

Kansas Radon Program Newsletter

Serving individuals certified in radon measurement, mitigation and laboratory services in Kansas.



Kansas Radon Program

January 2021

Questions? Let's Talk.

Certification Questions

Mark Ungerer/ Jason Meinholdt at KDHE: 785-296-1560

<http://www.kdheks.gov/radiation/radon.htm>

General Radon Questions

Brian Hanson at KSU: 785-532-4996

<http://www.kansasradonprogram.org/>

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On January 1, 2021, Governor Laura Kelly declared January 2021 Kansas Radon Action Month (KRAM).

Winter is an excellent time to encourage citizens to test their homes for radon gas. The U.S. Environmental Protection Agency recommends actively reducing indoor radon levels when homes are confirmed with 4.0 pCi/L of radon gas or higher. Kansas State Research and Extension (KSRE) county offices and all county health departments can obtain radon test kits for distribution from the Kansas Radon Program (KRP).

Chronic, long-term radon gas exposure in homes increases the long-term risk of developing lung cancer. Residential radon gas exposure is the number one leading cause of lung cancer death in the U.S. for non-smokers. The KRP is promoting KRAM through state-wide radio and television public education announcements in association with the Kansas Association of Broadcasters (KAB) between January 15 and March 15, 2021. KRP personnel are available to schedule public education programs (webinar options available) on request throughout winter 2021. KRP personnel are also available for phone, newspaper or live broadcast interviews. The KRP encourages all KSRE offices and county health departments to include articles in monthly newsletters or newspaper columns promoting KRAM. Visit www.kansasradonprogram.org or call (800) 693-5343.



Radon and Covid-19 Workplace Safety: Complying with guidance for safe work during the covid-19 pandemic can be a challenge, especially for radon professionals entering private homes and buildings. Here are links to valuable resources and information for those in the radon industry:



Pre-screen employees for symptoms.



Monitor temperatures & symptoms regularly.



Issue or approve personal face coverings.



Maintain social distance.



Disinfect & clean workspaces.

STAY HOME. STAY SAFE. SAVE LIVES. FOR MORE INFORMATION, VISIT KDHEKS.GOV/CORONAVIRUS.



KDHE Guidance for Business & Employers

<https://www.coronavirus.kdheks.gov/248/Business-Employers>

KDHE Covid-19 Response

<https://www.kansascommerce.gov/covid19response/>

AARST Covid-19 Resources

<https://aarst.org/covid-19-resources/>

AARST Covid-19 Radon Mitigation Guidance

<https://aarst.org/wp-content/uploads/2020/04/AARST-COVID-19-Radon-Mitigation-Guidance-.pdf>

Workplace Safety Tool Kit

<https://covid.ks.gov/wp-content/uploads/2020/05/KDOL-Workplace-Safety-Tool-Kit.pdf>

15th Annual REGION 7 VIRTUAL 2021 RADON STAKEHOLDERS' MEETING



- REGISTER NOW - TUESDAY, MARCH 2, 2021

Join us virtually on Tuesday, March 2, 2021 by Zoom
from 8:30 a.m. to 12:30 p.m. for this year's
Virtual Radon Stakeholders' Meeting.

Registration is now open for the 15th Annual EPA Region 7
Radon Stakeholders' Meeting! Get 4 Cat I CE hours for NRPP,
Iowa, Kansas, and Nebraska certification.

<https://ksu.zoom.us/meeting/register/tJUpceCrrDoqE9LzSi4SRaWnf9hdtz mhUEjI>

This event is being held at no cost for all those that have a stake
in protecting the public from unnecessary exposure to radon in
their homes, schools, and businesses. Additionally, Kansas State
University will be offering 8 hours of continuing education (CE)
courses on Monday, March 1st.

To register for the meeting, please complete the online
registration form by February 23, 2021. We hope to see you
virtually on March 2nd!

Zoom Online Meetings
8:30 a.m. – 12:30 p.m.
March 2, 2021

U.S. EPA Region 7

Iowa Department of
Public Health

Kansas Department of
Health and Environment

Missouri Department of
Health and Senior Services

Nebraska Department of
Health and Human Services

Heartland Chapter of
American Association of
Radon Scientists and
Technologists (AARST)

Questions?

Email Brian Hanson
Kansas Radon Program at
Kansas State University
bhanson@ksu.edu or
Steven Brown
U.S. EPA Region 7
brown.steven@epa.gov

How Much Additional Radon Dose Are We Getting While We're Home During the Pandemic?

The leading cause of lung cancer death in people who have never smoked is a person's radon dose. The primary place people get radon exposure is in our homes. The process by which long-term lung cancer risk from radon exposure is calculated, however, is often not well understood by the radon industry or the public. Below we take a look at the potential increase in radon dose from radon levels in a home due to increased time at home during the Covid-19 Pandemic.

The risk of cancer from a source of radiation like radon is called the dose which is equal to the radiation level of the radon source multiplied by the time of exposure.

Radon Dose = Radon Level X Time of Exposure

In Kansas, approximately 38% of all radon measurements reported are at or above the EPA Radon Action Level of 4.0 pCi/L. The average radon level for all reported Kansas measurements is 4.6pCi/L. Approximately 2%, or 2 out of every 100 homes, have radon levels above 20 pCi/L. Many people spend 8-12 hours/day outside the home working, attending school, or running household and other errands, etc. However, during the pandemic, many have spent those same hours at home for the past several months. Consequently, we can calculate how much our radon dose has increased based on radon levels in the home and the increase in the hours at home. EPA lung cancer risk estimate tables are based on 18-hour per day average annual exposure at home and use 1.3, 4.0, 8.0, and 20.0 pCi/L as common radon levels in homes.

A key point related to radon is that the primary exposure comes from the proportion of the two polonium particles produced in the air during the ongoing radioactive decay of the radon gas in the home. The unit of measurement for these decay products is known as the **Working Level (WL)**, which is the amount of polonium available in the environment to be inhaled. 100pCi/L of radon will produce 1 working level of the decay products. How much of those decay products that are airborne and breathable is determined by the **Equilibrium Ration (ER)**. In order to calculate the WL from a known radon concentration, the Equilibrium Ration (ER) of the home must be known or assumed; in general, an ER = 0.5 is assumed for most residences. An ER = 0.5 indicates that approximately 50% of generated polonium is airborne and available to be inhaled by residents.

$$\text{WL} = (\text{ER} \times \text{Radon Concentration (pCi/L)}) / 100$$

Long-term lung cancer risk from residential radon exposure then is equal to the WL of the residence multiplied by the time of exposure. This calculation is known as the **Working Level Month (WLM)**. The number of hours in a working month is 170 – this is based on 8 hours a day for 21 working days per month. Lung cancer risk over time is calculated based on an individual's cumulative WLM value.

$$\text{WLM} = (\text{WL} \times \text{Hours of Exposure}) / 170 \text{ working hours in a month}$$

Let's look at the increase in radon dose for some common radon levels for various number of hours spent at home. Table 1 lists the annual radon exposure in working level months (WLM) of four common radon

concentrations in homes: 1) 1.3 pCi/L (the EPA’s estimated national indoor radon average), 2) 4.0 pCi/L (the EPA’s Radon Action Level – 38% of Kansas homes test over this level), 3) 8.0 pCi/L and 4) 20 pCi/L. The dose is calculated at four average daily exposure hours in the home: 1) 8 hours at home/day, 2) 12 hours at home/day, 3) 18 hours at home/day and 4) 24 hours at home/day. The calculations assume an ER = 0.5 or that half the radon released particles are in the air available to breathe.

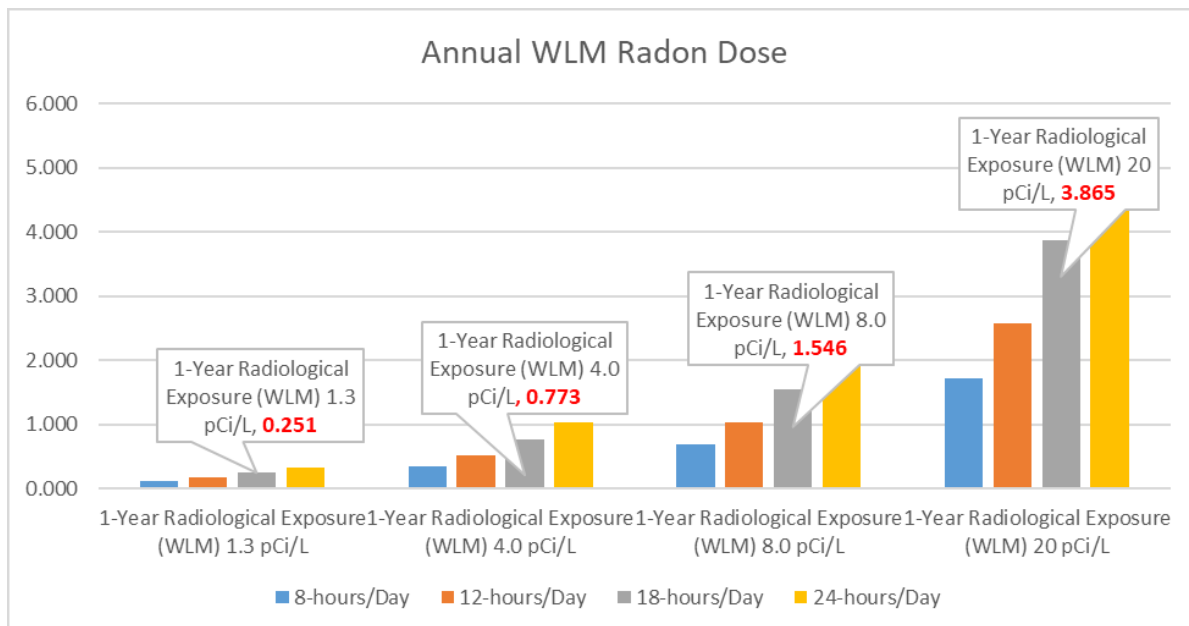
If time at home increases from an average of 12-hours/day to 18-hours/day, the annual radon dose in WLM from the radon levels in the home increases by 50%, or by 1/2!

On average for every additional 1 hour per day spent at home at the same radon level, the annual radon dose increases by 12%.

Table 1. Annual radon dose when spending 8-, 12-, 18-, or 24-hours in a home with 1.3, 4.0, 8.0, or 20.0 pCi/L radon levels. ER = 0.5

<u>TIME AT HOME</u>	<u>1.3 PCI/L</u>	<u>4.0 PCI/L</u>	<u>8.0 PCI/L</u>	<u>20 PCI/L</u>
8-HOURS/DAY	0.112 WLM	0.344 WLM	0.687 WLM	1.178 WLM
12-HOURS/DAY	0.167 WLM	0.515 WLM	1.031 WLM	2.576 WLM
18-HOURS/DAY	0.251 WLM (12 hrs +50%)	0.773 WLM (12 hrs +50%)	1.546 WLM (12 hrs +50%)	3.865 WLM (12 hrs +50%)
24-HOURS/DAY	0.335 WLM	1.031 WLM	2.061 WLM	5.153 WLM

Chart 1. Annual WLM radiological dosage at four common radon concentrations and four average residential time exposure periods.



The local, state and national level response to the current pandemic conditions has radically changed how many of our clients and their families are spending their time. It is the responsibility of the radon industry in Kansas (public and private sectors alike) to help those clients understand how shifting use in residential spaces can impact their long-term lung cancer risks from radon exposure.

As always, when your clients ask you questions to which you may not know the full answer, refer those clients to the Kansas Radon Program (KRP) at our hotline (800.693.5343) or to www.kansasradonprogram.org.



CE for Kansas Certification!

Winter Radon Webinar Series Hosted by the Kansas Radon Program

The Kansas Radon Program (KRP) is hosting a Winter Radon Webinar series on **Wednesdays at 11am January 27 through February 24, 2021**. The series will be promoted to the Kansas radon industry, county Extension offices and county health departments. Kansas certified radon measurement and mitigation professionals who **register for and attend four of the five 30-minute webinars** will receive **2 hours of continuing education (CE) towards their recertification requirements in Kansas (not NRPP)**.

Webinar topics:

- January 27, 2021 11am: User-friendly Quality Control measurement analysis (Brian Hanson)
- February 3, 2021 11am: Large building measurement overview (Brian Hanson)
- February 10, 2021 11am: Large building mitigation overview (Bruce Snead)
- February 17, 2021 11am: Kansas Department of Health and Environment (KDHE) topics and discussion (KDHE)
- February 24, 2021, 11am: RRNC outreach resources for Kansas code officials (Bruce Snead)

Registration is open: <https://ksu.zoom.us/meeting/register/tJlrf-yrpzsuGtPXTu1DdxzLwHphCL0bvTDS>

Upcoming Training: (more info on all of these at www.radoncourses.com)

Kansas State continues to offer radon entry-level and continuing education training to the Kansas radon industry.

- ⇒ For 2021 we are offering monthly 2-day webinars on measurement and 5-day webinars on mitigation.
- ⇒ We have online and correspondence courses always available.
- ⇒ We have a limited seating with masks classroom combined course scheduled in Manhattan, KS February 8-12, 2021.
- ⇒ The annual day of 8 hours of radon CE associated with the EPA Region 7 Stakeholders meeting will be held on Monday March 1, 2021 by webinar. Register here: <https://radoncourses.com/classroom/CE#region7>

You can find information on these and other training opportunities on our website - <https://radoncourses.com/>, by emailing radoncourse@ksu.edu, or by calling (833) 723-6222.

January - May
2021 Radon Course
Schedule

JANUARY

Jan 11-12
Entry-Level
Measurement
Webinar

In-Person
Jan 18-22
Columbus, OH
Entry-Level
Measurement
& Mitigation

Jan 25-29
Entry-Level
Mitigation
Webinar

For in-person courses:



FEBRUARY

In-Person
Feb 1-5
Salt Lake City, UT
Entry-Level
Measurement
& Mitigation
Cancelled

Feb 8-9
Entry-Level
Measurement
Webinar

In-Person
Feb 8-12
Manhattan, KS
Entry-Level
Measurement
& Mitigation
Cancelled

Feb 15-19
Entry-Level
Mitigation
Webinar

MARCH

Mar 1
8hrs CE
Webinar

Mar 8-9
Entry-Level
Measurement
Webinar

In-Person
Mar 15-19
Des Moines, IA
Entry-Level
Measurement
& Mitigation

Mar 22-26
Entry-Level
Mitigation
Webinar

APRIL

In-Person
Apr 12-16
St. Paul, MN
Entry-Level
Measurement
& Mitigation

Apr 19-20
Entry-Level
Measurement
Webinar

Apr 26-30
Entry-Level
Mitigation
Webinar

To view our full
2021 Course Schedule,
please visit:

<https://radoncourses.com>

MAY

May 10-11
Entry-Level
Measurement
Webinar

In-Person
May 17-21
Colorado Springs, CO
Entry-Level
Measurement
& Mitigation

May 24-28
Entry-Level
Mitigation
Webinar

Kansas State University



January 2021 is Kansas Radon Action Month!

Winter is upon us again, which means it is once again Kansas Radon Action Month. January each year is the time that the US Environmental Protection Agency (EPA), The Kansas Department of Health and Environment (KDHE) and the Kansas Radon Program (KRP) at K-State encourage Kansas to test their homes for radon gas and to reduce elevated radon levels.

Residential radon gas exposure continues to be the #1 leading cause of lung cancer deaths in non-smokers and the #1 leading cause of deaths in homes. Given that our time in residence has significantly increased due to the pandemic issues of 2020, encouraging our families, friends and clients to test for and reduce elevated indoor radon values is more important than ever.

Visit <https://www.kansasradonprogram.org> or call (800) 693-5343 for more information!

The Kansas Real Estate Commission (KREC) Approves KPR Radon in Real Estate Course for Distance Delivery

The Kansas Real Estate Commission (KREC) has approved the 4-hour continuing education (CE) course Radon and the Real Estate Professional for webinar delivery. The Kansas Radon Program (KRP) will begin promotion of the webinar to local real estate boards early 1st Quarter 2021. The course will be provided to county real estate boards at no charge, as is the case with our in-person course. The host board is responsible for promotion and registration, while KRP provides course delivery and submission of attendees to KREC for credit. The KRP encourages radon professionals to network with their local real estate offices and boards, as well as to promote this fee CE course to the boards.

For more information, contact Brian Hanson at (785) 532-4996 or at bhanson@ksu.edu.

New Radon Continuing Education Course for Health Professionals

In cooperation with the Kansas Department of Health and Environment (KDHE), the Kansas Radon Program (KRP) at K-State is developing a 1-2 hour continuing education (CE) course targeted at county health professionals and nurses. The course, available in the 1st Quarter 2021, will be hosted via Kansas Train (<https://www.train.org/ks/welcome>). The course will be free of charge, and focuses on the health effects of residential radon gas exposure. County health departments, Extension offices and the radon industry will be notified when the course becomes available.