

**SOURCE: "Too Close to Home: Chemical Accident Risk in the United States" Allison Laplante, Public Interest Research Group, July 22, 1998.**

<http://www.grconnect.com/reports/tooclosetohome98.pdf>

---

**accident risk created by particular facility.** Precise facility estimates would be impossible given the lack of readily available data (on a local or national level) about individual facilities.<sup>8</sup> As a result, the analysis requires assumptions about chemical storage conditions, chemical concentration, passive containment measures, and facility location.<sup>9</sup> Carefully selected assumptions provide low estimates of vulnerable areas. The data contained in this report represent just the tip of the iceberg in terms of populations at risk. Some zip codes in NELC's analysis were facility-specific zip codes and as such had no population statistics, yet facilities are often surrounded by substantial populations. Thus, substantial populations contained within vulnerable zones are not covered by this report. Also, adequate chemical storage data is nationally available only for a limited number of chemicals and industries. **As a result, this report presents only a limited picture of the size, number, and distribution of vulnerable zones throughout the United States.** A more complete description of the methodology used in this report is contained in the Methodology section.

### Populations at risk

Using low estimates, more than 41 million Americans live in zip codes that contain manufacturing companies with vulnerable zones that extend more than three miles from the facility.<sup>10</sup> Thus, at least one out of every 6 Americans lives within a vulnerable zone — the area in which there could be serious injury or death in the event of a chemical accident — created by neighboring industrial facilities. Industrial facilities are often situated in close proximity to residential neighborhoods, placing whole communities at risk from the impacts of worst-case accidents. Over 54 million people live in zip codes with companies that have a single vulnerable zone extending more than 1 mile.

It is clear that to fully estimate the extent of populations at risk, more in depth studies are needed to calculate and map vulnerable zones under location specific conditions, and then identify sensitive sites (schools, hospitals, nursing homes) and ecological areas within those zones.<sup>11</sup> Few companies have provided this information to plant neighbors.

Geographic distribution of potential disaster areas  
NELC analyzed the geographic distribution of vulnerable zones, to better understand which areas of the country are most at risk from the potential impacts of worst-case chemical accidents. NELC ranked states, counties, and zip codes by worst-case accident disaster potential, a term used for the cumulative total of the radii of all vulnerable zone

Worst-case disaster  
potential

=

Total of the radii of  
all vulnerable zones  
within a geographic  
area

estimates (by facility and chemical) within that geographic area.

As demonstrated in Table 1, **the top ten U.S. states ranked by worst-case accident disaster potential are: Texas, Ohio, Louisiana, California, Illinois, Pennsylvania, New York, North Carolina, Michigan, and Georgia.** These ten states account for nearly half (49%) of the vulnerable zones in the United States. This ranking of states does not directly correspond to the amount of EHS chemicals that facilities in the state store because some chemicals are more acutely toxic or create larger toxic clouds than others.

**Table 1: U.S. States (and Puerto Rico) ranked by worst-case disaster potential**

Rank	State	Worst-case "disaster potential"	Number of facilities	Number of vulnerable zones	% of vulnerable zones above 5 miles	EHS chemical storage (lbs.)	Population affected
1	TX	3,469	475	1,107	24.3	950,000,000	2,573,910
2	OH	2,005	471	773	16.8	160,000,000	3,120,503
3	LA	2,002	163	483	36.2	2,300,000,000	967,869
4	CA	1,952	633	992	12.7	190,000,000	3,962,188
5	IL	1,732	444	741	14.8	240,000,000	2,920,731
6	PA	1,611	358	587	19.1	120,000,000	2,150,406
7	NY	1,304	264	464	20.7	47,000,000	1,447,032
8	NC	1,286	274	456	20.2	92,000,000	1,513,451
9	MI	1,270	312	534	16.1	30,000,000	2,262,783
10	GA	1,238	263	482	18.7	380,000,000	1,568,064
11	AL	1,162	188	384	23.2	140,000,000	788,992
12	IN	1,004	257	388	18.3	34,000,000	1,281,703
13	SC	981	183	388	17.3	140,000,000	1,273,801
14	WI	923	309	514	11.3	62,000,000	1,350,141
15	TN	914	181	347	19.3	110,000,000	1,017,827
16	VA	910	159	271	27.7	53,000,000	777,959
17	FL	838	175	314	20.7	330,000,000	1,076,263
18	NJ	789	211	364	12.9	240,000,000	1,141,140
19	AR	762	123	236	25.8	190,000,000	634,811
20	MO	734	170	280	18.6	76,000,000	890,225
21	KY	699	141	251	21.5	540,000,000	633,956
22	WV	675	55	163	35	80,000,000	197,472
23	IA	623	127	198	24.2	190,000,000	380,810
24	MS	613	102	193	25.4	180,000,000	625,687
25	WA	588	104	209	21.1	20,000,000	661,346
26	OR	510	105	190	18.4	33,000,000	525,927
27	MN	483	158	241	12.4	15,000,000	493,764
28	KS	482	84	156	22.4	250,000,000	413,565
29	OK	384	81	128	26.6	210,000,000	328,565
30	MA	321	181	255	4.3	4,000,000	672,204

