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## Nuclear neighbors: Population rises near US reactors

Map of census data shows a 17 percent increase in residents within 10 miles in a



Jonathan Ernst / Reuters file  
Ernie Garrison rakes his son's front yard across from the Three Mile Island nuclear power plant in Pennsylvania, where the U.S. suffered its most serious nuclear accident in 1979. The population within 10 miles of Three Mile Island grew by 10.9 percent in the past decade, while Pennsylvania's population grew only 3.4 percent. The sharp growth was typical for nuclear plants across the nation, according to Census data analyzed for msnbc.com.



By **Bill Dedman** Investigative reporter

msnbc.com

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**WATERFORD, Conn.**— Who's afraid of nuclear power? Not the American people, judging by where they choose to live.

A new map of data from the 2010 U.S. Census shows that the number of people living within the 10-mile emergency planning zones around nuclear power plants rose by 17 percent in the past decade, compared with an overall increase of less than 10 percent in the U.S.

population.

If the circles on the map are widened to a 50-mile radius (the same evacuation area that U.S. nuclear officials recommended for Americans living near Japan's troubled Fukushima Dai-ichi reactors), they would cover one in three people in the U.S.

That's 116 million nuclear neighbors, up from 109 million a decade earlier, according to the analysis conducted for msnbc.com by **Longcreative**, a data analysis and design company.

The population within 10 miles of Pennsylvania's Three Mile Island reactor grew 11 percent. At Pilgrim, outside of Boston, the increase was 41 percent. Near San Onofre on the California fault lines, 50 percent.

Among the 100 most populous U.S. cities on the new census map, 26 have a nuclear plant within 50 miles: New York, Chicago, Philadelphia (3 different plants nearby), Phoenix, San Diego, Fort Worth, Charlotte (2 plants), Detroit, Baltimore, Boston (2 plants), Washington, Virginia Beach and Norfolk, Omaha, Raleigh and Durham, Miami, Cleveland, Minneapolis and St. Paul (2 plants), New Orleans, Pittsburgh, Toledo (2 plants), Newark, Baton Rouge, and Rochester, N.Y.

**To get more information:** The interactive map

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on this story shows the populations within 5, 10, 20 and 50 miles of each nuclear power plant in the U.S. And a ranking of nuclear plants by population is at the bottom of the text, along with a data file for readers who want to do their own analysis.

### 'It makes a hissing noise'

Why would the population rise sharply near nuclear power plants, even in lower-growth states outside the Sun Belt? One reason could be normal population expansion, with previously unoccupied areas being filled in. Another reason: Nuclear reactors use water for cooling, from lakes, rivers or oceans, so the reactors are typically built on waterfront property. Is the sun rising or setting over the ocean any less beautiful if you can also see a cooling tower?

On a recent spring evening, two boys were shooting hoops in the driveway of a beachfront house on Millstone Beach in Waterford, a Connecticut town on Long Island Sound midway between New York City and Boston. The neat houses look out on glorious sunrises.

And if you turn your head to the right, the orange-and-white-striped tower of the Millstone Power Station reaches high above the white sand. The estimated population within 10 miles of Millstone grew 30 percent in the past decade, to 123,482. The population within 50 miles grew to 3 million, an increase of 10 percent, much faster than the state's general growth rate of 4.9 percent.

The father of one of the boys, Paul Van der Putten, 49, bought his home in 2003 for \$378,000. It has increased roughly 75 percent in value since. He said he isn't worried about the nuclear plant, which is about six-tenths of a mile away, the length of 10 football fields. It

has two operating nuclear reactors as well as a third reactor, mothballed but still a storehouse for nuclear fuel rods.

"It is what it is," he said. "It makes a hissing noise sometimes at night. That rattles the windows. They let us know when they have that scheduled. They let off the steam at night because no one wants to see the plume. It's just an industrial plant."

### Quake risk at nuclear plants

His family did receive a packet of potassium iodide pills in the mail a while back, because they live within the 10-mile zone.

Where are those pills?

"They're in the house somewhere. I'm really not sure where."

### Most reactors have more neighbors

Journalist Andrew Long at Longcreative plotted the 65 nuclear power locations for msnbc.com on a computerized map of the 2000 and 2010 census data, calculating the population within different distances from each plant. (One of the leading nuclear power companies, General Electric, is a part owner of NBCUniversal, which co-owns msnbc.com through a joint venture with Microsoft.)

Other conclusions from the mapping of census data:



- Within 5 miles of the nation's nuclear plants, there are an estimated 916,330 U.S. residents, up 15.0 percent from a

decade earlier.

- Within 10 miles, the population jumps to 4,079,007, up 16.9 percent.
- Within 20 miles, there are 18,510,584 people, up 12.3 percent.
- And within 50 miles, 116,223,077 people, up 6.5 percent.

No matter what size the circle, the pattern is consistent: Most nuclear plants have growing neighborhoods. Out of the 65 nuclear power plants in the U.S., 55 plants had more people living within 5 miles than a decade earlier; 54 plants had more people within 10 miles; and 56 plants had more people within 50 miles.

### Growth even in slow-growth states

Looking at individual nuclear plants, these patterns jump out:

The reactors with the most neighbors within 50 miles:

- Indian Point, near Buchanan, N.Y., 41 miles upriver from the center of New York City, with 17.2 million people within 50 miles.
- San Onofre, near San Clemente, Calif., and 45 miles from San Diego, 8.5 million.
- Limerick, near Limerick, Pa., and 28 miles from Philadelphia, 8.0 million.
- Dresden, near Morris, Ill., and 43 miles from Chicago, 7.3 million.

- Peach Bottom, near Delta, Pa., and 36

miles from Baltimore, 5.5 million.

- Hope Creek and Salem, both near Hancocks Bridge, N.J., and 43 miles from Philadelphia, 5.5 million.

The nuclear plant with the fewest neighbors is Nebraska's Cooper Nuclear Station, in a rural area on the Missouri border, with only 164,000 people within 50 miles.

### The view from the bay window

Next door to the Van der Putten family on Millstone Beach in Waterford, Vincent E. McCurdy has a living room full of boxes. His family bought the house in late January for \$760,000, moving in just before the Japanese nuclear emergency. He and his wife have a daughter at home and a son away at college.



Connecticut Multiple Listing Service, Inc.  
View No. 1 from Realtor photos: From Windward Way in Waterford, Conn., the view of Long Island Sound is gorgeous. But turn to the right a bit...

As they shopped for waterfront property, McCurdy said, the nuclear power plant figured into their thinking mostly in terms of whether it could be seen through the bay window. The family's view of the Sound is unobstructed, but if they stand on the patio, they can see the orange and white tower.



"The plant was definitely way down on the list of considerations."

After Fukushima, nuclear power has been more on their minds, he said, but it wouldn't change their decision to choose this location.

"It's been elevated in terms of thinking about it, but we don't really talk too much about it, because we view the overall risk to be low."

McCurdy, 54, is a senior pharmaceutical scientist for Pfizer Inc., and approaches the question with an analytical mind. While he acknowledged there are some risks, "The safety record of the nuclear industry has been pretty good overall." Millstone is not near a fault line. Long Island would buffer them against a tsunami. Hurricanes in this area are infrequent and relatively mild. And if something catastrophic were to happen, he said, a nuclear emergency can be slow to develop.



Connecticut Multiple Listing Service, Inc.  
View No. 2: From a slightly different angle, the view includes the tower of the Millstone Power Station nuclear plant. Population within 10 miles of the plant grew by 29.5 percent, while the state population grew by only 4.9 percent.

"You'd have some time to react, to get the family out of town."

### Growth even outside the Sun Belt

Even nuclear plants in low-growth areas of the country showed increases in population. For example, the population in the 10-mile

preparedness zone around the Salem and Hope Creek plants, near Hancocks Bridge, N.J., grew by 54 percent. The state population grew just under 5 percent in the same decade.

These plants showed the most population growth, judged in percentage terms, using a 10-mile radius: Palo Verde, near Wintersburg, Ariz.; Brunswick, near Southport, N.C.; Calvert Cliffs, near Lusby, Md.; McGuire, near Huntersville, N.C.; Turkey Point, near Homestead, Fla.; and Shearon Harris, near New Hill, N.C. Each of these showed increases of more than 60 percent in a decade, from relatively small base populations in 2000.

Any idea that most reactors are in unpopulated areas is not borne out by the data, not when a 50-mile circle is drawn. The median, or middle, nuclear plant has 1.4 million residents within 50 miles. Out of 65 plants, 42 exceed a million people within that 50-mile zone.

### How close is close?

Before Fukushima, people within a mile or two already knew they lived close to nuclear power. At Millstone, the neighborhood and the plant have the same name. The back gate of the plant was usually unlocked until after the Sept. 11 terrorist attacks, Van der Putten said, and workers could walk from the plant to the neighborhood beach to have lunch.

Now, with all the talk of evacuation zones in Japan, Americans living 10 or 20 or 50 miles away may be calculating for the first time their distance from a nuclear reactor. In Japan, the evacuation zone has been expanded to 12 miles for everyone, and 12 to 19 miles for children, pregnant women and hospitalized patients.

Some critics of nuclear power have said that





the standard emergency planning zone for the U.S. should be expanded to 20 or 50 miles. The U.S. Nuclear Regulatory Commission has said it's sticking with 10 miles, but that the zone can always be expanded in an emergency.

In Waterford, more than 100 people packed a meeting Monday evening at Town Hall to hear from officials of [Dominion](#), the Virginia energy company that owns the Millstone nuclear plant. Though a few anti-nuclear activists were louder, a larger group of nuclear supporters [shouted them down](#).

Dominion executives stressed differences between their plant's design and the troubled reactors in Japan, and emphasized the multiple backup systems and emergency plans. (See [this PDF file for a typical set of emergency instructions](#) for a nuclear power plant.) Among other differences, Millstone has pressurized-water reactors, not the boiling-water reactors used in Fukushima and in many U.S. plants. Dominion's main current concern is not fear but taxation: A proposed state tax in Connecticut would hit nuclear power hardest of all. Dominion has threatened to close the plant if the \$335 million tax increase is approved and it can't pass the cost on to customers.

Judging by interviews in the neighborhoods, and conversation at the Main Street Grille in the village of Niantic, which has the best view of the plant, residents are less worried by the nuclear emergency than by another emergency just up the road in Boston: Two weeks into the baseball season, the Red Sox are in last place.

### **More than half of Americans polled say nuclear power is safe**

Gallup, the polling organization, has asked two main questions on nuclear power.



Stan Honda / AFP/Getty Images  
Cooling towers from the Limerick Generating Station, a nuclear power plant, 28 miles from Philadelphia, are seen from an nearby neighborhood. The population within 10 miles of the plant grew by 18.7 percent in the past decade.

Americans are divided on the question of construction of more nuclear power plants. In late March, with Japan very much in the news, 46 percent of those surveyed told Gallup that nuclear power is necessary to help solve the nation's current energy problems, while 48 percent said the dangers of nuclear power are too great, even if it would help solve energy problems. That's very nearly the same split as 10 years earlier.

On the issue of safety, there is a clear pro-nuclear majority: In the same Gallup poll in late March, 58 percent said that nuclear power plants are safe, while only 36 percent said they are not safe, with 6 percent expressing no opinion.

Gallup's editor in chief, Frank Newport, [summarized](#): "It may be months or years before the final impact of the Japanese disaster on American attitudes toward nuclear power can be assessed. In the short term, Americans are concerned about the dangers of a nuclear crisis in this country. But Gallup's most recent survey suggests that support for nuclear power may be more stable than some might think."



### Ranking of U.S. nuclear plants by population within 50 miles

These are the 65 commercial nuclear power plants in the United States, showing the estimated U.S. populations within 10 and 50 miles, the changes in population between 2000 and 2010, and distances to selected larger cities within 50 miles. These 65 locations have 104 operating nuclear reactors. Several of the reactors also would have nearby Canadian residents, who are not counted here.

The plants are ranked here by population within 50 miles.

**More information:** This information is summarized on the accompanying map, and more details on each plant and its population changes are available in an [Excel spreadsheet](#).

**1 Indian Point, near Buchanan, N.Y.,** two reactors, licensed 1973/1976, 2010 population within 50 miles is 17,220,895 (increase of 5.1 percent in a decade), 2010 population within 10 miles is 272,539 (increase of 17.6 percent), cities within 50 miles include New York (41 miles to city center); Newark, N.J., (39 miles); Stamford, Conn., (24 miles); Bridgeport, Conn., (40 miles).

**2 San Onofre, near San Clemente, Calif.,** two reactors, licensed 1982/1983, 2010 population within 50 miles is 8,460,508 (increase of 14.9 percent in a decade), 2010 population within 10 miles is 92,687 (increase of 50.0 percent), cities within 50 miles include San Diego (45 miles).

**3 Limerick, near Limerick, Pa.,** two reactors, licensed 1985/1989, 2010 population within 50 miles is 8,027,924 (increase of 6.1 percent in a decade), 2010 population within 10 miles is 252,197 (increase of 18.7 percent), cities within 50 miles include Philadelphia (28 miles).

**4 Dresden, near Morris, Ill.,** two reactors, licensed 1969/1971, 2010 population within 50 miles is 7,305,482 (increase of 3.5 percent in a decade), 2010 population within 10 miles is 83,049 (increase of 47.6 percent), cities within 50 miles include Chicago (43 miles).

**5 Peach Bottom, near Delta, Pa.,** two reactors, licensed 1973/1974, 2010 population within 50 miles is 5,526,342 (increase of 10.6 percent in a decade), 2010 population within 10 miles is 46,536 (increase of 7.2 percent), cities within 50 miles include Baltimore (36 miles).

**6 Hope Creek, near Hancocks Bridge, N.J.,** one reactor, licensed 1986, 2010 population within 50 miles is 5,523,010 (increase of 7.5 percent in a decade), 2010 population within 10 miles is 53,811 (increase of 53.3 percent), cities within 50 miles include Philadelphia (43 miles).

**7 Salem, near Hancocks Bridge, N.J.,** two reactors, licensed 1976/1981, 2010 population within 50 miles is 5,482,329 (increase of 7.6 percent in a decade), 2010 population within 10 miles is 52,091 (increase of 54.1 percent), cities within 50 miles include Philadelphia (43 miles).

**8 Braidwood, near Braceville, Ill.,** two reactors, licensed 1987/1988, 2010 population within 50 miles is 4,976,020 (increase of 5.3 percent in a decade), 2010 population within 10 miles is 33,910 (increase of 6.5 percent), cities within 50 miles include Joliet (20 miles).

**9 Fermi, near Monroe, Mich.,** one reactor, licensed 1985, 2010 population within 50 miles is 4,799,526 (decrease of 3.4 percent in a decade), 2010 population within 10 miles is 92,377 (increase of 9.5 percent), cities within



50 miles include Detroit (30 miles) and Toledo, Ohio, (27 miles). (Additional population in Canada, including Windsor, Ontario, 26 miles.)

**10 Pilgrim, near Plymouth, Mass.**, one reactor, licensed 1972, 2010 population within 50 miles is 4,737,792 (increase of 10.2 percent in a decade), 2010 population within 10 miles is 75,835 (increase of 40.5 percent), cities within 50 miles include Boston (35 miles).

**11 Oyster Creek, near Forked River, N.J.**, one reactor, licensed 1969, 2010 population within 50 miles is 4,482,261 (increase of 10.4 percent in a decade), 2010 population within 10 miles is 133,609 (increase of 35.8 percent), cities within 50 miles include Atlantic City (30 miles), Toms River (10 miles), Lakewood (19 miles), Asbury Park (30 miles), Cherry Hill (42 miles).

**12 Seabrook, near Seabrook, N.H.**, one reactor, licensed 1990, 2010 population within 50 miles is 4,315,571 (increase of 8.7 percent in a decade), 2010 population within 10 miles is 118,747 (increase of 10.1 percent), cities within 50 miles include Boston (40 miles).

**13 Turkey Point, near Homestead, Fla.**, two reactors, licensed 1972/1973, 2010 population within 50 miles is 3,476,981 (increase of 15.1 percent in a decade), 2010 population within 10 miles is 161,556 (increase of 62.8 percent), cities within 50 miles include Miami (25 miles).

**14 Beaver Valley, near Shippingport, Pa.**, two reactors, licensed 1976/1987, 2010 population within 50 miles is 3,140,766 (decrease of 3.7 percent in a decade), 2010 population within 10 miles is 114,514 (decrease of 6.6 percent), cities within 50 miles

include Pittsburgh (27 miles).

**15 Millstone, near Waterford, Conn.**, two reactors, licensed 1975/1986, 2010 population within 50 miles is 2,996,756 (increase of 9.5 percent in a decade), 2010 population within 10 miles is 123,482 (increase of 29.5 percent), cities within 50 miles include Hartford (41 miles).

**16 Monticello, near Monticello, Minn.**, one reactor, licensed 1971, 2010 population within 50 miles is 2,977,934 (increase of 8.6 percent in a decade), 2010 population within 10 miles is 62,976 (increase of 36.5 percent), cities within 50 miles include Minneapolis (38 miles), St. Paul (45 miles) and St. Cloud (22 miles).

**17 Prairie Island, near Welch, Minn.**, two reactors, licensed 1974, 2010 population within 50 miles is 2,945,237 (increase of 7.8 percent in a decade), 2010 population within 10 miles is 27,996 (increase of 4.6 percent), cities within 50 miles include Minneapolis (39 miles) and St. Paul (32 miles).

**18 Calvert Cliffs, near Lusby, Md.**, two reactors, licensed 1974/1976, 2010 population within 50 miles is 2,890,702 (decrease of 2.0 percent in a decade), 2010 population within 10 miles is 48,798 (increase of 86.4 percent), cities within 50 miles include Washington, D.C., (45 miles).

**19 McGuire, near Huntersville, N.C.**, two reactors, licensed 1981/1983, 2010 population within 50 miles is 2,850,782 (increase of 23.3 percent in a decade), 2010 population within 10 miles is 199,869 (increase of 66.8 percent), cities within 50 miles include Charlotte (17 miles).

**20 Three Mile Island, near Middletown, Pa.**,



one reactor, licensed 1974, 2010 population within 50 miles is 2,803,322 (increase of 10.3 percent in a decade), 2010 population within 10 miles is 211,261 (increase of 10.9 percent), cities within 50 miles include Harrisburg (12 miles), York (13 miles), Lancaster (24 miles).

**21 Shearon Harris, near New Hill, N.C.**, one reactor, licensed 1987, 2010 population within 50 miles is 2,562,573 (increase of 26.0 percent in a decade), 2010 population within 10 miles is 96,401 (increase of 62.6 percent), cities within 50 miles include Raleigh (21 miles), Durham (24 miles), Fayetteville (39 miles).

**22 Catawba, near York, S.C.**, two reactors, licensed 1985/1986, 2010 population within 50 miles is 2,559,394 (increase of 25.0 percent in a decade), 2010 population within 10 miles is 213,407 (increase of 53.3 percent), cities within 50 miles include Charlotte (17 miles).

**23 Surry, near Surry, Va.**, two reactors, licensed 1972/1973, 2010 population within 50 miles is 2,292,642 (increase of 13.9 percent in a decade), 2010 population within 10 miles is 127,041 (increase of 21.9 percent), cities within 50 miles include Virginia Beach (47 miles), Norfolk (30 miles), Richmond (50 miles).

**24 Perry, near Perry, Ohio**, one reactor, licensed 1986, 2010 population within 50 miles is 2,281,531 (decrease of 3.0 percent in a decade), 2010 population within 10 miles is 83,410 (increase of 8.0 percent), cities within 50 miles include Cleveland (36 miles). (Additional population in Canada.)

**25 Palo Verde, near Wintersburg, Ariz.**, three reactors, licensed 1985/1986/1987, 2010 population within 50 miles is 1,990,846

(increase of 28.6 percent in a decade), 2010 population within 10 miles is 4,255 (increase of 132.9 percent), cities within 50 miles include Phoenix (47 miles).

**26 Waterford, near Killona, La.**, one reactor, licensed 1985, 2010 population within 50 miles is 1,969,431 (decrease of 0.8 percent in a decade), 2010 population within 10 miles is 75,538 (increase of 7.4 percent), cities within 50 miles include New Orleans (33 miles).

**27 North Anna, near Louisa, Va.**, two reactors, licensed 1978/1980, 2010 population within 50 miles is 1,912,015 (increase of 22.6 percent in a decade), 2010 population within 10 miles is 21,396 (increase of 15.7 percent), cities within 50 miles include Richmond (40 miles).

**28 LaSalle, near Marseilles, Ill.**, two reactors, licensed 1982/1984, 2010 population within 50 miles is 1,902,775 (increase of 22.6 percent in a decade), 2010 population within 10 miles is 17,643 (increase of 7.1 percent), cities within 50 miles include Joliet (34 miles).

**29 Davis-Besse, near Oak Harbor, Ohio**, one reactor, licensed 1977, 2010 population within 50 miles is 1,791,856 (increase of 1.4 percent in a decade), 2010 population within 10 miles is 18,635 (increase of 14.2 percent), cities within 50 miles include Toledo (26 miles). (Additional population in Canada, including Windsor, Ontario, 48 miles.)

**30 Susquehanna, near Salem Township, Pa.**, two reactors, licensed 1982/1984, 2010 population within 50 miles is 1,765,761 (increase of 5.5 percent in a decade), 2010 population within 10 miles is 54,686 (increase of 3.3 percent), cities within 50 miles include Wilkes-Barre (18 miles).





**31 Comanche Peak, near Glen Rose, Texas,** two reactors, licensed 1990/1993, 2010 population within 50 miles is 1,755,528 (increase of 22.9 percent in a decade), 2010 population within 10 miles is 30,653 (increase of 44.1 percent), cities within 50 miles include Fort Worth (41 miles).

**32 Vermont Yankee, near Vernon, Vt.,** one reactor, licensed 1973, 2010 population within 50 miles is 1,533,472 (increase of 2.9 percent in a decade), 2010 population within 10 miles is 35,284 (increase of 1.4 percent), cities within 50 miles include Brattleboro (6 miles); Keene, N.H., (16 miles); Fitchburg, Mass., (38 miles).

**33 Oconee, near Seneca, S.C.,** three reactors, licensed 1973/1973/1974, 2010 population within 50 miles is 1,404,690 (increase of 14.8 percent in a decade), 2010 population within 10 miles is 66,307 (increase of 11.5 percent), cities within 50 miles include Greenville (30 miles).

**34 Palisades, near Covert, Mich.,** one reactor, licensed 1972, 2010 population within 50 miles is 1,326,618 (increase of 4.4 percent in a decade), 2010 population within 10 miles is 28,644 (decrease of 4.5 percent), cities within 50 miles include South Bend (45 miles).

**35 Byron, near Byron, Ill.,** two reactors, licensed 1985/1987, 2010 population within 50 miles is 1,273,771 (increase of 14.5 percent in a decade), 2010 population within 10 miles is 25,679 (increase of 5.9 percent), cities within 50 miles include Rockford (17 miles).

**36 Saint Lucie, near Jensen Beach, Fla.,** two reactors, licensed 1976/1983, 2010 population within 50 miles is 1,271,947 (increase of 37.0 percent in a decade), 2010

population within 10 miles is 206,596 (increase of 49.7 percent), cities within 50 miles include Ft. Pierce (8 miles) and West Palm Beach (42 miles).

**37 Ginna, near Ontario, N.Y.,** one reactor, licensed 1969, 2010 population within 50 miles is 1,269,589 (increase of 2.1 percent in a decade), 2010 population within 10 miles is 66,847 (increase of 12.7 percent), cities within 50 miles include Rochester (17 miles). (Additional population in Canada.)

**38 D.C. Cook, near Bridgman, Mich.,** two reactors, licensed 1974/1977, 2010 population within 50 miles is 1,225,096 (increase of 2.8 percent in a decade), 2010 population within 10 miles is 54,638 (increase of 3.4 percent), cities within 50 miles include South Bend (26 miles).

**39 Summer, near Jenkinsville, S.C.,** one reactor, licensed 1982, 2010 population within 50 miles is 1,187,553 (increase of 14.3 percent in a decade), 2010 population within 10 miles is 17,599 (increase of 26.2 percent), cities within 50 miles include Columbia (30 miles).

**40 Watts Bar, near Spring City, Tenn.,** one reactor, licensed 1996, 2010 population within 50 miles is 1,186,648 (increase of 12.8 percent in a decade), 2010 population within 10 miles is 18,452 (increase of 4.1 percent), cities within 50 miles include Oak Ridge (37 miles).

**41 Sequoyah, near Soddy-Daisy, Tenn.,** two reactors, licensed 1980/1981, 2010 population within 50 miles is 1,079,868 (increase of 11.1 percent in a decade), 2010 population within 10 miles is 99,664 (increase of 13.8 percent), cities within 50 miles include Chattanooga (14 miles).



**42 Crystal River, near Crystal River, Fla.,** one reactor, licensed 1977, 2010 population within 50 miles is 1,046,741 (increase of 32.4 percent in a decade), 2010 population within 10 miles is 20,695 (increase of 50.9 percent), cities within 50 miles include Ocala, (38 miles) and Spring Hill (34 miles).

**43 Browns Ferry, near Athens, Ala.,** three reactors, licensed 1973/1974/1976, 2010 population within 50 miles is 977,941 (increase of 11.0 percent in a decade), 2010 population within 10 miles is 39,930 (increase of 12.3 percent), cities within 50 miles include Huntsville (28 miles).

**44 Fort Calhoun, near Fort Calhoun, Neb.,** one reactor, licensed 1973, 2010 population within 50 miles is 953,410 (increase of 11.1 percent in a decade), 2010 population within 10 miles is 20,639 (increase of 9.7 percent), cities within 50 miles include Omaha (18 miles).

**45 River Bend, near St. Francisville, La.,** one reactor, licensed 1985, 2010 population within 50 miles is 951,103 (increase of 11.2 percent in a decade), 2010 population within 10 miles is 23,466 (increase of 11.1 percent), cities within 50 miles include Baton Rouge (25 miles).

**46 FitzPatrick, near Scriba, N.Y.,** one reactor, licensed 1974, 2010 population within 50 miles is 909,798 (increase of 3.2 percent in a decade), 2010 population within 10 miles is 35,136 (increase of 17.0 percent), cities within 50 miles include Syracuse (36 miles). (Additional population in Canada, including Kingston, Ontario, 49 miles.)

**47 Nine Mile Point, near Scriba, N.Y.,** two reactors, licensed 1969/1987, 2010 population within 50 miles is 909,523

(increase of 3.2 percent in a decade), 2010 population within 10 miles is 35,632 (increase of 17.0 percent), cities within 50 miles include Syracuse (36 miles). (Additional population in Canada, including Kingston, Ontario, 49 miles.)

**48 Robinson, near Hartsville, S.C.,** one reactor, licensed 1970, 2010 population within 50 miles is 893,536 (increase of 10.3 percent in a decade), 2010 population within 10 miles is 32,675 (increase of 2.6 percent), cities within 50 miles include Columbia (49 miles).

**49 Clinton, near Clinton, Ill.,** one reactor, licensed 1987, 2010 population within 50 miles is 813,658 (increase of 5.7 percent in a decade), 2010 population within 10 miles is 14,677 (decrease of 0.4 percent), cities within 50 miles include Champaign (30 miles).

**50 Point Beach, near Two Rivers, Wis.,** two reactors, licensed 1970/1973, 2010 population within 50 miles is 777,556 (increase of 10.0 percent in a decade), 2010 population within 10 miles is 19,975 (decrease of 6.7 percent), cities within 50 miles include Green Bay (28 miles).

**51 Kewaunee, near Kewaunee, Wis.,** one reactor, licensed 1973, 2010 population within 50 miles is 776,954 (increase of 10.1 percent in a decade), 2010 population within 10 miles is 10,292 (decrease of 0.9 percent), cities within 50 miles include Green Bay (26 miles).

**52 Vogtle, near Waynesboro, Ga.,** two reactors, licensed 1987/1989, 2010 population within 50 miles is 726,640 (increase of 8.8 percent in a decade), 2010 population within 10 miles is 5,845 (decrease of 16.3 percent), cities within 50 miles include Augusta (26 miles).



**53 Duane Arnold, near Palo, Iowa**, one reactor, licensed 1974, 2010 population within 50 miles is 658,634 (increase of 7.1 percent in a decade), 2010 population within 10 miles is 107,880 (increase of 8.2 percent), cities within 50 miles include Cedar Rapids (10 miles).

**54 Quad Cities, near Cordova, Ill.**, two reactors, licensed 1972, 2010 population within 50 miles is 655,207 (decrease of 0.3 percent in a decade), 2010 population within 10 miles is 34,350 (decrease of 0.5 percent), cities within 50 miles include Moline (19 miles).

**55 Callaway, near Fulton, Mo.**, one reactor, licensed 1984, 2010 population within 50 miles is 546,292 (increase of 15.0 percent in a decade), 2010 population within 10 miles is 10,092 (increase of 3.8 percent), cities within 50 miles include Fulton (11 miles), Jefferson City (26 miles), Columbia (32 miles).

**56 Brunswick, near Southport, N.C.**, two reactors, licensed 1974/1976, 2010 population within 50 miles is 468,953 (increase of 39.6 percent in a decade), 2010 population within 10 miles is 36,413 (increase of 105.3 percent), cities within 50 miles include Wilmington (18 miles).

**57 Diablo Canyon, near Avila Beach, Calif.**, two reactors, licensed 1984/1985, 2010 population within 50 miles is 465,521 (increase of 22.4 percent in a decade), 2010 population within 10 miles is 26,123 (increase of 50.2 percent), cities within 50 miles include San Luis Obispo (12 miles) and Paso Robles (31 miles).

**58 Columbia, near Richland, Wash.**, one reactor, licensed 1984, 2010 population within 50 miles is 445,416 (increase of 23.4 percent in a decade), 2010 population within

10 miles is 10,055 (increase of 10.4 percent), cities within 50 miles include Richland (12 miles) and Pasco (18 miles).

**59 Hatch, near Baxley, Ga.**, two reactors, licensed 1974/1978, 2010 population within 50 miles is 424,741 (increase of 12.0 percent in a decade), 2010 population within 10 miles is 11,061 (increase of 6.7 percent), cities within 50 miles include Vidalia (19 miles).

**60 Farley, near Columbia, Ala.**, two reactors, licensed 1977/1981, 2010 population within 50 miles is 421,374 (increase of 6.1 percent in a decade), 2010 population within 10 miles is 11,842 (increase of 8.0 percent), cities within 50 miles include Dothan (17 miles).

**61 Grand Gulf, near Port Gibson, Miss.**, one reactor, licensed 1984, 2010 population within 50 miles is 321,400 (decrease of 0.4 percent in a decade), 2010 population within 10 miles is 6,572 (decrease of 18.6 percent), cities within 50 miles include Port Gibson (5 miles), Vicksburg (25 miles).

**62 Arkansas Nuclear, near London, Ark.**, two reactors, licensed 1974/1978, 2010 population within 50 miles is 308,219 (increase of 13.3 percent in a decade), 2010 population within 10 miles is 44,139 (increase of 17.2 percent), cities within 50 miles include Russellville (6 miles).

**63 South Texas, near Bay City, Texas**, two reactors, licensed 1988/1989, 2010 population within 50 miles is 254,049 (increase of 10.2 percent in a decade), 2010 population within 10 miles is 5,651 (decrease of 2.4 percent), cities within 50 miles include Lake Jackson (40 miles).

**64 Wolf Creek, near Burlington, Kan.**, one reactor, licensed 1985, 2010 population



within 50 miles is 176,656 (decrease of 1.7 percent in a decade), 2010 population within 10 miles is 5,466 (decrease of 2.8 percent), cities within 50 miles include Emporia (30 miles).

**65 Cooper, near Brownville, Neb.**, one reactor, licensed 1974, 2010 population within 50 miles is 163,610 (decrease of 1.6 percent in a decade), 2010 population within 10 miles is 4,414 (decrease of 5.9 percent), cities within 50 miles include Nebraska City (25 miles).

#### About the study

Geographic information system (GIS) analysis was done by [Longcreative](#), a data analysis and design company, for msnbc.com. Distances to cities within 50 miles were calculated by msnbc.com.

Population figures use the 2000 and 2010 U.S. Census. The Census Bureau reports population within areas called census tracts, relatively small areas of less than 10,000 people. The mapping program drew circles around the plant at 5 miles, 10 miles, etc. (A 1-mile radius wouldn't be meaningful: Measuring from the reactor site itself, much of the land within 1 mile would either be on plant property or in the water in most cases.)

As the circle around a plant cuts through census tracts, the map assigned a share of each tract's population to the circle based on the percentage of the tract's land area that is within the circle. The analysis focused on 10 miles, the standard area in the U.S. for preparing for nuclear emergencies, and 50 miles, because of the recommendation given to Americans in Japan after the Fukushima emergency.

The estimates for total population living with

certain distances from any nuclear power plant:

- Within 5 miles, 916,330 residents, up 15.0 percent from 796,509.
- Within 10 miles, 4,079,007 residents, up 16.9 percent from 3,488,328.
- Within 20 miles, 18,510,584 residents, up 12.3 percent from 16,480,894.
- Within 50 miles, 116,223,077 residents,

up 6.5 percent from 109,105,722. © 2011 msnbc.com Reprints

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