

Appendix B: Consequences of a Nuclear Accident for US Nuclear Power Plants

appendix to Greenpeace report, Risky Business: The Probability and Consequences of a Nuclear Accident

Sources:

Reactor Names:

Taken from the Nuclear Energy Institute's document "Current Owners and Operators of US Nuclear Power Plants (by Unit)," dated 7/19/2001.

Location, Reactor Containment Type, Reactor Design (NSSS), Licensed MWt, and Net MDC:

Taken from the Nuclear Regulatory Commission *2000 Information Digest*, Appendix A.

Power Level (Mwe), Peak Early Fatalities (scaled), Peak Early Injuries (scaled), Peak Cancer Deaths (scaled), Cost in Billions of 1980 \$ (scaled), Peak Fatal Radius (mi), Peak Injury Radius (mi):

Taken from data released to the US House of Representatives Committee on Interior and Insular Affairs and the Subcommittee on Oversight by the Nuclear Regulatory Commission from:

1. NUREG/CR-2239, SAND81-1549CRAC2, "Technical Guidance for Siting Criteria Development", D.C. Aldrich et. Al, Sandia National Laboratory (DRAFT),
2. NUREG/CR-2723, SAND82-1110, "Estimates of the Financial Consequences of Reactor Accidents", D.R. Strip, Sandia National Laboratory (DRAFT), and
3. CRAC2 computer printouts.

These studies were performed by Sandia National Laboratory under contract to the Nuclear Regulatory Commission (1982). The figures provided here are based on a core melt down accident in which the reactor containment is breached directly to the atmosphere and all installed safety mechanisms fail.

Reactor Name	Location	Reactor Containment Type	Reactor Design (NSSS)	Licensed MWt	Net MDC	Power Level (Mwe)	Peak Early Fatalities (scaled)	Peak Early Injuries (scaled)	Peak Cancer Deaths (scaled)	Cost in Billions of 1980 \$ (scaled)	Peak Fatal Radius (mi)	Peak Injury Radius (mi)
Arkansas Nuclear 1	6 MI WNW of Russellville, AR	PWR-DRYAMB	B&W LLP	2568	836	836	1,900	3,400	2,900	68.1	17.5	35
Arkansas Nuclear 2	6 MI WNW of Russellville, AR	PWR-DRYAMB	COMB CE	2815	858	912	2,100	4,000	3,000	84.9	17.5	35
Beaver Valley 1	17 MI W of McCandless, PA	PWR-DRYSUB	WEST 3LP	2652	810	833	19,000	156,000	24,000	122.0	20	55
Beaver Valley 2	17 MI W of McCandless, PA	PWR-DRYSUB	WEST 3LP	2652	820	833	19,000	156,000	24,000	11.0	20	55
Braidwood 1	24 MI SSW of Joliet, IL	PWR-DRYAMB	WEST 4LP	3411	1100	1120	6,750	63,300	14,200	127.0	15	60
Braidwood 2	24 MI SSW of Joliet, IL	PWR-DRYAMB	WEST 4LP	3411	1100	1120	6,750	63,300	14,200	122.0	15	60
Browns Ferry 1	10 MI NW of Decatur, AL	BWR-MARK1	GE 4	3293	1065	1067	18,000	42,000	3,800	67.3	20	30
Browns Ferry 2	10 MI NW of Decatur, AL	BWR-MARK1	GE 4	3293	1065	1067	18,000	42,000	3,800	69.1	20	30
Browns Ferry 3	10 MI NW of Decatur, AL	BWR-MARK1	GE 4	2558	767	1067	18,000	42,000	3,800	73.0	20	30

Brunswick 1	2 MI N of Southport, NC	BWR-MARK1	GE 4	2436	754	790	7,500	18,000	4,600	56.5	20	45
Brunswick 2	2 MI N of Southport, NC	BWR-MARK1	GE 4	3411	1105	790	7,500	18,000	4,600	53.9	20	45
Byron 1	17 MI SW of Rockford, IL	PWR-DRYAMB	WEST 4LP	3411	1105	1120	9,050	79,300	15,300	114.0	15	60
Byron 2	17 MI SW of Rockford, IL	PWR-DRYAMB	WEST 4LP	3565	1171	1120	9,050	79,300	15,300	114.0	15	60
Callaway	10 MI SE of Fulton, MO	PWR-DRYAMB	WEST 4LP	2700	835	1150	11,500	32,000	9,600	110.0	17.5	35
Calvert Cliffs 1	40 MI S of Annapolis, MD	PWR-DRYAMB	COMB CE	2700	840	850	5,600	15,000	23,000	87.4	20	55
Calvert Cliffs 2	40 MI S of Annapolis, MD	PWR-DRYAMB	COMB CE	3411	1129	850	5,600	15,000	23,000	92.0	20	55
Catawba 1	6 MI NNW of Rock Hill, SC	PWR-ICECND	WEST 4LP	3411	1129	1145	42,000	88,000	5,800	101.0	20	30
Catawba 2	6 MI NNW of Rock Hill, SC	PWR-ICECND	WEST 4LP	2894	930	1145	42,000	88,000	5,800	93.7	20	30
Clinton	6 MI E of Clinton, IL	BWR-MARK3	GE 6	3411	1150	950	1,600	32,000	13,000	92.8	15	60
Comanche Peak 1	4 MI N of Glen Rose, TX	PWR-DRYAMB	WEST 4LP	3411	1150	1150	1,200	14,000	4,800	117.0	25	35
Comanche Peak 2 *data not avail., estimate based on Comanche Peak 1, which is same size & reactor type)	4 MI N of Glen Rose, TX	PWR-DRYAMB	WEST 4LP	2381	764	1150	1,200	14,000	4,800	117.0	25	35
Cooper	23 MI S of Nebraska City, NE	BWR-MARK1	GE 4	2544	818	778	1,600	2,800	3,100	57.2	25	35
Crystal River 3	7 MI NW of Crystal River, FL	PWR-DRYAMB	B&W LLP	2772	873	825	900	3,800	2,800	53.8	20	55
Davis-Besse	21 MI ESE of Toledo, OH	PWR-DRYAMB	B&W LLP	3250	1000	906	1,400	73,000	10,000	84.0	15	70
Donald C. Cook 1	11 MI S of Benton Harbor, MI	PWR-ICECND	WEST 4LP	3411	1060	1054	1,900	80,000	13,000	91.9	15	70
Donald C. Cook 2	11 MI S of Benton Harbor, MI	PWR-ICECND	WEST 4LP	3338	1073	1094	2,000	88,000	13,000	101.1	15	70
Diablo Canyon 1	12 MI WSW of San Luis Obispo, CA	PWR-DRYAMB	WEST 4LP	3411	1087	1084	10,000	11,000	12,000	155.0	17.5	35
Diablo Canyon 2	12 MI WSW of San Luis Obispo, CA	PWR-DRYAMB	WEST 4LP	2527	772	1106	10,000	12,000	12,000	158.0	17.5	35
Dresden 2	9 MI E of Morris, IL	BWR-MARK1	GE 3	2527	773	800	42,000	39,000	13,000	87.4	15	60
Dresden 3	9 MI E of Morris, IL	BWR-MARK1	GE 3	1658	520	800	42,000	39,000	13,000	89.6	15	60

Duane Arnold	8 MI NW of Cedar Rapids, IA	BWR-MARK1	GE 4	2763	838	545	2,900	12,000	7,000	53.8	25	35
Edwin I. Hatch 1	11 MI N of Baxley, GA	BWR-MARK1	GE 4	2763	855	786	700	4,000	3,000	51.0	20	70
Edwin I. Hatch 2	11 MI N of Baxley, GA	BWR-MARK1	GE 4	3430	876	786	700	4,000	3,000	56.0	20	70
Fermi 2	25 MI NE of Toledo, OH	BWR-MARK1	GE 4	1500	478	1100	8,000	340,000	13,000	136.0	15	70
Fort Calhoun	19 MI N of Omaha, NE	PWR-DRYAMB	COMB CE	1520	480	457	3,000	32,000	3,000	43.5	25	35
Ginna	20 MI NE of Rochester, NY	PWR-DRYAMB	WEST 2LP	3833	1179	490	2,000	28,000	14,000	63.0	12.5	40
Grand Gulf 1	25 MI S of Vicksburg, MS	BWR-MARK3	GE 6	2300	683	1250	4,500	10,000	3,800	83.0	20	40
H. B. Robinson 2	26 MI from Florence, SC	PWR-DRYAMB	WEST 3LP	3293	1031	665	2,000	8,000	3,000	42.5	20	30
Hope Creek 1	18 MI SE of Wilmington, DE	BWR-MARK1	GE 4	3071	951							
Indian Point 2	24 MI N of New York, NY	PWR-DRYAMB	WEST 4LP	3025	965	873	46,000	141,000	13,000	274.0	17.5	50
Indian Point 3	24 MI N of New York, NY	PWR-DRYAMB	WEST 4LP	2536	800	965	50,000	167,000	14,000	314.0	17.5	50
James A. FitzPatrick	8 MI NE of Oswego, NY	BWR-MARK1	GE 4	2775	847	821	1,000	16,000	17,000	103.0	12.5	40
Joseph M. Farley 1	18 MI SE of Dothan, AL	PWR-DRYAMB	WEST 3LP	2775	852	860	12,000	12,000	2,900	52.2	20	40
Joseph M. Farley 2	18 MI SE of Dothan, AL	PWR-DRYAMB	WEST 3LP	1650	511	860	12,000	12,000	2,900	59.1	20	40
Kewaunee	27 MI E of Green Bay, WI	PWR-DRYAMB	WEST 2LP	3323	1036	535	900	17,000	8,000	46.9	12.5	40
LaSalle County 1	11 MI SE of Ottawa, IL	BWR-MARK2	GE 5	3323	1036	1078	14,000	12,000	15,000	118.0	15	60
LaSalle County 2	11 MI SE of Ottawa, IL	BWR-MARK2	GE 5	3458	1105	1078	14,000	12,000	15,000	120.0	15	60
Limerick 1	21 MI NW of Philadelphia, PA	BWR-MARK2	GE 4	3458	1115	1055	74,000	610,000	34,000	213.0	20	55
Limerick 2	21 MI NW of Philadelphia, PA	BWR-MARK2	GE 4	3411	1129	1055	74,000	610,000	34,000	197.0	20	55
McGuire 1	17 MI N of Charlotte, NC	PWR-ICECND	WEST 4LP	3411	1129	1180	12,000	21,000	26,000	106.0	15	35
McGuire 2	17 MI N of Charlotte, NC	PWR-ICECND	WEST 4LP	2700	871	1180	12,000	21,000	26,000	110.0	15	35
Millstone 2	3.2 MI WSW of New London, CT	PWR-DRYAMB	COMB CE	3411	1137	870	18,000	18,000	33,000	135.0	20	65
Millstone 3	3.2 MI WSW of New London, CT	PWR-DRYSUB	WEST 4LP	1775	615	1150	23,000	30,000	38,000	174.0	20	65

Monticello	30 MI NW of Minneapolis, MN	BWR-MARK1	GE 3	1850	565	536	500	10,000	4,000	44.6	15	35
Nine Mile Point 1	6 MI NE of Oswego, NY	BWR-MARK1	GE 2	3467	1105	610	800	11,000	14,000	66.2	12.5	40
Nine Mile Point 2	6 MI NE of Oswego, NY	BWR-MARK2	S&W	2893	893	1080	1,400	26,000	20,000	134.0	12.5	40
North Anna 1	40 MI NW of Richmond, VA	PWR-DRYSUB	WEST 3LP	2893	897	850	1,800	5,000	29,000	66.0	20	55
North Anna 2	40 MI NW of Richmond, VA	PWR-DRYSUB	WEST 3LP	2568	846	850	1,800	5,000	29,000	60.3	20	55
Oconee 1	30 MI NW of Greenville, SC	PWR-DRYAMB	B&W LLP	2568	846	860	4,000	47,000	4,000	56.8	20	30
Oconee 2	30 MI NW of Greenville, SC	PWR-DRYAMB	B&W LLP	2568	846	860	4,000	47,000	4,000	58.3	20	30
Oconee 3	30 MI NW of Greenville, SC	PWR-DRYAMB	B&W LLP	1930	619	860	4,000	47,000	4,000	58.3	20	30
Oyster Creek	9 MI S of Toms River, NJ	BWR-MARK1	GE 2	2530	730	620	13,000	10,000	23,000	79.8	17.5	50
Palisades	5 mi S of South Haven, MI	PWR-DRYAMB	COMB CE	3800	1227	740	1,000	7,000	10,000	52.6		
Palo Verde 1	36 mi W of Pheonix, AZ	PWR-DRYAMB	COMB CE80	3876	1227	1270	4,000	36,000	15,000	89.7	20	50
Palo Verde 2	36 mi W of Pheonix, AZ	PWR-DRYAMB	COMB CE80	3876	1230	1270	4,000	36,000	15,000	86.1	20	50
Palo Verde 3	36 mi W of Pheonix, AZ	PWR-DRYAMB	COMB CE80	3458	1093	1270	4,000	36,000	15,000	79.5	20	50
Peach Bottom 2	17.9 mi S of Lancaster, PA	BWR-MARK1	GE 4	3458	1093	1065	72,000	45,000	37,000	119.0	20	55
Peach Bottom 3	17.9 mi S of Lancaster, PA	BWR-MARK1	GE 4	3579	1160	1065	72,000	45,000	37,000	119.0	20	55
Perry 1	7 mi NE of Painesville, OH	BWR-MARK3	GE 6	1998	670	1205	5,500	180,000	14,000	102.0	15	70
Pilgrim 1	4 mi SE of Plymouth, MA	BWR-MARK1	GE 3	1519	485	670	3,000	30,000	23,000	81.8	20	65
Point Beach 1	31 mi NNW of Manitowoc, WI	PWR-DRYAMB	WEST 2LP	1519	485	497	500	9,000	7,000	41.4	12.5	40
Point Beach 2	31 mi NNW of Manitowoc, WI	PWR-DRYAMB	WEST 2LP	1650	513	497	500	9,000	7,000	43.8	12.5	40
Prairie Island 1	28 mi SE of Minneapolis, MN	PWR-DRYAMB	WEST 2LP	1650	512	520	2,000	4,000	4,000	48.3	15	35
Prairie Island 2	28 mi SE of Minneapolis, MN	PWR-DRYAMB	WEST 2LP	2511	769	520	2,000	4,000	4,000	49.5	15	35

Quad Cities 1	20 mi NE of Moline, IL	BWR-MARK1	GE 3	2511	769	800	12,000	41,000	12,000	65.1	15	60
Quad Cities 2	20 mi NE of Moline, IL	BWR-MARK1	GE 3	2894	936	800	12,000	41,000	12,000	65.1	15	60
River Bend 1	24 mi NNW of Baton Rouge, LA	BWR-MARK3	GE 6	3411	1106							
Salem 1	18 mi S of Wilmington, DE	PWR-DRYAMB	WEST 4LP	3411	1106	1090	100,000	70,000	40,000	135.0	20	55
Salem 2	18 mi S of Wilmington, DE	PWR-DRYAMB	WEST 4LP	3390	1070	1115	100,000	75,000	40,000	150.0	20	55
San Onofre 2	4 mi SE of San Clemente, CA	PWR-DRYAMB	COMB CE	3390	1080	1100	27,000	23,000	18,000	186.0	17.5	35
San Onofre 3	4 mi SE of San Clemente, CA	PWR-DRYAMB	COMB CE	3411	1158	1100	27,000	23,000	18,000	182.0	17.5	35
Seabrook 1	13 mi S of Portsmouth, NH	PWR-DRYAMB	WEST 4LP	3411	1117	1150	7,000	27,000	6,000	163.0	20	65
Sequoyah 1	9.5 mi NE of Chattanooga, TN	PWR-ICECND	WEST 4LP	3411	1117	1148	29,000	61,000	4,700	96.8	20	30
Sequoyah 2	9.5 mi NE of Chattanooga, TN	PWR-ICECND	WEST 4LP	2775	860	1148	29,000	61,000	4,700	98.6	20	30
Shearon Harris 1	20 mi SW of Raleigh, SC	PWR-DRYAMB	WEST 3LP	3800	1251	900	11,000	31,000	6,000	68.5	20	30
South Texas Project 1	12 mi SSW of Bay City, TX	PWR-DRYAMB	WEST 4LP	3800	1251	1250	18,000	10,000	4,000	112.0	25	35
South Texas Project 2	12 mi SSW of Bay City, TX	PWR-DRYAMB	WEST 4LP	2700	839	1250	18,000	10,000	4,000	104.0	25	35
St. Lucie 1	12 mi SE of Ft. Pierce, FL	PWR-DRYAMB	COMB CE	2700	839	777	5,000	6,000	3,000	54.3	20	70
St. Lucie 2	12 mi SE of Ft. Pierce, FL	PWR-DRYAMB	COMB CE	2900	945	777	5,000	6,000	3,000	59.1	20	70
Summer	25 mi NW of Columbia, SC	PWR-DRYAMB	WEST 3LP	2546	801	900	5,000	73,000	4,000	68.2	20	30
Surry 1	17 mi NW of Newport News, VA	PWR-DRYSUB	WEST 3LP	2546	801	775	31,000	36,000	23,000	56.3	20	55
Surry 2	17 mi NW of Newport News, VA	PWR-DRYSUB	WEST 3LP	3441	1090	775	31,000	36,000	23,000	57.8	20	55
Susquehanna 1	7 mi NE of Berwick, PA	BWR-MARK2	GE 4	3441	1094	1050	67,000	47,000	28,000	143.0	20	55
Susquehanna 2	7 mi NE of Berwick, PA	BWR-MARK2	GE 4	2568	786	1050	67,000	47,000	28,000	137.0	20	55
Three Mile Island 1	10 mi SE of Harrisburg, PA	PWR-DRYAMB	B&W LLP	2300	693	792	42,000	50,000	26,000	102.0	20	55
Turkey Point 3	25 mi S of Miami, FL	PWR-DRYAMB	WEST 3LP	2300	693	666	29,000	45,000	4,000	43.6	20	70
Turkey Point 4	25 mi S of Miami, FL	PWR-DRYAMB	WEST 3LP	1593	510	666	29,000	45,000	4,000	48.6	20	70

Vermont Yankee	5 mi S of Brattleboro, VT	BWR-MARK1	GE 4	3565	1162	514	7,000	3,000	17,000	68.8	15	35
Vogtle 1	26 mi SE of Augusta, GA	PWR-DRYAMB	WEST 4LP	3565	1162	1100	200	39,000	4,000	70.3	20	70
Vogtle 2	26 mi SE of Augusta, GA	PWR-DRYAMB	WEST 4LP	3486	1107	1100	200	39,000	4,000	62.3	20	70
Washington Nuclear 2	12 mi NW of Richland, WA	BWR-MARK2	GE 5	3390	1104	1250	200	20,000	4,000	77.3	17.5	30
Waterford 3	21 mi W of New Orleans, LA	PWR-DRYAMB	COMB CE	3411	1117	1165	96,000	279,000	9,000	131.0	20	40
Watts Bar 1	10 mi S of Spring City, TN	PWR-ICECND	WEST 4LP	1163	1163	1100	5,000	11,000	4,000	86.6	20	30
Wolf Creek 1	3.5 mi NE of Burlington, KS	PWR-DRYAMB	WEST 4LP		95516	1150	1,000	3,000	3,000	105.0	25	35