

# Section 13. Hazardous Materials Incidents

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## Why Hazardous Materials Are a Threat

Hazardous materials come in the form of explosives, flammable and combustible substances, poisons, and radioactive materials. A hazardous material (HAZMAT) incident involves a substance outside normal safe containment in sufficient concentration to pose a threat to life, property, or the environment. These substances are most often released as a result of transportation accidents or because of chemical accidents in plants.



Hazardous materials in various forms can cause death, serious injury, long-lasting effects, and damage to buildings, homes, and other property. Many products containing hazardous materials are used and stored routinely in homes. These products are transported daily via the nation's highways, railroads, waterways, and pipelines. Varying quantities of hazardous materials are manufactured, used, and stored at more than 4.5 million facilities in the United States—from major industrial plants to local dry cleaning establishments to gardening supply stores.

Specialized equipment is often required to safely handle or dispose of hazardous materials. Hazardous materials incidents vary in their intensity, size, and duration. Most incidents are small in scope and only require a limited response. Occasionally there will be a large incident or one involving a chemical that requires evacuation of the surrounding area.



GUADALUPE-BLANCO RIVER AUTHORITY

Generally, local fire departments are responsible for first response to a hazardous materials incident but can call on help from private and governmental resources when needed. The Chemical Manufacturers Association has an organization, CHEMTREC, that operates a 24-hour hotline. Several companies also specialize in responding to chemical emergencies. At the federal level, the EPA, Coast Guard, and the U.S. Department of Transportation's Bureau of Explosives have strike teams that assist local responders in special situations.

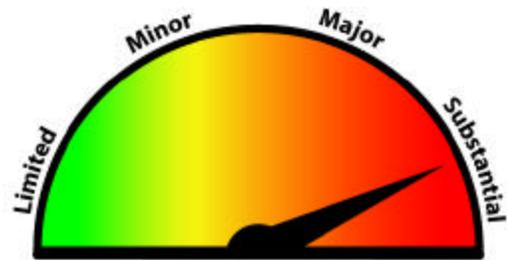
The Federal Government plays an important role in hazardous materials management. Title III of the 1986 Superfund Amendments and Reauthorization Act (SARA) and the Clean Air Act of 1990 mandate 'cradle to grave' tracking of specified hazardous materials by requiring users to report what chemicals they are using, releasing into the air, and how they will respond to an emergency. Under the Act, EPA delegates implementation to the states.

Two categories of hazardous materials incidents are addressed in this plan: 1) incidents at fixed hazardous materials facilities; and 2) incidents involving the transportation of toxic materials.

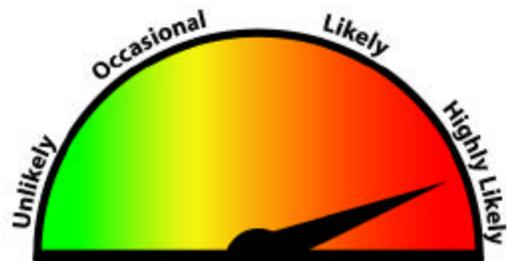
## Hazard Profile

In a hazardous materials incident, solid, liquid, and/or gaseous contaminants may be released from fixed or mobile containers. Weather conditions will directly affect how the hazard develops. The micro-meteorological effects of buildings and terrain can alter the dispersion and duration of agents. Shielding (sheltering-in-place) can protect people and property from harmful effects. Conversely, non-compliance with fire and building codes and failure to take other fire and containment precautions can substantially increase the damage from a hazardous materials release.

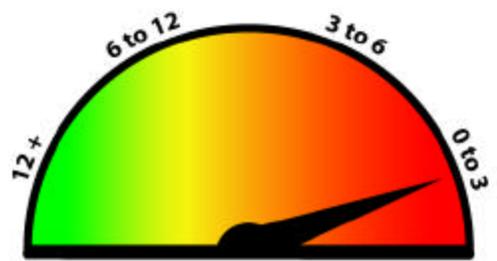
**Figure 13-1. Hazardous Materials Profile Summary**



**SEVERITY OF IMPACT**



**FREQUENCY OF OCCURRENCE**



**HOURS OF WARNING TIME**



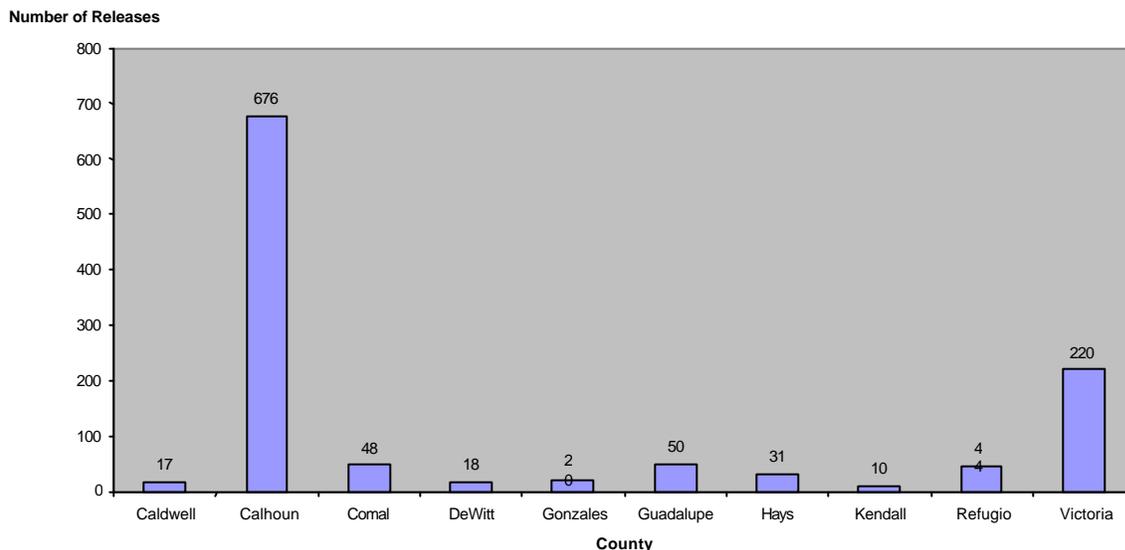
Hazardous materials incidents can cause multiple deaths, completely shut down facilities for thirty days or more, and destroy or severely damage in excess of fifty percent of affected properties.

The duration of hazardous materials incidents range from hours to days. Warning time is minimal or nonexistent.

## History of Hazardous Materials Incidents

Hazardous materials incidents occur regularly in the Guadalupe River Basin. Figure 13-2 shows reported chemical release and waste management activities as reported to the Texas Commission on Environmental Quality.

**Figure 13-2. Hazardous Materials Releases in the Guadalupe River Basin  
Reported to the Texas Commission on Environmental Quality, 1994-2002**



A variety of transportation modes are involved in toxic materials incidents, as shown in Table 13-1.



Hazmat spills on highways historically predominate in the U.S. and result in the highest numbers of deaths and injuries, but railway incidents also result in significant injuries. Railway incidents are of particular concern in the Guadalupe River Basin. Railroads go through the centers of many small towns in participating jurisdictions and tracks often are close to schools, hospitals, and other critical care facilities, putting special populations at risk.

**Table 13-1. Hazardous Materials Incidents in the U.S. by Transportation Mode, 1883 through 1990**

<b>Mode of Transportation</b>	<b>Number of Accidents</b>	<b>Associated Deaths</b>	<b>Associated Injuries</b>
Air	1,220	0	153
Highway	41,781	79	1,569
Railway	7,886	1	423
Water	83	1	35
Other	29	0	2
<b>Total</b>	<b>50,999</b>	<b>81</b>	<b>2,182</b>

An annual average of 6,774 hazardous materials transportation incidents were reported nationally between 1982 and 1991. In 1991, 9,069 transportation incidents resulted in 10 deaths and 436 injuries.



## Location of Hazardous Areas

The Guadalupe River Basin is at risk to hazardous materials accidents at both fixed facilities and on transit routes. The most common occurrences have been transportation accidents on major thoroughfares such as I-35, I-10, Highway 59, Highway 77, and Highway 183. Incidents have occurred in every part of the basin at one time or another. Extensive highway and rail shipments, including those coming from Mexico under NAFTA, travel through the heart of the basin. Two NAFTA highways go through the City of Victoria (Highways 59 and 77).

Thousands of fixed hazardous materials facilities are located throughout the Guadalupe River Basin. Of these, 197 substances on the EPA Toxics Release Inventory (TRI) are stored at 34 facilities/sites (several chemicals are often stored at the same location, which explains why the number of storage facilities is lower than the number of chemicals inventoried). The TRI is a publicly available EPA database that contains information on toxic chemical releases and other waste management activities reported annually by certain covered industry groups as well as federal facilities. This inventory was established under the Emergency Planning and Community Right-to-Know Act of 1986 (EPCRA) and expanded by the Pollution Prevention Act of 1990. Each year, facilities that meet certain activity thresholds must report their releases and other waste management activities for listed toxic chemicals to EPA and to their state or tribal entity. A facility must report whether it meets the following three criteria:

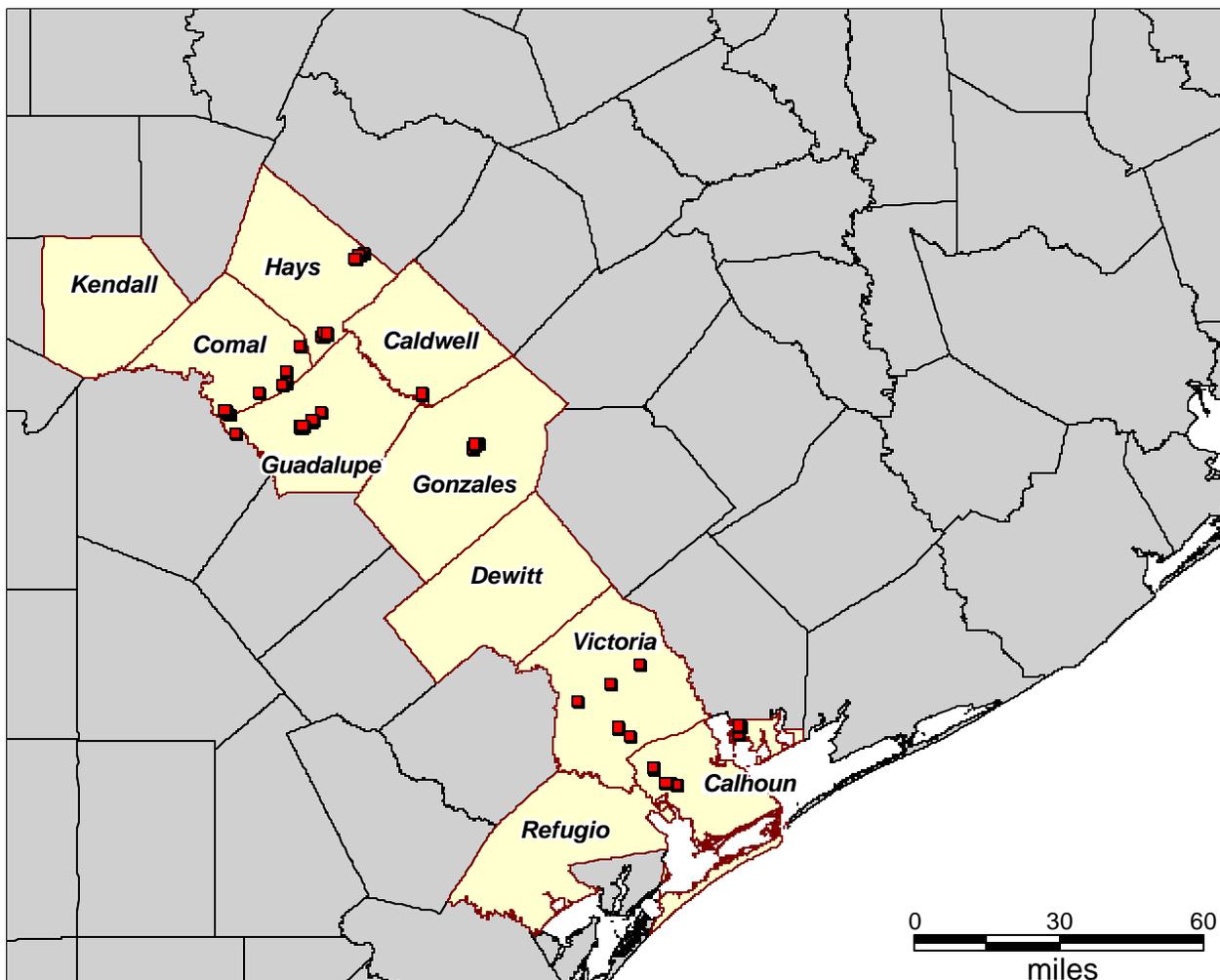
- The facility falls within one of the following industrial categories: manufacturing; metal mining; coal mining; electric generating facilities that combust coal and/or oil; chemical wholesale distributors; petroleum terminals and bulk storage facilities; RCRA Subtitle C treatment, storage, and disposal (TSD) facilities; and solvent recovery services
- The facility has 10 or more full-time employee equivalents, and
- The facility manufactures or processes more than 25,000 pounds or otherwise uses more than 10,000 pounds of any listed chemical during the calendar year. Persistent, bioaccumulative and toxic (PBT) chemicals are subject to different thresholds of 10 pounds, 100 pounds or 0.1 grams depending on the chemical.

The Toxic Release Inventory contains information on releases of nearly 650 chemicals and chemical categories from industries including manufacturing, metal and coal mining, electric utilities, and commercial hazardous waste treatment, among others.



Figure 13-3 shows the locations of toxic sites on the Environmental Protection Agency's Toxic Release Inventory in the Guadalupe River Basin. The 34 facilities that store hazardous materials in the Basin are listed in Table 13-2.

**Figure 13-3. Location of Sites on the Environmental Protection Agency's Toxic Release Inventory, the Guadalupe River Basin**



**Table 13-2. List of EPA Toxic Release Inventory sites in the Guadalupe River Basin**

<b>County</b>	<b>Name of Facility</b>	<b>Number of Toxic Chemicals at Site</b>
Caldwell	Durol Western Mfg. Co.	3
Calhoun	Alcoa World Alumina Atlantic	1
Calhoun	Bp Chemicals Inc. Green Lake Facility	21
Calhoun	Formosa Plastics Corp. Texas	39
Calhoun	Isp Techs. Inc. - Long Mott Facility	3
Calhoun	Seadrift Coke L. P.	9
Calhoun	Union Carbide Corp. Seadrift Plant	34
Comal	Coleman Co. Inc.	3
Comal	Coronado Paint Co.	3
Comal	Lightning Mfg. Solutions	1
Comal	Mission Valley Fabrics	1
Comal	Monotech Of Texas	3
Comal	Sunbelt Cement Inc.	2
Comal	Txi Ops. L.P.	3
Gonzales	Gonzales Mfg. Co.	3
Gonzales	Purina Mills Inc.	2
Gonzales	Tyson Foods Inc. - Gonzales Feed Mill	3
Guadalupe	Acme Brick Co.	3
Guadalupe	Cavco Inds. L.L.C- Texas	1
Guadalupe	Motorola Inc.	1
Guadalupe	Structural Metals Inc.	5
Guadalupe	Universal Forest Prods. Texas L.P.	3
Guadalupe	Xerxes Corp.	1
Hays	Capitol City Steel Co.	1
Hays	Electrosource Inc.	1
Hays	Palm Harbor Homes	1
Hays	Parkview Metal Prods. Inc.	1
Hays	Texas-Lehigh Cement Co.	1
Hays	Wide-Lite Corp.	1
Victoria	"Diamond Fiberglass, Fabricators Inc."	1
Victoria	Air Liquide America Corp.	1
Victoria	Du Pont Victoria Plant	35
Victoria	Equistar Chemicals L.P. Victoria Facilit	5
Victoria	Safety Steel Service Inc.	1



# People and Property at Risk

Table 13-3 shows in quantitative terms the number of people and vulnerable groups (low income households and the elderly) exposed to the hazards at EPA’s 34 Toxic Release Inventory sites in the Guadalupe River Basin.<sup>1</sup> At-risk boundaries are those within a 5-mile radius of a toxic site.

**Table 13-3. Population and Vulnerable Groups at Risk from Toxic Releases at EPA Toxic Release Inventory Sites (5 mile buffer)**

County	Population	Low Income Households (less than \$20K)	Elderly Population (Over 65 years old)
Caldwell	6,642	698	1,079
Calhoun	2,128	115	261
Comal	46,244	3,314	7,217
Gonzales	9,282	1,077	1,533
Guadalupe	73,137	4,692	8,073
Hays	57,629	5,386	3,686
Refugio	6	0	2
Victoria	70,759	6,290	8,477
	265,827	21,572	30,328

<sup>1</sup> At-risk boundaries are: (1) within a five-mile radius of a toxic site; (2) within one mile of a pipeline; and (3) within 10 miles downstream of a dam.





## Potential Damages and Losses

Potential dollar-loss estimates for hazardous materials incidents are not available. Not enough historical loss information is available to warrant monetary annualized loss computations. The historic average occurrence of hazardous materials incidents, however, serves as the best predictor of future expected recurrence.

GBRA facilities (described on pages 4-18 and 4-19) are also at risk from this hazard. However, no estimate is currently available of potential damages and losses to those facilities.

