICHLOROETHYLENE	3	413
10		POLYVINYL CHLORIDE	3	0
11		TOLUENE DIISOCYANATE	3	120
12		STYRENE	2	4,500
13		SULFUR DIOXIDE	2	0
14		NAPHTHA	2	225,000
15		HYDROCARBONS	2	0
16		POLYETHYLENE	2	0
17		METHYLENE CHLORIDE	2	0
18		POLYSTYRENE	2	0
19		HYDROGEN SULFIDE	2	630
20		NITROGEN DIOXIDE	2	143
21		NITROCELLULOSE	2	0
22		ACID	2	0



## Exhibit F-10

ENCYCLOPEDIA OF DATA FOR  
DISTRIBUTORS

## EVACUATION EVENTS (214)

	No. of Events	% of Total	Quantity Released	% of Total
<b>SUBSTANCE STATE *</b>				
Solid	39	18.2%	46,041	0.2%
Liquid	181	84.6%	5,591,439	24.8%
Gas	51	23.8%	324,932	1.4%
Unknown	364	170.1%	52,913	0.2%
Solid Waste	0	0.0%	0	0.0%
Liquid Waste	6	2.8%	16,511,663	73.2%
Gas Waste	0	0.0%	0	0.0%
Unknown Waste	1	0.5%	0	0.0%
Total Solid	39	18.2%	46,041	0.2%
Total Liquid	187	87.4%	22,103,102	97.9%
Total Gas	51	23.8%	324,932	1.4%
<b>AIR MEDIA AFFECTED?</b>				
Yes	192	89.7%	22,384,023	99.2%
No	9	4.2%	35,415	0.2%
Unknown	13	6.1%	154,058	0.7%
<b>WATER MEDIA AFFECTED?</b>				
Yes	23	10.8%	18,814,565	83.4%
No	109	50.9%	611,907	2.7%
Unknown	82	38.3%	3,147,024	13.9%
<b>LAND MEDIA AFFECTED?</b>				
Yes	99	46.3%	21,900,314	97.0%
No	58	27.1%	210,352	0.9%
Unknown	57	26.6%	462,830	2.1%
<b>FIXED FACILITY</b>				
IN-TRANSIT	70	32.7%	16,902,129	74.9%
	144	67.3%	5,671,367	25.1%
<b>FIXED LOCATION</b>				
Process Vessel	5	7.1%	150,000	0.9%
Storage Vessel	33	47.1%	38,561	0.2%
Valves/Pipes	11	15.7%	208,950	1.2%
Disposal	3	4.3%	16,500,000	97.6%
Heating/Cooling	0	0.0%	0	0.0%
Vehicle Not in Transit	9	12.9%	2,750	0.0%
Other	2	2.9%	1,645	0.0%
Unknown	7	10.0%	223	0.0%
<b>FIXED CAUSE</b>				
Equipment Failure	23	32.9%	205,501	1.2%
Operator Error	12	17.1%	165,495	1.0%
Upset Conditions	2	2.9%	0	0.0%
Fire/Explosion	20	28.6%	16,511,000	97.7%
Arson/Vandalism	2	2.9%	20,100	0.1%
Disposal Related	0	0.0%	0	0.0%
High Pressure/Temp	0	0.0%	0	0.0%
Power Related	0	0.0%	0	0.0%
Sparking/Lightning	1	1.4%	0	0.0%
Other	2	2.9%	10	0.0%
Unknown	8	11.4%	23	0.0%

## Exhibit F-10 (continued)

ENCYCLOPEDIA OF DATA FOR  
DISTRIBUTORS

## EVACUATION EVENTS (214)

	No. of Events	% of Total	Quantity Released	% of Total
<b>EVENT CONTEXT</b>				
Loading/Unloading	15	21.4%	212,395	1.3%
Steady State	40	57.1%	16,534,511	97.8%
Start-Up	2	2.9%	150,000	0.9%
Shut Down	0	0.0%	0	0.0%
Maintenance	2	2.9%	5,000	0.0%
Other	1	1.4%	0	0.0%
Unknown	10	14.3%	223	0.0%
<b>IN-TRANSIT MODE</b>				
Truck	44	30.6%	384,675	6.8%
Rail	99	68.8%	5,286,692	93.2%
Barge	1	0.7%	0	0.0%
Pipeline	0	0.0%	0	0.0%
Other	0	0.0%	0	0.0%
<b>IN-TRANSIT CAUSE</b>				
Leak	46	31.9%	680,772	12.0%
Collision	20	13.9%	2,248,732	39.7%
Derailment	57	39.6%	458,923	8.1%
Truck Turnover	3	2.1%	36,150	0.6%
Other	14	9.7%	2,211,495	39.0%
Unknown	4	2.8%	35,295	0.6%
<b>END EFFECTS **</b>				
Spill	145	67.8%	6,019,577	26.7%
Vapor Release	152	71.0%	2,349,362	10.4%
Fire	66	30.8%	19,841,662	87.9%
Explosion	28	13.1%	17,443,552	77.3%
Other	1	0.5%	0	0.0%
<b>DEATHS?</b>				
Yes	7	3.3%	774,052	3.4%
No	199	93.0%	21,716,794	96.2%
Unknown	8	3.7%	82,650	0.4%
<b>INJURIES?</b>				
Yes	74	34.6%	19,819,533	87.8%
No	129	60.3%	2,694,787	11.9%
Unknown	11	5.1%	59,176	0.3%
<b>EVACUATION?</b>				
Yes	214	100.0%	22,573,496	100.0%
No	0	0.0%	0	0.0%
Unknown	0	0.0%	0	0.0%
<b>PROPERTY DAMAGE?</b>				
Yes	127	59.4%	20,383,768	90.3%
No	48	22.4%	447,786	2.0%
Unknown	39	18.2%	1,741,942	7.7%

Exhibit F-10 (continued)

ENCYCLOPEDIA OF DATA FOR  
DISTRIBUTORS

	EVACUATION EVENTS (214)			
	No. of Events	% of Total	Quantity Released	% of Total
PROPERTY TYPE				
Buildings	25	19.7%	16,667,225	81.8%
Vehicles	80	63.0%	3,636,846	17.8%
Tanks	1	0.8%	0	0.0%
Other Equipment	0	0.0%	0	0.0%
Other	1	0.8%	356	0.0%
Unknown	21	16.5%	79,341	0.4%
ENVIRONMENTAL DAMAGE?				
Yes	12	5.6%	18,037,688	79.9%
No	54	25.2%	438,987	1.9%
Unknown	148	69.2%	4,096,821	18.2%
SOURCES				
APR	11	5.1%	75	0.0%
BGL	4	1.9%	227,250	1.0%
CAL	0	0.0%	0	0.0%
CHP	0	0.0%	0	0.0%
CHT	9	4.2%	1,508,100	6.7%
CWK	1	0.5%	5,000	0.0%
HMS	26	12.2%	819,510	3.6%
LAT	2	0.9%	12,413	0.1%
MMA	1	0.5%	150,000	0.7%
NJ2	17	7.9%	16,536,373	73.3%
NJE	6	2.8%	1,539	0.0%
NRC	31	14.5%	294,686	1.3%
NTP	12	5.6%	217,500	1.0%
NYA	3	1.4%	1,457	0.0%
NYT	8	3.7%	225,938	1.0%
OHE	5	2.3%	1,026	0.0%
PEI	0	0.0%	0	0.0%
RG7	7	3.3%	93,385	0.4%
TXA	0	0.0%	0	0.0%
UPI	66	30.8%	2,344,244	10.4%
OTHER NEWSPAPERS	5	2.3%	135,000	0.6%
TOTAL	214		22,573,496	

\* The total number of events in this category can exceed 214 because events can involve up to three substances.

\*\* The total number of events in this category can exceed 214 because events can have up to four coded end effects.

## Exhibit F-11

SUBSTANCES MOST FREQUENTLY REPORTED  
DISTRIBUTORS (214 Events)

## EVACUATION EVENTS

RANK	CHEM TYPE	SUBSTANCE NAME	NUMBER OF EVENTS	QUANTITY RELEASED
1		HYDROCHLORIC ACID	21	145,535
2		AMMONIA (ANHYDROUS)	18	207,250
3		SULFURIC ACID	11	1,549,307
4		CHLORINE	8	5,388
5		SODIUM HYDROXIDE	7	30,008
6		VINYL CHLORIDE	6	150,000
7		NITRIC ACID	5	135,885
8		AMMONIUM NITRATE	5	38
9		PESTICIDE	5	1,457
10		HYDROFLUORIC ACID	4	488
11		ETHYLENE OXIDE	4	202,500
12		PHENOL	4	22,575
13		TOLUENE	4	45,000
14		PHOSPHORIC ACID	3	263
15		STYRENE	3	15,113
16		TITANIUM TETRACHLORIDE	3	8
17		AMMONIA	3	0
18		METHYL ALCOHOL	3	1,950,000
19		XYLENE	3	0
20		ACETIC ANHYDRIDE	3	38
21		DIMETHYLAMINE (ANHYDROUS)	2	423
22		POLYVINYL CHLORIDE	2	0
23		PHOSPHORUS	2	22,500
24		ACETALDEHYDE	2	216,000
25		ISOBUTANE	2	0
26		PHOSPHINE	2	225
27		2,2-DIBROMO-3-NITROPROPIONAMID	2	2,400
28		DIESEL FUEL	2	0
29		METHYLACRYLATE	2	1,163
30		FLAMMABLE LIQUID	2	0
31		NAPHTHA	2	0
32		POLYSTYRENE	2	0
33		METHYL METHACRYLATE	2	0
34		PHOSPHORUS OXYCHLORIDE	2	0
35		UNKNOWN	2	0
36		LINDANE	2	0
37		ISOPROPYL ALCOHOL	2	0
38		HAZARDOUS WASTE	2	16,500,000
39		PHOSGENE	2	0
40		ETHYLENE GLYCOL	2	0
41		FORMIC ACID	2	0
42		PARAQUAT	2	3,750
43		SULFUR DIOXIDE	2	0
44		BUTADIENE	2	466,590
45		THIONYL CHLORIDE	2	0
46		FORMALDEHYDE	2	251,212
47		HELIUM	2	188
48		ACRYLONITRILE	2	0
49		VINYL ACETATE	2	22,500

## Exhibit F-12

ENCYCLOPEDIA OF DATA FOR  
END USERS

## EVACUATION EVENTS (120)

	No. of Events	% of Total	Quantity Released	% of Total
<b>SUBSTANCE STATE *</b>				
Solid	21	17.5%	80,664	10.7%
Liquid	101	84.2%	464,898	61.6%
Gas	36	30.0%	17,866	2.4%
Unknown	201	167.5%	150,000	19.9%
Solid Waste	1	0.8%	3,450	0.5%
Liquid Waste	0	0.0%	0	0.0%
Gas Waste	0	0.0%	0	0.0%
Unknown Waste	0	0.0%	0	0.0%
Total Solid	22	18.3%	84,114	11.2%
Total Liquid	101	84.2%	464,898	61.6%
Total Gas	36	30.0%	17,866	2.4%
<b>AIR MEDIA AFFECTED?</b>				
Yes	116	96.7%	754,249	100.0%
No	3	2.5%	4	0.0%
Unknown	1	0.8%	0	0.0%
<b>WATER MEDIA AFFECTED?</b>				
Yes	17	14.2%	22,004	2.9%
No	67	55.8%	429,637	57.0%
Unknown	36	30.0%	302,612	40.1%
<b>LAND MEDIA AFFECTED?</b>				
Yes	30	25.0%	76,885	10.2%
No	60	50.0%	418,630	55.5%
Unknown	30	25.0%	258,738	34.3%
<b>FIXED FACILITY</b>				
IN-TRANSIT	114	95.0%	740,652	98.2%
	6	5.0%	13,601	1.8%
<b>FIXED LOCATION</b>				
Process Vessel	28	24.6%	416,663	56.3%
Storage Vessel	36	31.6%	283,822	38.3%
Valves/Pipes	8	7.0%	33,651	4.5%
Disposal	4	3.5%	612	0.1%
Heating/Cooling	2	1.8%	0	0.0%
Vehicle Not in Transit	2	1.8%	0	0.0%
Other	10	8.8%	750	0.1%
Unknown	24	21.1%	5,154	0.7%
<b>FIXED CAUSE</b>				
Equipment Failure	27	23.7%	17,161	2.3%
Operator Error	33	29.0%	420,998	56.8%
Upset Conditions	1	0.9%	660	0.1%
Fire/Explosion	25	21.9%	230,412	31.1%
Arson/Vandalism	7	6.1%	48,750	6.6%
Disposal Related	1	0.9%	0	0.0%
High Pressure/Temp	3	2.6%	5	0.0%
Power Related	0	0.0%	0	0.0%
Sparking/Lightning	1	0.9%	0	0.0%
Other	7	6.1%	22,512	3.0%
Unknown	9	7.9%	154	0.0%

## Exhibit F-12 (continued)

ENCYCLOPEDIA OF DATA FOR  
END USERS

## EVACUATION EVENTS (120)

	No. of Events	% of Total	Quantity Released	% of Total
<b>EVENT CONTEXT</b>				
Loading/Unloading	6	5.3%	20,000	2.7%
Steady State	60	52.6%	147,133	19.9%
Start-Up	6	5.3%	412,800	55.7%
Shut Down	1	0.9%	0	0.0%
Maintenance	8	7.0%	3,765	0.5%
Other	1	0.9%	750	0.1%
Unknown	32	28.1%	156,204	21.1%
<b>IN-TRANSIT MODE</b>				
Truck	5	83.3%	13,601	100.0%
Rail	0	0.0%	0	0.0%
Barge	0	0.0%	0	0.0%
Pipeline	1	16.7%	0	0.0%
Other	0	0.0%	0	0.0%
<b>IN-TRANSIT CAUSE</b>				
Leak	3	50.0%	2,250	16.5%
Collision	3	50.0%	11,351	83.5%
Derailment	0	0.0%	0	0.0%
Truck Turnover	0	0.0%	0	0.0%
Other	0	0.0%	0	0.0%
Unknown	0	0.0%	0	0.0%
<b>END EFFECTS **</b>				
Spill	39	32.5%	100,725	13.4%
Vapor Release	90	75.0%	576,236	76.4%
Fire	44	36.7%	233,660	31.0%
Explosion	18	15.0%	563,572	74.7%
Other	1	0.8%	3,450	0.5%
<b>DEATHS?</b>				
Yes	6	5.0%	17,063	2.3%
No	103	85.8%	586,774	77.8%
Unknown	11	9.2%	150,416	19.9%
<b>INJURIES?</b>				
Yes	54	45.0%	659,015	87.4%
No	62	51.7%	95,234	12.6%
Unknown	4	3.3%	4	0.0%
<b>EVACUATION?</b>				
Yes	120	100.0%	754,253	100.0%
No	0	0.0%	0	0.0%
Unknown	0	0.0%	0	0.0%
<b>PROPERTY DAMAGE?</b>				
Yes	49	40.8%	660,721	87.6%
No	40	33.3%	25,415	3.4%
Unknown	31	25.8%	68,117	9.0%

## Exhibit F-12 (continued)

ENCYCLOPEDIA OF DATA FOR  
END USERS

## EVACUATION EVENTS (120)

	No. of Events	% of Total	Quantity Released	% of Total
<b>PROPERTY TYPE</b>				
Buildings	17	34.7%	492,500	74.5%
Vehicles	7	14.3%	14,351	2.2%
Tanks	7	14.3%	870	0.1%
Other Equipment	4	8.2%	3,000	0.5%
Other	0	0.0%	0	0.0%
Unknown	13	26.5%	150,000	22.7%
<b>ENVIRONMENTAL DAMAGE?</b>				
Yes	4	3.3%	754	0.1%
No	47	39.2%	438,710	58.2%
Unknown	69	57.5%	314,789	41.7%
<b>SOURCES</b>				
APR	6	5.0%	0	0.0%
BGL	1	0.8%	15,000	2.0%
CAL	0	0.0%	0	0.0%
CHP	0	0.0%	0	0.0%
CHT	4	3.3%	150,000	19.9%
CWK	0	0.0%	0	0.0%
HMS	0	0.0%	0	0.0%
LAT	3	2.5%	0	0.0%
MMA	2	1.7%	0	0.0%
NJ2	27	22.5%	7,013	0.9%
NJE	10	8.3%	754	0.1%
NRC	13	10.8%	11,954	1.6%
NTP	4	3.3%	18,000	2.4%
NYA	2	1.7%	0	0.0%
NYT	2	1.7%	412	0.1%
OHE	6	5.0%	4,860	0.6%
PEI	0	0.0%	0	0.0%
RG7	0	0.0%	0	0.0%
TXA	0	0.0%	0	0.0%
UPI	36	30.0%	133,760	17.7%
OTHER NEWSPAPERS	4	3.3%	412,500	54.7%
<b>TOTAL</b>	<b>120</b>		<b>754,253</b>	

\* The total number of events in this category can exceed 120 because events can involve up to three substances.

\*\* The total number of events in this category can exceed 120 because events can have up to four coded end effects.

## Exhibit F-13

SUBSTANCES MOST FREQUENTLY REPORTED  
END USERS (120 Events)

## EVACUATION EVENTS

RANK	CHEM TYPE	SUBSTANCE NAME	NUMBER OF EVENTS	QUANTITY RELEASED
1		CHLORINE	21	14,760
2		PESTICIDE	10	0
3		HYDROCHLORIC ACID	9	3,150
4		AMMONIA (ANHYDROUS)	6	11,293
5		UNKNOWN	6	165,000
6		SULFURIC ACID	3	18,000
7		PARATHION	3	0
8		HYDROGEN CYANIDE	3	0
9		HYDROGEN SULFIDE	3	1
10		SOLVENT	3	0
11		CHLORDANE	2	750
12		SODIUM HYDROXIDE	2	15
13		2,4-DICHLOROPHENOXYACETIC ACID	2	0
14		FORMALDEHYDE	2	0
15		PYRIDINE	2	0
16		SULFUR DIOXIDE	2	0
17		FERTILIZER	2	80,000
18		HERBICIDE	2	0
19		PLASTIC	2	0
20		BROMINE	2	0
21		MALATHION	2	0



## Exhibit F-14

ENCYCLOPEDIA OF DATA FOR  
WASTE RELATED

## EVACUATION EVENTS (9)

	No. of Events	% of Total	Quantity Released	% of Total
<b>SUBSTANCE STATE *</b>				
Solid	3	33.3%	0	0.0%
Liquid	5	55.6%	0	0.0%
Gas	7	77.8%	98	0.4%
Unknown	8	88.9%	0	0.0%
Solid Waste	0	0.0%	0	0.0%
Liquid Waste	4	44.4%	24,000	99.6%
Gas Waste	0	0.0%	0	0.0%
Unknown Waste	0	0.0%	0	0.0%
Total Solid	3	33.3%	0	0.0%
Total Liquid	9	100.0%	24,000	99.6%
Total Gas	7	77.8%	98	0.4%
<b>AIR MEDIA AFFECTED?</b>				
Yes	9	100.0%	24,098	100.0%
No	0	0.0%	0	0.0%
Unknown	0	0.0%	0	0.0%
<b>WATER MEDIA AFFECTED?</b>				
Yes	3	33.3%	24,000	99.6%
No	3	33.3%	0	0.0%
Unknown	3	33.3%	98	0.4%
<b>LAND MEDIA AFFECTED?</b>				
Yes	5	55.6%	24,000	99.6%
No	1	11.1%	0	0.0%
Unknown	3	33.3%	98	0.4%
<b>FIXED FACILITY</b>				
IN-TRANSIT	1	11.1%	24,000	99.6%
<b>FIXED LOCATION</b>				
Process Vessel	0	0.0%	0	0.0%
Storage Vessel	4	50.0%	98	100.0%
Valves/Pipes	1	12.5%	0	0.0%
Disposal	2	25.0%	0	0.0%
Heating/Cooling	0	0.0%	0	0.0%
Vehicle Not in Transit	0	0.0%	0	0.0%
Other	0	0.0%	0	0.0%
Unknown	1	12.5%	0	0.0%
<b>FIXED CAUSE</b>				
Equipment Failure	1	12.5%	0	0.0%
Operator Error	1	12.5%	0	0.0%
Upset Conditions	1	12.5%	0	0.0%
Fire/Explosion	4	50.0%	0	0.0%
Arson/Vandalism	0	0.0%	0	0.0%
Disposal Related	0	0.0%	0	0.0%
High Pressure/Temp	0	0.0%	0	0.0%
Power Related	1	12.5%	98	100.0%
Sparking/Lightning	0	0.0%	0	0.0%
Other	0	0.0%	0	0.0%
Unknown	0	0.0%	0	0.0%

## Exhibit F-14 (continued)

ENCYCLOPEDIA OF DATA FOR  
WASTE RELATED

## EVACUATION EVENTS (9)

	No. of Events	% of Total	Quantity Released	% of Total
<b>EVENT CONTEXT</b>				
Loading/Unloading	1	12.5%	0	0.0%
Steady State	4	50.0%	98	100.0%
Start-Up	0	0.0%	0	0.0%
Shut Down	0	0.0%	0	0.0%
Maintenance	1	12.5%	0	0.0%
Other	0	0.0%	0	0.0%
Unknown	2	25.0%	0	0.0%
<b>IN-TRANSIT MODE</b>				
Truck	1	100.0%	24,000	100.0%
Rail	0	0.0%	0	0.0%
Barge	0	0.0%	0	0.0%
Pipeline	0	0.0%	0	0.0%
Other	0	0.0%	0	0.0%
<b>IN-TRANSIT CAUSE</b>				
Leak	1	100.0%	24,000	100.0%
Collision	0	0.0%	0	0.0%
Derailment	0	0.0%	0	0.0%
Truck Turnover	0	0.0%	0	0.0%
Other	0	0.0%	0	0.0%
Unknown	0	0.0%	0	0.0%
<b>END EFFECTS **</b>				
Spill	3	33.3%	24,000	99.6%
Vapor Release	8	88.9%	24,098	100.0%
Fire	5	55.6%	0	0.0%
Explosion	2	22.2%	0	0.0%
Other	0	0.0%	0	0.0%
<b>DEATHS?</b>				
Yes	1	11.1%	0	0.0%
No	8	88.9%	24,098	100.0%
Unknown	0	0.0%	0	0.0%
<b>INJURIES?</b>				
Yes	5	55.6%	24,000	99.6%
No	4	44.4%	98	0.4%
Unknown	0	0.0%	0	0.0%
<b>EVACUATION?</b>				
Yes	9	100.0%	24,098	100.0%
No	0	0.0%	0	0.0%
Unknown	0	0.0%	0	0.0%
<b>PROPERTY DAMAGE?</b>				
Yes	3	33.3%	0	0.0%
No	2	22.2%	0	0.0%
Unknown	4	44.4%	24,098	100.0%

## Exhibit F-14 (continued)

ENCYCLOPEDIA OF DATA FOR  
WASTE RELATED

	EVACUATION EVENTS (9)			
	No. of Events	% of Total	Quantity Released	% of Total
PROPERTY TYPE				
Buildings	1	33.3%	0	0.0%
Vehicles	0	0.0%	0	0.0%
Tanks	0	0.0%	0	0.0%
Other Equipment	0	0.0%	0	0.0%
Other	0	0.0%	0	0.0%
Unknown	2	66.7%	0	0.0%
ENVIRONMENTAL DAMAGE?				
Yes	2	22.2%	0	0.0%
No	2	22.2%	0	0.0%
Unknown	5	55.6%	24,098	100.0%
SOURCES				
APR	1	11.1%	0	0.0%
BGL	0	0.0%	0	0.0%
CAL	0	0.0%	0	0.0%
CHP	1	11.1%	24,000	99.6%
CHT	0	0.0%	0	0.0%
CWK	0	0.0%	0	0.0%
HMS	0	0.0%	0	0.0%
LAT	0	0.0%	0	0.0%
MMA	0	0.0%	0	0.0%
NJ2	0	0.0%	0	0.0%
NJE	2	22.2%	0	0.0%
NRC	2	22.2%	0	0.0%
NTP	1	11.1%	98	0.4%
NYA	0	0.0%	0	0.0%
NYT	0	0.0%	0	0.0%
OHE	0	0.0%	0	0.0%
PEI	0	0.0%	0	0.0%
RG7	0	0.0%	0	0.0%
TXA	0	0.0%	0	0.0%
UPI	0	0.0%	0	0.0%
	2	22.2%	0	0.0%
OTHER NEWSPAPERS	0	0.0%	0	0.0%
TOTAL	9		24,098	

\* The total number of events in this category can exceed 9 because events can involve up to three substances.

\*\* The total number of events in this category can exceed 9 because events can have up to four coded end effects.

## Exhibit F-15

SUBSTANCES MOST FREQUENTLY REPORTED  
WASTE RELATED (9 Events)

## EVACUATION EVENTS

RANK	CHEM TYPE	SUBSTANCE NAME	NUMBER OF EVENTS	QUANTITY RELEASED
1		CHLORINE	4	98
2		METHANE	2	0
3		POLYVINYL CHLORIDE	1	0
4		PHOSGENE	1	0
5		RUBBER	1	0
6		HYDROCHLORIC ACID	1	0
7		CALCIUM HYPOCHLORITE	1	0
8		SULFURIC ACID	1	24,000
9		COPPER SULFATE	1	0
10		AMMONIUM PERSULFATE	1	0
11		HYPOCHLORITE	1	0
12		FERRIC CHLORIDE	1	0
13		UNKNOWN	1	0
14		TOLUENE	1	0
15		BENZENE	1	0

Exhibit F16a

ENCYCLOPEDIA OF DATA  
BY FACILITY TYPE

EVACUATION EVENTS  
NUMBER OF EVENTS

	All % of Total	Primary % of Total	Second % of Total	Distrib % of Total	End User % of Total	Waste % of Total
SUBSTANCE STATE *						
Solid	13.9%	4.4%	18.3%	18.2%	17.5%	33.3%
Liquid	72.5%	59.9%	60.6%	84.6%	84.2%	55.6%
Gas	38.1%	55.1%	39.4%	23.8%	30.0%	77.8%
Unknown	173.1%	179.2%	180.8%	170.1%	167.5%	88.9%
Solid Waste	0.2%	0.0%	0.0%	0.0%	0.8%	0.0%
Liquid Waste	2.0%	1.5%	0.0%	2.8%	0.0%	44.4%
Gas Waste	0.2%	0.0%	1.0%	0.0%	0.0%	0.0%
Unknown Waste	0.2%	0.0%	0.0%	0.5%	0.0%	0.0%
Total Solid	14.1%	4.4%	18.3%	18.2%	18.3%	33.3%
Total Liquid	74.5%	61.4%	60.6%	87.4%	84.2%	100.0%
Total Gas	38.2%	55.1%	40.4%	23.8%	30.0%	77.8%
AIR MEDIA AFFECTED?						
Yes	94.5%	96.6%	97.1%	89.7%	96.7%	100.0%
No	2.6%	1.5%	1.9%	4.2%	2.5%	0.0%
Unknown	2.9%	1.9%	1.0%	6.1%	0.8%	0.0%
WATER MEDIA AFFECTED?						
Yes	12.5%	11.6%	14.4%	10.8%	14.2%	33.3%
No	51.8%	51.2%	51.9%	50.9%	55.8%	33.3%
Unknown	35.6%	37.2%	33.7%	38.3%	30.0%	33.3%
LAND MEDIA AFFECTED?						
Yes	30.6%	22.2%	19.2%	46.3%	25.0%	55.6%
No	39.1%	40.6%	51.0%	27.1%	50.0%	11.1%
Unknown	30.3%	37.2%	29.8%	26.6%	25.0%	33.3%
FIXED FACILITY						
IN-TRANSIT	72.5%	87.0%	98.1%	32.7%	95.0%	88.9%
	27.5%	13.0%	1.9%	67.3%	5.0%	11.1%
FIXED LOCATION						
Process Vessel	20.7%	22.8%	23.5%	7.1%	24.6%	0.0%
Storage Vessel	33.8%	27.2%	37.3%	47.1%	31.6%	50.0%
Valves/Pipes	15.8%	25.6%	8.8%	15.7%	7.0%	12.5%
Disposal	4.9%	5.0%	4.9%	4.3%	3.5%	25.0%
Heating/Cooling	1.5%	1.7%	2.0%	0.0%	1.8%	0.0%
Vehicle Not in Transit	5.7%	5.6%	5.9%	12.9%	1.8%	0.0%
Other	3.8%	1.1%	3.9%	2.9%	8.8%	0.0%
Unknown	13.9%	11.1%	13.7%	10.0%	21.1%	12.5%
FIXED CAUSE						
Equipment Failure	35.9%	46.7%	34.3%	32.9%	23.7%	12.5%
Operator Error	18.4%	13.3%	16.7%	17.1%	29.0%	12.5%
Upset Conditions	3.4%	3.9%	4.9%	2.9%	0.9%	12.5%
Fire/Explosion	20.7%	12.2%	26.5%	28.6%	21.9%	50.0%
Arson/Vandalism	2.7%	1.1%	2.0%	2.9%	6.1%	0.0%
Disposal Related	0.2%	0.0%	0.0%	0.0%	0.9%	0.0%
High Pressure/Temp	2.5%	3.3%	2.9%	0.0%	2.6%	0.0%
Power Related	1.5%	2.8%	1.0%	0.0%	0.0%	12.5%
Sparking/Lightning	1.3%	1.7%	1.0%	1.4%	0.9%	0.0%
Other	3.2%	2.2%	2.0%	2.9%	6.1%	0.0%
Unknown	10.3%	12.8%	8.8%	11.4%	7.9%	0.0%

## Exhibit F16a (continued)

ENCYCLOPEDIA OF DATA  
BY FACILITY TYPE

## EVACUATION EVENTS

## NUMBER OF EVENTS

	All % of Total	Primary % of Total	Second % of Total	Distrib % of Total	End User % of Total	Waste % of Total
EVENT CONTEXT						
Loading/Unloading	9.7%	10.0%	5.9%	21.4%	5.3%	12.5%
Steady State	57.2%	56.1%	64.7%	57.1%	52.6%	50.0%
Start-Up	4.6%	3.9%	6.9%	2.9%	5.3%	0.0%
Shut Down	0.6%	1.1%	0.0%	0.0%	0.9%	0.0%
Maintenance	5.1%	4.4%	4.9%	2.9%	7.0%	12.5%
Other	0.8%	1.1%	0.0%	1.4%	0.9%	0.0%
Unknown	21.9%	23.3%	17.7%	14.3%	28.1%	25.0%
IN-TRANSIT MODE						
Truck	38.9%	66.7%	100.0%	30.6%	83.3%	100.0%
Rail	58.9%	25.9%	0.0%	68.8%	0.0%	0.0%
Barge	1.1%	3.7%	0.0%	0.7%	0.0%	0.0%
Pipeline	1.1%	3.7%	0.0%	0.0%	16.7%	0.0%
Other	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
IN-TRANSIT CAUSE						
Leak	35.6%	48.2%	50.0%	31.9%	50.0%	100.0%
Collision	18.3%	33.3%	50.0%	13.9%	50.0%	0.0%
Derailment	32.2%	3.7%	0.0%	39.6%	0.0%	0.0%
Truck Turnover	3.3%	11.1%	0.0%	2.1%	0.0%	0.0%
Other	8.3%	3.7%	0.0%	9.7%	0.0%	0.0%
Unknown	2.2%	0.0%	0.0%	2.8%	0.0%	0.0%
END EFFECTS **						
Spill	44.3%	34.3%	30.8%	67.8%	32.5%	33.3%
Vapor Release	77.4%	82.6%	81.7%	71.0%	75.0%	88.9%
Fire	3.3%	29.5%	37.5%	30.8%	36.7%	55.6%
Explosion	16.7%	21.3%	16.4%	13.1%	15.0%	22.2%
Other	1.1%	2.4%	0.0%	0.5%	0.8%	0.0%
DEATHS?						
Yes	5.2%	8.2%	2.9%	3.3%	5.0%	11.1%
No	89.3%	85.5%	93.3%	93.0%	85.8%	88.9%
Unknown	5.5%	6.3%	3.9%	3.7%	9.2%	0.0%
INJURIES?						
Yes	40.7%	43.0%	42.3%	34.6%	45.0%	55.6%
No	54.3%	50.2%	53.9%	60.3%	51.7%	44.4%
Unknown	5.1%	6.8%	3.9%	5.1%	3.3%	0.0%
EVACUATION?						
Yes	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
No	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Unknown	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
PROPERTY DAMAGE?						
Yes	46.9%	41.6%	40.4%	59.4%	40.8%	33.3%
No	27.1%	23.7%	36.5%	22.4%	33.3%	22.2%
Unknown	26.0%	34.8%	23.1%	18.2%	25.8%	44.4%

## Exhibit F16a (continued)

ENCYCLOPEDIA OF DATA  
BY FACILITY TYPEEVACUATION EVENTS  
NUMBER OF EVENTS

	All % of Total	Primary % of Total	Second % of Total	Distrib % of Total	End User % of Total	Waste % of Total
PROPERTY TYPE						
Buildings	30.9%	34.9%	52.4%	19.7%	34.7%	33.3%
Vehicles	34.5%	18.6%	7.1%	63.0%	14.3%	0.0%
Tanks	7.8%	16.3%	4.8%	0.8%	14.3%	0.0%
Other Equipment	7.5%	14.0%	16.7%	0.0%	8.2%	0.0%
Other	1.6%	2.3%	4.8%	0.8%	0.0%	0.0%
Unknown	17.6%	14.0%	14.3%	16.5%	26.5%	66.7%
ENVIRONMENTAL DAMAGE?						
Yes	4.7%	2.9%	6.7%	5.6%	3.3%	22.2%
No	28.8%	21.3%	39.4%	25.2%	39.2%	22.2%
Unknown	66.5%	75.9%	53.9%	69.2%	57.5%	55.6%
SOURCES						
APR	4.0%	1.9%	3.9%	5.1%	5.0%	11.1%
BGL	1.1%	0.0%	1.9%	1.9%	0.8%	0.0%
CAL	0.3%	0.0%	1.9%	0.0%	0.0%	0.0%
CHP	0.2%	0.0%	0.0%	0.0%	0.0%	11.1%
CHT	2.9%	1.5%	2.9%	4.2%	3.3%	0.0%
CWK	0.2%	0.0%	0.0%	0.5%	0.0%	0.0%
HMS	0.2%	0.0%	0.0%	12.2%	0.0%	0.0%
LAT	4.0%	0.0%	0.0%	0.9%	2.5%	0.0%
MMA	1.8%	2.4%	1.9%	0.9%	1.7%	0.0%
NJ2	1.2%	2.4%	0.0%	0.5%	7.9%	22.2%
NJE	11.2%	7.3%	11.5%	7.9%	22.5%	22.2%
NRC	4.7%	4.4%	3.9%	2.8%	8.3%	11.1%
NTP	20.6%	32.9%	21.2%	14.5%	10.8%	0.0%
NYA	6.9%	12.6%	2.9%	5.6%	3.3%	0.0%
NYT	1.7%	1.9%	1.9%	1.4%	1.7%	0.0%
OHE	6.3%	11.1%	7.7%	3.7%	1.7%	0.0%
PEI	3.5%	3.4%	4.8%	2.3%	5.0%	0.0%
RG7	0.6%	1.5%	1.0%	0.0%	0.0%	0.0%
TXA	2.3%	2.4%	2.9%	3.3%	0.0%	0.0%
UPI	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
OTHER NEWSPAPERS	24.2%	12.6%	26.9%	30.8%	30.0%	22.2%
TOTAL	2.5%	1.9%	2.9%	2.3%	3.3%	0.0%
	654	207	104	214	120	9

\* The total percentage of events in this category can exceed 100% because events can involve up to three substances.

\*\* The total percentage of events in this category can exceed 100% because events can have up to four coded end effects.

## Exhibit F16b

ENCYCLOPEDIA OF DATA  
BY FACILITY TYPEEVACUATION EVENTS  
QUANTITY RELEASED

	All % of Total	Primary % of Total	Second % of Total	Distrib % of Total	End User % of Total	Waste % of Total
<b>SUBSTANCE STATE *</b>						
Solid	0.5%	0.5%	0.0%	0.2%	10.7%	0.0%
Liquid	30.4%	62.0%	96.4%	24.8%	61.6%	0.0%
Gas	3.8%	32.3%	3.6%	1.4%	2.4%	0.4%
Unknown	0.8%	0.0%	0.0%	0.2%	19.9%	0.0%
Solid Waste	0.0%	0.0%	0.0%	0.0%	0.5%	0.0%
Liquid Waste	63.7%	0.0%	0.0%	73.2%	0.0%	99.6%
Gas Waste	0.0%	0.0%	0.1%	0.0%	0.0%	0.0%
Unknown Waste	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
<b>Total Solid</b>	0.5%	0.5%	0.0%	0.2%	11.2%	0.0%
<b>Total Liquid</b>	94.2%	62.1%	96.4%	97.9%	61.6%	99.6%
<b>Total Gas</b>	3.8%	32.3%	3.6%	1.4%	2.4%	0.4%
<b>AIR MEDIA AFFECTED?</b>						
Yes	98.0%	95.3%	62.4%	99.2%	100.0%	100.0%
No	1.1%	0.0%	35.4%	0.2%	0.0%	0.0%
Unknown	1.0%	4.7%	2.3%	0.7%	0.0%	0.0%
<b>WATER MEDIA AFFECTED?</b>						
Yes	76.7%	35.4%	52.5%	83.4%	2.9%	99.6%
No	6.4%	16.5%	43.8%	2.7%	57.0%	0.0%
Unknown	17.0%	48.1%	3.6%	13.9%	40.1%	0.4%
<b>LAND MEDIA AFFECTED?</b>						
Yes	88.9%	39.7%	45.1%	97.0%	10.2%	99.6%
No	5.4%	21.2%	53.6%	0.9%	55.5%	0.0%
Unknown	5.7%	39.1%	1.3%	2.1%	34.3%	0.4%
<b>FIXED FACILITY IN-TRANSIT</b>						
75.7%	69.8%	99.3%	74.9%	98.2%	0.4%	
24.3%	30.2%	0.7%	25.1%	1.8%	99.6%	
<b>FIXED LOCATION</b>						
Process Vessel	3.1%	2.2%	1.0%	0.9%	56.3%	0.0%
Storage Vessel	8.9%	67.1%	80.3%	0.2%	38.3%	100.0%
Valves/Pipes	3.0%	17.5%	16.7%	1.2%	4.5%	0.0%
Disposal	84.3%	4.9%	0.2%	97.6%	0.1%	0.0%
Heating/Cooling	0.0%	0.3%	0.0%	0.0%	0.0%	0.0%
Vehicle Not in Transit	0.1%	0.1%	1.8%	0.0%	0.0%	0.0%
other	0.0%	0.0%	0.0%	0.0%	0.1%	0.0%
Unknown	0.6%	8.0%	0.0%	0.0%	0.7%	0.0%
<b>FIXED CAUSE</b>						
Equipment Failure	7.0%	40.5%	91.7%	1.2%	2.3%	0.0%
Operator Error	4.0%	12.7%	5.1%	1.0%	56.8%	0.0%
Upset Conditions	2.5%	36.0%	1.0%	0.0%	0.1%	0.0%
Fire/Explosion	85.3%	0.9%	0.1%	97.7%	31.1%	0.0%
Arson/Vandalism	0.4%	0.0%	0.0%	0.1%	6.6%	0.0%
Disposal Related	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
High Pressure/Temp	0.1%	1.1%	1.7%	0.0%	0.0%	0.0%
Power Related	0.2%	3.5%	0.0%	0.0%	0.0%	100.0%
Sparkling/Lightning	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Other	0.1%	0.0%	0.0%	0.0%	3.0%	0.0%
Unknown	0.4%	5.4%	0.3%	0.0%	0.0%	0.0%



## Exhibit F16b (continued)

ENCYCLOPEDIA OF DATA  
BY FACILITY TYPEEVACUATION EVENTS  
QUANTITY RELEASED

	All % of Total	Primary % of Total	Second % of Total	Distrib % of Total	End User % of Total	Waste % of Total
<b>EVENT CONTEXT</b>						
Loading/Unloading	2.1%	10.0%	5.5%	1.3%	2.7%	0.0%
Steady State	91.4%	49.1%	93.3%	97.8%	19.9%	100.0%
Start-Up	3.7%	11.4%	0.3%	0.9%	55.7%	0.0%
Shut Down	0.2%	3.4%	0.0%	0.0%	0.0%	0.0%
Maintenance	0.4%	4.6%	0.0%	0.0%	0.5%	0.0%
Other	0.0%	0.3%	0.0%	0.0%	0.1%	0.0%
Unknown	2.3%	21.2%	0.9%	0.0%	21.1%	0.0%
<b>IN-TRANSIT MODE</b>						
Truck	9.7%	31.6%	100.0%	6.8%	100.0%	100.0%
Rail	84.3%	3.9%	0.0%	93.2%	0.0%	0.0%
Barge	6.0%	64.5%	0.0%	0.0%	0.0%	0.0%
Pipeline	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Other	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
<b>IN-TRANSIT CAUSE</b>						
Leak	11.7%	4.7%	0.0%	12.0%	16.5%	100.0%
Collision	37.5%	16.3%	100.0%	39.7%	83.5%	0.0%
Derailment	7.3%	0.0%	0.0%	8.1%	0.0%	0.0%
Truck Turnover	1.9%	14.5%	0.0%	0.6%	0.0%	0.0%
Other	41.1%	64.5%	0.0%	39.0%	0.0%	0.0%
Unknown	0.6%	0.0%	0.0%	0.6%	0.0%	0.0%
<b>END EFFECTS **</b>						
Spill	28.8%	35.0%	96.7%	26.7%	13.4%	99.6%
Vapor Release	19.4%	87.4%	59.0%	10.4%	76.4%	100.0%
Fire	8.3%	69.1%	5.4%	87.9%	31.0%	0.0%
Explosion	74.1%	62.6%	1.2%	77.3%	74.7%	0.0%
Other	0.1%	0.6%	0.0%	0.0%	0.5%	0.0%
<b>DEATHS?</b>						
Yes	4.0%	13.3%	0.0%	3.4%	2.3%	0.0%
No	93.6%	67.1%	100.0%	96.2%	77.8%	100.0%
Unknown	2.4%	19.6%	0.0%	0.4%	19.9%	0.0%
<b>INJURIES?</b>						
Yes	85.0%	61.9%	54.0%	87.8%	87.4%	99.6%
No	14.4%	34.8%	42.6%	11.9%	12.6%	0.4%
Unknown	0.6%	3.3%	3.4%	0.3%	0.0%	0.0%
<b>EVACUATION?</b>						
Yes	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
No	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Unknown	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
<b>PROPERTY DAMAGE?</b>						
Yes	86.4%	68.8%	6.4%	90.3%	87.6%	0.0%
No	4.1%	3.3%	79.4%	2.0%	3.4%	0.0%
Unknown	9.5%	27.9%	14.2%	7.7%	9.0%	100.0%

## Exhibit F16b (continued)

ENCYCLOPEDIA OF DATA  
BY FACILITY TYPE

## EVACUATION EVENTS

## QUANTITY RELEASED

	All % of Total	Primary % of Total	Second % of Total	Distrib % of Total	End User % of Total	Waste % of Total
<b>PROPERTY TYPE</b>						
Buildings	77.6%	17.3%	17.8%	81.8%	74.5%	0.0%
Vehicles	18.6%	38.9%	21.0%	17.8%	2.2%	0.0%
Tanks	2.5%	41.5%	0.0%	0.0%	0.1%	0.0%
Other Equipment	0.1%	1.2%	0.7%	0.0%	0.5%	0.0%
Other	0.0%	0.0%	2.6%	0.0%	0.0%	0.0%
Unknown	1.2%	1.2%	57.8%	0.4%	22.7%	0.0%
<b>ENVIRONMENTAL DAMAGE?</b>						
Yes	70.0%	2.5%	12.5%	79.9%	0.1%	0.0%
No	3.7%	2.2%	4.5%	1.9%	58.2%	0.0%
Unknown	26.3%	95.4%	83.0%	18.2%	41.7%	100.0%
<b>SOURCES</b>						
APR	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
BGL	0.9%	0.0%	0.0%	1.0%	2.0%	0.0%
CAL	0.0%	0.0%	0.6%	0.0%	0.0%	0.0%
CHP	0.1%	0.0%	0.0%	0.0%	0.0%	99.6%
CHT	6.4%	0.1%	0.0%	6.7%	19.9%	0.0%
CWK	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
HMS	3.2%	0.0%	0.0%	3.6%	0.0%	0.0%
LAT	2.1%	27.3%	0.0%	0.1%	0.0%	0.0%
MMA	1.2%	8.9%	0.0%	0.7%	0.0%	0.0%
NJ2	63.9%	1.3%	0.0%	73.3%	0.9%	0.0%
NJE	0.0%	0.1%	0.0%	0.0%	0.1%	0.0%
NRC	1.9%	8.8%	3.7%	1.3%	1.6%	0.4%
NTP	2.8%	24.7%	1.1%	1.0%	2.4%	0.0%
NYA	0.5%	5.4%	2.3%	0.0%	0.0%	0.0%
NYT	2.9%	12.6%	40.6%	1.0%	0.1%	0.0%
OHE	0.4%	0.6%	11.9%	0.0%	0.6%	0.0%
PEI	0.0%	0.1%	0.0%	0.0%	0.0%	0.0%
RG7	1.6%	3.6%	37.1%	0.4%	0.0%	0.0%
TXA	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
UPI	10.1%	6.6%	2.6%	10.4%	17.7%	0.0%
OTHER NEWSPAPERS	2.1%	0.1%	0.3%	0.6%	54.7%	0.0%
TOTAL (in Thousands)	25,945	1,926	667	22,573	754	24

\* The total percentage of quantity released in this category can exceed 100% because events can involve up to three substances.

\*\* The total percentage of quantity released in this category can exceed 100% because events can have up to four coded end effects.

## Exhibit F-17

ENCYCLOPEDIA OF DATA FOR  
COMMODITY CHEMICALS

## EVACUATION EVENTS (611)

	No. of Events	% of Total	Quantity Released	% of Total
<b>SUBSTANCE STATE *</b>				
Solid	76	12.4%	80,213	0.7%
Liquid	480	78.6%	9,477,003	82.2%
Gas	246	40.3%	1,764,578	15.3%
Unknown	1,022	167.3%	414	0.0%
Solid Waste	0	0.0%	0	0.0%
Liquid Waste	8	1.3%	24,413	0.2%
Gas Waste	1	0.2%	330	0.0%
Unknown Waste	0	0.0%	0	0.0%
Total Solid	76	12.4%	80,213	0.7%
Total Liquid	488	79.9%	9,501,416	82.5%
Total Gas	247	40.4%	1,764,908	15.3%
<b>AIR MEDIA AFFECTED?</b>				
Yes	574	93.9%	10,981,073	95.3%
No	18	3.0%	272,497	2.4%
Unknown	19	3.1%	269,939	2.3%
<b>WATER MEDIA AFFECTED?</b>				
Yes	81	13.3%	4,711,051	40.9%
No	318	52.1%	1,896,326	16.5%
Unknown	212	34.7%	4,916,132	42.7%
<b>LAND MEDIA AFFECTED?</b>				
Yes	199	32.6%	7,847,022	68.1%
No	236	38.6%	1,531,976	13.3%
Unknown	176	28.8%	2,144,511	18.6%
<b>FIXED FACILITY</b>				
IN-TRANSIT	383	62.7%	2,632,625	22.9%
	228	37.3%	8,890,884	77.2%
<b>FIXED LOCATION</b>				
Process Vessel	79	20.6%	601,301	22.8%
Storage Vessel	126	32.9%	1,212,135	46.0%
Valves/Pipes	69	18.0%	550,795	20.9%
Disposal	18	4.7%	67,223	2.6%
Heating/Cooling	6	1.6%	3,938	0.2%
Vehicle Not in Transit	24	6.3%	85,365	3.2%
Other	13	3.4%	343	0.0%
Unknown	48	12.5%	111,525	4.2%
<b>FIXED CAUSE</b>				
Equipment Failure	148	38.6%	1,406,607	53.4%
Operator Error	73	19.1%	835,091	31.7%
Upset Conditions	16	4.2%	68,420	2.6%
Fire/Explosion	66	17.2%	38,006	1.4%
Arson/Vandalism	7	1.8%	118,850	4.5%
Disposal Related	1	0.3%	0	0.0%
High Pressure/Temp	11	2.9%	26,521	1.0%
Power Related	6	1.6%	46,701	1.8%
Sparking/Lightning	6	1.6%	0	0.0%
Other	12	3.1%	18,737	0.7%
Unknown	37	9.7%	73,692	2.8%

## Exhibit F-17 (continued)

ENCYCLOPEDIA OF DATA FOR  
COMMODITY CHEMICALS

## EVACUATION EVENTS (611)

	No. of Events	% of Total	Quantity Released	% of Total
<b>EVENT CONTEXT</b>				
Loading/Unloading	43	11.2%	380,163	14.4%
Steady State	210	54.8%	1,044,700	39.7%
Start-Up	15	3.9%	717,821	27.3%
Shut Down	3	0.8%	45,000	1.7%
Maintenance	22	5.7%	134,632	5.1%
Other	3	0.8%	4,000	0.2%
Unknown	87	22.7%	306,309	11.6%
<b>IN-TRANSIT MODE</b>				
Truck	110	48.3%	1,577,924	17.8%
Rail	110	48.3%	5,812,135	65.4%
Barge	6	2.6%	1,500,825	16.9%
Pipeline	2	0.9%	0	0.0%
Other	0	0.0%	0	0.0%
<b>IN-TRANSIT CAUSE</b>				
Leak	82	36.0%	1,896,558	21.3%
Collision	45	19.7%	2,536,106	28.5%
Derailment	59	25.9%	834,798	9.4%
Truck Turnover	18	7.9%	541,375	6.1%
Other	14	6.1%	2,599,266	29.2%
Unknown	10	4.4%	482,781	5.4%
<b>END EFFECTS **</b>				
Spill	321	52.5%	10,206,523	88.6%
Vapor Release	487	79.7%	6,865,109	59.6%
Fire	166	27.2%	4,858,487	42.2%
Explosion	84	13.8%	2,129,605	18.5%
Other	7	1.2%	49,782	0.4%
<b>DEATHS?</b>				
Yes	28	4.6%	1,063,153	9.2%
No	554	90.7%	8,735,564	75.8%
Unknown	29	4.8%	1,724,792	15.0%
<b>INJURIES?</b>				
Yes	243	39.8%	5,827,119	50.6%
No	339	55.5%	4,376,238	38.0%
Unknown	29	4.8%	1,320,152	11.5%
<b>EVACUATION?</b>				
Yes	611	100.0%	11,523,509	100.0%
No	0	0.0%	0	0.0%
Unknown	0	0.0%	0	0.0%
<b>PROPERTY DAMAGE?</b>				
Yes	276	45.2%	6,466,475	56.1%
No	173	28.3%	1,355,511	11.8%
Unknown	162	26.5%	3,701,523	32.1%

## Exhibit F-17 (continued)

ENCYCLOPEDIA OF DATA FOR  
COMMODITY CHEMICALS

## EVACUATION EVENTS (611)

	No. of Events	% of Total	Quantity Released	% of Total
<b>PROPERTY TYPE</b>				
Buildings	59	21.4%	787,578	12.2%
Vehicles	140	50.7%	5,502,343	85.1%
Tanks	19	6.9%	65,325	1.0%
Other Equipment	16	5.8%	19,023	0.3%
Other	5	1.8%	1,556	0.0%
Unknown	39	14.1%	90,650	1.4%
<b>ENVIRONMENTAL DAMAGE?</b>				
Yes	43	7.0%	1,822,469	15.8%
No	189	30.9%	1,205,228	10.5%
Unknown	379	62.0%	8,495,812	73.7%
<b>SOURCES</b>				
APR	30	4.9%	9,075	0.1%
BGL	5	0.8%	216,000	1.9%
CAL	17	2.8%	111,695	1.0%
CHP	1	0.2%	24,000	0.2%
CHT	27	4.4%	2,754,838	23.9%
CWK	1	0.2%	5,000	0.0%
HMS	17	2.8%	818,841	7.1%
LAT	13	2.1%	662,043	5.8%
MMA	6	1.0%	321,050	2.8%
NJ2	47	7.7%	68,905	0.6%
NJE	27	4.4%	54,001	0.5%
NRC	136	22.3%	500,186	4.3%
NTP	45	7.4%	952,463	8.3%
NYA	8	1.3%	118,000	1.0%
NYT	32	5.2%	752,276	6.5%
OHE	16	2.6%	91,179	0.8%
PEI	4	0.7%	1,535	0.0%
RG7	14	2.3%	380,035	3.3%
TXA	6	1.0%	404,250	3.5%
UPI	145	23.7%	2,615,261	22.7%
<b>OTHER NEWSPAPERS</b>	14	2.3%	662,876	5.8%
<b>TOTAL</b>	611		11,523,509	

\* The total number of events in this category can exceed 611 because events can involve up to three substances.

\*\* The total number of events in this category can exceed 611 because events can have up to four coded end effects.

## Exhibit F-18

ENCYCLOPEDIA OF DATA FOR  
SPECIALTY CHEMICALS

## EVACUATION EVENTS (93)

	No. of Events	% of Total	Quantity Released	% of Total
<b>SUBSTANCE STATE *</b>				
Solid	24	25.8%	59,910	6.7%
Liquid	94	101.1%	298,948	33.2%
Gas	18	19.4%	480,377	53.4%
Unknown	142	152.7%	52,500	5.8%
Solid Waste	1	1.1%	3,450	0.4%
Liquid Waste	0	0.0%	0	0.0%
Gas Waste	0	0.0%	0	0.0%
Unknown Waste	0	0.0%	0	0.0%
 Total Solid	 25	 26.9%	 63,360	 7.0%
Total Liquid	94	101.1%	298,948	33.2%
Total Gas	18	19.4%	480,377	53.4%
 <b>AIR MEDIA AFFECTED?</b>				
Yes	86	92.5%	845,336	93.9%
No	3	3.2%	25,000	2.8%
Unknown	4	4.3%	29,650	3.3%
 <b>WATER MEDIA AFFECTED?</b>				
Yes	17	18.3%	103,900	11.5%
No	41	44.1%	14,581	1.6%
Unknown	35	37.6%	781,505	86.8%
 <b>LAND MEDIA AFFECTED?</b>				
Yes	24	25.8%	7,961	0.9%
No	30	32.3%	28,888	3.2%
Unknown	39	41.9%	863,137	95.9%
 <b>FIXED FACILITY</b>				
IN-TRANSIT	34	36.6%	323,890	36.0%
 <b>FIXED LOCATION</b>				
Process Vessel	7	11.9%	1,133	0.2%
Storage Vessel	29	49.2%	524,841	91.1%
Valves/Pipes	5	8.5%	22,500	3.9%
Disposal	3	5.1%	420	0.1%
Heating/Cooling	1	1.7%	0	0.0%
Vehicle Not in Transit	2	3.4%	750	0.1%
Other	4	6.8%	23,002	4.0%
Unknown	8	13.6%	3,450	0.6%
 <b>FIXED CAUSE</b>				
Equipment Failure	13	22.0%	31,390	5.5%
Operator Error	19	32.2%	49,247	8.6%
Upset Conditions	3	5.1%	480,660	83.4%
Fire/Explosion	12	20.3%	6,412	1.1%
Arson/Vandalism	1	1.7%	0	0.0%
Disposal Related	1	1.7%	0	0.0%
High Pressure/Temp	1	1.7%	525	0.1%
Power Related	1	1.7%	0	0.0%
Sparking/Lightning	1	1.7%	0	0.0%
Other	2	3.4%	3,862	0.7%
Unknown	5	8.5%	4,000	0.7%

## Exhibit F-18 (continued)

ENCYCLOPEDIA OF DATA FOR  
SPECIALTY CHEMICALS

## EVACUATION EVENTS (93)

	No. of Events	% of Total	Quantity Released	% of Total
<b>EVENT CONTEXT</b>				
Loading/Unloading	6	10.2%	45,706	7.9%
Steady State	39	66.1%	526,557	91.4%
Start-Up	2	3.4%	375	0.1%
Shut Down	0	0.0%	0	0.0%
Maintenance	3	5.1%	3,458	0.6%
Other	1	1.7%	0	0.0%
Unknown	8	13.6%	0	0.0%
<b>IN-TRANSIT MODE</b>				
Truck	19	55.9%	17,890	5.5%
Rail	13	38.2%	256,000	79.0%
Barge	1	2.9%	25,000	7.7%
Pipeline	0	0.0%	0	0.0%
Other	1	2.9%	25,000	7.7%
<b>IN-TRANSIT CAUSE</b>				
Leak	8	23.5%	4,296	1.3%
Collision	11	32.4%	102,613	31.7%
Derailment	8	23.5%	203,500	62.8%
Truck Turnover	2	5.9%	1,500	0.5%
Other	3	8.8%	8	0.0%
Unknown	2	5.9%	11,973	3.7%
<b>END EFFECTS **</b>				
Spill	55	59.1%	374,516	41.6%
Vapor Release	69	74.2%	757,275	84.1%
Fire	35	37.6%	828,221	92.0%
Explosion	12	12.9%	543,795	60.4%
Other	3	3.2%	3,450	0.4%
<b>DEATHS?</b>				
Yes	2	2.2%	53,000	5.9%
No	77	82.8%	813,961	90.4%
Unknown	14	15.1%	33,025	3.7%
<b>INJURIES?</b>				
Yes	35	37.6%	344,612	38.3%
No	45	48.4%	515,538	57.3%
Unknown	13	14.0%	39,836	4.4%
<b>EVACUATION?</b>				
Yes	93	100.0%	899,986	100.0%
No	0	0.0%	0	0.0%
Unknown	0	0.0%	0	0.0%
<b>PROPERTY DAMAGE?</b>				
Yes	51	54.8%	885,764	98.4%
No	24	25.8%	7,285	0.8%
Unknown	18	19.4%	6,937	0.8%

## Exhibit F-18 (continued)

ENCYCLOPEDIA OF DATA FOR  
SPECIALTY CHEMICALS

	EVACUATION EVENTS (93)			
	No. of Events	% of Total	Quantity Released	% of Total
PROPERTY TYPE				
Buildings	11	21.6%	30,225	3.4%
Vehicles	22	43.1%	293,836	33.2%
Tanks	5	9.8%	485,185	54.8%
Other Equipment	2	3.9%	2	0.0%
Other	1	2.0%	23,000	2.6%
Unknown	10	19.6%	53,516	6.0%
ENVIRONMENTAL DAMAGE?				
Yes	7	7.5%	53,150	5.9%
No	26	28.0%	7,128	0.8%
Unknown	60	64.5%	839,708	93.3%
SOURCES				
APR	5	5.4%	25,000	2.8%
BGL	0	0.0%	0	0.0%
CAL	0	0.0%	0	0.0%
CHP	0	0.0%	0	0.0%
CHT	1	1.1%	2,000	0.2%
CWK	0	0.0%	0	0.0%
HMS	3	3.2%	16	0.0%
LAT	3	3.2%	480,413	53.4%
MMA	1	1.1%	0	0.0%
NJ2	5	5.4%	0	0.0%
NJE	7	7.5%	750	0.1%
NRC	4	4.3%	527	0.1%
NTP	12	12.9%	229,994	25.6%
NYA	1	1.1%	0	0.0%
NYT	8	8.6%	4,412	0.5%
OHE	6	6.5%	4,118	0.5%
PEI	0	0.0%	0	0.0%
RG7	6	6.5%	30,113	3.4%
TXA	0	0.0%	0	0.0%
UPI	28	30.1%	122,643	13.6%
OTHER NEWSPAPERS	3	3.2%	0	0.0%
TOTAL	93		899,986	

\* The total number of events in this category can exceed 93 because events can involve up to three substances.

\*\* The total number of events in this category can exceed 93 because events can have up to four coded end effects.



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APPENDIX G

DATA BASE SUMMARY FOR EVENTS REPORTING  
SPILL/VAPOR RELEASE OR FIRE/EXPLOSION  
AS WORST END EFFECT

## APPENDIX G

Appendix G contains the following exhibits:

- G-1 Encyclopedia of Data for All Events with Spill or Vapor Release as Worst End Effect
- G-2 Encyclopedia of Data for All Events with Fire or Explosion as Worst End Effect
- G-3 Frequency Distribution of Most Significant End Effect for All Events, Death/Injury Events and Evacuation Events

## Exhibit G-1

## ENCYCLOPEDIA OF DATA FOR

All Events With Spill Or Vapor Release as Worst End End Effect (10,339)

	No. of Events	% of Total	Quantity Released	% of Total
<b>SUBSTANCE STATE *</b>				
Solid	255	2.5%	4,324,575	1.2%
Liquid	7,614	73.6%	247,829,315	70.5%
Gas	2,852	27.6%	8,104,251	2.3%
Unknown	9,744	94.3%	37,920	0.0%
Solid Waste	45	0.4%	45,103	0.0%
Liquid Waste	396	3.8%	81,329,002	23.2%
Gas Waste	67	0.7%	459,431	0.1%
Unknown Waste	4	0.0%	9,380	0.0%
Total Solid	300	2.9%	4,369,678	1.2%
Total Liquid	8,010	77.5%	329,158,317	93.7%
Total Gas	2,919	28.2%	8,563,682	2.4%
<b>AIR MEDIA AFFECTED?</b>				
Yes	4,277	41.4%	61,303,570	17.5%
No	2,670	25.8%	105,070,458	29.9%
Unknown	3,392	32.8%	184,997,884	52.7%
<b>WATER MEDIA AFFECTED?</b>				
Yes	2,040	19.7%	119,417,454	34.0%
No	5,622	54.4%	113,693,718	32.4%
Unknown	2,677	25.9%	118,260,740	33.7%
<b>LAND MEDIA AFFECTED?</b>				
Yes	4,940	47.8%	252,759,780	71.9%
No	2,986	28.9%	20,829,783	5.9%
Unknown	2,413	23.3%	77,782,349	22.1%
<b>FIXED FACILITY</b>				
IN-TRANSIT	7,271	70.3%	299,057,520	85.1%
	3,068	29.7%	52,314,392	14.9%
<b>FIXED LOCATION</b>				
Process Vessel	1,649	22.7%	12,269,239	4.1%
Storage Vessel	2,035	28.0%	259,289,608	86.7%
Valves/Pipes	1,945	26.8%	18,956,453	6.3%
Disposal	477	6.6%	3,942,599	1.3%
Heating/Cooling	138	1.9%	487,395	0.2%
Vehicle Not in Transit	200	2.8%	887,980	0.3%
Other	251	3.5%	406,547	0.1%
Unknown	576	7.9%	2,817,699	0.9%
<b>FIXED CAUSE</b>				
Equipment Failure	3,591	49.4%	107,530,790	36.0%
Operator Error	1,372	18.9%	158,581,345	53.0%
Upset Conditions	351	4.8%	2,239,131	0.8%
Fire/Explosion	134	1.8%	2,587,421	0.9%
Arson/Vandalism	48	0.7%	1,685,514	0.6%
Disposal Related	25	0.3%	63,301	0.0%
High Pressure/Temp	147	2.0%	1,065,923	0.4%
Power Related	124	1.7%	637,357	0.2%
Sparking/Lightning	8	0.1%	1,883	0.0%
Other	562	7.7%	18,390,101	6.2%
Unknown	909	12.5%	6,274,754	2.1%

## Exhibit G-1 (continued)

## ENCYCLOPEDIA OF DATA

All Events With Spill Or Vapor Release as Worst End End Effect (10,339)

	No. of Events	% of Total	Quantity Released	% of Total
<b>EVENT CONTEXT</b>				
Loading/Unloading	1,238	17.0%	89,646,328	30.0%
Steady State	3,708	51.0%	188,914,178	63.2%
Start-Up	116	1.6%	1,234,147	0.4%
Shut Down	85	1.2%	240,580	0.1%
Maintenance	215	3.0%	2,408,262	0.8%
Other	133	1.8%	296,153	0.1%
Unknown	1,776	24.4%	16,317,872	5.5%
<b>IN-TRANSIT MODE</b>				
Truck	1,501	48.9%	9,339,113	17.9%
Rail	1,320	43.0%	11,780,663	22.5%
Barge	137	4.5%	5,435,078	10.4%
Pipeline	88	2.9%	25,727,430	49.2%
Other	22	0.7%	32,108	0.1%
<b>IN-TRANSIT CAUSE</b>				
Leak	1,466	47.8%	6,872,404	13.1%
Collision	338	11.0%	10,084,499	19.3%
Derailment	185	6.0%	4,740,678	9.1%
Truck Turnover	218	7.1%	1,546,704	3.0%
Other	691	22.5%	28,203,847	53.9%
Unknown	170	5.5%	866,260	1.7%
<b>END EFFECTS **</b>				
Spill	7,406	71.6%	341,922,273	97.3%
Vapor Release	4,110	39.8%	23,120,574	6.6%
Fire	231	2.2%	7,547,554	2.2%
Explosion	88	0.9%	6,132,958	1.8%
Other	16	0.2%	710,720	0.2%
<b>DEATHS?</b>				
Yes	46	0.4%	1,026,655	0.3%
No	9,783	94.6%	316,302,834	90.0%
Unknown	510	4.9%	34,042,423	9.7%
<b>INJURIES?</b>				
Yes	789	7.6%	8,719,227	2.5%
No	8,793	85.1%	301,551,100	85.8%
Unknown	757	7.3%	41,101,585	11.7%
<b>EVACUATION?</b>				
Yes	613	5.9%	10,714,338	3.1%
No	4,907	47.5%	211,855,478	60.3%
Unknown	4,819	46.6%	128,802,096	36.7%
<b>PROPERTY DAMAGE?</b>				
Yes	1,011	9.8%	48,670,411	13.9%
No	4,687	45.3%	114,972,432	32.7%
Unknown	4,641	44.9%	187,729,069	53.4%

Exhibit G-1 (continued)

ENCYCLOPEDIA OF DATA FOR  
All Events With Spill Or Vapor Release as Worst End End Effect (10,339)

	No. of Events	% of Total	Quantity Released	% of Total
PROPERTY TYPE				
Buildings	40	4.0%	389,091	0.8%
Vehicles	558	55.2%	15,416,367	31.7%
Tanks	70	6.9%	3,141,510	6.5%
Other Equipment	111	11.0%	4,114,674	8.5%
Other	16	1.6%	57,867	0.1%
Unknown	216	21.4%	25,550,902	52.5%
ENVIRONMENTAL DAMAGE?				
Yes	254	2.5%	33,190,701	9.5%
No	3,543	34.3%	96,897,687	27.6%
Unknown	6,542	63.3%	221,283,524	63.0%
SOURCES				
APR	25	0.2%	34,675	0.0%
BGL	9	0.1%	242,250	0.1%
CAL	128	1.2%	928,544	0.3%
CHP	60	0.6%	927,350	0.3%
CHT	40	0.4%	2,810,163	0.8%
CWK	1	0.0%	3,500	0.0%
HMS	165	1.6%	923,454	0.3%
LAT	21	0.2%	624,144	0.2%
MMA	24	0.2%	2,995,763	0.9%
NJ2	221	2.1%	1,809,361	0.5%
NJE	84	0.8%	239,960	0.1%
NRC	7,609	73.6%	189,292,374	53.9%
NTP	79	0.8%	1,035,140	0.3%
NYA	418	4.0%	97,187,458	27.7%
NYT	50	0.5%	1,893,562	0.5%
OHE	245	2.4%	1,219,483	0.4%
PEI	70	0.7%	840,686	0.2%
RG7	484	4.7%	38,653,768	11.0%
TXA	427	4.1%	3,825,478	1.1%
UPI	159	1.5%	5,387,529	1.5%
OTHER NEWSPAPERS				
	20	0.2%	497,270	0.1%
TOTAL	10,339		351,371,912	

\* The total number of events in this category can exceed 10339 because events can involve up to three substances.

\*\* The total number of events in this category can exceed 10339 because events can have up to four coded end effects.

## Exhibit G-2

## ENCYCLOPEDIA OF DATA FOR

All Events with Fire or Explosion as Worst End Effect (545)

	No. of Events	% of Total	Quantity Released	% of Total
<b>SUBSTANCE STATE *</b>				
Solid	176	32.3%	2,151,447	4.5%
Liquid	388	71.2%	28,461,905	59.0%
Gas	105	19.3%	664,251	1.4%
Unknown	825	151.4%	212,505	0.4%
Solid Waste	19	3.5%	5,000	0.0%
Liquid Waste	30	5.5%	16,543,500	34.3%
Gas Waste	3	0.6%	0	0.0%
Unknown Waste	9	1.7%	37,500	0.1%
Total Solid	195	35.8%	2,156,447	4.5%
Total Liquid	418	76.7%	45,005,405	93.3%
Total Gas	108	19.8%	664,251	1.4%
<b>AIR MEDIA AFFECTED?</b>				
Yes	535	98.2%	47,923,628	99.4%
No	0	0.0%	0	0.0%
Unknown	10	1.8%	292,500	0.6%
<b>WATER MEDIA AFFECTED?</b>				
Yes	65	11.9%	40,732,146	84.5%
No	175	32.1%	740,660	1.5%
Unknown	305	56.0%	6,743,322	14.0%
<b>LAND MEDIA AFFECTED?</b>				
Yes	169	31.0%	19,126,571	39.7%
No	138	25.3%	990,788	2.1%
Unknown	238	43.7%	28,098,769	58.3%
<b>FIXED FACILITY</b>				
IN-TRANSIT	91	16.7%	1,107,501	2.3%
<b>FIXED LOCATION</b>				
Process Vessel	87	19.2%	5,808,920	12.3%
Storage Vessel	129	28.4%	859,962	1.8%
Valves/Pipes	12	2.6%	310	0.0%
Disposal	49	10.8%	16,544,787	35.1%
Heating/Cooling	8	1.8%	1	0.0%
Vehicle Not in Transit	18	4.0%	23,740,250	50.4%
Other	24	5.3%	37,914	0.1%
Unknown	127	28.0%	116,483	0.3%
<b>FIXED CAUSE</b>				
Equipment Failure	48	10.6%	3,357,090	7.1%
Operator Error	32	7.1%	471,650	1.0%
Upset Conditions	23	5.1%	579,080	1.2%
Fire/Explosion	265	58.4%	16,957,942	36.0%
Arson/Vandalism	19	4.2%	38	0.0%
Disposal Related	1	0.2%	0	0.0%
High Pressure/Temp	11	2.4%	2,063,840	4.4%
Power Related	5	1.1%	45,000	0.1%
Sparking/Lightning	14	3.1%	23,626,500	50.2%
Other	3	0.7%	0	0.0%
Unknown	33	7.3%	7,487	0.0%

Exhibit G-2 (continued)

ENCYCLOPEDIA OF DATA FOR  
All Events with Fire or Explosion as Worst End Effect (545)

	No. of Events	% of Total	Quantity Released	% of Total
<b>EVENT CONTEXT</b>				
Loading/Unloading	17	3.7%	23,678,000	50.3%
Steady State	223	49.1%	17,325,972	36.8%
Start-Up	21	4.6%	4,875,961	10.4%
Shut Down	4	0.9%	832,500	1.8%
Maintenance	25	5.5%	54,125	0.1%
Other	4	0.9%	0	0.0%
Unknown	160	35.2%	342,069	0.7%
<b>IN-TRANSIT MODE</b>				
Truck	37	40.7%	551,251	49.8%
Rail	47	51.7%	131,250	11.9%
Barge	6	6.6%	375,000	33.9%
Pipeline	1	1.1%	50,000	4.5%
Other	0	0.0%	0	0.0%
<b>IN-TRANSIT CAUSE</b>				
Leak	0	0.0%	0	0.0%
Collision	29	31.9%	484,903	43.8%
Derailment	15	16.5%	22,500	2.0%
Truck Turnover	2	2.2%	52,500	4.7%
Other	39	42.9%	537,875	48.6%
Unknown	6	6.6%	9,723	0.9%
<b>END EFFECTS **</b>				
Spill	56	10.3%	23,944,290	49.7%
Vapor Release	185	33.9%	3,721,860	7.7%
Fire	503	92.3%	47,664,226	98.9%
Explosion	231	42.4%	47,337,825	98.2%
Other	1	0.2%	0	0.0%
<b>DEATHS?</b>				
Yes	68	12.5%	23,878,925	49.5%
No	348	63.9%	18,448,428	38.3%
Unknown	129	23.7%	5,888,775	12.2%
<b>INJURIES?</b>				
Yes	201	36.9%	43,716,155	90.7%
No	207	38.0%	1,078,194	2.2%
Unknown	137	25.1%	3,421,779	7.1%
<b>EVACUATION?</b>				
Yes	201	36.9%	18,499,718	38.4%
No	141	25.9%	2,158,407	4.5%
Unknown	203	37.3%	27,558,003	57.2%
<b>PROPERTY DAMAGE?</b>				
Yes	452	82.9%	48,024,582	99.6%
No	27	5.0%	37,910	0.1%
Unknown	66	12.1%	153,636	0.3%

## Exhibit G-2 (continued)

## ENCYCLOPEDIA OF DATA FOR

All Events with Fire or Explosion as Worst End Effect (545)

	No. of Events	% of Total	Quantity Released	% of Total
<b>PROPERTY TYPE</b>				
Buildings	148	32.7%	17,156,176	35.7%
Vehicles	97	21.5%	24,770,626	51.6%
Tanks	27	6.0%	545,700	1.1%
Other Equipment	82	18.1%	5,378,971	11.2%
Other	6	1.3%	38	0.0%
Unknown	92	20.4%	173,071	0.4%
<b>ENVIRONMENTAL DAMAGE?</b>				
Yes	22	4.0%	16,531,375	34.3%
No	80	14.7%	465,578	1.0%
Unknown	443	81.3%	31,219,175	64.8%
<b>SOURCES</b>				
APR	14	2.6%	0	0.0%
BGL	3	0.6%	0	0.0%
CAL	5	0.9%	66,025	0.1%
CHP	1	0.2%	37,125	0.1%
CHT	21	3.9%	2,150,000	4.5%
CWK	1	0.2%	5,000	0.0%
HMS	0	0.0%	0	0.0%
LAT	14	2.6%	525,000	1.1%
MMA	21	3.9%	26,894,800	55.8%
NJ2	188	34.5%	16,706,225	34.7%
NJE	17	3.1%	100	0.0%
NRC	73	13.4%	477,940	1.0%
NTP	20	3.7%	410,625	0.9%
NYA	14	2.6%	108,775	0.2%
NYT	39	7.2%	63,912	0.1%
OHE	6	1.1%	4,303	0.0%
PEI	10	1.8%	110,650	0.2%
RG7	17	3.1%	53,675	0.1%
TXA	1	0.2%	0	0.0%
UPI	73	13.4%	189,473	0.4%
OTHER NEWSPAPERS	7	1.3%	412,500	0.9%
<b>TOTAL</b>	<b>545</b>		<b>48,216,128</b>	

\* The total number of events in this category can exceed 545 because events can involve up to three substances.

\*\* The total number of events in this category can exceed 545 because events can have up to four coded end effects.



## Exhibit G-3

**FREQUENCY DISTRIBUTION OF MOST SIGNIFICANT END EFFECT  
FOR ALL EVENTS, DEATH/INJURY EVENTS AND EVACUATION EVENTS**

MOST SIGNIFICANT <u>END EFFECT</u>	ALL EVENTS		DEATH/INJURY EVENTS		EVACUATION EVENT	
	<u>No. of Events</u>	<u>% of Total</u>	<u>No. of Events</u>	<u>% of Total</u>	<u>No. of Events</u>	<u>% of Total</u>
Explosion	166	1.5%	111	10.9%	65	7.8%
Fire	379	3.5%	104	10.2%	136	16.4%
Vapor Release	3,144	28.8%	278	27.3%	257	31.0%
Spill	7,195	65.8%	522	51.2%	356	42.9%
Other	15	0.1%	3	0.3%	3	0.4%
Unknown	34	0.3%	1	0.1%	12	1.4%
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TOTAL	10,933	100.0%	1,019	100.0%	829	100.0%