



## Impact of a Meltdown at Nuclear Plant Consequences of Reactor Accident (CRAC-2) Report -- NRC & SANDIA STUDIED MELTDOWNS/RISKS AT US NUCLEAR PLANTS in 1982!

Following is an alphabetical listing of every commercial nuclear power plant in the US, extant, or under construction at the time this report was published in 1982. The 4 categories listed are:

Peak Early Fatalities	Peak Early Injuries	Peak Cancer Deaths	Property Damage
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The numbers given are in case of a class-9, or worse case scenario meltdown, and are **based on 1982 population data and on 1982 dollars**. This report was mandated by the Nuclear Regulatory Commission and carried out by the Sandia Labs of New Mexico. The Calculation of Reactor Accident Consequences (CRAC-2) report was published by Congress November 1, 1982. It was also printed by the *Washington Post* the same day. Other major media, including the New York Times published it shortly thereafter. This is a summary of the report.

Some experts claim that the assessment of the dangers inherent in any and all commercial nuclear power plants has several faults. Among the faults -- **any accident can spread to the spent fuel pool where huge amounts of radioactive waste are stored**. The authors of the Reactor Safety Study concluded that changing some of the criteria for data gathering **would actually increase the number of early fatalities by a factor of 3 to 4** depending upon circumstances [NUREG-0340].

"Peak" does not necessarily mean worst case results because the CRAC-2 model is acknowledged by its authors to have uncertainties in its meteorological modeling capability. Since the CRAC-2 model considers only one year's worth of data and does not model precipitation frequency beyond a distance of 30 miles from the reactor, the model cannot adequately characterize the frequency of precipitation events or range of fallout.

**Economic costs not included are: the cost of providing health care to the affected population; all onsite costs; litigation costs; direct costs of health effects; and indirect costs.**

Early fatalities are deaths due to radiation exposure from causes other than cancer occurring within one year of the accident. However, fatalities will continue over hundreds, possibly thousands of years. Fatalities in the populace directly exposed to the accident will take place over a period long after one year, much of these deaths taking decades to occur. Ionizing radiation can cause aberrations in the genetic pool, hence the hundreds or thousands of years over which fatalities will occur.

It should be noted that the evacuation model for CRAC-2 does NOT account for actual site conditions such as bottlenecks and terrain barriers which can cause major evacuation routes to overlap the area likely to be covered by the plume once a release of radioactivity occurs.

Reactor/Location	Peak Early Fatalities	Peak Early Injuries	Peak Cancer Deaths	Property Damage (in Billions-1982 \$)
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Arkansas Nuclear One, Units 1 & 2, Russelville, Arkansas	Unit I - 1,900 Unit 2 - 2,100	Unit I - 3,400 Unit 2- 4,000	Unit I -2,900 Unit 2 -3,000	Unit I - \$68.1 Billion Unit 2 - \$84.9 Billion
Beaver Valley Units 1 & 2 Shippingport, PA	Unit I - 19,000 Unit 2 - 19,000	Unit I-156,000 Unit 2-156,000	Unit I -28,600 Unit 2 -24,000	Unit I - \$122 Billion Unit 2 - \$111 Billion
Bellefonte Units 1 & 2 Scotsboro, Alabama	Unit I - 3,600 Unit 2 - 3,600	Unit I - 7,700 Unit 2 - 7,700	Unit I - 4,500 Unit 2 - 4,500	Unit I - \$86.1 Billion Unit 2 - \$82.7 Billion
Big Rock Pt. #1, Charlevoix, MI	3,450	6,030	10,900	unavailable
Braidwood, Units 1 & 2 Joliet, IL=L	Unit I - 6,750 Unit 2 - 6.750	Unit I -63,300 Unit 2--63,300	Unit I-14,200 Unit 2-14,200	Unit I - \$127 Billion Unit 2- \$122 Billion
Browns Ferry Units 1,2,3 Decatur, Alabama	Unit 1 - 18,000 Unit 2 - 18,000 Unit 3 - 18,000	Unit I - 42,000 Unit 2 - 42,000 Unit 3 - 42,000	Unit I - 3,900 Unit 2 - 3,900 Unit 3 - 3,900	Unit 1 - \$67.3 Billion Unit 2 - \$69.1 Billion Unit 3 - \$73 Billion
Brunswick, Units 1 & 2, Brunswick, N. C.	Unit 1 - 7,500 Unit 2 - 7,500	Unit 1 - 18,000 Unit 2 - 18,000	Unit 1 - 4,600 Unit 2 - 4,600	Unit 1 - \$56.5 Billion Unit 2 - \$53.9 Billion
Byron, Units 1 & 2, Rockford, IL=L.	Unit 1 - 9,050 Unit 2 - 9,050	Unit 1 - 79,300 Unit 2 - 79,300	Unit 1 - 15,300 Unit 2 - 15,300	Unit 1 - \$114 Billion Unit 2 - \$114 Billion
Callaway Unit 1, Callaway, MO.	11,500	32,000	9,600	\$110,000 Billion
Calvert Cliffs, Units 1 & 2, Lusby, MD.	Unit 1 - 5,600 Unit 2 - 5,600	Unit 1 - 15,000 Unit 2 - 15,000	Unit 1 - 23,000 Unit 2 - 23,000	Unit 1 - \$87.4 Billion Unit 2 - \$92 Billion
+++Catawba, Units 1 & 2, Rock Hill, S.C.	Unit 1 - 5,800 Unit 2 - 5,800	Unit 1 - 88,000 Unit 2 - 88,000	Unit 1 - 42,000 Unit 2 - 42,000	Unit 1 - \$101 Billion Unit 2 - \$93.7 Billion
Clinton, Clinton, IL.	Scaled 1,600	32,000	13,000	\$92.8 Billion
Commanche Peak, Glen Rose, Texas	1,200	14,000	4,800	\$117 Billion
Cook, Units 1 & 2 Bridgman, IL.	Unit 1 - 1,900 Unit 2 - 2,000	Unit 1 - 80,000 Unit 2 - 88,000	Unit 1 - 13,000 Unit 2 - 13,000	Unit 1 - \$91.9 Billion Unit 2 - \$101 Billion
Cooper, Brownsville, Nebraska	1,600	2,800	3,100	\$57.2 Billion
Crystal River, Unit 3, Red Level, Fl.	900	3,800	2,800	\$53.8 Billion
Davis-Besse, Ottawa, Ohio	1,400	73,000	10,000	\$84 Billion

Diablo Canyon Units 1 & 2 San Luis Obispo, California	Unit 1 - 10,000 Unit 2 - 10,000	Unit 1 - 11,000 Unit 2 - 12,000	Unit 1 - 12,000 Unit 2 - 12,000	Unit 1 - \$155 Billion Unit 2 - \$158 Billion
Dresden Units 1, 2 & 3 Morris, Illinois	Unit 1 - 6,000 Unit 2 - 42,000 Unit 3 - 42,000	Unit 1 - 4,000 Unit 2 - 39,000 Unit 3 - 39,000	Unit 1 - 5,000 Unit 2 - 13,000 Unit 3 - 13,000	Unit 1 - \$23.5 Billion Unit 2 - \$87.4 Billion Unit 3 - \$89.6 Billion
Duane Arnold, Palo, IA	Scaled 2,900	12,000	not available	\$53.8 Billion
Farley, Units 1 & 2 Dothan, Alabama	Unit 1 - 12,000 Unit 2 - 12,000	Unit 1 - 12,000 Unit 2 - 12,000	Unit 1 - 2,900 Unit 2 - 2,900	Unit 1 - \$52.2 Billion Unit 2 - \$59.1 Billion
Fermi, Unit 2, Laguna Beach, Mi.	8,000	340,000	13,000	\$136 Billion
Fitzpatrick, Scriba, NY	scaled 1,000	scaled 16,000	17,000	\$103 Billion
Fort Calhoun, Washington, Nebraska	scaled 3,000	32,000	3,000	\$43.4 Billion
Fort St. Vrain, Fort St. Vrain, Co.	scaled 3,000	3,000	1,000	\$38.8 Billion
Ginna, Ontario, NY	scaled 2,000	28,000	scaled 14,000	\$63 Billion
Grand Gulf, Units 1 & 2 (2 never built) Vicksburg, Mississippi	Unit 1 - 4,500 Unit 2 - 4,500	Unit 1 - 10,000 Unit 2 - 10,000	Unit 1 - 3,800 Unit 2 - 3,800	Unit 1 - \$83 Billion Unit 2 - \$70.7 Billion
Haddam Neck, Haddam Neck, Ct.	scaled 29,000	50,000	23,000	\$74.1 Billion
Hatch, Units 1 & 2 Baxley, Georgia	Unit 1 - 700 Unit 2 - 700	Unit 1 - 4,000 Unit 2 - 4,000	Unit 1 - 3,000 Unit 2 - 3,000	Unit 1 - \$51 Billion Unit 2 - \$56 Billion
Indian Point Units 2 & 3 Buchanon, NY	Unit 2 - 46,000 Unit 3 - 50,000	Unit 2 - 141,000 Unit 3 - 167,000	Unit 2 - 13,000 Unit 3 - 14,000	Unit 2 - \$274 Billion Unit 3 - \$314 Billion
Kewaunee, Carlton, Wisconsin	scaled 900	17,000	8,000	\$46.9 Billion
LaSalle, Units 1 & 2 Ottowa, Illinois	Unit 1 - 14,000 Unit 2 - 14,000	Unit 1 - 12,000 Unit 2 - 12,000	Unit 1 - 15,000 Unit 2 - 15,000	Unit 1 - \$118 Billion Unit 2 - \$120 Billion
LaCrosse, LaCrosse, Wisconsin	scaled 70	400	200	\$160 Billion
Limerick, Units 1 & 2 Montgomery, PA	Unit 1 - 74,000 Unit 2 - 74,000	Unit 1 610,000 Unit 2 - 610,000	Unit 1 - 34,000 Unit 2 - 34,000	Unit 1 - \$213 Billion Unit 2 - \$197 Billion
Maine Yankee, Wiscasset, ME	scaled 8,000	10,000	21,000	\$78.5 Billion
Marble Hill, Units 1 & 2 (never built) Jefferson, Indiana	Unit 1 - 12,000 Unit 2 - 12,000	Unit 1 - 150,000 Unit 2 - 150,000	Unit 1 - 8,000 Unit 2 - 8,000	Unit 1 - \$87.2 Billion Unit 2 - \$83.8 Billion

McGuire, Units 1 & 2 Cornelius, NC	Unit 1 - 12,000 Unit 2 - 12,000	Unit 1 - 21,000 Unit 2 - 21,000	Unit 1 - 26,000 Unit 2 - 26,000	Unit 1 - \$106 Billion Unit 2 - \$110 Billion
Midland, Units 1 & 2 (never built) Midland, Michigan	Unit 1 - 4,000 Unit 2 - 7,000	Unit 1 - 11,000 Unit 2 - 20,000	Unit 1 - 8,000 Unit 2 - 10,000	Unit 1 - \$56.1 Billion Unit 2 - \$80.4 Billion
Millstone, Units 1, 2 & 3 Waterford, CT	Unit 1 - 13,000 Unit 2 - 18,000 Unit 3 - 23,000	Unit 1 - 12,000 Unit 2 - 18,000 Unit 3 - 30,000	Unit 1 - 29,000 Unit 2 - 33,000 Unit 3 - 38,000	Unit 1 - \$91.5 Billion Unit 2 - \$135 Billion Unit 3 - \$174 Billion
Monticello, Monticello, MN	scaled 500	10,000	4,000	\$44.6 Billion
Nine Mile Point, Units 1 & 2 Scriba, NY	Unit 1 - 800 Unit 2 - 1,400	Unit 1 - 11,000 Unit 2 - 26,000	Unit 1 - 14,000 unit 2 - 20,000	Unit 1 - \$66.2 Billion Unit 2 - \$134 Billion
North Anna, Units 1 & 2 Mineral, Virginia	Unit 1 - 1,800 Unit 2 - 1,800	Unit 1 - 5,000 Unit 2 - 5,000	Unit 1 - 29,000 Unit 2 - 29,000	Unit 1 - \$66 Billion Unit 2 - \$60 Billion
Oconee, Units 1, 2, & 3 Seneca, South Carolina	Unit 1 - 4,000 Unit 2 - 4,000 Unit 3 - 4,000	Unit 1 - 47,000 Unit 2 - 47,000 Unit 3 - 47,000	Unit 1 - 4,000 Unit 2 - 4,000 Unit 3 - 4,000	Unit 1 - \$56.8 Billion Unit 2 - \$58.3 Billion Unit 3 - \$58.3 Billion
Oyster Creek, Toms River, NJ	13,000	10,000	23,000	\$79.8 Billion
Palisades, South Haven, Michigan	1,000	7,000	scaled 10,000	\$52.6 Billion
Palo Verde, Units 1, 2, & 3 Maricopa, AZ	Unit 1 - 4,000 Unit 2 - 4,000 Unit 3 - 4,000	Unit 1 - 36,000 Unit 2 - 36,000 Unit 3 - 36,000	Unit 1 - 15,000	Unit 1 - \$89.7 Billion
Peach Bottom, Units 2 & 3 Peach Bottom, Pa	Unit 2 - 72,000 Unit 3 - 72,000	Unit 2 - 45,000 Unit 3 - 45,000	Unit 2 - 37,000 Unit 3 - 37,000	Unit 2 - \$119 Billion Unit 3 - \$119 Billion
Perry Units 1 & 2 (2 never built) Painesville, Ohio	Unit 1 - 5,500	Unit 1- 180,000	Unit 1 - 14,000 Unit 2 - 14,000	Unit 1 - \$102 Billion Unit 2 - \$86.8 Billion
Pilgrim Unit 1, Plymouth, Ma	3,000	30,000	23,000	\$81.8 Billion
Point Beach, Units 1 & 2 Two Creeks, Wisconsin	Unit 1 - 500 Unit 2 - 500	Unit 1 - 9,000 Unit 2 - 9,000	Unit 1 - 7,000 Unit 2 - 7,000	Unit 1 - \$41.4 Billion Unit 2 - \$43.8 Billion
Prairie Island, Units 1 & 2 Red Wing, MN	Unit 1 - 2,000 Unit 2 - 2,000	Unit 1 - 4,000 Unit 2 - 4,000	Unit 2 - 4,000 Unit 2 - 4,000	Unit 1 - \$48.3 Billion Unit 2 - \$49.5

				Billion
Quad Cities, Units 1 & 2 Cordova, Illinois	Unit 1 - 12,000 Unit 2 - 12,000	Unit 1 - 41,000 Unit 2 - 41,000	Unit 1 - 12,000 Unit 2 - 12,000	Unit 1 - \$65.1 Billion Unit 2 - \$65.1 Billion
Rancho Seco, Clay Station, Ca	Scaled 30,000	34,000	6,000	\$113 Billion
Robinson, Hartsville, SC	Scaled 2,000	8,000	3,000	\$42.5 Billion
St. Lucie, Units 1 & 2 Fort Pierce, Florida	Unit 1 - 5,000 Unit 2 - 5,000	Unit 1 - 6,000 Unit 2 - 6,000	Unit 1 - 3,000 Unit 2 - 3,000	Unit 1 - \$54.3 Billion Unit 2 - \$59.1 Billion
Salem, Units 1 & 2 Salem, NJ	Unit 1 - 100,000 Unit 2 - 100,000	Unit 1 - 70,000 Unit 2 - 75,000	Unit 1 - 40,000 Unit 2 - 40,000	Unit 1 - \$135 Billion Unit 2 - \$150 Billion
San Onofre, Units 1, 2 & 3 San Clemente, Ca	Unit 1 - 8,000 Unit 2 - 27,000 Unit 3 - 27,000	Unit 1 - 6,000 Unit 2 - 23,000 Unit 3 - 23,000	Unit 1 - 10,000 Unit 2 - 18,000 Unit 3 - 18,000	Unit 1 - \$58.8 Billion Unit 2 - \$186 Billion Unit 3 - \$182 Billion
Seabrook, Units 1 & 2 Seabrook, NH	Unit 1 - 7,000 Unit 2 - 7,000	Unit 1 - 27,000 Unit 2 - 27,000	Unit 1 - 6,000 Unit 2 - 6,000	Unit 1 - \$163 Billion Unit 2 - \$150 Billion
Sequoyah, Units 1 & 2 Daisy, Tenn.	Unit 1 - 29,000 Unit 2 - 29,000	Unit 1 - 61,000 Unit 2 - 61,000	Unit 1 - 4,700 Unit 2 - 4,700	Unit 1 - \$96.8 Billion Unit 2 - \$98.6 Billion
Shearon Harris, Units 1 & 2 (2 not built) Apex, N. C.	Unit 1 - 11,000 Unit 2 - 11,000	Unit 1 - 31,000 Unit 2 - 31,000	Unit 1 - 6,000 Unit 2 - 6,000	Unit 1 - \$68.5 Billion Unit 2 - \$47.8 Billion
Shoreham, Wading River, NY	40,000	75,000	35,000	\$157 Billion
South Texas, Units 1 & 2 South Texas, TX	Unit 1 - 18,000 Unit 2 - 18,000	Unit 1 - 10,000 Unit 2 - 10,000	Unit 1 - 11,000 Unit 2 - 11,000	Unit 1 - \$112 Billion Unit 2 - \$104 Billion
Summer Unit 1, Fairfield, SC	5,000	73,000	4,000	\$68.2 Billion
Surry Units 1 & 2 Gravel Neck, VA	Unit 1 - 31,000 Unit 2 - 31,000	Unit 1 - 36,000 Unit 2 - 36,000	Unit 1 - 23,000 Unit 2 - 23,000	Unit 1 - \$56.3 Billion Unit 2 - \$57.8 Billion
Susquehanna, Units 1 & 2 Berwick. Pa	Unit 1 - 67,000 Unit 2 - 67,000	Unit 1 - 47,000 Unit 2 - 47,000	Unit 1 - 28,000 Unit 2 - 28,000	Unit 1 - \$143 Billion Unit 2 - \$137 Billion
Three Mile Island Units 1 & 2 Middletown, PA	Unit 1 - 42,000 Unit 2 - 42,000	Unit 1 - 50,000 Unit 2 - 57,000	Unit 1 - 26,000 Unit 2 - 28,000	Unit 1 - 102 Billion

				Unit 2 - 122 Billion
Trojan, Prescott, OR	Scaled 1,000	14,000	Scaled 5,000	\$89.7 Billion
Turkey Point Units 3 & 4 Florida City, FL	Unit 3 - 29,000 Unit 4 - 29,000	Unit 3 - 45,000 Unit 4 - 45,000	Unit 3 - 4,000 Unit 4 - 4,000	Unit 3 - \$43.6 Billion. Unit 4 - \$48.6 Billion
Vermont Yankee	7,000	3,000	17,000	\$68.8 Billion
Vogtle, Units 1 & 2 Burke, GA	Unit 1 - 200 Unit 2 - 200	Unit 1 - 39,000 Unit 2 - 39,000	Unit 1 - 4,000 Unit 2 - 4,000	Unit 1 - \$70.3 Billion Unit 2 - \$62.3 Billion
Waterford, Unit 3, St. Charles, LA	96,000	279,000	9,000	\$131 Billion
Watts Bar, Units 1 & 2 Rhea, Tenn	Unit 1 - 5,000 Unit 2 - 5,000	Unit 1 - 11,000 Unit 2 - 11,000	Unit 1 - 4,000 Unit 2 - 4,000	Unit 1 - \$86.6 Billion Unit 2 - \$83.3 Billion
WPPSS Unit 1, Richland, WA	200	20,000	4,000	\$80.4 Billion
WPPSS, Unit 2, Benton, WA	300	17,000	4,000	\$77.3 Billion
WPPSS, Unit 3, Olympia, WA	173	13,800	4,000	\$73.7 Billion
Wolf Creek, Burlington, KS	1,000	3,000	3,000	\$105 Billion
Yankee Rowe, Rowe, MA	1,000	100	4,000	\$21. 4 Billion
Zimmer, Moscow, OH (not built)	9,000	109,000	10,000	\$84.5 Billion
Zion, Units 1 & 2 Zion, IL	Unit 1 - 14,000 Unit 2 - 14,000	Unit 1 - 155,000 Unit 2 - 155,000	Unit 1 - 17,000 Unit 2 - 17,000	Unit 1 - \$146 Billion Unit 2 - \$146 Billion