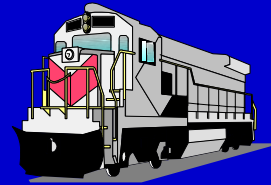
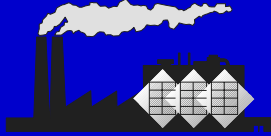


**Hazardous Substances Emergency
Events Surveillance (HSEES)
1993 - 1997
in Nueces and Surrounding Counties**

**presented to the Corpus Christi Local
Emergency Planning Committee
August 1, 2000**



Year states entered HSEES system

1990	1992	1993	1994	1995	1999
CO	NY	AL	MO	MN	NJ
IA	NC	TX		MS	UT
NH*	OR				
WS	RI				
	WA				

*New Hampshire withdrew in 1996.

Goals:

- Describe the distribution and characteristics of hazardous substances emergencies
- Describe the injury (morbidity) and death (mortality) experienced by:
 - Employees
 - Responders
 - General Publicas a result of hazardous substances releases

Goals continued:

- Identify risk factors associated with the morbidity and mortality.
- Identify strategies to reduce future morbidity and mortality resulting from the release of hazardous substances.

Types of information collected:

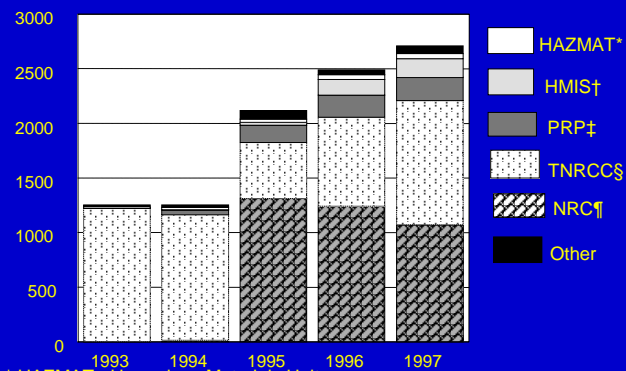
- General information on the event
- Substances released
- Victims (Employees, First Responders, General Public)
- Injuries and deaths
- Evacuations
- Estimates of number of people at risk of exposure during a specific event.

Texas definition of a HSEES event:

- Uncontrolled or illegal release, or threatened release, of hazardous substances (excluding events that exclusively involve petroleum products) that are over one gallon or ten pounds or exceed the CERCLA reportable quantity (RQ).

1. Where do we obtain our information?

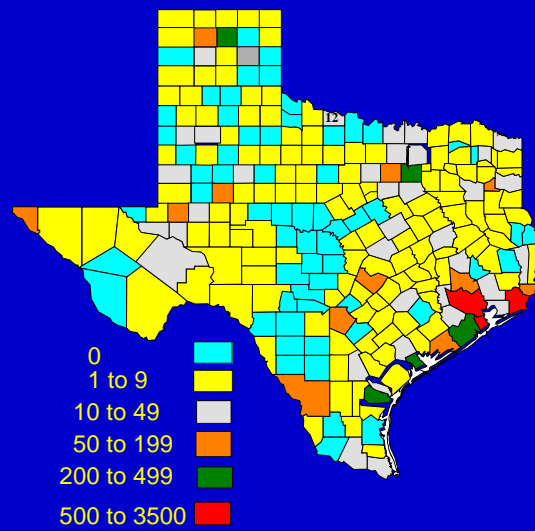
Distribution of events by data source for Texas HSEES, 1993 - 1997

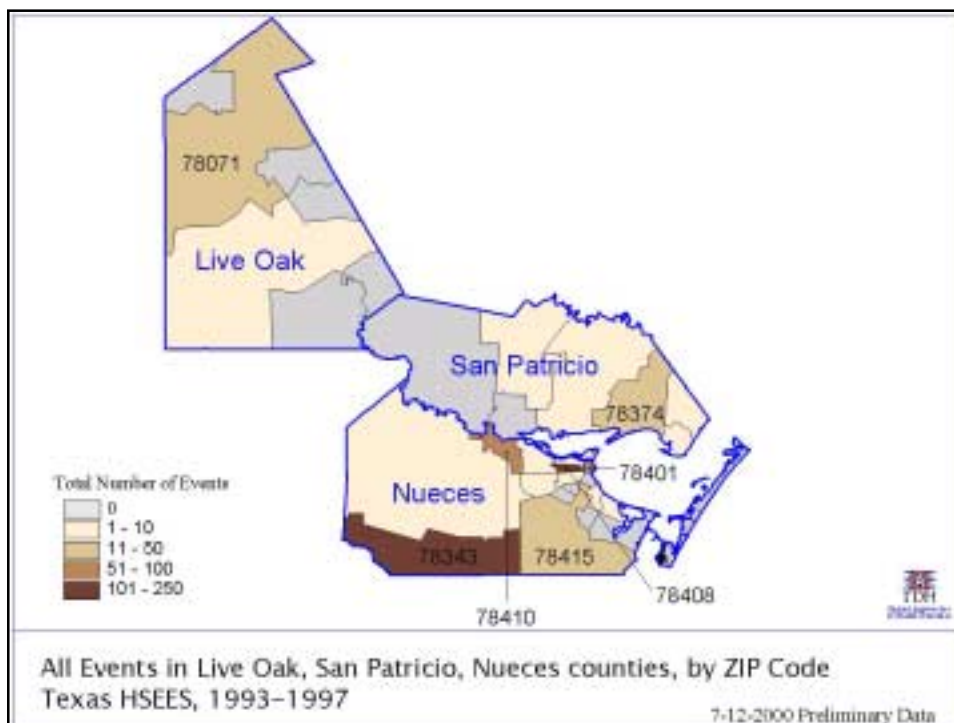
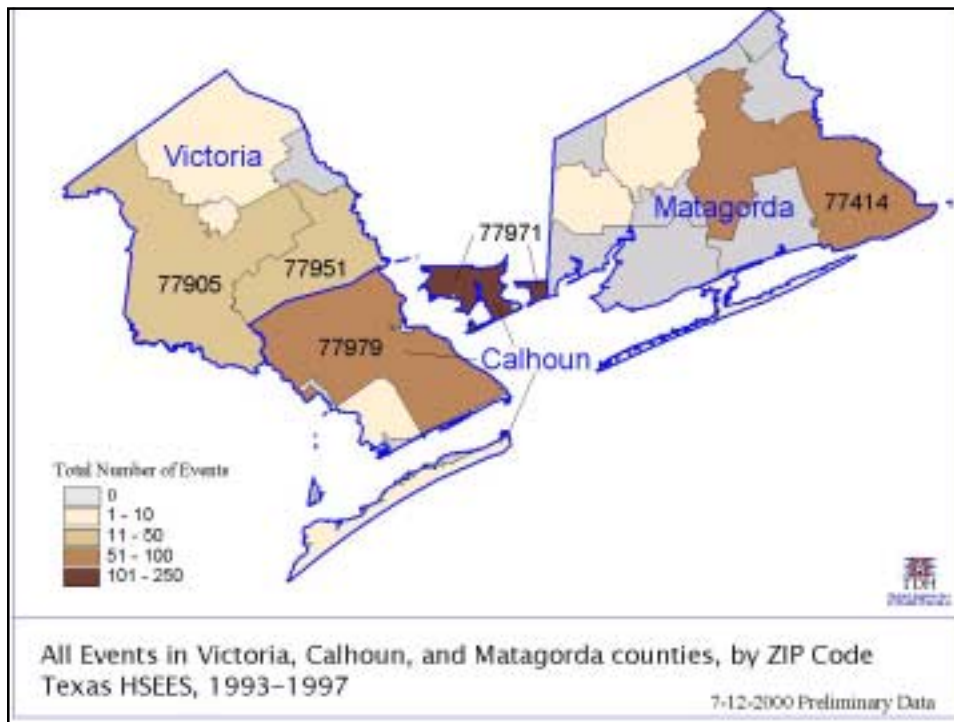


* HAZMAT - Hazardous Materials Unit
† HMIS - Hazardous Materials Incident System
‡ PRP - Primary Responsible Party
¶ NRC - National Response Center
§ TNRCC - Texas Natural Resource Conservation Commission

1. Where do we obtain our information?
2. Where are these events occurring?

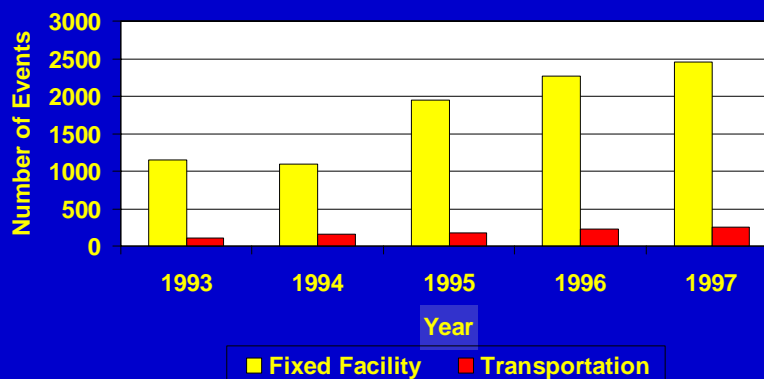
Number of reported events by county, Texas HSEES 1993 - 1997





1. Where do we obtain our information?
2. Where are these events occurring?
3. What is the proportion of fixed-facility events compared to transportation events?

Distribution of type of event by year for Texas HSEES, 1993 - 1997



Distribution of fixed-facility and transportation events in Nueces and surrounding counties

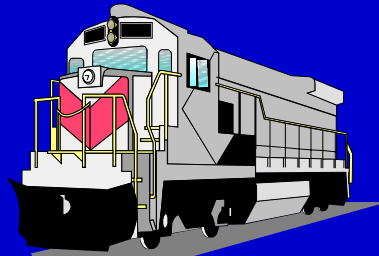
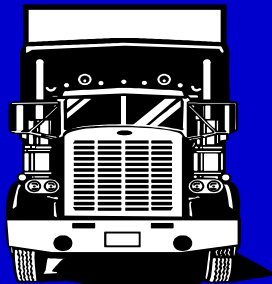
County	Fixed Facility	Transportation	Total
Nueces	530 (96.4%)	20 (3.6%)	550
Calhoun	301 (98.7%)	4 (1.3%)	305
Matagorda	101 (99.0%)	1 (1.0%)	102
Live Oak	37 (97.4%)	1 (2.6%)	38
Victoria	33 (86.8%)	5 (13.2%)	38
San Patricio	28 (96.6%)	1 (3.4%)	29
Total	1030 (97.0%)	32 (3.0%)	1062

1. Where do we obtain our information?
2. Where are these events occurring?
3. What is the proportion of fixed-facility events compared to transportation events?
4. How many events involve victims?

Comparison of Nueces and surrounding counties with statewide numbers

	Texas	Nueces and Surrounding Counties Number (%)
Total no. of events	9817	1062 (10.8%)
Total no. of events with victims	312	21 (6.7%)
Total no. of victims	2507	171 (6.8%)

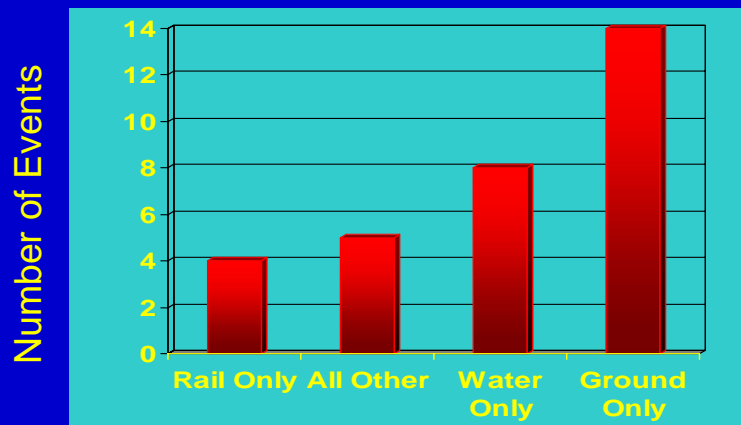
5. Transportation events



Comparison of Nueces and surrounding counties with statewide numbers for transportation events

	Texas	Nueces and Surrounding Counties Number (%)
No. of transportation events	908	32 (3.5%)
No. of transportation events with victims	94	5 (5.3%)
No. of victims from transportation events	409	110 (26.9%)

Distribution of transportation type in Nueces and surrounding counties



Type of Transportation

Substances associated with transportation events in Nueces and surrounding counties

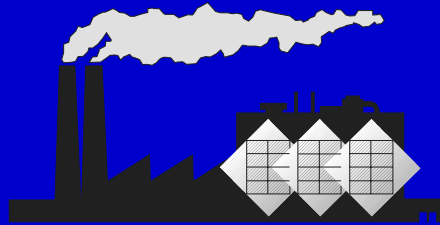
Chemical Category	No. of Events	No. of Events with Victims	No. of Victims
Other	11	2 (18.2%)	93
Volatile organic compounds	6	0 (0.0%)	0
Other inorganic substances	6	1 (16.7%)	1
Mixture across categories	2	1 (50.0%)	1
Bases	2	0 (0.0%)	0
Chlorine	2	0 (0.0%)	0
Pesticides	2	1 (50.0%)	1
Acids	1	0 (0.0%)	0
Ammonia	1	1 (100.0%)	15
Paints and dyes	1	0 (0.0%)	0
Polychlorinated biphenyls	0	0 (0.0%)	0
Total	34	6 (17.6%)	111*

*Total number of victims exceeds actual number of victims (n=110) because some events involved more than one type of substance.

Substances associated with transportation events involving victims in Nueces and surrounding counties

Substance(s) released	Total No. of Victims
Cumene	92
Ammonia	15
Azinphos-methyl	1
Coke	1
Argon; Mix: diesel fuel/brake or hydraulic NOS	1
Total	110

6. Fixed-facility events



Comparison of Nueces and surrounding counties with statewide numbers for fixed-facility events

	Texas	Nueces and Surrounding Counties Number (%)
No. of fixed-facility events	8909	1030 (11.6%)
No. of fixed-facility events with victims	218	16 (7.3%)
No. of victims for fixed facilities	2098	61 (2.9%)

Distribution of fixed-facility events involving victims by location within fixed facility

Location	No. of Events at that Location	No. of Events With Victims at that Location No. (%)	No. of Victims
Process vessel	510	6 (1.2%)	8
Piping	176	2 (1.1%)	7
All other	142	3 (2.1%)	35
Ancillary process equipment	113	3 (2.7%)	10
Storage above ground	95	1 (1.1%)	1
Material handling	83	4 (4.8%)	4
Location unclassified	10	0 (0.0%)	0
Total*	1129	19 (1.7%)	65

*Total exceeds number of events and number of victims because each event may involve up to two location types. There were 16 events involving 61 victims.

Substances associated with fixed-facility events in Nueces and surrounding counties

Chemical Category	No. of Events	No. of Events With Victims No. (%)	No. of Victims
Volatile organic compounds	434	5 (1.2%)	7
Other	291	2 (0.7%)	2
Other inorganic substances	151	3 (2.0%)	3
Acids	105	3 (2.9%)	8
Mixture across categories	97	0 (0.0%)	0
Bases	78	2 (2.6%)	2
Ammonia	24	1 (4.2%)	8
Pesticides	17	1 (5.9%)	1
Polychlorinated biphenyls	11	0 (0.0%)	0
Chlorine	6	2 (33.3%)	33
Paints and dyes	0	0 (0.0%)	0
Total	1214	19 (1.6%)	64*

*Total number of victims exceeds actual number of victims (n=61) because some events involved more than one type of substance.

Substances associated with fixed-facility events involving the largest number of victims in Nueces and surrounding counties

Substance	No. of Events	Total No. of Victims
Chlorine	1	33
Ammonia	1	8
Hydrofluoric Acid	1	6

6. Transportation events

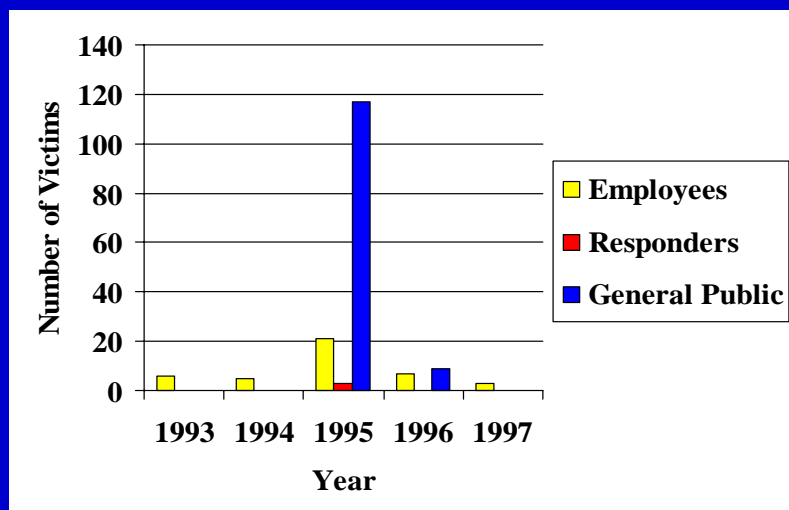
7. Fixed-facility events

8. Who are the victims?

Distribution of victims by victim category in Nueces and surrounding counties

Victim Category	Fixed Facility	Transportation	Total
Employee	38	4	42
Responder	1	2	3
General Public	22	104	126
Total	61	110	171

Distribution of victim category by year for Nueces and surrounding counties



- 6. Transportation events
- 7. Fixed-facility events
- 8. Who are the victims?
- 9. Injury severity?

Severity by victim category for Nueces and surrounding counties

	Responders	Employees	General Public	Total
Fatalities	0	1	0	1
First aid	0	2	0	2
Treated and released*	3	17	115	135
Admitted*	0	15	2	17
Observed only*	0	4	9	13
Private physician within 24 hours	0	3	0	3
Total	3	42	26	171

*At hospital

6. Transportation events
7. Fixed-facility events
8. Who are the victims?
9. Injury severity?
10. Types of injuries

Types of injuries reported by victims (n=111) in transportation events in Nueces and surrounding counties

Type of Injury	Number of Times Reported
Respiratory irritation	85
Gastrointestinal problem	51
Eye irritation	35
Headache	18
CNS*/dizziness	16
Heart problems	5
Trauma	3
Skin irritation	2
Total**	215

*Central Nervous System

**Total number of injuries exceeds number of victims because some people sustained more than one type of injury.

Types of injuries reported by victims (n=64) in fixed-facility events in Nueces and surrounding counties

Types of Injuries	Number of Times Reported
Respiratory irritation	50
Gastrointestinal problems	25
Headache	15
CNS*/dizziness	8
Heart problems	7
Eye irritation	6
Chemical burns	1
Thermal burns	1
Skin irritation	1
Other	1
Total**	115

*Central Nervous System

**Total number of injuries exceeds number of victims because some people sustained more than one type of injury.

6. Transportation events

7. Fixed-facility events

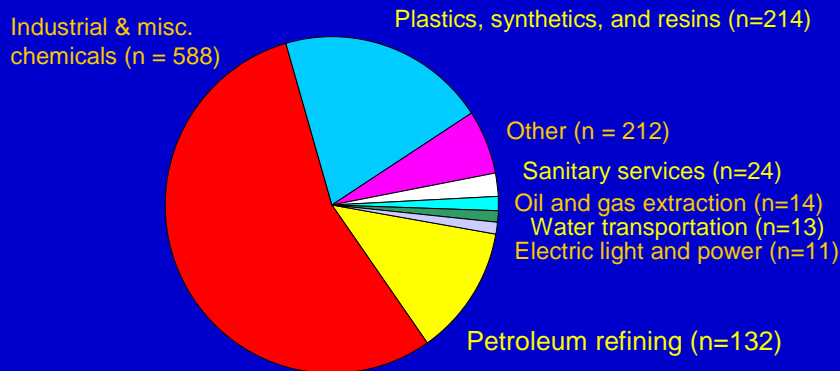
8. Who are the victims?

9. Injury severity?

10. Types of injuries

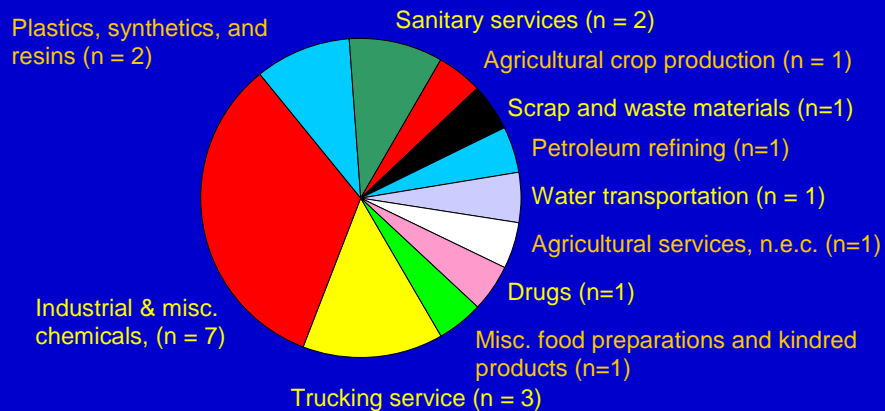
11. Industries associated with HSEES events

Distribution of industries* in HSEES events (n=1062) in Nueces and surrounding counties, Texas HSEES, 1993 - 1997



*Number of industries exceeds number of events because some events were coded to more than one industry.

Distribution of events with victims* by industry in Nueces and surrounding counties, Texas HSEES, 1993 - 1997



*There were 21 events involving 171 victims.

In conclusion:

- Keep up the training and good work and safety practices.
- Be especially aware of situations involving ammonia, chlorine, acids, or bases.
- In fixed facilities, be aware of process vessels, piping, ancillary process equipment, above ground storage, and material handling (loading/unloading).
- Statewide data show that explosions and crashes causing trauma injuries often result in fatalities.

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