



U.S. Army Corps of Engineers  
St. Louis District

## St. Louis Sites Fact Sheet

# RADON BASICS



The U.S. Army Corps of Engineers (USACE), St. Louis District, is conducting a radiological cleanup called the Formerly Utilized Sites Remedial Action Program (FUSRAP) for four Missouri sites (SLDS, SLAPS, SLAPS VPs, HISS). These sites contain soils contaminated with radium, thorium, and uranium as a result of activities associated with the Manhattan Engineer District/Atomic Energy Commission (MED/AEC) during the nation's early atomic program in the 1940s and 50s.

Radon is a radioactive gas that constantly filters up from soil and rocks around the world. Depending on your location, the ground under you releases differing amounts of radon all the time. Outdoors, radon does not become hazardous because it mixes with air. But when radon enters a building, it can concentrate in basements and lower levels. Only the soil about 1-foot under or around a building affects its radon levels. Radon can be found in homes, offices, and schools. But you and your family are most likely to get your greatest exposure at home, where you spend the most time.

USACE encourages private citizens to participate fully in the cleanup program.

To learn more about FUSRAP or to inquire about public involvement opportunities, contact the FUSRAP Project Office at (314) 260-3905 or write to the St. Louis District, Corps of Engineers, FUSRAP Project Office, 8945 Latty Avenue, Berkeley, Missouri 63134.

USACE shares the St. Louis community's concerns about radon. USACE has tested indoor and outdoor radon concentrations in ongoing air quality monitoring at the FUSRAP sites for the past 15 years. Experts from other federal agencies, such as the U.S. Environmental Protection Agency (EPA) also test radon here and around the United States.

### RADON IS A RADIOACTIVE GAS

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### RADON HAS POTENTIAL HEALTH EFFECTS

Some radon in indoor and outdoor air is unavoidable. The risk of health problems increases where high radon levels are trapped in homes. Radon cannot be seen or tasted or smelled. But we can detect it scientifically. Radon and its potential health effects have been studied extensively. Scientists estimate your health risks are



Radon gas filters up from soil and rocks everywhere. Only soil about 1-foot under or around a building affects its radon levels

based on the concentrations you receive. High concentrations of radon may increase your risk of developing lung cancer. Smoking in conjunction with or without radon exposure greatly increases the risk of cancer.

### RADON IS RELEASED AT ST. LOUIS FUSRAP SITES

Radioactive elements are not stable. They change constantly and release energy in a process we call radioactive decay. Uranium -238, common in soil everywhere, decays into uranium-234 and then to thorium-230 and radium-226. Radium-226 is also not stable, and it decays to radon-222.

Radon-222 decays to other elements and eventually to lead, which is stable.

The measurement of time that it takes for radioactive elements to decay to half of their original amount is called a half-life. The speed of this change is random and different for each element. Radium-226 has a 1,600 year half-life. Radon-222 has a 3.8 day half-life.

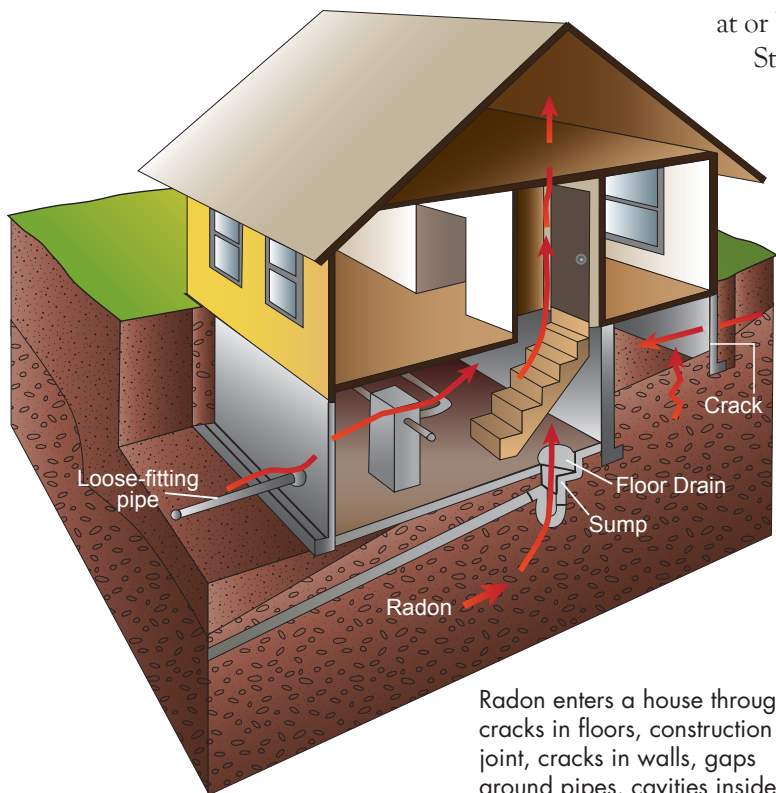
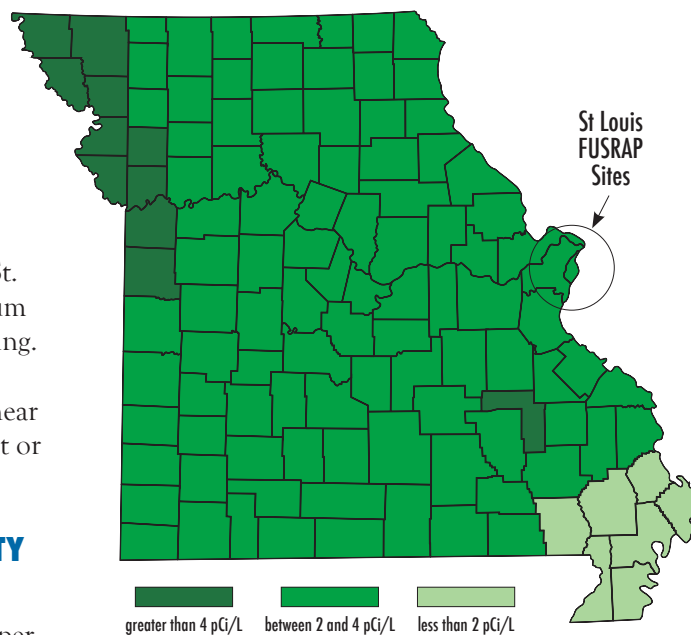
In the 1940s, the Manhattan Engineer District/Atomic Energy Commission shipped mined uranium ore to the St. Louis Downtown Site. They separated uranium and radium from the ore and shipped both to other states for processing. Scientists who have studied St. Louis FUSRAP Sites agree that the uranium and radium at the sites today are at or near background levels. Radon is, therefore, also found to be at or near background levels.

### SCIENTISTS MEASURE RADON IN ST. LOUIS COUNTY AND FUSRAP SITES

Radon gas is measured in picocurie (trillionth of a curie) per liter (pCi/L). The U.S. Department of Health and Human Services recommends keeping indoor concentrations of radon below 4 pCi/L. The Missouri Department of Health and Senior Services measured indoor radon inside St. Louis County homes in 2013. All of 2635 homes tested had radon levels at or below 3.8 pCi/L.

Every building has some radon gas. On the FUSRAP project, USACE knows that MED/AEC contamination is still present under the Futura Coatings buildings. Knowing this, they have tested the inside air quality of these buildings for radon each year from 2000 to the present. The annual results are at or below 3.1 pCi/L, which is nearly equal to results across St. Louis County. The “Environmental Monitoring Data and Analysis Report” contains monitoring data for the St. Louis FUSRAP sites. These monitoring reports are available to you on the USACE website: <http://bit.ly/FUSRAPstl>

**Average Indoor Radon Levels in Missouri** (from EPA, 2013)



Radon enters a house through cracks in floors, construction joint, cracks in walls, gaps around pipes, cavities inside walls, your water supply.

### YOU CAN TEST YOUR HOME FOR RADON

Any home may have a radon problem. Radon can be trapped in new and old homes, well sealed and drafty homes, and homes with or without basements. Testing is the only way to know if you and your family are at risk from radon. EPA and the Surgeon General recommend testing all homes below the third floor for radon.

Missouri residents can ask for a free radon test kit from Missouri Department of Health on their website at <http://health.mo.gov>. Ways to reduce radon in your home are discussed in EPA's Consumer Guide to Radon Reduction. You can get a copy at [www.epa.gov/radon/pubs](http://www.epa.gov/radon/pubs).