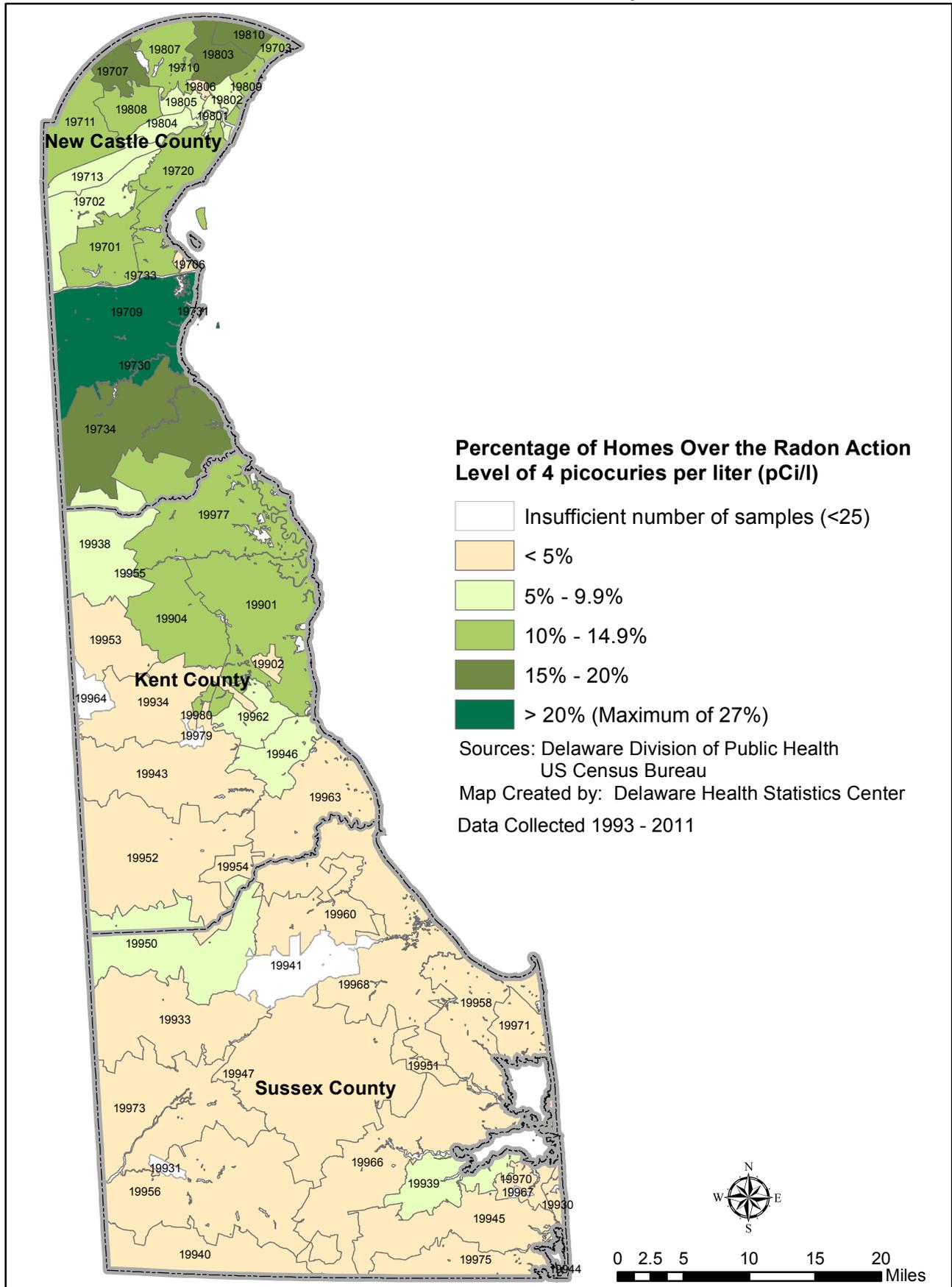


Delaware Radon Incidence by ZIP Code



Overview of Radon in Delaware

The Division of Public Health's Radon Program has reviewed recent and historic in-home radon testing data to identify areas where in-home radon is more likely to be elevated. The purpose of the review was to restate the general distribution of radon in Delaware homes. Radon is the leading cause of lung cancer for non-smokers.

Radon Source and Movement

Radon is a naturally occurring radioactive gas that is part of the radioactive decay series of uranium. Uranium, and therefore radon, is present in essentially all rock types and is found world-wide. The potential for elevated radon in a home is dependent on many factors but can be summarized to include:

- The amount of uranium and radon in the rock and soil
- The closeness of the radon source to the surface
- The ease of the radon gas movement in the soil
- Home characteristics such as square footage in contact with the soil
- Ease of gas movement from the soil into the home
- Air movement within the home that may aid in gas accumulation or dissipation

Further, heavy precipitation and barometric pressure changes at the time of sampling can drastically affect the sample results.

In-home Testing Data

Radon test data from inside homes, specifically in basements, and to lesser extent first floors, have been collected since 1995. The data is organized by ZIP code. Street address data is very sparse. The data set includes approximately 35,700 tests (through the year 2011), of which over 37,500 came from tests conducted in New Castle County. The USEPA has set a radon action level of 4 picocuries per liter (pCi/l). Homes at or above this value are considered to be elevated and steps should be taken to reduce the concentration. For New Castle County the average percentage of homes over 4 pCi/l is 13%, with individual ZIP code areas (with more than 25 samples) ranging from less than 1% to 27%. For Kent County the percentage considered elevated is 10% with ZIP code areas ranging from less than 1% to 13%. For Sussex County the percentage elevated is 2.4% with ZIP code areas ranging from less than 1% to 6%.

In Delaware there are two general areas that exhibit the highest potential for elevated radon in homes. Both areas are in New Castle County and appear to be associated with granitic rocks in northern New Castle County and certain unconsolidated sediments in southern New Castle County, which agrees with information published by the USGS and EPA.

The ZIP code areas with the highest percentages over the EPA action level are Middletown (27%) and Odessa (22%). The ZIP code areas having between 15%-20% over the action level are Townsend (17%), Arden (17%), Hockessin (17%), and Talleyville (15%). These areas coincide with areas expected to have the highest potential for elevated radon due to the previously mentioned factors.

The ZIP codes in Kent and Sussex Counties have lower percentages of homes over the USEPA Action Level; with Smyrna (13%) and Dover (12%) being the highest. Additionally Clayton, Frederica and Magnolia areas exhibited 7% - 8%. In Sussex County Greenwood (5%) and Dagsboro (6%) were the highest in elevated testing percentages. The Lewes and Milton ZIP codes had 4% over the USEPA action level.

Although much of this information has been previously reviewed and used by the USEPA, their purpose was to approximate average indoor radon concentrations for entire counties. When using the information to determine the potential for elevated homes on a local level, a more useful tool is made available to the citizens of Delaware.

The Division of Public Health has always recommended that all homes be tested for radon. It is the leading cause of lung cancer for non-smokers. Even homes located in areas of low radon potential do have measurable radon levels and can be elevated. Home owners are encouraged to test their homes every few years to better understand their lung cancer risks due to radon.

Radon Test Data by ZIP Code

New Castle County

ZIP Code*	Tests	> 4 pCi/l	% > 4 pci/l**	Town/Area
19701	1928	228	11.8%	Bear (incl. Kirkwood)
19702	2400	198	8.3%	Christiana
19703	621	64	10.3%	Claymont
19706	71	3	4.2%	Delaware City
19707	2300	386	16.8%	Hockessin (incl. Yorklyn)
19709	2008	540	26.9%	Middletown
19710	29	3	10.3%	Montchanin
19711	4190	567	13.5%	Newark
19713	1037	62	6.0%	Newark
19714	1	0		Newark
19715	7	0		Newark
19717	3	0		Newark
19718	1	0		Newark
19719	1	0		Newark
19720	2089	237	11.3%	New Castle
19730	68	15	22.1%	Odessa
19731	14	1		Port Penn
19732	28	1	3.6%	Rockland
19733	14	5		Saint Georges
19734	300	51	17.0%	Townsend
19735	1	0		Winterthur
19801	328	22	6.7%	Wilmington
19802	742	47	6.3%	Edgemoor
19803	2955	450	15.2%	Talleyville
19804	945	77	8.1%	Newport
19805	1471	95	6.5%	Elsmere
19806	938	35	3.7%	Wilmington
19807	1263	149	11.8%	Greenville
19808	2989	332	11.1%	Marshallton
19809	1075	154	14.3%	Edgemoor
19810	2655	457	17.2%	Arden
19880	3	2		Wilmington

Kent County

ZIP Code*	Tests	> 4 pCi/l	% > 4 pci/l**	Town/Area
19901	686	82	12.0%	Dover
19902	31	0	0.0%	Dover
19904	197	23	11.7%	Dover
19909	1	0		Dover
19934	163	6	3.7%	Camden Wyoming
19936	8	0		Cheswold
19938	118	10	8.5%	Clayton
19943	109	4	3.7%	Felton
19946	35	3	8.6%	Frederica
19952	51	1	2.0%	Harrington
19953	26	0	0.0%	Hartley
19954	18	0	0.0%	Houston
19955	2	0		Kenton
19961	1	0		Little Creek
19962	86	6	7.0%	Magnolia
19964	6	0		Marydel
19967	1	0		Ocean View
19977	359	48	13.4%	Smyrna
19979	5	0		Viola
19980	2	0		Woodside

Sussex County

ZIP Code*	Tests	> 4 pCi/l	% > 4 pci/l**	Town/Area
19930	31	0	0.0%	Bethany Beach
19931	4	0		Bethel
19933	54	0	0.0%	Bridgeville
19939	33	2	6.1%	Dagsboro
19940	29	0	0.0%	Delmar
19941	10	0		Ellendale
19944	7	0		Selbyville
19945	36	0	0.0%	Frankford
19947	82	1	1.2%	Georgetown
19950	40	2	5.0%	Greenwood
19951	14	0	0.0%	Harbeson
19956	72	0	0.0%	Laurel
19958	149	6	4.0%	Lewes
19960	33	1	3.0%	Lincoln
19963	139	5	3.6%	Milford
19966	86	1	1.2%	Millsboro
19968	71	3	4.2%	Milton
19969	3	0		Nassau
19970	66	2	3.0%	Oceanview
19971	127	4	3.1%	Rehoboth Beach
19973	172	4	2.3%	Seaford
19975	52	0	0.0%	Selbyville

* - ZIP Codes with no reported samples are not listed.

** - Percentages are not calculated for ZIP code areas with less than 25 samples.