

**US EPA Region 6
Radon & Indoor Air Workshop**

**March 16-17, 2009
Oklahoma City, OK**

Meeting Materials

**US EPA Region 6 Radon & Indoor Air Workshop
March 16-17, 2009 Oklahoma City, OK**

AGENDA

Monday, March 16 - Day One

1:00 - 1:30	Registration	
1:30 – 2:00	Welcome	George Brozowski, EPA Region 6 Keisha Cornelius, ODEQ Susie Shimek EPA Headquarters
	Keynote Address: <i>What's New in Oklahoma</i>	Keisha Cornelius, Program Coordinator, Indoor Radon Outreach Program, ODEQ
2:00 – 2:15	Review of Agenda and Meeting Goals	Facilitator
2:15 – 3:00	SIRG: Needs, Expectations and Reporting	George Brozowski, EPA Region 6
3:00 – 3:15	Break	
3:15 – 4:30	Boldly in Action Together – Developing a Vision for Bold Results & Celebrating Action in Region 6 Radon Network	All Attendees Activities led by Facilitator
4:30	Requests & Offers	Facilitator
5:00	End of Day One	
6:00	Group Dinner (<i>Optional</i>)	

Tuesday, March 17 - Day Two

Continuing Education for National Environmental Health Association – National Radon Proficiency Program (NEHA-NRPP) certification can be earned at the rate of one hour of Category II credit for each two hours of documented attendance.

8:00 – 8:30	Registration	
8:30 – 8:45	Welcome	George Brozowski, EPA Region 6 Keisha Cornelius, ODEQ Susie Shimek, EPA Headquarters
8:45 – 9:00	Review of Agenda and Meeting Goals	Facilitator
9:00 – 11:00	Engaging with EPA Program Tools & Resources	Susie Shimek, EPA Headquarters Facilitator

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11:00 – 11:15 **Break**

11:15 – 11:45 **Radon Industry Perspective - ARRST**

Debbie Kalina, Radon Protection
Technologies

11:45 – 12:15 **Radon & Real Estate**

George Brozowski, EPA Region 6

12:15 – 1:30 **Lunch** (*on your own*)

1:30 – 2:45 **Healthy Homes Initiative**

Keisha Cornelius, ODEQ
Roger Nagl, Miami Tribe of Oklahoma

2:45 – 3:00 **Break**

3:00 – 4:00 **Radon Resistant New Construction**

Shaun West, Cherokee Nation

4:00 – 4:30 **Final Thoughts – Growing the Region 6 Radon Network**

Facilitator

4:30 – 4:45 **Requests & Offers**

Facilitator

4:45 **End of Day Two**

**US EPA Region 6 Radon & Indoor Air Workshop
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ATTENDEE LIST

First Name	Last Name	Organization	Email
Justin	Bangs	The Cadmus Group, Inc.	jbangs@cadmusgroup.com
Cheryl	Barr	Oklahoma Childhood Lead Prevention Program	CherylB@health.ok.gov
Connie	Befort	American Lung Association	cbefort@breathehealthy.org
Mike	Broderick	Oklahoma Department of Environmental Quality	mike.broderick@deq.ok.gov
George	Brozowski	US EPA - Region 6	brozowski.george@epa.gov
Mark	Chrisman	Louisiana Department of Environmental Quality	mark.chrisman@la.gov
Keisha	Cornelius	Oklahoma Department of Environmental Quality	keisha.cornelius@deq.ok.gov
Bob	Haskins	Eastern Shawnee Nation of Oklahoma	bhaskins@estoo.net
Penny	Howard	Alpha Energy Labs	pennylpennington@hotmail.com
Debbie	Kalina	Radon Protection Technologies, LLC	debbie@omaharadon.com
Fahad	Khan	Oklahoma Childhood Lead Prevention Program	FahadK@health.ok.gov
Skyler	Mathews	Kaw Nation Environmental Department	smathews@kawnation.com
Roger	Nagl	Miami Tribe of Oklahoma	rnagl@miaminationi.com
Susie	Shimek	US EPA - Headquarters	shimek.susie@epa.gov
Ryan	Smith	Alpha Energy Labs	ryan.envirosoci@yahoo.com
Kay	Soper	Texas Department of State Health Services	kay.soper@dshs.state.tx.us
Mike	Taylor	New Mexico Radiation Control Bureau	michael.taylor@state.nm.us
Cordell	TeCube	Jicarilla Apache Nation	cltecube@yahoo.com
Mike	Varbel	Home Inspector	surelookhomes@yahoo.com
Michelle	Varbel	Oklahoma Department of Environmental Quality	michelle.varbel@deq.ok.gov
Roxanne	Weldon	Eastern Shawnee Nation of Oklahoma	rweldon@estoo.net
Shaun	West	Cherokee Nation of Oklahoma	swest@cherokee.org

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REQUESTS & OFFERS

Requests:

- Keisha Cornelius of the Oklahoma Department of Environmental Quality requests George Brozowski of US EPA Region 6 identify training opportunities for Region 6 state and tribal programs, possibly on measurement issues.
- Kay Soper of the Texas Department of State Health Services requests help identifying resources to attend more radon stakeholder meetings.
- Susie Shimek of US EPA headquarters requests all attendees attend the 2009 National Radon Training Conference (CRCPD) / International Radon Symposium (AARST) in St. Louis, MO, including the Sunday training day.
- Susie Shimek of US EPA headquarters requests all attendees join RadonLeaders.org if they are not already members, and engage with the Portal.

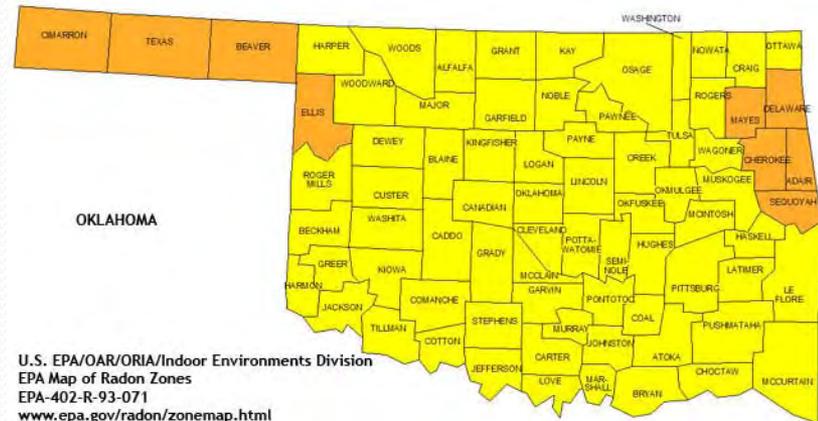
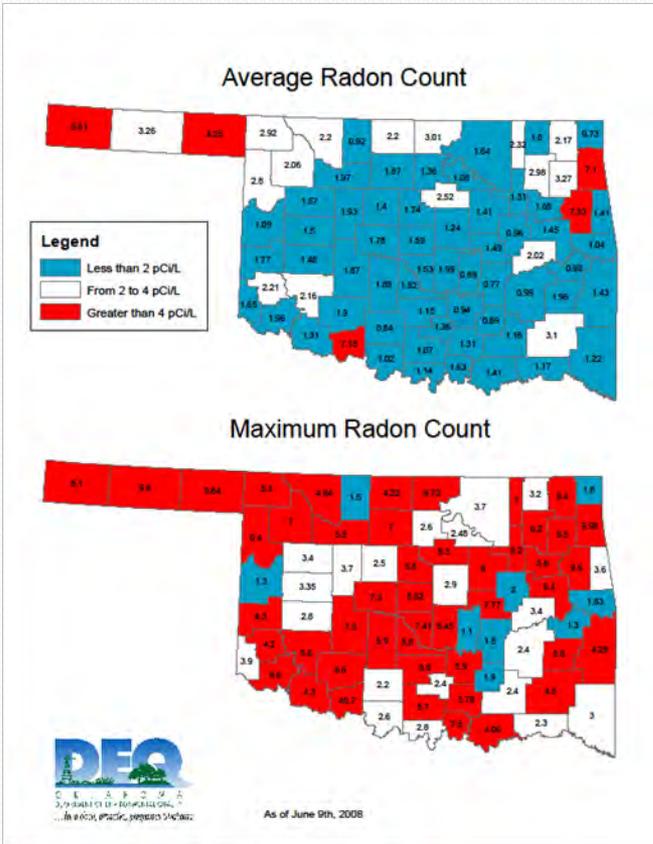
Offers:

- Mike Taylor of the New Mexico Radiation Control Bureau offers to help Keisha Cornelius of the Oklahoma Department of Environmental Quality begin developing a realtor training program on radon in Oklahoma.
- George Brozowski of US EPA Region 6 offers to collect and disseminate EPA radon and real estate resources for state and tribal programs.
- Keisha Cornelius of the Oklahoma Department of Environmental Quality offers to work more collaboratively with tribes in Oklahoma on radon work, including sharing data and resources.

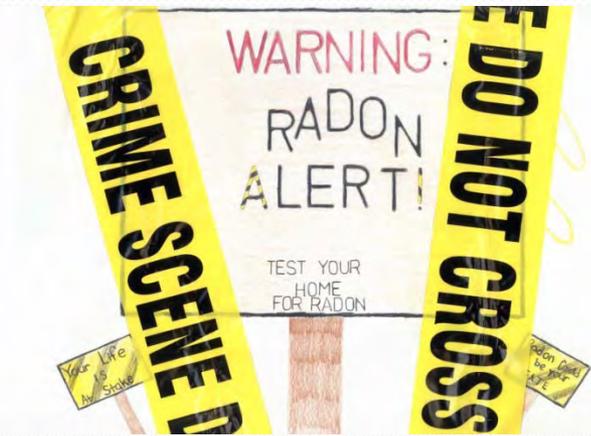
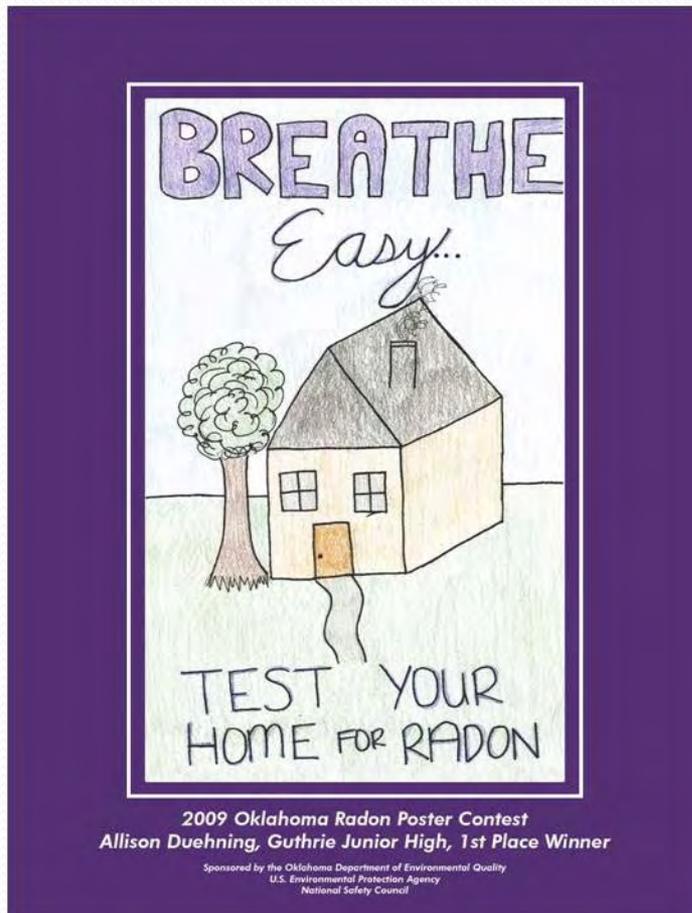
Welcome to Oklahoma City

2009 EPA Region 6 Radon/Indoor Air Workshop

Oklahoma Radon State Map



Radon Poster Contest



2nd place



3rd place

2008 National Radon Meeting



What happens in Vegas doesn't stay in Vegas



National Radon Action Month

- Radon Press Releases
- OKC Home and Garden Show
- Announce winner of Poster Contest
- Prepare for Regional Radon Meeting

Radon in Granite Countertops

- Answer Media question
- Tested a home with granite countertops
- Answered several questions from member of public
- Television interview in August 2008 and February 2009

Healthy Homes Initiative

- Housing Conditions can significantly affect public health.
- Childhood lead poisoning, injuries, respiratory diseases, and quality of life issues have been linked to the more than 6 million substandard housing units nationwide.
- Residents of these units are also at an increased risk for fire, electrical injuries, falls, rodent bites, and indoor air issues including radon.

Healthy Homes Initiative

- In 1999, the U.S. Department of Housing and Urban Development (HUD) launched its Healthy Homes Initiative to address disease, injuries and unhealthy conditions related to substandard housing.



Healthy Homes Initiative

- Most public health efforts take a categorical approach to health and safety hazards in the home, focusing narrowly on one issue, even in the presence of multiple issues.
- A Healthy Homes approach is holistic and comprehensive.



Building Partnerships through the Health Homes Initiative

- In Sept. 2008, HUD, CDC, EPA, and USDA co-sponsored the first National Healthy Homes Conference, “Building a Framework for Healthy Housing” in Baltimore.
- The event brought together over 200 experts with a broad range of experience relevant to health and housing to discuss policy, research, and outreach to ensure safe, healthy and efficient housing



BUILDING A FRAMEWORK
FOR HEALTHY HOUSING

2008 National Healthy Homes Conference

Oklahoma Healthy Homes Initiative

- In response to that shift in focus, the Oklahoma Childhood Lead Poisoning Prevention Program (OCLPPP) has begun to identify the appropriate experts in our state to further develop the capacity to meet this challenge.
- October 30, 2008 Healthy Homes Initiative Work Group



Oklahoma Healthy Homes Initiative

- Two- day course entitled “Essentials for Healthy Homes Practitioners” offered in Oklahoma City and Tulsa in 2008.
- Oklahoma State Department of Health offered the course “Launching a Healthy Homes Initiative” on November 18, 2008 with Dr. Tom Neltner, the Director of the National Center for Healthy Housing Training Center.



Tom Neltner

Oklahoma Healthy Homes Initiative

- These courses signal the beginning of an important time in Oklahoma as we expand our capacity beyond the identification of a single hazard and begin to focus on multiple housing hazards and unsafe living conditions which affect the health and safety of Oklahomans.
- More courses offered in 2009!!





Region 6
Radon Stakeholder's Meeting
March 16-17, 2009

State Indoor Radon Grants (SIRG) Update: Expectations & Reporting

George Brozowski
US EPA Region 6



Region 6
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Standardized Template For SIRG Grants

- Required since October 1, 2006
- Purpose of template to assure the development and reporting of more consistent and meaningful grant-related performance information clearly linking to EPA's strategic goals and objectives!
- <http://www.epa.gov/radon/sirgprogram.html>

Priority Areas

- Number of homes mitigated each year
- Number of homes built with radon resistant new construction (RRNC)
- Number of schools mitigated/built RRNC
- States report the performance measures they use having clear linkages to those of EPA
 - Example: states/tribes report on number of tests conducted to detect high radon levels



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2010 Radon Poster Contest

Let's get Region 6's States
and Tribal Nations back in
the game!



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National Safety Council Can Help

The National Safety Council (NSC) will be making available up to \$1,000 for every state, tribal nation, and territory that has a radon poster contest to help off-set the costs of the contest and the ceremony.

For Example ... New Mexico

- New Mexico has 266 middle schools in the NSC database
- NSC will send enough tri-fold brochures for each school, plus as many additional ones as requested
- NSC will reimburse for expenses, such as:



Region 6
Radon Stakeholder's Meeting
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<ul style="list-style-type: none"> • Temp Help to print & stuff cover letter 	\$150
<ul style="list-style-type: none"> • Stamps for letters (266 x .41) 	\$110
<ul style="list-style-type: none"> • Temp Help to follow up with school districts, teachers, etc. 	\$150
<ul style="list-style-type: none"> • Temp Help to track entries 	\$150
<ul style="list-style-type: none"> • Certificates for every child 	\$ 25
<ul style="list-style-type: none"> • Temp Help to make certificates 	\$150
<ul style="list-style-type: none"> • Envelopes & postage for certificates 	\$100
<ul style="list-style-type: none"> • Plaques for winners 	\$ 75
<ul style="list-style-type: none"> • Refreshments for ceremony 	\$ 90
	<u> </u> \$1,000



Region 6
Radon Stakeholder's Meeting
March 16-17, 2009

For more information

Kristin Lolmaugh

National Safety Council

1025 Connecticut Avenue, NW, #1200

Washington, DC 20036

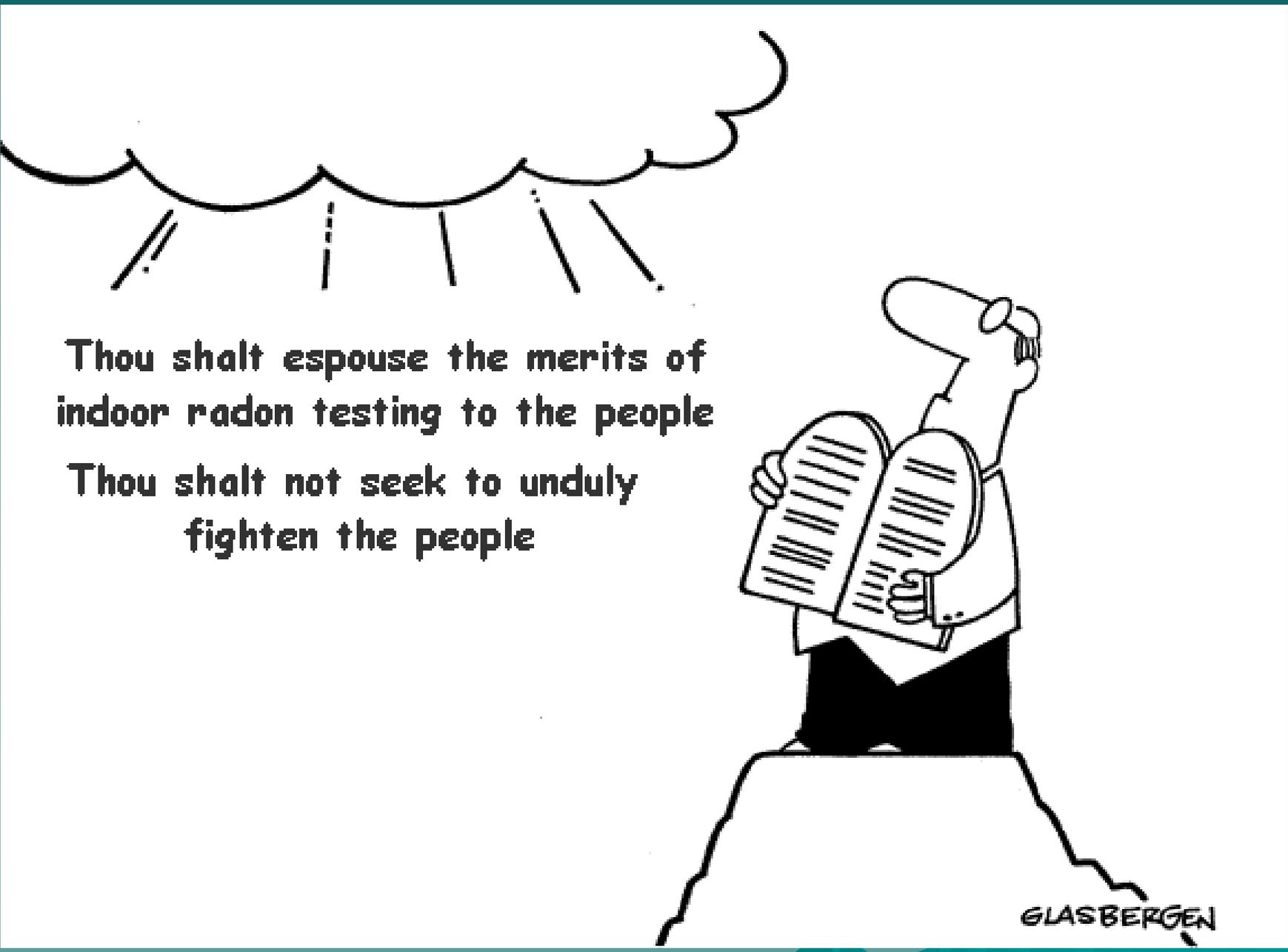
202-974-2469

Kristin.Lolmaugh@nsc.org

NEW MEXICO ENVIRONMENT DEPARTMENT

Expectations
Reality and
Anecdotes

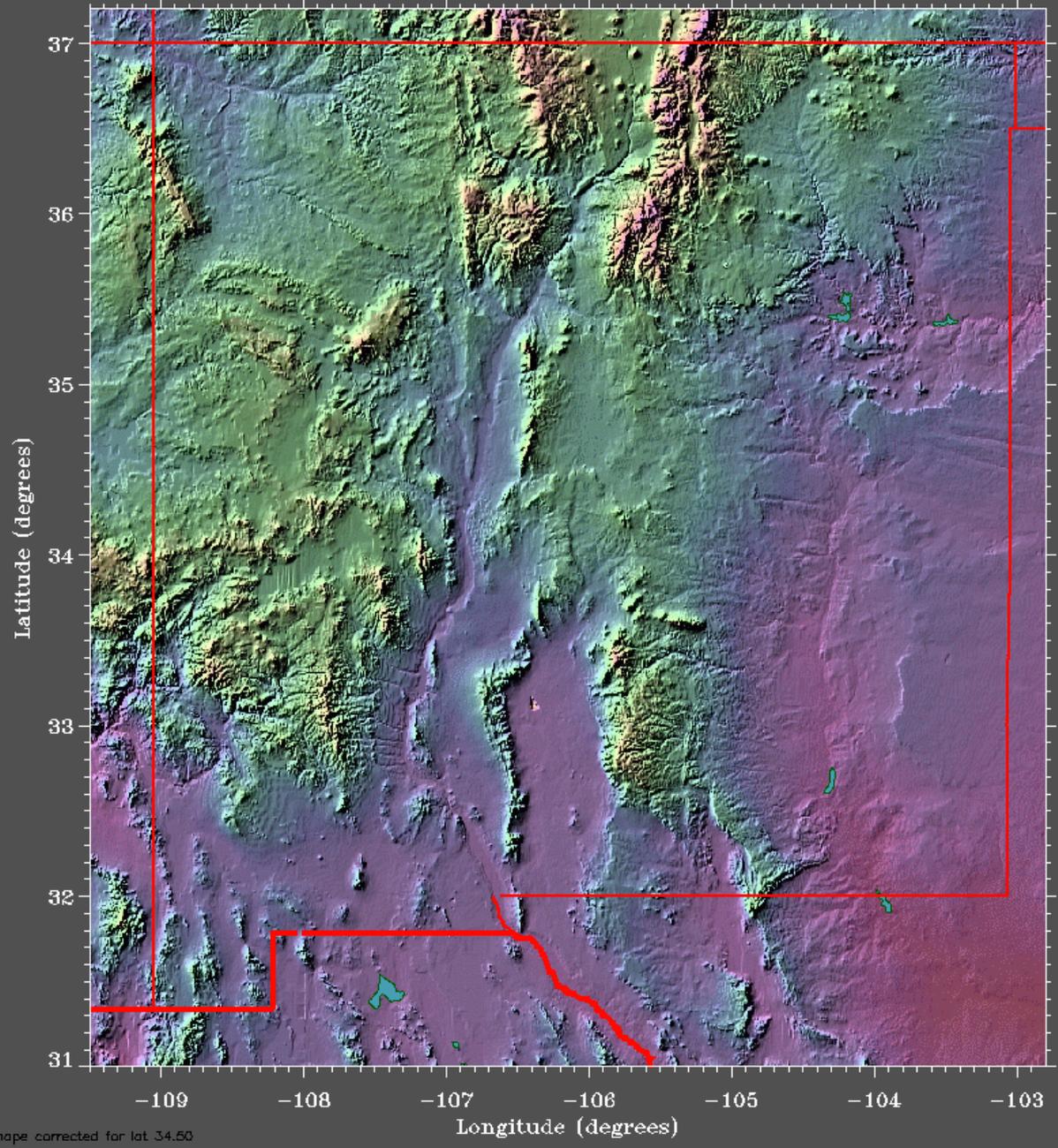
A stylized silhouette of a mountain range is located in the bottom right corner of the slide. The mountains are rendered in a darker shade of teal, matching the background, and their peaks are jagged and irregular.



**Thou shalt espouse the merits of
indoor radon testing to the people**

**Thou shalt not seek to unduly
fighten the people**

GLASBERGEN



Shape corrected for lat 34.50

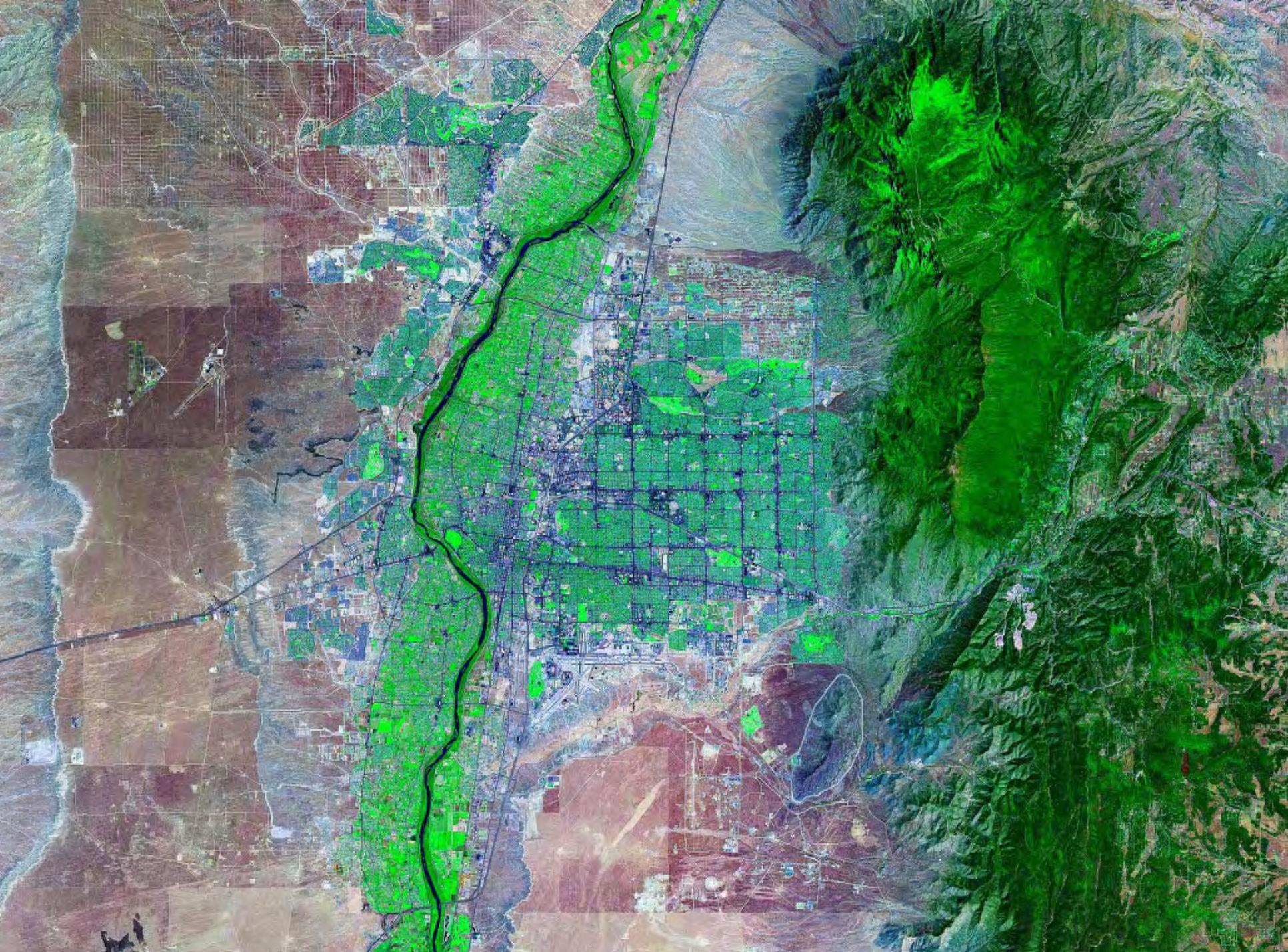
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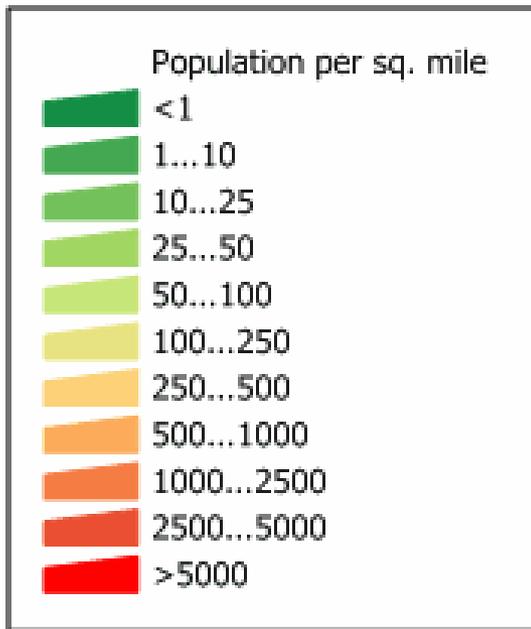




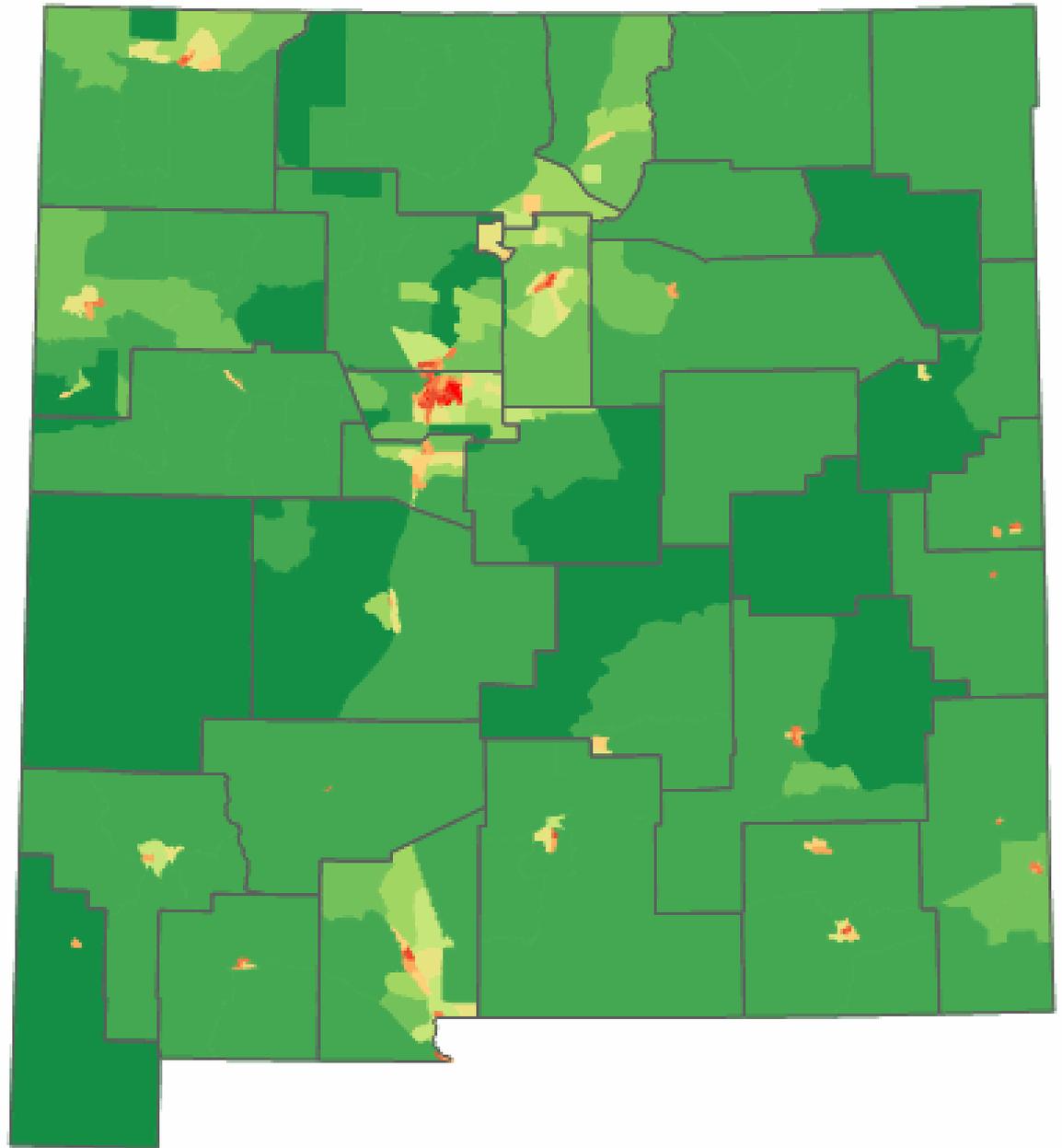








Source: U. S. Census Bureau
Census 2000 Summary File 1
population by census tract.







ENERGY, METALS & MINERAL RESOURCES
MINING and MINERALS DISPLAY

RADON CAUSES LUNG CANCER

**Know
the Facts.**



RADON
IS AN
ODORLESS,
TASTELESS,
AND COLORLESS
GAS THAT
CAN CAUSE
LUNG CANCER.

THE ONLY
WAY TO
KNOW IF YOU
HAVE A
RADON
PROBLEM IS
TO TEST.

WALK-
THROUGH
CLASSES
EVEN!

AMAZING

TESTING FOR
RADON IS
EASY

FREE
RADON TEST
KITTING

NOV 11 2005





**RADON CAUSES
LUNG CANCER**

Radon is a colorless, odorless, tasteless gas that is naturally found in the air, soil, and water. It is a leading cause of lung cancer and is the second leading cause of cancer deaths in the United States.

SMOKING
Radon exposure and smoking together increase the risk of lung cancer significantly.

FREE
Radon testing is available for free at the health fair.



20 12:16 PM



20 2:50 PM

Radon is a Human Carcinogen (cont)

- Radiation (particles and energy) released as radon decays radioactively
- Particles emitted by radon and its decay products may damage lung cells so that they become cancerous



Maxwell







Radon Partners

- ◆ Cities of Albuquerque, Taos
- ◆ Santa Fe Community College
- ◆ Home Wise
- ◆ Schools
- ◆ LEEDS Homebuilders
- ◆ Daycares (NAEYC)
- ◆ Realtors & Builders
- ◆ Public & Community Groups
- ◆ Home Inspectors & Mitigators

Anecdotes

- ◆ Maxwell & Goddard Schools
 - ◆ Roswell & Gallup (80 pCi/L)
 - ◆ Bar Talk (Diogenes)
 - ◆ Radon Awareness Month
 - ◆ Tierra Madre Housing Development
- 

TIERRA MADRE
QUIERE CONSTRUIR
SU PROPIA CASA
VISITENOS O LLAME
AL 505 - 589 - 4412



TAIIER

De Radon

Febrero 10

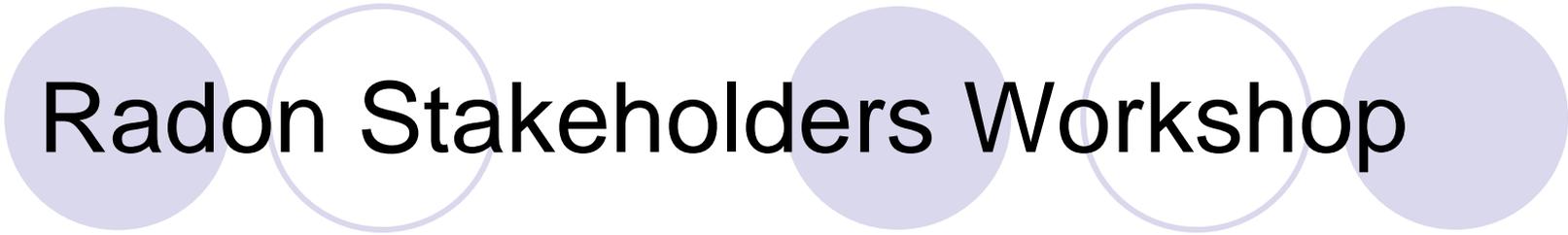
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LAS FLORES ST





Radon Stakeholders Workshop

March 16-17, 2009

Oklahoma Department of Environmental Quality
Oklahoma City, Oklahoma

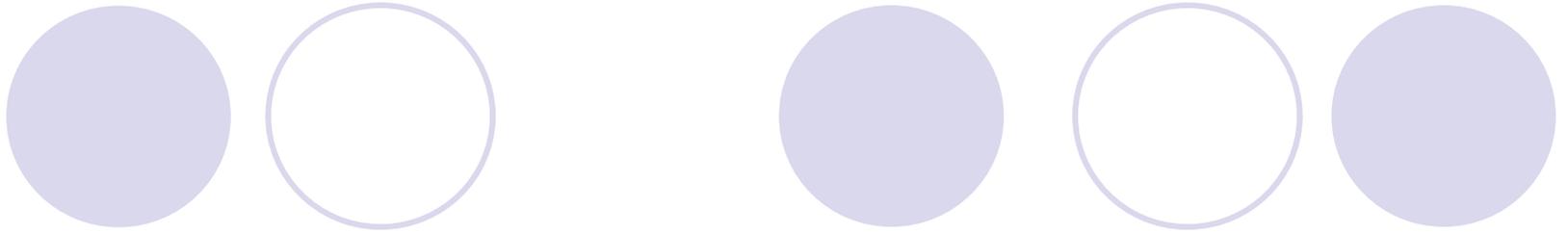
Presented by Roxane Weldon
Environmental Director
Eastern Shawnee Tribe of Oklahoma



The Eastern Shawnee Tribe tested:

- 53 homes
- 6 daycares
- 6 businesses
- 3 schools

within our 75 mile radius service area in Oklahoma which included parts of Kansas and Missouri

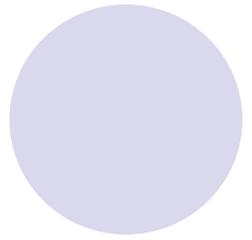
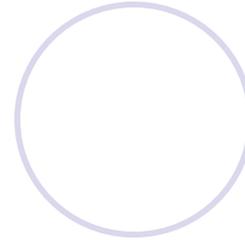
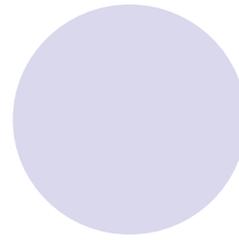
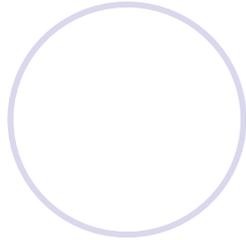
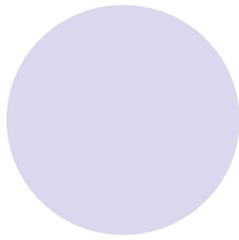


- This was a total of 179 classrooms, offices, etc. that were tested from the 3 schools

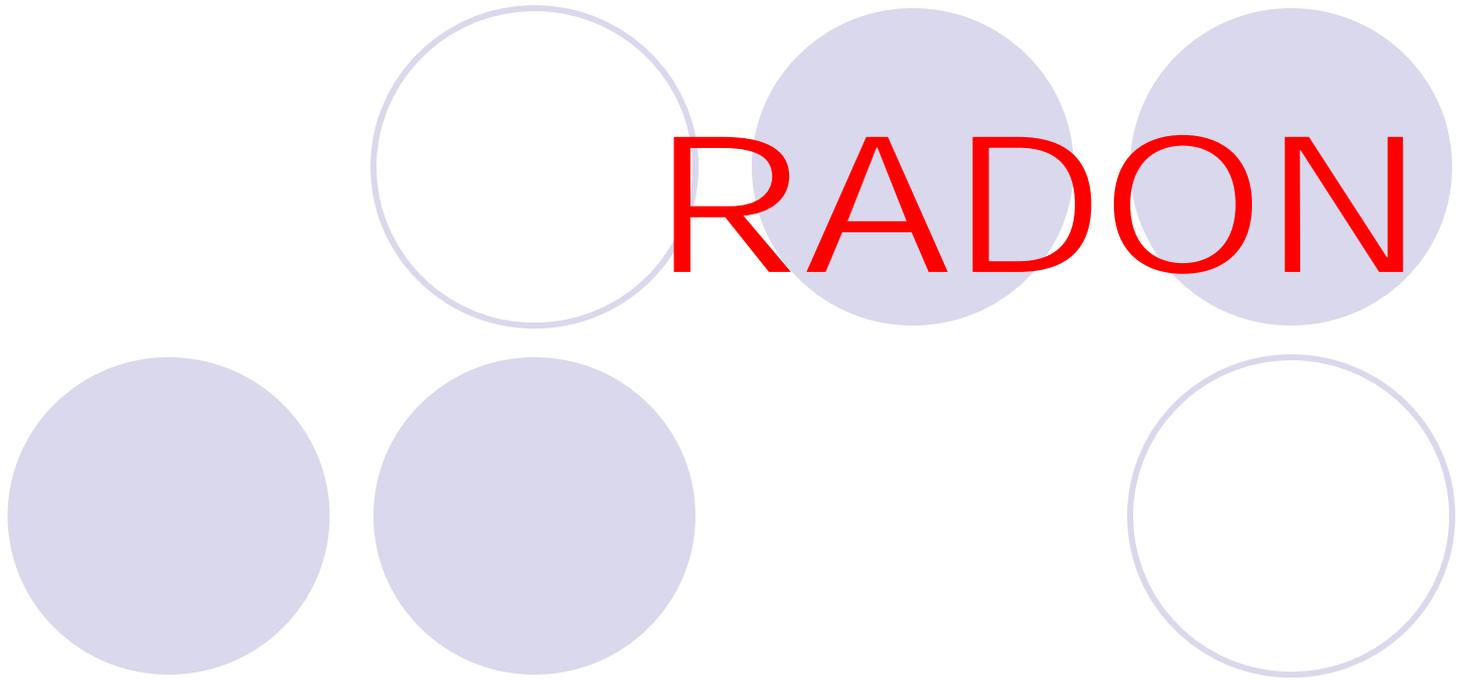
We had 4 homes & 2 school offices that reported ≥ 4.0 pCi/L with the short term (7 day) testing.

- Two of these homes were tested 3 months (long term) in which the tests reported ≤ 4.0 pCi/L.

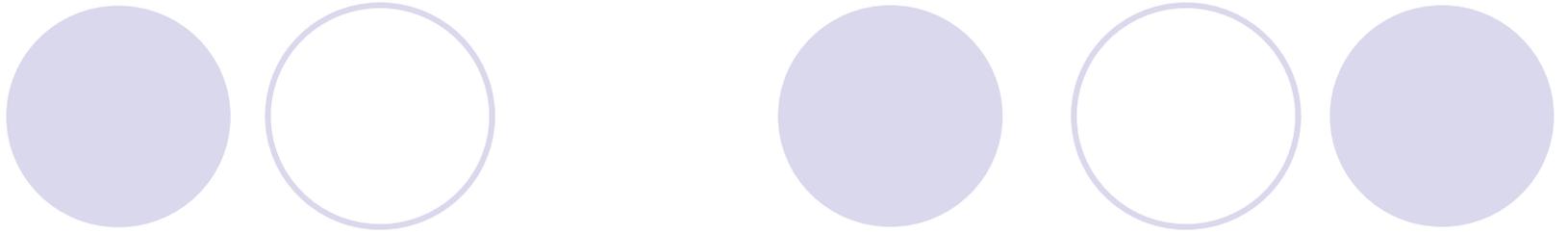
- 
- Two of the homes with high readings, are at present being tested with long term (6 month) test
 - These two tests will be collected in late January and sent to the lab for results
 - The two school offices that reported high levels of radon with the short term testing was tested long term (3 months) with one reporting ≤ 4.0 pCi/L and one ≥ 4.0 pCi/L..



- The office with the high report was noted that it had a partial basement and with discussion with the Project Officer we would deploy 2 long term (1 year) tests, one on the desk in the office as prior tests, and one in the basement
- These 2 tests will be collected in November of 2009



What is it?



Can't see it!

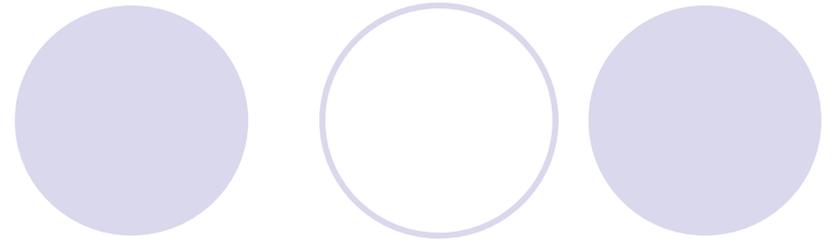
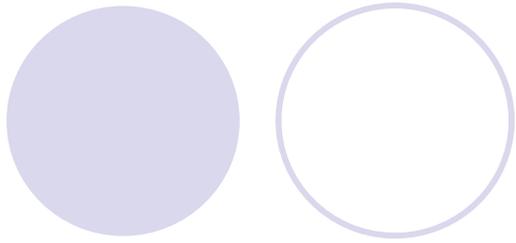
Can't smell it!

Can't taste It!

Where does radon come from?



Naturally decays from
Uranium
Found in rocks and soil
Outdoors



Not Created in a Home

or School

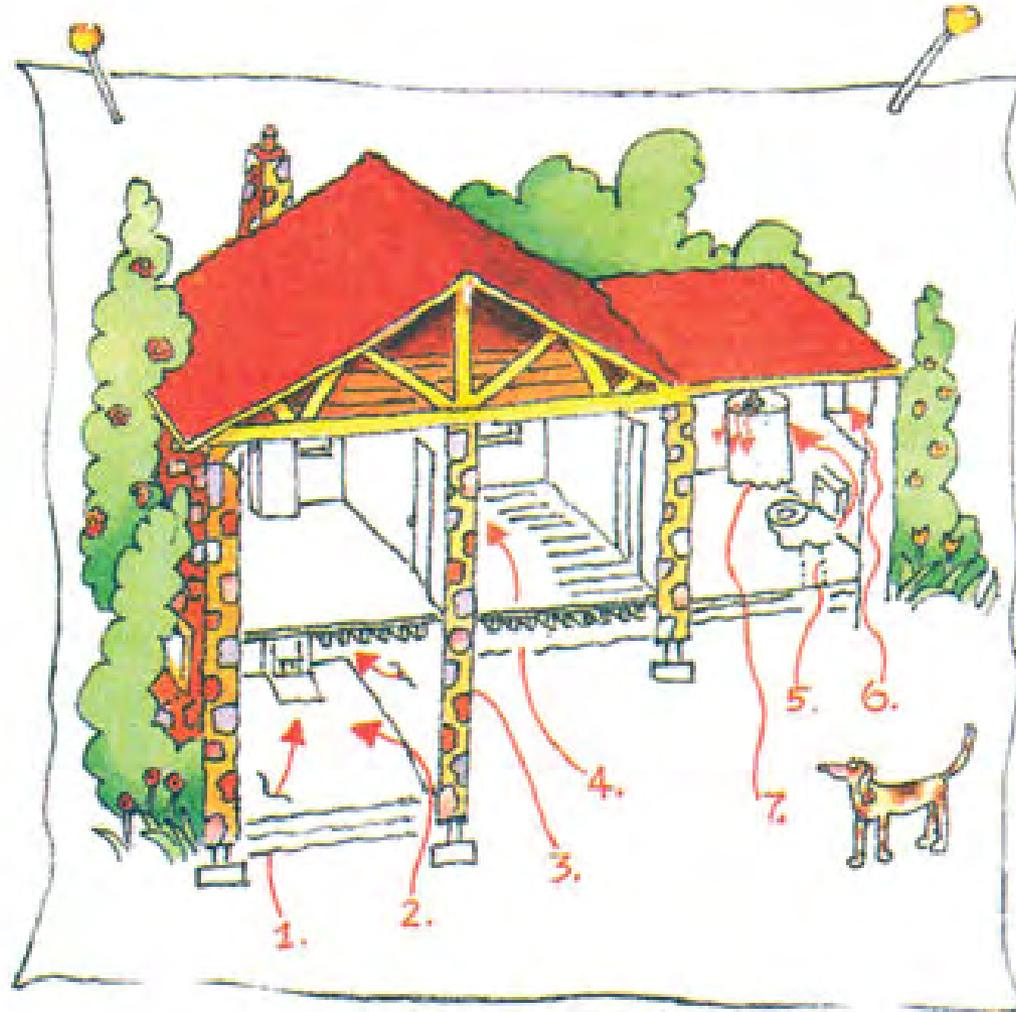
or any other building.



How Does It Get In?



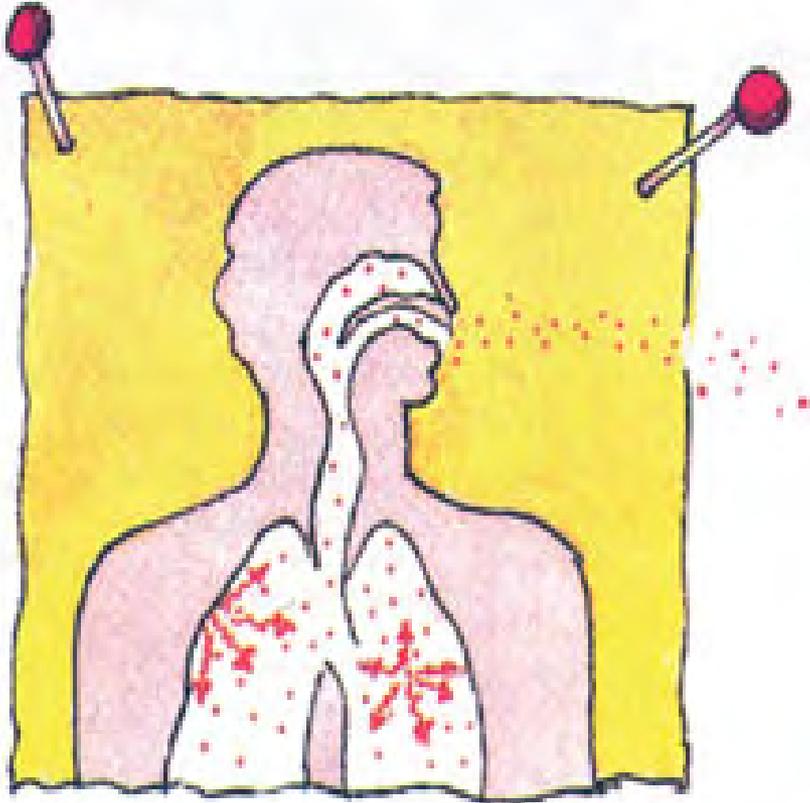
Gaps, Cracks, Holes and Crevices



Smoking #1 Cause of Lung Cancer



Breathing Radon Gas



Causes
Lung
Cancer
Too!

The Past Surgeon General of the U.S.

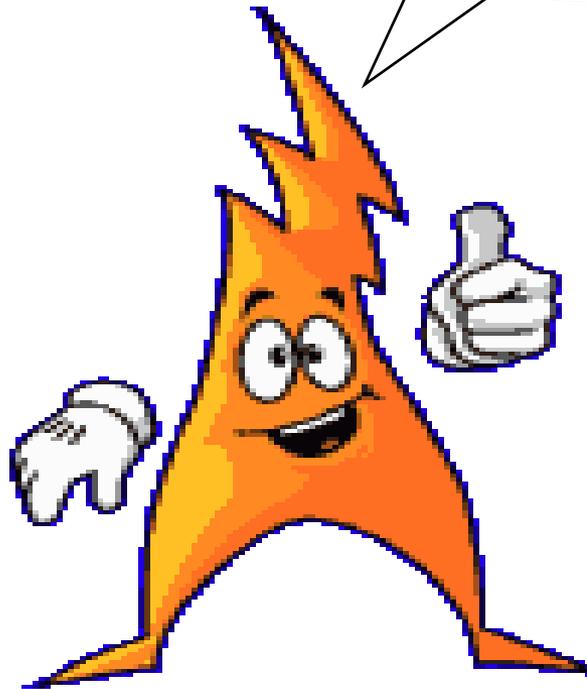
“Indoor radon is the second leading cause of lung cancer in the United States....”

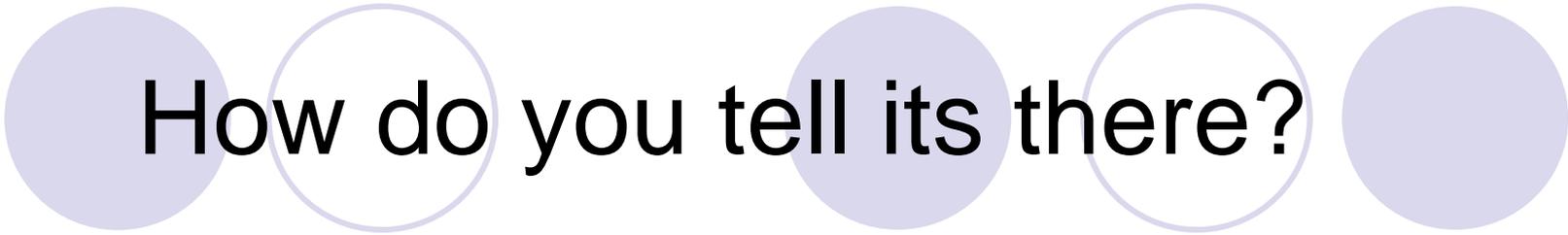


Rear Admiral Kenneth Moritsugu

If You Don't Smoke

Radon
#1



The text is centered horizontally and surrounded by five circles of varying shades of purple. The circles are arranged in a horizontal line, with the text overlapping the second and fourth circles from the left. The first and fifth circles are solid purple, while the second, third, and fourth circles are hollow with a thin purple outline.

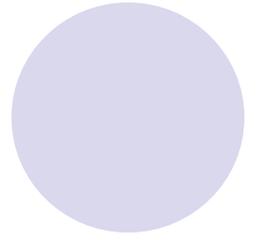
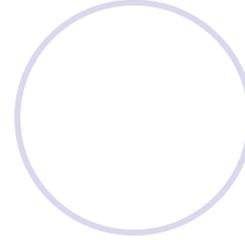
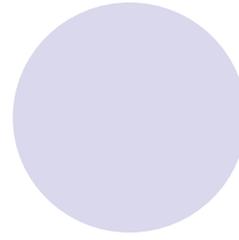
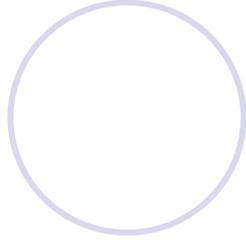
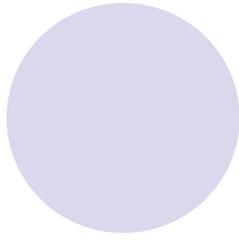
How do you tell its there?

Radon Test Kits



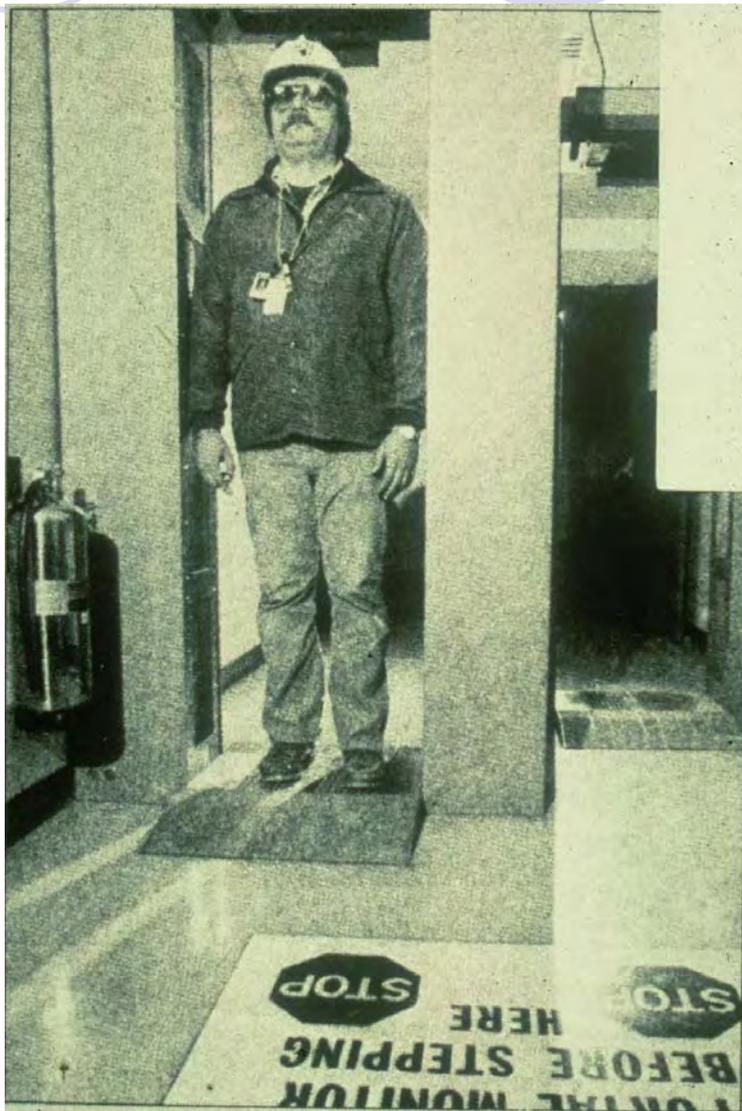
1-800-SOS-RADON or www.epa.gov

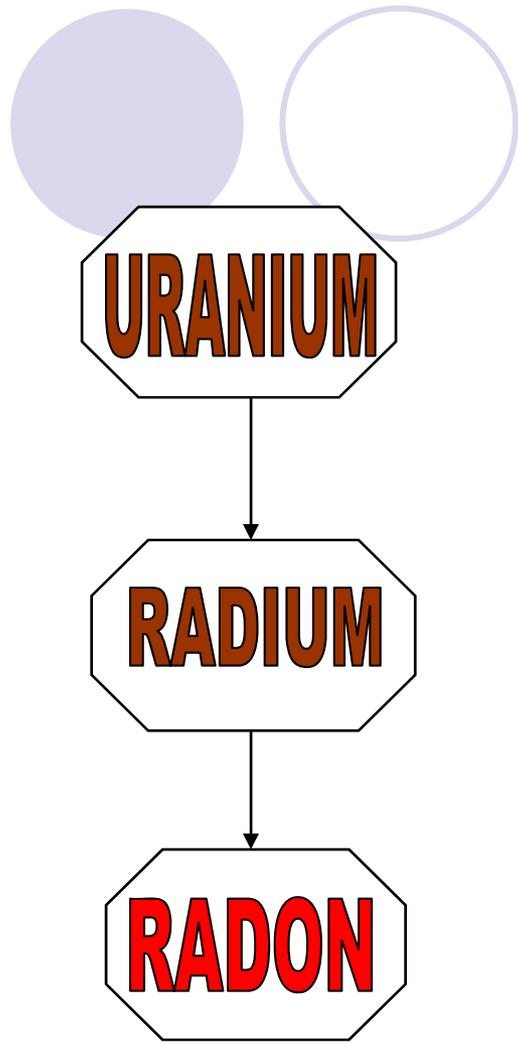




- The next presentation is for adult audiences

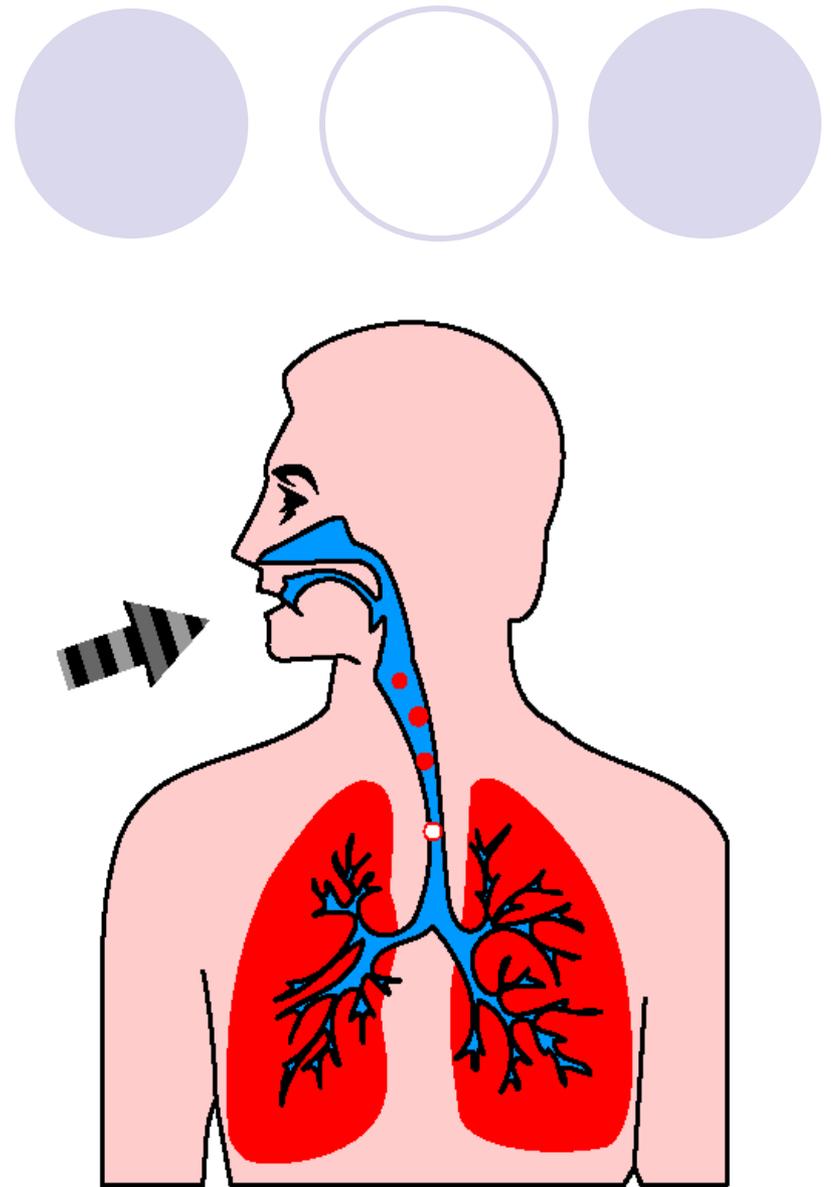
Stanley Watras at the Limerick Nuclear Power Plant, Christmas 1984





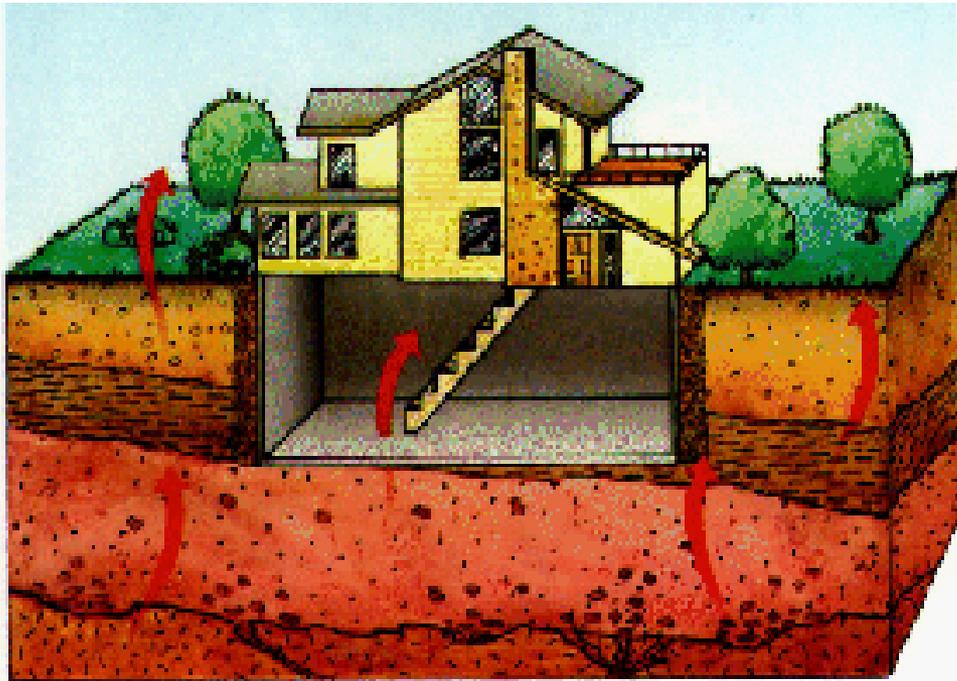
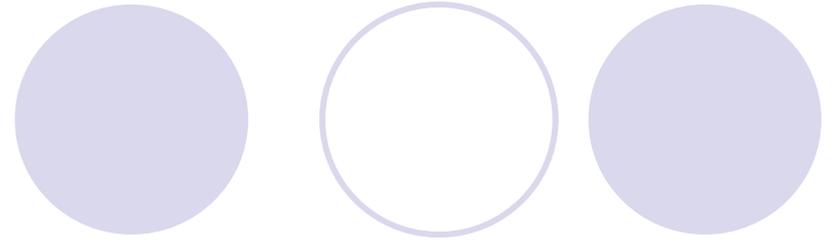
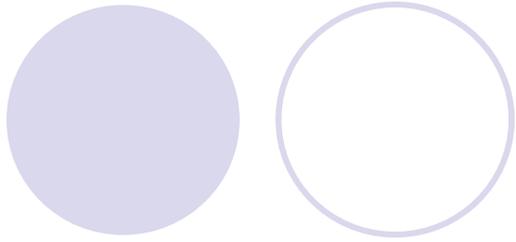
Formed by the radioactive breakdown of uranium and is found in soils just about everywhere.

- Radon's primary hazard is caused from inhalation of the gas and its highly radioactive heavy metallic decay products (Polonium, Lead, and Bismuth) which tend to collect on dust in the air. The problem arises when these elements stick to the delicate cells lining the passageways leading into the lungs.



Aerosols containing polonium get trapped in the mucosal lining of the lung





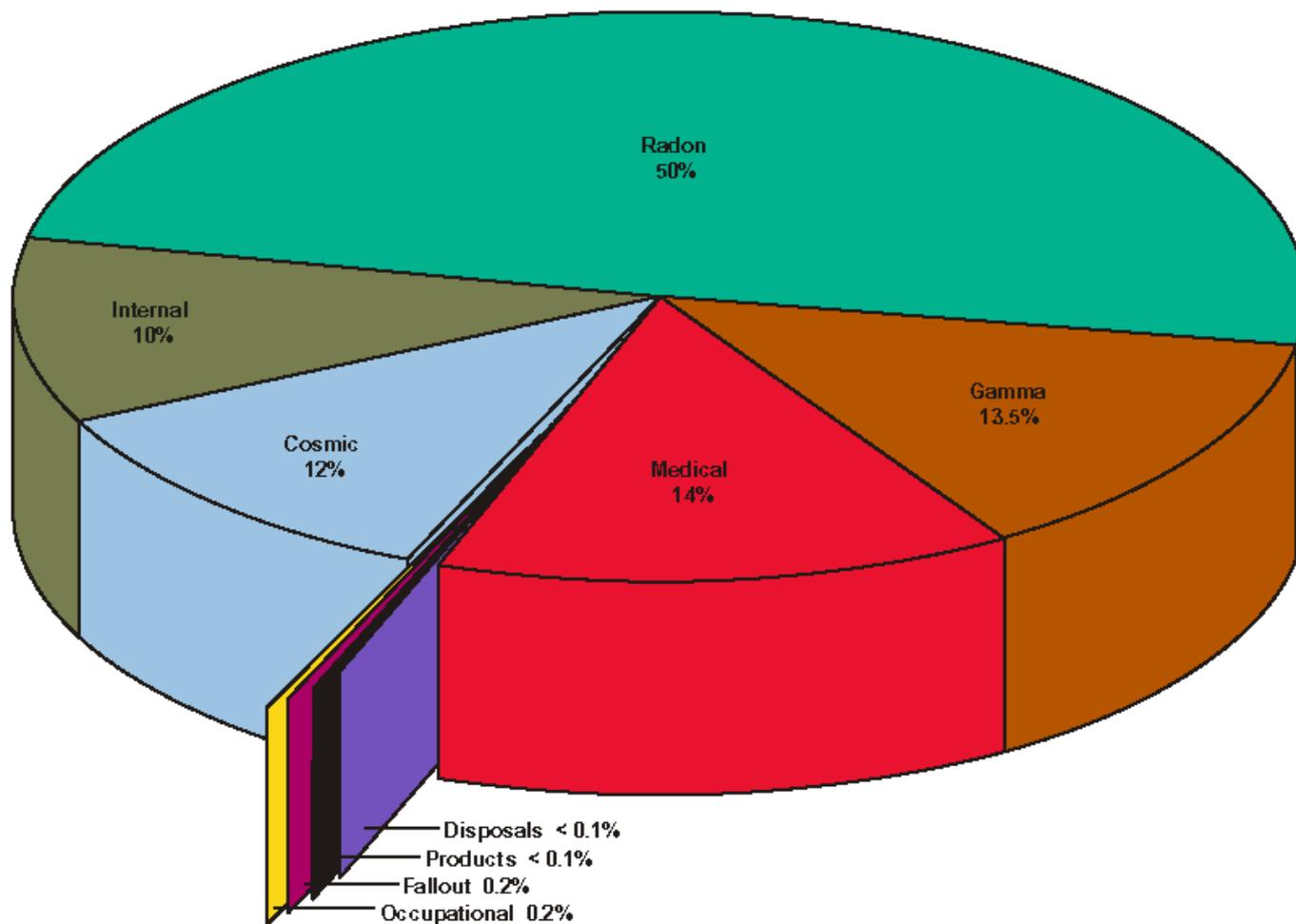


Estimated lung cancer deaths
per year in the US due to radon

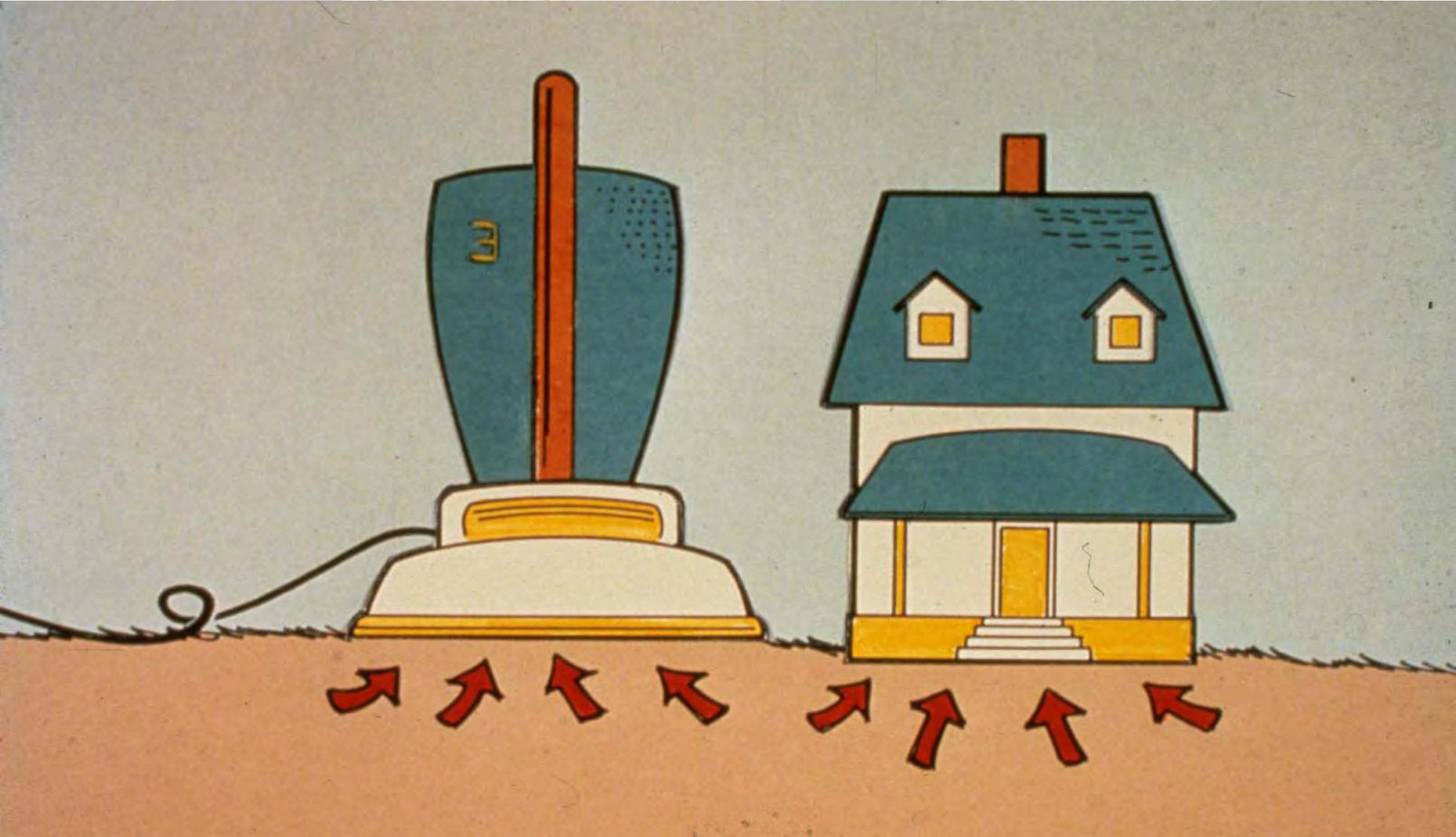
Approximately 22,000
(~1 in 8 of all lung cancer deaths)

About 85% of these deaths are
attributable to radon + smoking

Typical sources of exposure to ionizing radiation in the US



Radon gas gets inside homes through pressure differences



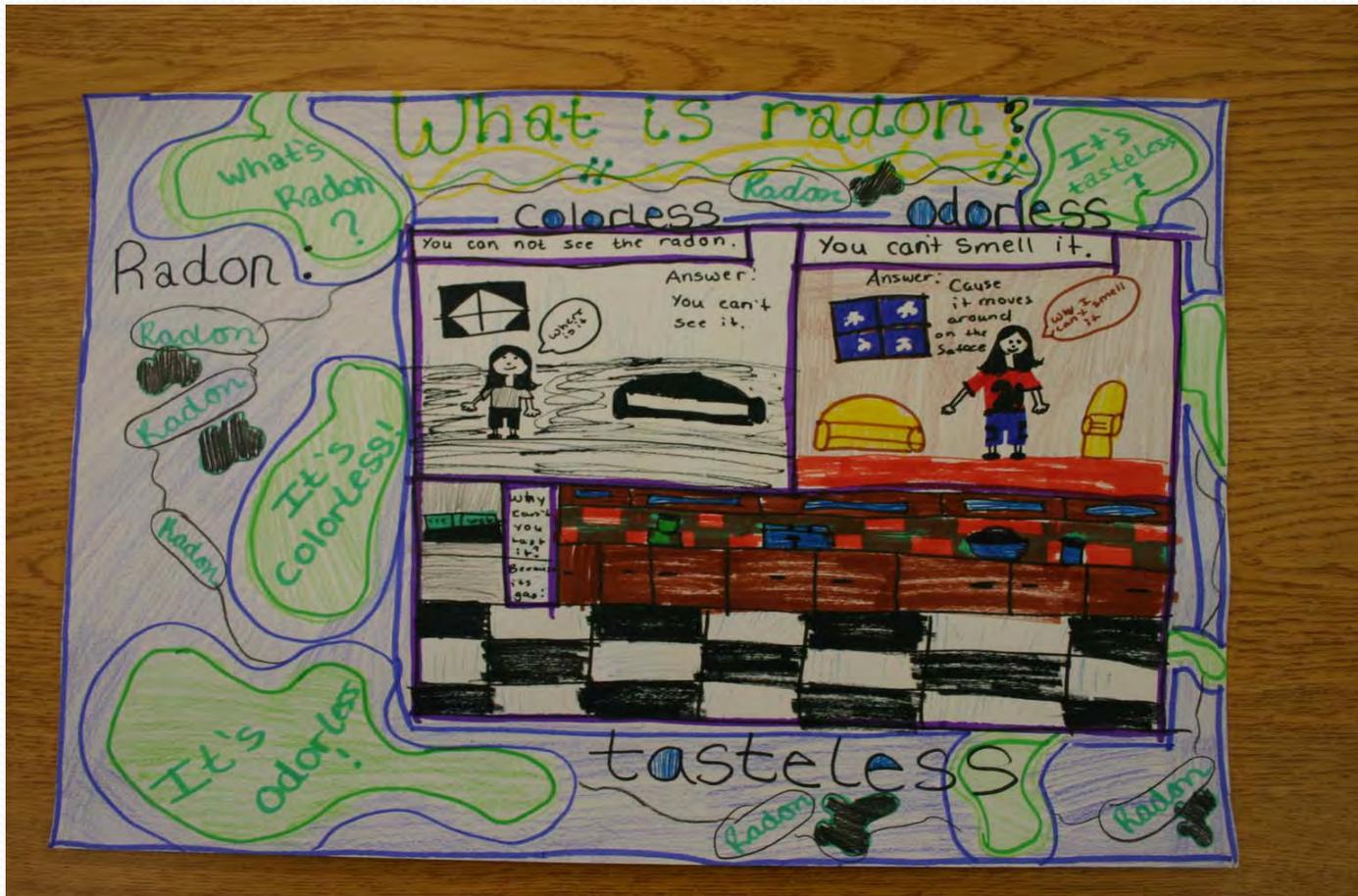
To reverse the flow, reduce the pressure underneath the house – *sub-slab depressurization*

NATIONAL RADON POSTER CONTEST

EASTERN SHAWNEE TRIBE OF OKLAHOMA

Presented by Bob Haskins
Air Quality Officer/Radon Specialist
March 16, 2009

Nicole- First Place Winner



Environmental Staff Judging Posters





- Award Ceremony in Conjunction
with School Assembly

- First Place Winner Received \$100.00
- Second Place Winner Received \$75.00
- Third Place Winner Received \$ 50.00
- Winning Teacher Received \$200.00 School Supply
Voucher

Award Assembly at School

Poster Winner

Winning Teacher





Teacher, First, Second Place
Winners, and Myself



**First Place Winner, her
Family, Teacher, and Roxane
Weldon toured the Iowa Tribe
of Oklahoma's Eagle Aviary
Rehabilitation Center in
Perkins, Oklahoma**

Iowa Tribe of Oklahoma Eagle Aviary



Iowa Tribe of Oklahoma Eagle

Aviary

Aviary Worker with Eagle Feather



Aviary Manager with Poster Winner, her Parents and Brother





- Attending the National Radon Poster Contest Ceremony in Washington D.C.

- Touring National Archives Museum

- Touring Natural History Museum

- Touring American History Museum

- Touring White House Lawn

- Touring National Capitol Building

- Touring National Monuments

National Radon Award Ceremony at the National Press Club



Janet Froetscher, President & CEO, National Safety Council



Gurbani Kaur-Third Place



Raquel Goldman-Second Place



Shana Stone-First Place



East Shawnee Tribe - Nicole



Eastern Shawnee Tribe Public Service Award



Beth Craig, EPA Presenting YouTube Video Awards



Eddie Metcalfe-First Place



Alejandro Torres-Runner-up

Elizabeth Cotsworth, EPA Director of ORIA Announcing EPA's "Living Green" PSA Campaign







LIVING GREEN

STARTS FROM THE GROUND UP.

Living green is making sure the air in your home is healthy for your family to breathe. Test your home for radon and build radon-resistant. It's easy. That's living healthy and green.

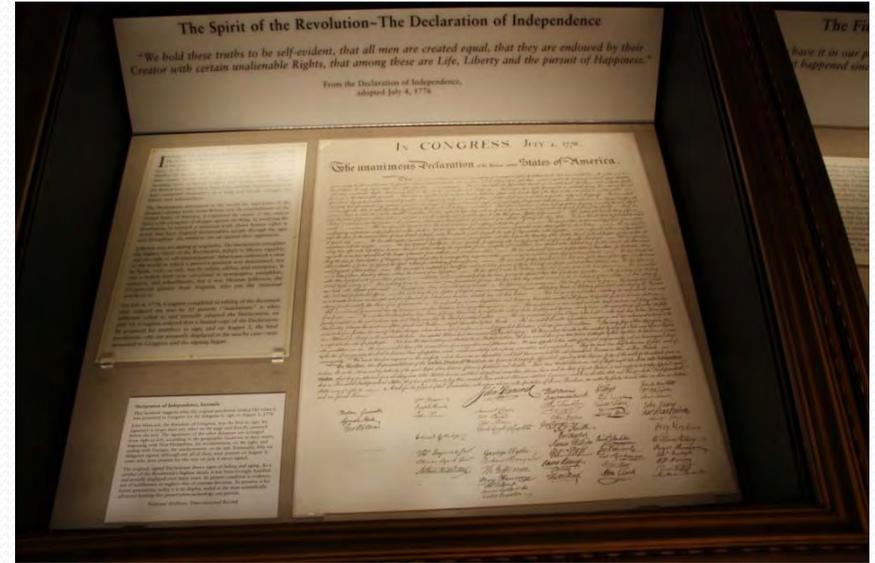
Just call **866-730-green** or visit **www.epa.gov/radon**



Eastern Shawnee Tribe of Oklahoma
866-666-3489 ext. 1042



National Archives



American History Museum



American History Museum



Natural History Museum



Natural History Museum



White House



Nation's Capitol



Nations Capitol Old Supreme Court



Nations Capitol Rotunda



Nations Capitol Rotunda



Nations Capitol



Kristi and Myself



Zip Code Center

National Monuments



Washington Monument



**Kristen Lolmaugh, National
Safety Council**

National Monuments

Lincoln Memorial



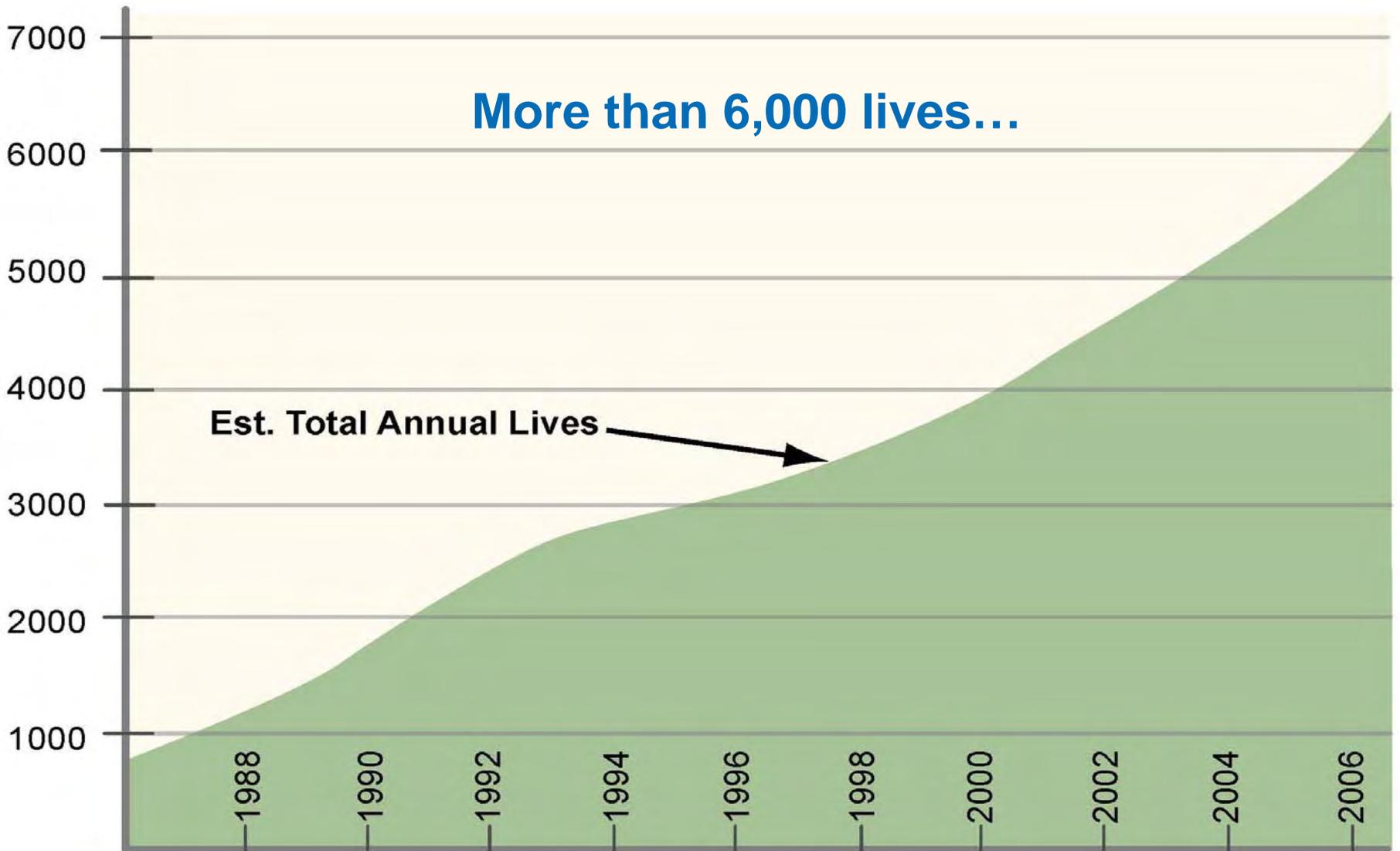


Radon Leaders Saving Lives

Radon Leaders Saving Lives

Susie Shimek, USEPA

**2009 Region 6
Radon Stakeholder Meeting
Oklahoma City**



Why do we really care ?

- More than half US Radiation Exposure
- #1 cause of Lung Cancer - Non-Smokers
- #2 cause of Lung Cancer - Smokers
- 21,000 Lung Cancer Deaths per year in US
- **Many Deaths are Preventable !!!**

State of Radon

- **Progress has been made**
855,000 total mitigations to date, About 67,000 mitigations in 2008
- **More high homes now than ever**
- **Not keeping pace with the housing market**
- **Need Radon Leaders Saving Lives to work**

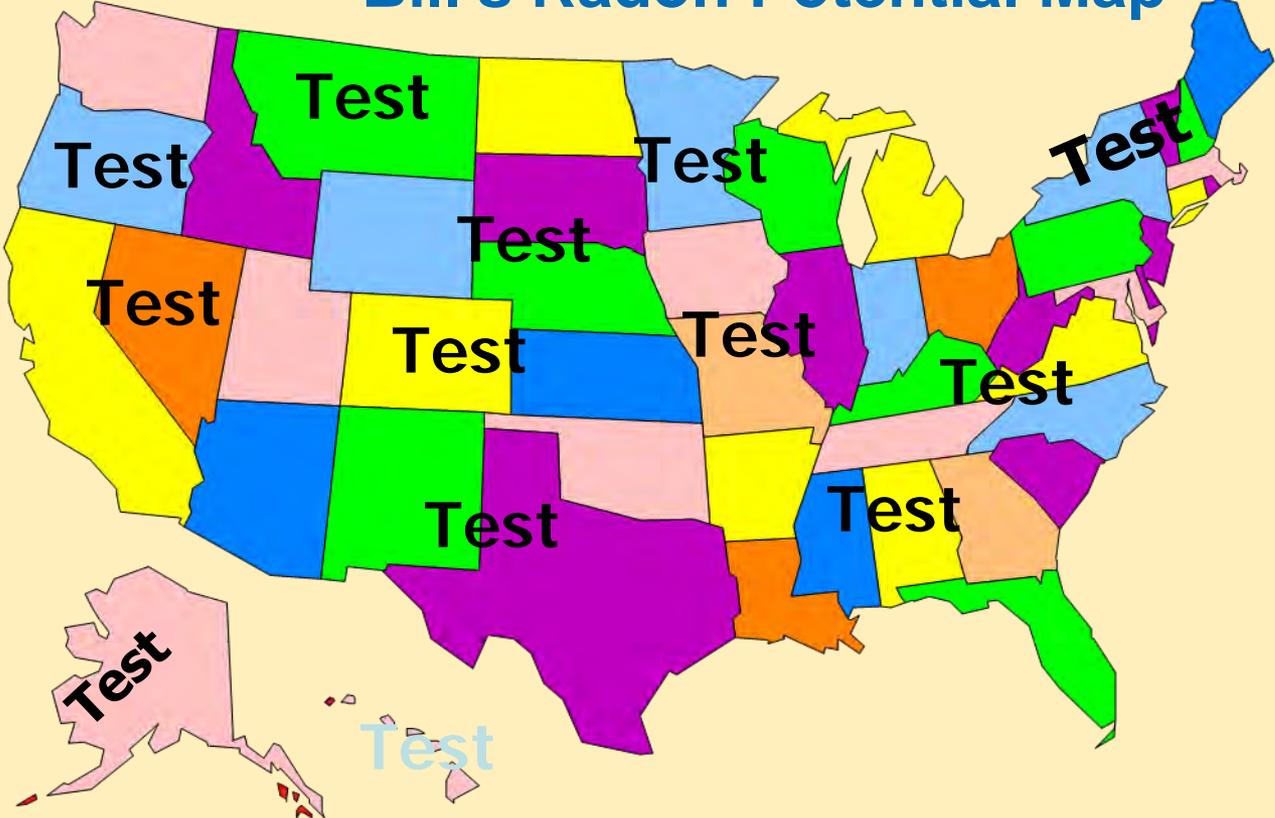
Renewed Urgency

Public concern

- 1984 Stanley Watras House discovered
- 10 state radon programs conducted
- Science
- BEIR VI
- 2005 New Surgeon general advisory
- 2006 European and North American pooling Studies
- Adapting and Adopting successful programs to replicate
- success
- Citizen advocates humanize the issue.



Bill's Radon Potential Map



If your home or school is on this map TEST for RADON

Which houses should be tested?



“Red house,
Blue house ...
Old house,
New house...”
BIG ones,
small ones,
Schoolhouse too!”



Radon Leaders Saving Lives

National Radon Leaders Saving Lives Campaign

- Launched in September 2007, by EPA, AARST, and
- CRCPD at the National Radon Meeting
- Goal is to double current level of activity within five years to increase the number of lives saved and reduce radon risk gap
- Challenges all radon stakeholders to double *effective action* to reduce radon risk



Radon Leaders Saving Lives

National Radon Leaders Saving Lives Campaign

- Goal oriented – Not prescriptive
- Meaningful outcomes
- Opportunity for synergy



Radon Leaders Saving Lives

Radon Leaders Saving Lives

Why a stakeholder meeting?

- How can we advance our campaign goal?
- What are the most effective strategies in use today?
- What is your leadership role?
- What are your opportunities?



Radon Leaders Saving Lives

Radon Leaders Saving Lives

- All risk reduction is LOCAL
 - Tribal Nations and States
 - Counties
 - Communities
 - Neighborhoods
- Real Risk Reduction often requires the action of private sector radon professionals



Radon Leaders Saving Lives

Testing and Mitigation Quality is Job #1

*“People forget how fast you did a job – but they remember how well you did it.”
Howard Newton*

- Reliable accurate radon testing devices –QA/QC to maintain public trust
- It’s not just a pipe
- It is a Real Radiation Protection System

“Quality is never an accident; it is always the result of high intention, sincere effort, intelligent direction and skillful execution; it represents the wise choice of many alternatives.” William A. Foster

Tools

- National Radon Meeting/ AARST Symposium
 - September in St. Louis
- Hard to Mitigate Homes- Advanced Diagnostics Course
- RRNC for Builders
- Blind Testing Project
- National Council for State Legislatures
- Radon Action Month and EPA National Media Campaign

“Opportunity is missed by most people because it is dressed in overalls and looks like work.” Thomas A. Edison



Radon Leaders Saving Lives



Sox It To Radon

The Environment ...

Where are we going as a nation of people?

- Almost three-quarters (75%) of U.S. adults believe their

personal actions are significant on the environment

- Women are much more likely than men (77% versus 67%) to believe that their actions are significant
- More than half of U.S. adults have **made changes** in their lives that they believe will help sustain the environment

The Environment ...

Where are we going as a nation of people?

- Who's Listening and who's most informed on "environmental sustainability" as an issue:
 - Echo Boomers (aged 18-31) @ 46%
 - Gen Xers (those aged 32-43) @ 47%
 - The matures (aged 63 and older) @ 30%

The Environment ...

Where are we going as a nation of people?

What Lifestyle Changes are people making?

- Most popular choice is recycling @ 91%
- Buying more local produce food and/or goods @ 49%
- Buying "Green" household products @ 47%
- Considering becoming a Vegetarian @ 10%
- Changed light bulbs @ 3%

The Environment ... Where are we going as a nation of people?

The Future: Who believes it will be possible to do more in the future?

- Two-thirds (67%) DO BELIEVE it will be possible for people to live more sustainably



The Environment ...

Where are we going as a nation of people?

Harris Authors' summary statements:

- "Green Living is certainly at the forefront of our minds...[as a nation]."
- "In the end, the environment and sustainable living are issues that will
not be going away anytime soon."

The Environment ... Where are we going as a nation of people?

Roper Green Gauge

- #1 Reason People Act: "to protect personal health and/or health of family members"
- Most Consumers get information from the media and they want more of it
- There's a gap between attitudes/awareness/concern and behavior due to knowledge
- 50% of consumers want more environmental education
- Green is not a fad, extremely few respondents think it will fade (3%)



Radon Leaders Saving Lives



New Radon Media Campaign



Radon Leaders Saving Lives

Media Campaign

Sox it to Radon with these:

- TV
- Seven radio spots, unique by format & audience
- Magazine, newspapers, billboards, and more...

Media Campaign Materials

Sox it to Radon: TV



Media Campaign Materials

Sox it to Radon: Print

HEALTHY & *living* GREEN EPA

Live green and make the air in your home healthy and clean.

Living green starts from the ground up. So make sure the air in your home is healthy for your family to breathe. Make sure you test your home for the presence of radon.

It's easy. Just call 866-730-green or visit www.epa.gov/radon. Preserve your family's health and well-being. That's living healthy and green.

HEALTHY & *living* GREEN EPA

When you're living green, the living is easy.

Living green starts from the ground up. So make sure the air in your home is healthy for your family to breathe. Make sure you test your home for the presence of radon.

It's easy. Just call 866-730-green. Or visit www.epa.gov/radon. Preserve your family's health and well-being.

EPA

LIVING GREEN
STARTS FROM THE GROUND UP.

Living green is making sure the air in your home is healthy for your family to breathe. Test your home for the presence of radon.

Call 866-730-Green or visit www.epa.gov/radon. That's living healthy and green.

EPA *living* HEALTHY & GREEN

EPA HEALTHY & *living* GREEN

When you're living green, the living is easy.

Living green starts from the ground up. So make sure the air in your home is healthy for your family to breathe. Test your home for the presence of radon.

It's easy. Just call 866-730-green or visit www.epa.gov/radon. Preserve your family's health and well-being.

HEALTHY & *living* GREEN EPA

Coming This Holiday Season

Give Green For Life.

Thinking green is making sure the air in your home is healthy for your family to breathe. Test your home for the presence of radon. Radon test kits make smart stocking stuffers.

For more info call 866-730-green or visit www.epa.gov/radon.

Fred Frenzi, Member of the National Association of Home Builders

Media Campaign Materials

Sox it to Radon: Outdoor



EPA

Living **HEALTHY & GREEN**

Living Green Starts From The Ground Up.

Test your home for the presence of RADON.
Call **866-730-GREEN** or visit **www.epa.gov/radon**.

Fuad Reveiz

A Radon Leader Saving Lives



“I build Radon Resistant”
Fuad Reveiz, Member of the National Association of Home Builders

Building healthier homes starts from the ground up. Learn how you can help save lives by building radon out, it's easier than you think. Go to www.epa.gov/building. Sox it to radon and step out on the green side of building healthier.



This information is provided as a public service to help protect our environment and public health. EPA does not endorse this particular builder or any other commercial service or enterprise.

Some Results to Share...

Surgeon General 2006-2008 PSA Campaign Results

- Total donated media \$13,534,770
 - Local TV: \$ 7,812,002
 - Radio Value \$ 4,604,023

New Home Construction PSA Campaign 2007-2008

- Radio donated media \$ 9,274,086

BUILD GREEN
A RADON-RESISTANT HOME HELPS PROTECT YOUR FAMILY FROM LUNG CANCER.

EPA.GOV/RADON
202-343-9418

FUAD REVEIZ,
Member of the National Association of Home Builders

FAMILY ROOM
RADON-RESISTANT

EPA

SURGEON GENERAL'S WARNING:
Cigarette Smoking Causes Lung Cancer.

SURGEON GENERAL'S WARNING:
Radon Causes Lung Cancer. You Should Test Your Home.

The U.S. Surgeon General recommends that your home be tested is the second leading cause of lung cancer. If you have never sm... number one cause of lung cancer. Radon is an invisible radioacti... into your home from underground, and the only way you can... dangerous levels of Radon in your home is to test for it. Radon... easily fixed. For testing information, call or visit:
1-800-846-3986
<http://www.cdphe.state.co.us/nm/rad/rad>

The Importance Of A Radon-Resistant Home
Greener Living=Healthier Indoor Air

(NAPS)—If you want to live a more sustainable life and protect your family from cancer, you may want to learn more about one of the home's most dangerous pollutants—radon. Radon is a cancer-causing natural radioactive gas that you can't see, smell or taste. It's the leading cause of lung cancer among nonsmokers and claims about 20,000 lives every year. Although lung cancer can be treated, the survival rate is one of the lowest for those with cancer. Fortunately, many of the causes of lung cancer can be prevented—and this is especially true for radon.

The Office of the Surgeon General has issued a health advisory warning Americans about the risk from breathing radon in indoor air. Americans are urged to test their homes to find out how much radon they might be breathing.

Radon comes from the natural (radioactive) breakdown of uranium in soil, rock and water and gets into the air you breathe. Radon can be found all over the U.S. It can get into any type of building—homes, offices and schools—and can climb to high levels if it's trapped indoors.

For most Americans, the greatest exposure to radon is in their homes, whether those homes are old or new. Any home, any type, any location can have a radon problem. All homes need to be tested unless the building is a high-rise above the third floor. If your home has not been tested, now is a good time to take the test. This will help protect your family's health and it's easy to do.

The Environmental Protection Agency (EPA) recommends homes

BUILD GREEN
A RADON-RESISTANT HOME HELPS PROTECT YOUR FAMILY FROM LUNG CANCER.

The indoor air quality of your home can affect your family's health.

be fixed if the radon level is 4 picocuries per liter of air (pCi/L) or above. While testing can be easy and inexpensive, millions of Americans still need to have their first home radon test to protect their family.

You can test your home yourself or hire a professional. Reliable testing devices are available by phone or mail order and can be purchased in hardware and home improvement stores.

Fixing a radon problem is easy too—and doesn't have to be costly. Radon reduction systems can lower radon to an acceptable level. Even very high levels can be reduced to a safer level.

"It's inexpensive to build a new home with radon-resistant features. A better home will be both greener for the planet and healthier for your family," said Fuad Reveiz, a member of the National Association of Home Builders.

For help in identifying radon companies, call your state radon office or visit www.epa.gov/iaq/wheretoobv.html.

For more information, call 1-800-808-EADON (1-800-767-7296) or visit www.epa.gov/radon.

Be a Lifelong Learner

“I wonder.....”

- Situational awareness
- Seek Connections

“I have never let my schooling interfere with my education.” Mark Twain



EPA REGION 6

RADON & INDOOR AIR WORKSHOP

March 16-17, 2009

Engaging RadonLeaders.org

RadonLeaders.org Home Page

RadonLeaders.org beta [Join the Community](#)

[Home](#) [About](#) [Resources](#) [Connect](#) [Discuss](#) [Help](#)

Radon Leaders Saving Lives




EPA

Doubling our results in the next five years*

Search...

Upcoming Events

- 2009 MAR 16** Region 6 Radon Stakeholders' Meeting
- 2009 APR 22** 2nd Annual Earth Day Celebration in Victor NY
- 2009 MAY 5** Region 5 Annual Region/States/Tribes Radon Meeting
- 2009 MAY 7** Prescription for Radon - A Medical Forum

[view all >>](#)
[submit an event >>](#)

Interact

IN FOCUS

Saving Lives in 2009
 FEBRUARY 12, 2009 • RADONLEADERS.ORG

Growing RadonLeaders.org
 RadonLeaders.org now boasts almost 400 members in the mere four months since its launch at the national radon meetings in Las Vegas, September 2008. *Help build the RadonLeaders.org community by asking three colleagues to join today!* Direct them to www.radonleaders.org/user/register. A Record Breaking National Radon Action Month 2009

[more >>](#)

LATEST BLOG POSTS

DNA damage induced by Radon
 MARYNMK ON MARCH 2, 2009 - 1:43AM • 0 REPLIES

Resolve to Protect Your Family and Kick Radon Out of Your Home in 2009
 JEREMY AMES ON JANUARY 23, 2009 - 12:00PM • 0 REPLIES

Bill Angell's Personal and Professional Radon Story
 WANGELL ON JANUARY 15, 2009 - 7:05PM • 0 REPLIES

My Radon Story
 BARB SORGATZ ON JANUARY 14, 2009 - 3:02PM • 0 REPLIES

[view all >>](#)

LATEST NEWS

Protect yourself from radon
 FEBRUARY 25, 2009 • KARIN HAUGRUD, WANGELL ON MARCH 12, 2009

LATEST FORUM TOPICS

Homeowner Speaks About Need for Radon Control in New Homes
 WANGELL ON MARCH 12, 2009



EPA REGION 6

RADON & INDOOR AIR WORKSHOP

March 16-17, 2009

RadonLeaders.org

- CONVENE ONLINE
- TOOLS & RESOURCES
 - Web Widgets
 - Presentations
 - Radon Change Package
- CROWDSOURCING & CONNECTING
 - Your Questions
 - Your Answers
 - Your Knowledge
 - Forums
 - Blogs
 - Community Calendar
 - Directory

Ask, Write, Share: Blog or discuss in Forums

RadonLeaders.org Blogs

[Create your own blog >>](#)

Blog Post	Author
DNA damage induced by Radon	marynmk
Resolve to Protect Your Family and Kick Radon Out of Your Home in 2009	Jeremy Ames
Bill Angell's Personal and Professional Radon Story	wangell
My Radon Story	Barb Sorgatz
A Radon Activist's Perspective	Gloria Linnertz
NRAM conference in CT	Francesca
Mrs. Georgia Becomes Advocate for Radon Testing	chenhall
Radon Evidence	RogerRadon

Radon Forums

The forums on RadonLeaders.org are accessible only by registered users of the portal community. Registered users may read and comment on any forum thread. The forums provide a venue for the exchange of ideas and information across all radon stakeholder groups. Inappropriate or abusive behavior will not be tolerated. The forums have features that allow users to rate the quality of comments and to flag abusive comments. If you have any questions about the forums please contact [RadonLeaders.org](#).

[Post new Forum Thread >>](#)

Forum	Topics	Posts	Last post
<input checked="" type="checkbox"/> General Radon Discussion	20	64	2 days 18 hours ago by wangell
<input checked="" type="checkbox"/> National Radon Action Month 2009	6	20	2 weeks 3 days ago by Jeremy Ames
<input checked="" type="checkbox"/> Radon Professionals Discussion	3	10	4 weeks 5 days ago by wangell
<input checked="" type="checkbox"/> State Radon Programs Discussion	6	17	3 days 3 hours ago by anita.britt

What's Happening?: Community Calendar

Events

[Post an Event >>](#)

[Week >>](#) [Day >>](#) [Table >>](#) [List >>](#)

« March 2009 »

1	2	3	3rd Annual Region 7 Radon Stakeholders' Meeting Start: 03/04/2009 8:00 am	4 Region 7/State Radon Meeting Start: 03/05/2009 8:30 am	5	6	7
8	9	10			12	13	14
15	Region 6 Radon Stakeholders' Meeting Start: 03/16/2009 1:00 pm	16 Region 6 Radon Stakeholders' Meeting End: 03/17/2009 4:30 pm	17	18	19	20	21
22	23	24	25	26	27	28	29
29	30	31					

Get Local

[View](#) [Edit](#)

Region 6 Radon Stakeholders' Meeting
 03/16/2009 - 1:00pm
 Oklahoma City, OK
[More >>](#)

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 Map data © 2009 Tele Atlas, LeadDog Consulting - Terms of Use

Upcoming Event Past Event

The Radon Change Package: Effective Strategies that Drive Results

View Edit

What is the Radon Change Package?

The Radon Change Package is a guide for achieving life saving results, including radon tests, mitigations, and radon resistant new construction (RRNC). It synthesizes years of research, including studies of effective ways to promote residential action to reduce health risks; historical analysis of the national radon program; field research on program strategies with a demonstrated link to mitigation and RRNC results; and ideas from CRCPD's [Radon Cookbook](#) and EPA's [Local Efforts to Reduce Exposure to Radon](#).

The Change Package captures the current knowledge base to support the Radon Leaders Saving Lives Campaign. It presents strategies, approaches, and actions that state radon programs and their industry and community partners can use to improve program effectiveness and double their results.

How Can I Use the Radon Change Package?

The Change Package provides all the information you need to identify successful strategies and take action to incorporate those strategies into your work. It is organized into five Leadership Concepts that represent the core elements of a successful radon program:

- Cultivate High-Performing Collaborations & Partnerships
- Build Local Infrastructure
- Design a Results-Driven Program
- Cultivate Effective Relationships with Industry
- Maximize the Impact of Your Outreach

Under each Leadership Concept, you will find specific Leadership Strategies that describe proven approaches for getting results. The Strategies are supported by Testable Ideas that present simple and specific activities programs can follow to enhance the effectiveness of their

Leadership Concepts

- Leadership Strategy
 - Testable Ideas
 - Action 1
 - Ideas to consider

Just a few resources...

www.radonleaders.org/resources/resourcebank

HUD and USDA Presentations: Accessing Funding for Radon Housing Programs

- HUD_Tapping into HUD Programs.pdf
- USDA_Section 504 Single Family Housing Program.pdf

Presentations delivered in fall 2007 to New York state radon partners.

Categories:
 Resource Bank

SHARE

Website Resource - Radon: Did You Know?

RadonLeaders.org has created a Radon "Widget" which can be easily placed on any website or blog. The widget displays a different piece of information on radon each time the website it is hosted on is refreshed. It is available below in two colors, green and blue. **Copy the HTML code below to embed the Radon: Did You Know widget into your website or blog:**

Green Radon: Did You Know? Widget Option

RADON: Did You Know?

The only way to know if you have a radon problem is to test for it. Testing for radon is easy and inexpensive.

VISIT RADONLEADERS.ORG



EPA REGION 6

RADON & INDOOR AIR WORKSHOP

March 16-17, 2009

Requests...



EPA REGION 6

RADON & INDOOR AIR WORKSHOP

March 16-17, 2009

Join Today!

www.radonleaders.org/user/register

User account

Account information

Username: *

Spaces are allowed; punctuation is not allowed except for periods, hyphens, and underscores.

E-mail address: *

A valid e-mail address. All e-mails from the system will be sent to this address. The e-mail address is not made public and will only be used if you wish to receive a new password or wish to receive certain news or notifications by e-mail.

Password: *

Confirm password: *

Provide a password for the new account in both fields.

Personal Information

First Name: *

The content of this field is kept private and will not be shown publicly.

Last Name: *

The content of this field is kept private and will not be shown publicly.

Organization: *



EPA REGION 6

RADON & INDOOR AIR WORKSHOP

March 16-17, 2009

Share your NRAM Story!
www.radonleaders.org/nram/share

Share Your National Radon Action Month Story

[View](#) [Edit](#) [Results](#)

You have already submitted this form. [View your previous submissions.](#)

Share your National Radon Action Month (NRAM) story and inspire others to conduct successful outreach during NRAM and beyond! Please describe your activity below and upload photos, graphics, outreach documents, and any other helpful materials. *The more, the better!*

No one knows your event better than you! Help others to understand the thinking behind your outreach activities by describing the **who, what, when, why, and how** of your event below.

Your Story:

Some questions to think about as you tell your story:

- Why did you choose to conduct this particular event over other events you could have planned?
- What was the process or methodology you used in planning your activity?
- Did you partner with other people or groups? If so, how did you approach them to propose working together?
- What did you do that was a success and what could have been better? In hindsight, would you change anything?
- What did you learn from this event about planning and conducting outreach, and how do you intend on incorporating those lessons learned when planning future activities?

Upload your National Radon Action Month Materials Here

[Click here to upload files »](#)

Radon in Real Estate

*How To Handle The Radon Issue During Real Estate
Transaction*

**Nadine Barton
Tulsa, OK**

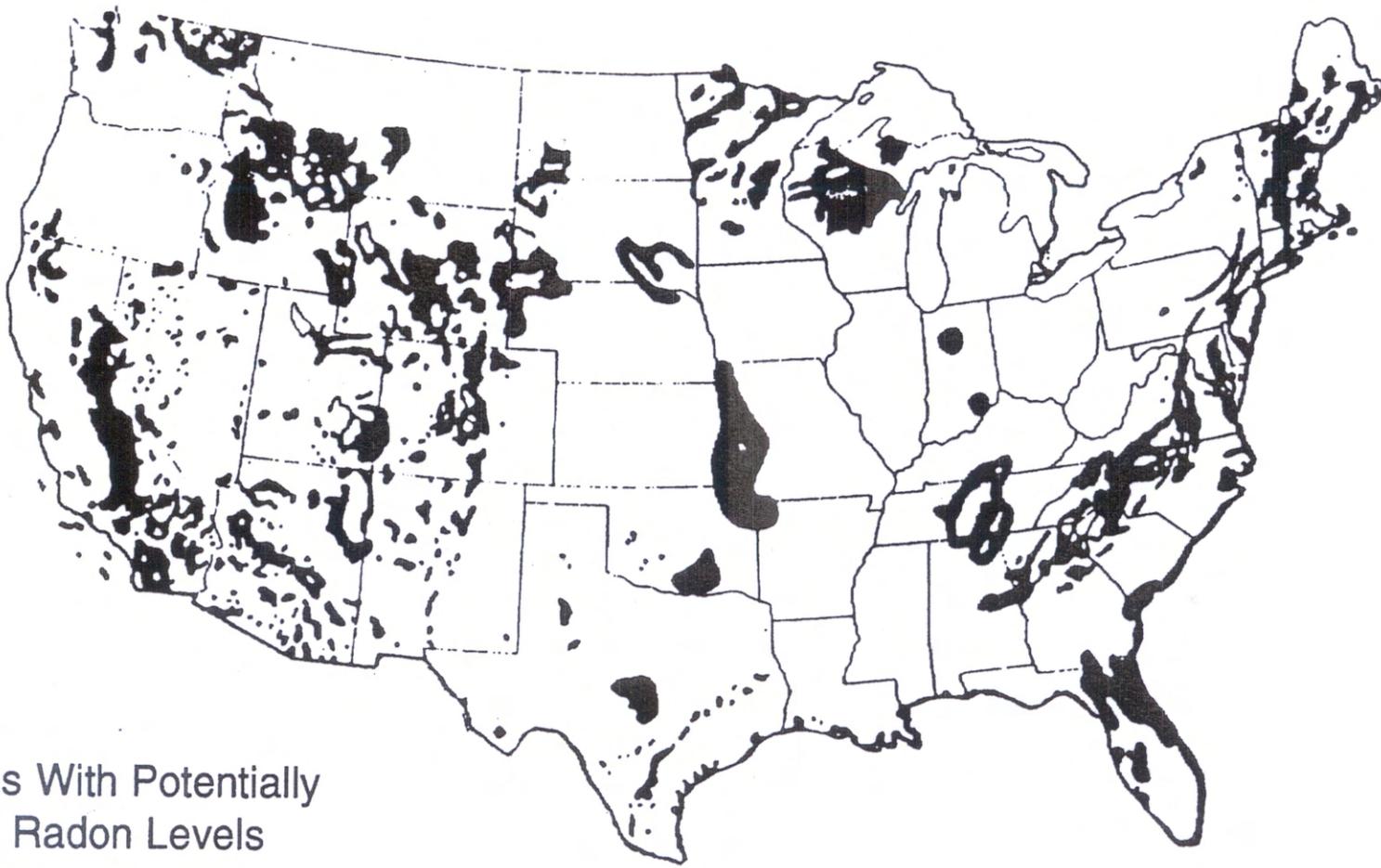
Reducing Radon Risk in Real Estate

Want a Few
Hot Tips?



Goal of Presentation

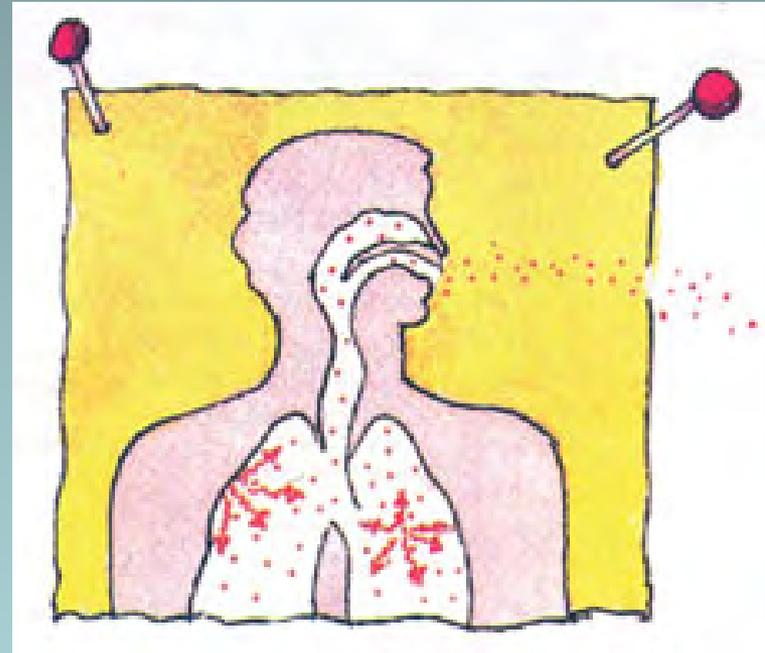
- Answer three questions
 - Why should real estate professionals be concerned about radon?
 - What is the Government position on radon?
 - What should real estate professionals know about radon?



- Areas With Potentially High Radon Levels

Why You Should Be Concerned

- Radon causes lung cancer in humans
- Clients increasingly concerned about all air quality issues
- Lack of knowledge can lead to problems

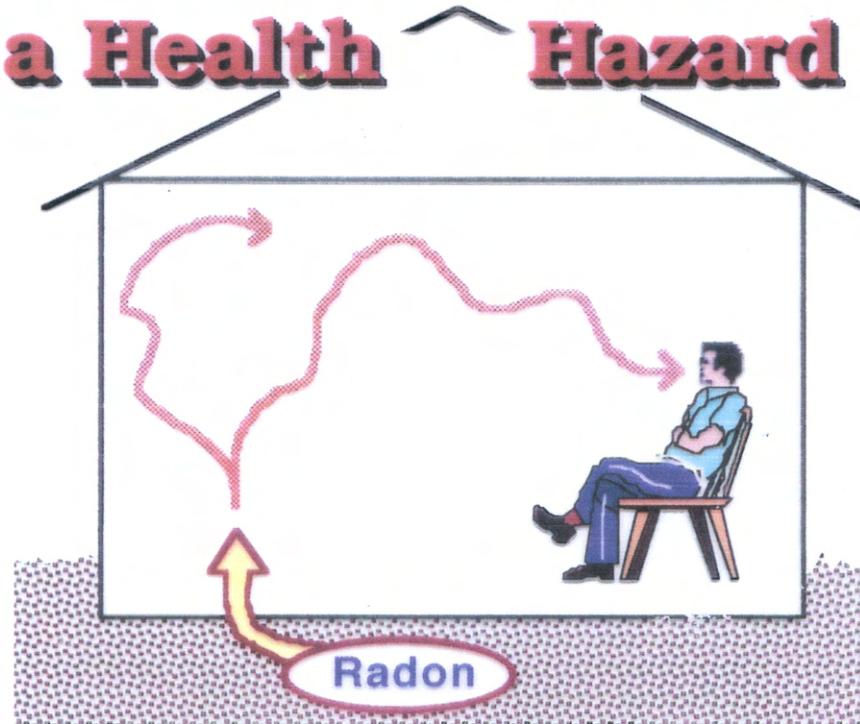


What Is Radon?



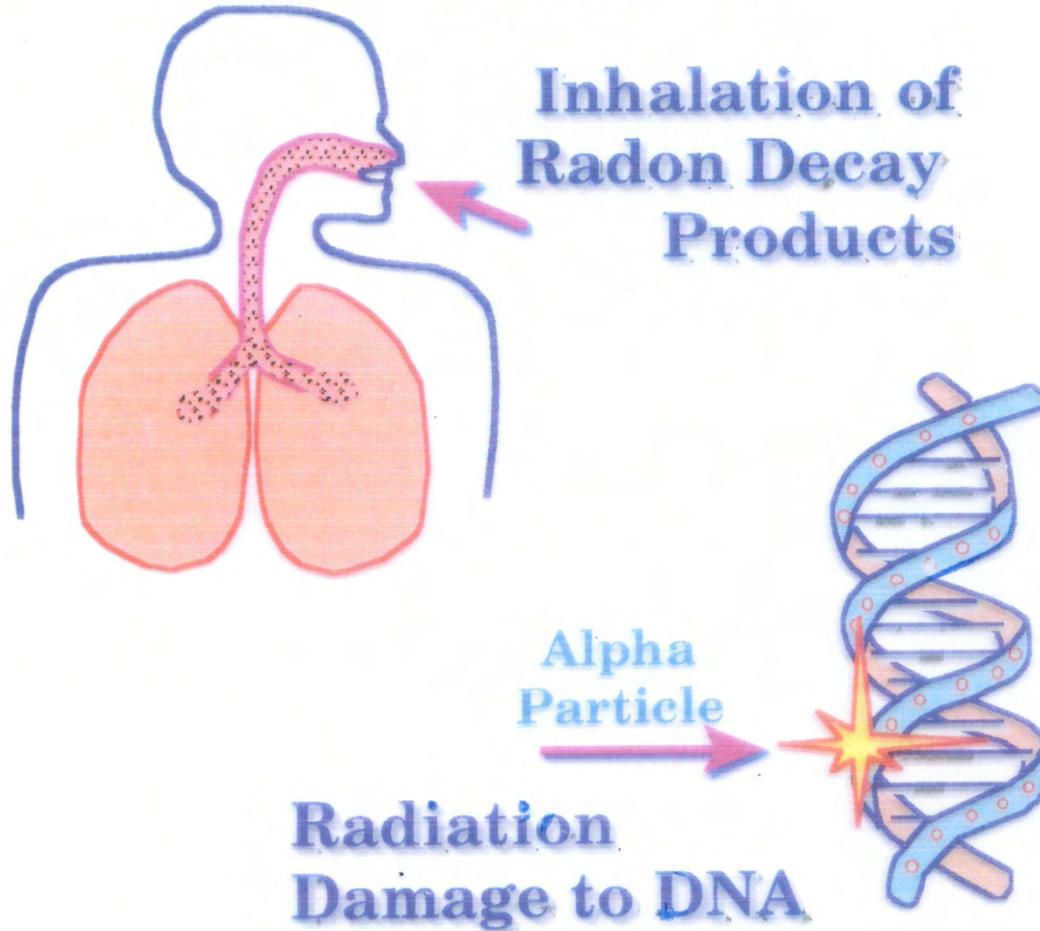
- A Gas
- Occurs Naturally
- Can't See or Smell
- Comes From Ground
- Measured pCi/L (pico curies per liter)

How Radon Becomes a Health Hazard



- Decays into radioactive particles
- Airborn and easily inhaled
- Attaches to lung tissue
- Radiation alters cells

Damage to Lung Tissue



RADON RISKS

RADON IS A SERIOUS HEALTH PROBLEM

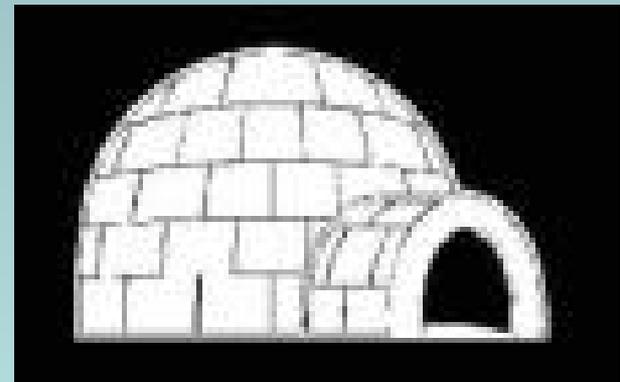
General Population

Annual Radon Level	If 1,000 people were exposed to this level over a lifetime:	The risk compares to having about this many chest x-rays a year:	What To Do
20pCi/L	About 90 people could get lung cancer	2,000 chest x-rays	Fix your home
10 pCi/L	About 50 people could get lung cancer	1,000 chest x-rays	Fix your home
4 pCi/L	About 20 people could get lung cancer	400 chest x-rays	Fix your home
2 pCi/L	About 10 people could get lung cancer	200 chest x-rays	Consider fixing between 2 and 4 pCi/L
1.5 pCi/L		Average indoor radon level	
.5 pCi/L		Average indoor radon level	

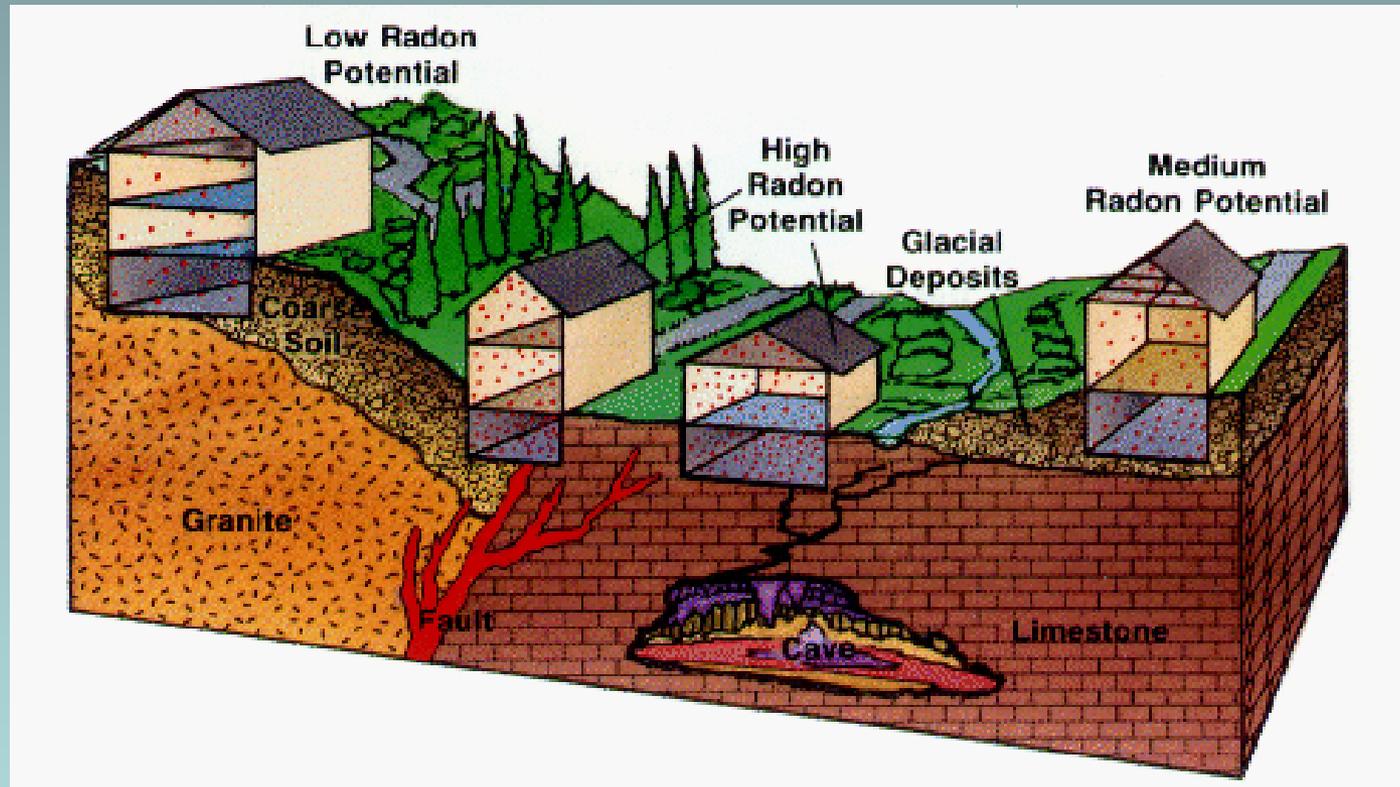
The risks shown in this chart are for the general population. The risks to smokers are even greater because of the interaction of the two carcinogens. For example, smoking and being exposed to 4 pCi/L of radon is like having 800 chest x-rays each year. If you have never smoked, being exposed to 4 pCi/L of radon is like having 80 chest x-rays a year. Children may be more at risk from radon than adults because their lungs may be more sensitive to radiation. The risk to non-smokers exposed to 4 pCi/L of radon is significantly more dangerous than the maximum allowable limits for other environmental pollutants.

Almost Any House, Anywhere, Can Have a Radon Problem

- Some are less likely than others . . .



Radon Varies from home-to-home



Clients May Have Questions About Radon

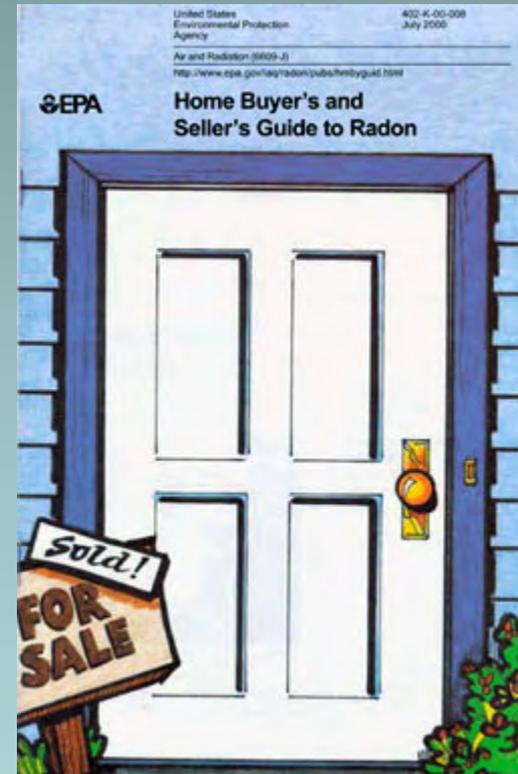
- Increasing public awareness of all indoor air quality issues
- Government education and outreach programs
- Relocation companies require radon test
- In some parts of the country, radon test has been a standard part of home inspection for years

Knowledge Can Help Prevent Problems

- Information to disclose:
 - Radon test results, if known
 - General information about radon (EPA's Home Buyer's and Seller's Guide to Radon)
<http://www.epa.gov/radon/pubs/citguide.html>
 - Names and phone numbers of state and federal radon offices and professional (certified) radon service providers

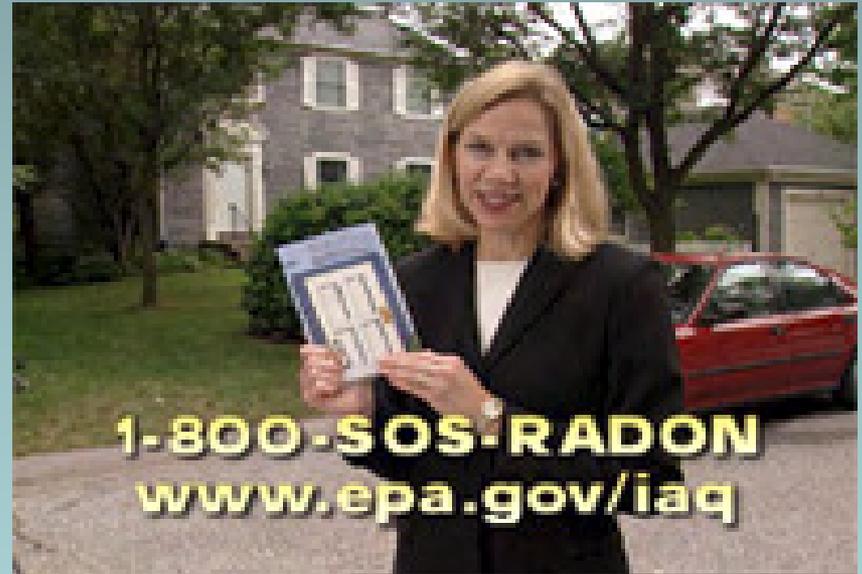
Home Buyer's and Seller's Guide to Radon

- Provides practical, scientific radon guidance to home buyers, sellers and the real estate industry
- Tells buyers and sellers what they need to know about testing and what test results mean
- Other helpful information
<http://www.epa.gov/radon/pubs/hmbyguid.html>



Breathing Easy: What Home Buyers & Sellers Should Know About Radon

- Short video for:
 - Home buyers
 - Home sellers
 - Realtors
 - Inspectors
 - Lenders
 - Radon service providers
- Free from IAQ-Info: 1-800-438-4318
- VHS, CD, & DVD format



EPA's Radon Policy

- “Action Level” radon concentration set at 4.0 picocuries per liter (pCi/l) of air (technology-based)
- There is no absolutely “safe” exposure
- Smokers are at higher risk
- Long-term tests are best measure of exposure
- Short-term tests determine the need for mitigation

EPA's Radon Policy

- Recommend use of trained & certified radon professionals



National Organizations

- American Society of Home Inspectors
 - Radon Mitigation System Inspection Checklist
- National Environmental Health Association
 - Education & Certification Programs
 - Lists of certified radon professionals
- National Radon Safety Board
 - Education & Certification Programs
 - Lists of certified radon professionals

National Organizations cont.

- American Lung Association
 - Public Education
- Environmental Law Institute
 - Research
 - Public Education
- National Safety Council
 - Public Education
 - Low Cost Radon Test Kits



National Association of Realtors Radon Policy

- NAR joins EPA in urging all Americans to test their homes for radon
- NAR encourages state Associations to develop policy and support legislation to require disclosure of property condition, including radon test results
- NAR cooperated with EPA in development of radon testing strategy for real estate transactions

What Should Real Estate Professionals Know About Radon?

- Know the radon basics contained in the Home Buyer's and Seller's Guide to Radon
- Know the key points that buyers and sellers are concerned about:
 - Testing for radon
 - Preventing test interference
 - Fixing a radon problem
 - Cost to fix
 - Radon-resistant new homes
- Know who to call for information

Radon Testing

- Long-term vs. short term testing
- EPA's recommended testing protocol
- Different types of radon tests
- Test device placement
- What test results mean

Testing Considerations

Radon levels:

- Vary over time (hours, days, months)
- Are affected by many environmental and human factors
 - Wind, rain, barometric pressure, door & window openings, etc.
- Differ from one floor to another in a building
- Vary from one locale to another

Short vs. Long-Term Testing

- Short-term tests are from 2 – 90 days; long-term tests more than 90 days
- Long-term tests are more representative of actual average radon concentrations
- Short-term tests are adequate to indicate need for mitigations
 - Two-day test conducted according to EPA testing guidance for real estate transactions (HB&SG) will correctly indicate the need for mitigation 94% of the time

Recommended Testing Protocol

- Take a long-term test (always preferable)



Recommended Testing Protocol

- Results needed quickly, take short-term test:
 - 2 short-term passive devices deployed in same place for same time period, 2 days minimum. Use average.
 - 2 short-term passive devices deployed in same place, but one after the other, 2 days minimum each. Use average.
 - Single continuous radon monitor which reports hourly concentrations, 2 day minimum. Use average.

Short-Term Test Devices

Activated Charcoal

- Activated charcoal devices are for short-term tests
- Open face devices are optimally 2 – 3 days
- Diffusion barrier are optimally 5 – 7 days

Short Term Test Devices



Short-Term Test Devices

Continuous Radon Monitors



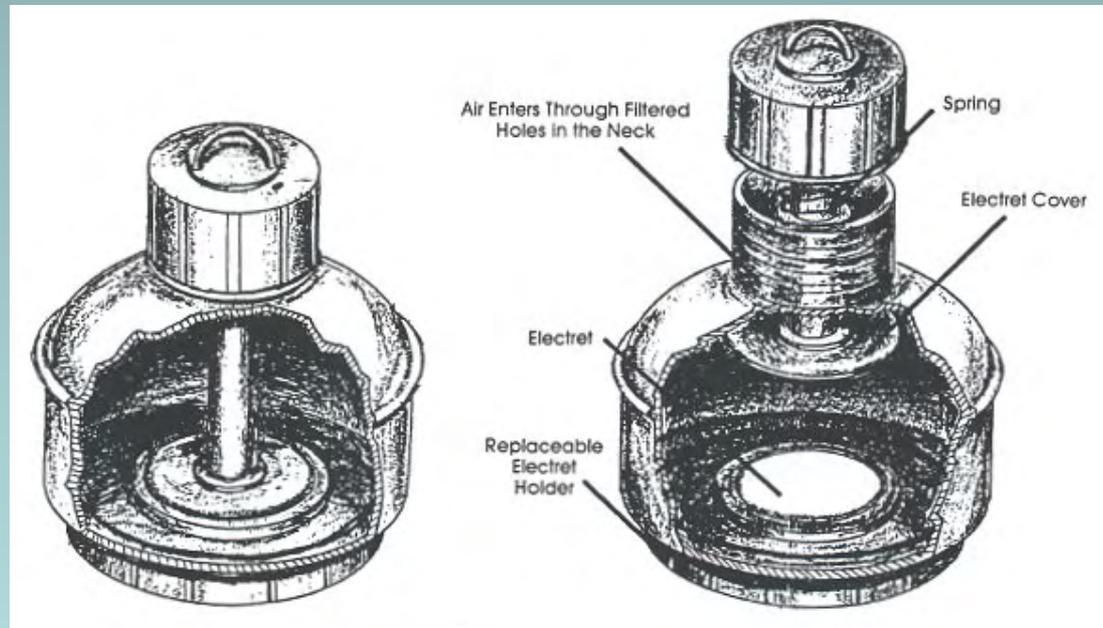
MODEL RS-410 F
RADON SURVEY INSTRUMENT



Short or Long Term Test Devices

Electret Ion Chambers

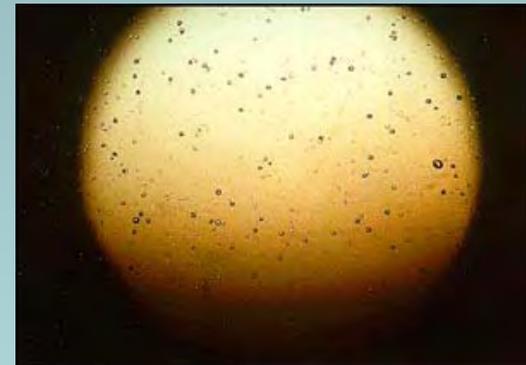
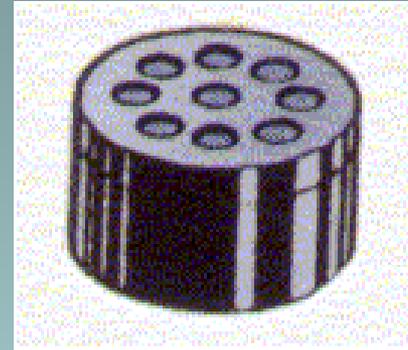
- ES – Used for short-term measurements
- EL – Used for long-term measurements



Long-Term Test Devices

Alpha Track Detector

- Records alpha particle damage from radon and radon decay products from the radon that diffuses through filter
- Lab counts damage tracks on plastic



Test Device Placement

- Real estate transaction protocol requires devices to be placed in the lowest level of the home which is “suitable for occupancy”
- Requires judgment call in some cases
- Buyer may specify whether basement will be occupied for significant periods of time
- Relocation companies may require basement testing

What Do Test Results Mean?

- 4.0 pCi/L “Action Level” Chosen Because:
 - Technically achievable with reasonable expense in vast majority of houses, regardless of initial radon concentration
- Is NOT a health risk-based standard:
 - Does not imply that radon concentrations below 4.0 pCi/L are “safe”
 - There is some risk associated with any exposure to radiation

Preventing Test “Tampering”

- Protocol for short-term tests of less than 4 days duration requires “closed house” conditions for 12 hours prior to and during the test. Test device should not be disturbed
- Some continuous monitors record temperature, humidity, barometric pressure and device movement
- Tapes on doors and windows indicate opening
- Person in charge of house may be required to sign agreement to maintain proper conditions

Fixing a Radon Problem

- Most radon problems can be fixed at reasonable cost. National average is \$1,200
- Normal installation takes 1-2 days work
- Several mitigation methods
- Operating costs from \$75 to \$175/year
- Consider Aesthetics
- Need to perform F/U testing!



Fixing a Radon Problem

- EPA and state radon programs recommend use of **trained & certified** radon testers & mitigators.
 - **States will provide a list of certified individuals.**
- EPA's Consumer's Guide to Radon Reduction has information about mitigation techniques.

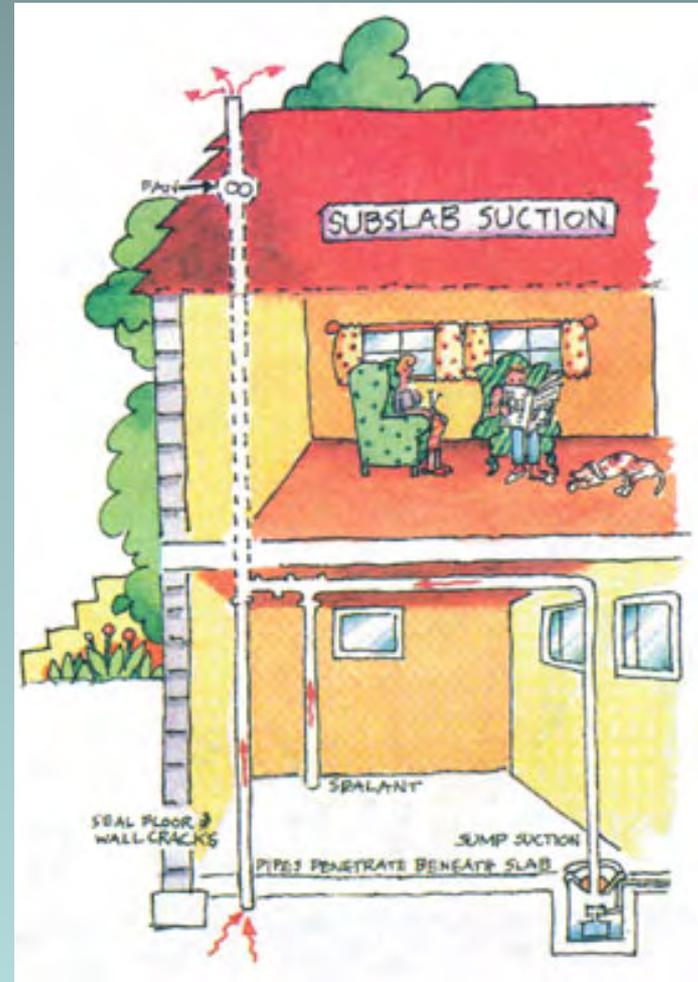


Radon Mitigation Strategies

- Keep Radon From Entering House:
 - Depends on Construction of House:
 - Basement or slab-on-grade
 - Crawlspace
 - Combination of above
- Dilute Radon After it Enters House
 - Add ventilation by various means

Most Common Mitigation Approach

- Soil Depressurization (ASD) systems consist of a plastic pipe extending from the soil to a point above the roof, with an in-line fan which generates a slight vacuum in the soil and draws the radon into the system rather than allowing it to enter the house.



How to Avoid Liability (See Your Attorney)

- Three theories of liability in common law:
 - Misrepresentation
 - Negligent
 - Fraudulent
 - Negligence
 - Breach of vendor's duty to disclose
- *Negligent misrepresentation* and *breach of a vendor's duty to disclose* are most likely source of problems



Negligent Misrepresentation

- Agent makes statement about property without knowing whether statement is true or not
- Buyer relies on that statement
- Harm to buyer occurs as result of that reliance

Negligent Misrepresentation

- Example: (no radon test has been done)
 - Buyer: “Should I have this house tested for radon?”
 - Agent: “I wouldn’t worry about it. Radon isn’t much of a problem around here.”
- Buyer buys house, tests for radon 3 months later and gets test result of 12.5 pCi/L. Problem?

Breach of Vendor's Duty to Disclose

- Defined as a failure to disclose a condition that affects health or safety, but which is not likely to be noticed by a buyer walking through the house
 - Would a court find that exposure to a known human carcinogen is a health and safety issue?
 - Radon is odorless, colorless, tasteless, and causes no symptoms. Could a buyer notice high radon concentrations?

Radon Information

- ODEQ Radiation Branch
 - **Keisha Cornelius**
 - (405)702-5162 phone
 - (405) 702-5101 fax
 - keisha.cornelius@deq.state.gov
- U.S. EPA
 - www.epa.gov/radon/

Any Questions?
Thanks For Coming!

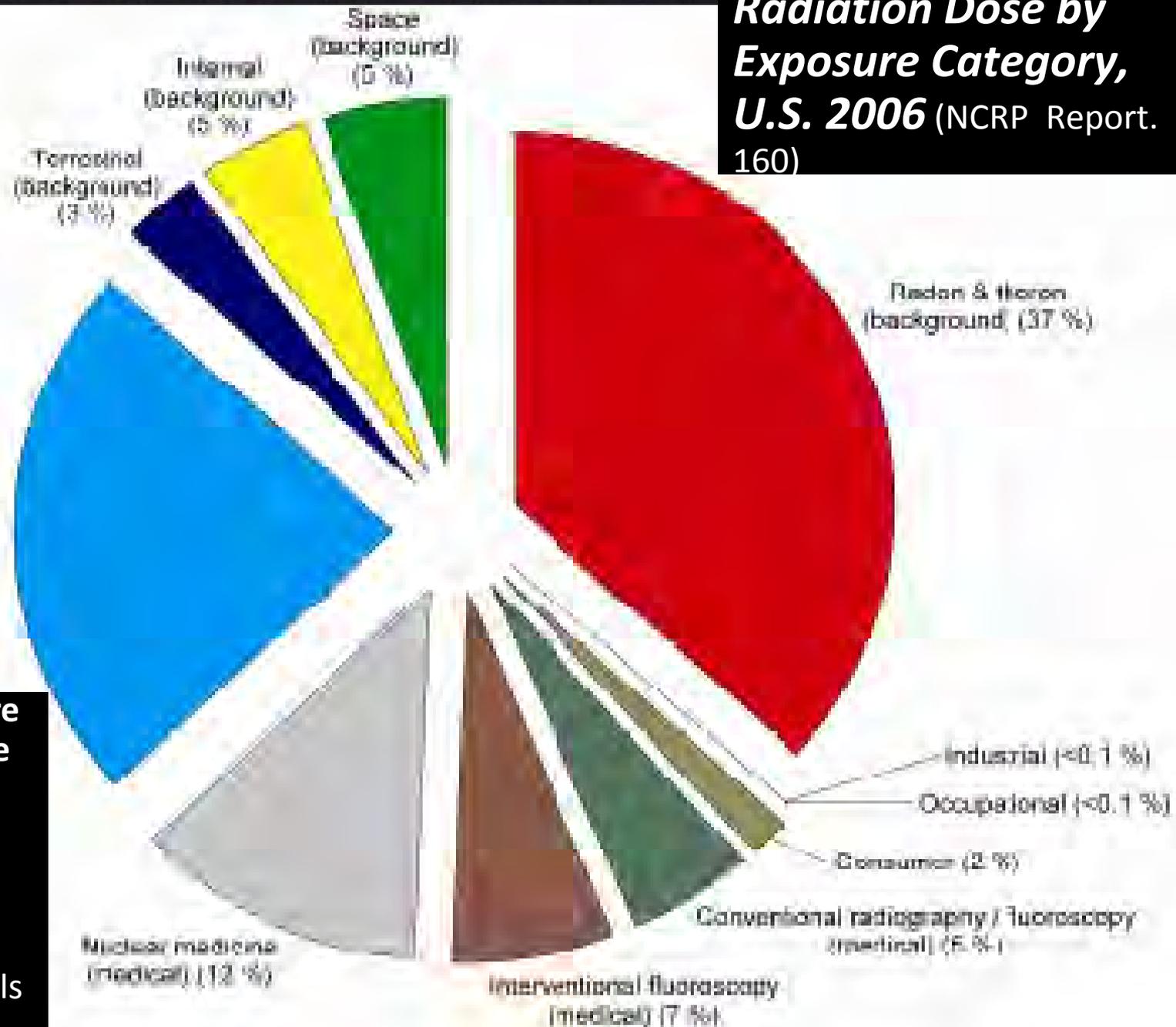
Facing Challenges:

AARST

Presented By:
Debbie Kalina
Radon Protection Technologies,
Omaha, Nebraska

Prepared by:
William J. Angell
AARST President

Radiation Dose by Exposure Category, U.S. 2006 (NCRP Report. 160)



• Medical exposure increased 7X since early 1990s therefore Rn control more important!
Post on RadonProfessionals listserv

What Do We Know About Radon?

- Radon in U.S. homes:
 - Causes 21,000 lung cancer deaths (LCD) each year
 - 1 LCD every 25 minutes
 - Compared to about
 - 300 accidental CO deaths each year in homes
 - 3,000 LCD each year due to environmental tobacco smoke
 - 29,000 prostate cancer deaths per year
 - 40,000 breast cancer deaths per year
 - The risk of dying from radon related lung cancer at EPA's Threshold for Action is 1:50

Where Are We At With Radon?

- There are more homes with elevated radon than any time in history!
- Standards of practice and protocols are:
 - Old and in need of updating, e.g.,
 - 1992: *Indoor Radon and Radon Decay Product Measurement Device Protocols*
 - 1993: *Protocols for Radon and Radon Decay Product Measurements in Homes*
 - We have major gaps in standards that rely upon volunteers to fill

Why Does It All Matter?

... Because There Victims

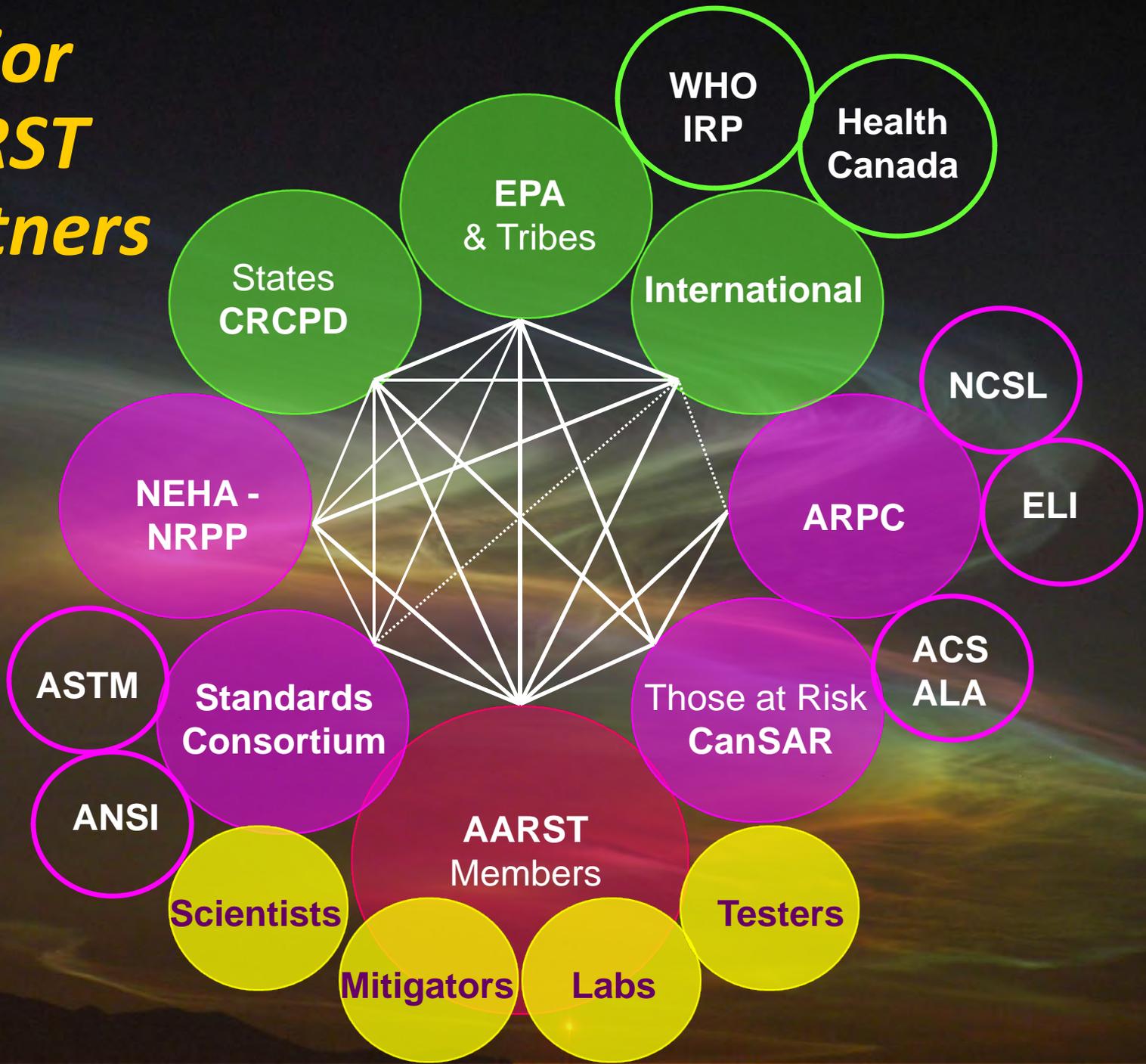


Cancer Survivors Against Radon (CanSAR) Founders

American Association of Radon Scientists and Technologists (AARST)

- Established in 1986, AARST is the world's largest nonprofit radon professional association
 - Dedicated to the highest standard of excellence and ethical performance for the benefit of
 - Members, consumers and the public at large
 - 800 members who deliver
 - Radon risk reduction through their own financial investments
 - Scientific research-based training and policy options
 - Administers the world's largest proficiency program in collaboration with the National Environmental Health Association (NEHA)
 - National Radon Proficiency Program (NRPP)
 - 2,400 certified testers, mitigators, and labs

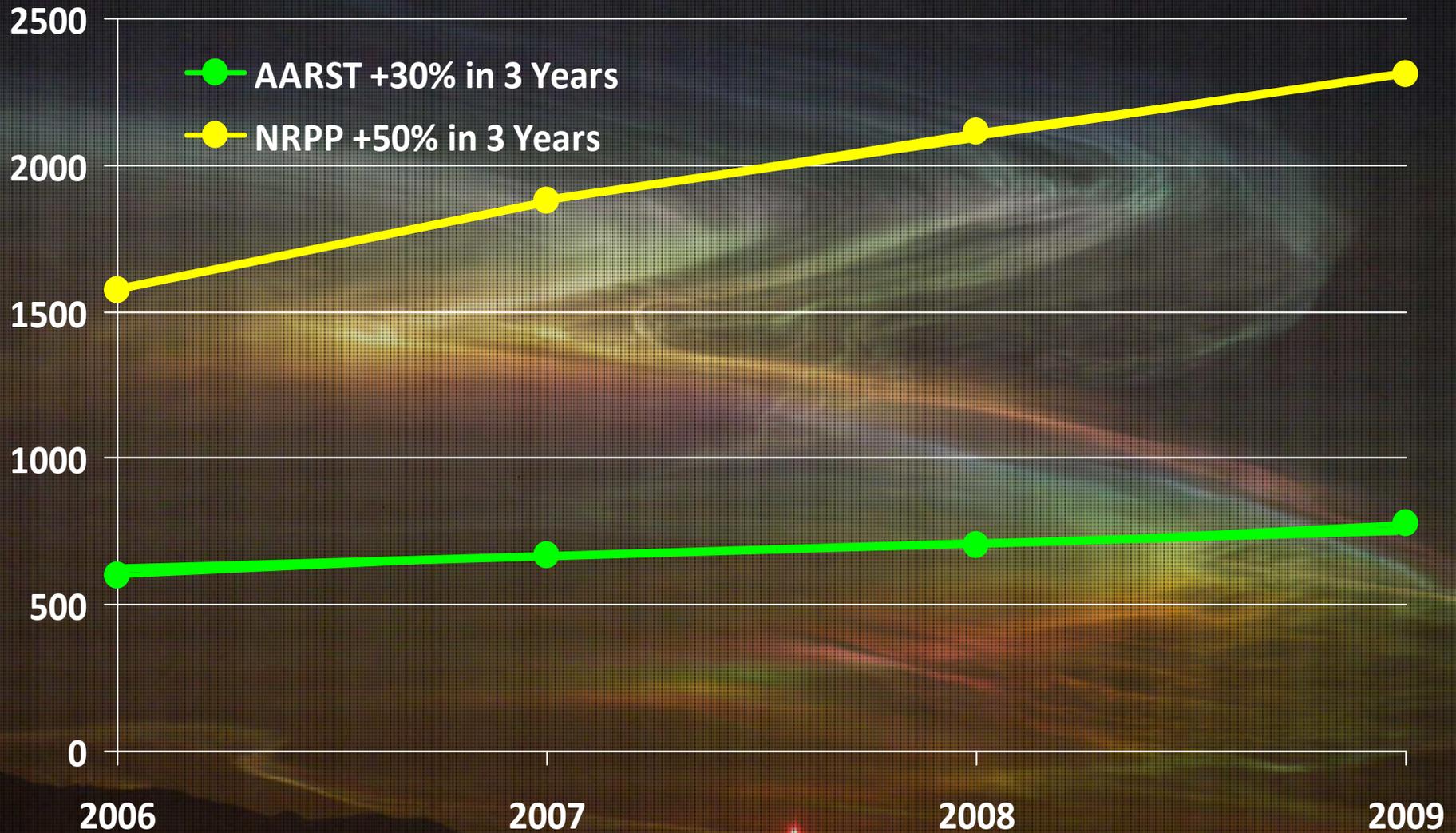
Major AARST Partners



AARST Chapters

- Established
 - Blue Ridge (NC+)
 - Kentucky Area Radon Professionals
 - Midwest (IL+)
 - New England
 - Ohio Association of Radon Professionals
 - Tri – State (PA+)
- Formulizing
 - Georgia
 - Heartland (IA+)
 - New York
- To be successful, chapters need
 - 3 to 5 members
 - Committed to start up and
 - Dedicated to chapter program development
- AARST supports chapter establishment
 - \$500 start-up funds
 - Articles of Incorporation
- Chapters have been key to
 - Policy initiatives
 - Member support

AARST & NEHA – NRPP Memberships: Growing Professionalism



National Radon Standards Consortium

Active

- Multi-Family Measurement
 - Final (?) public comment in next month or so (T. Smith)
- Home Measurement
 - Interim completed, ANSI revision needed
- Device Protocols
 - In process with ANSI and IEEE (P. Jenkins)
- Mitigation Harmonization
 - In process with ASTM (B. Brodhead)

In Need of Volunteers

- Large Building Measurement
- Large Building Mitigation
- Quality Assurance
- Mitigation of Radon in Water

Other Notes

- Radon Control in New Homes
 - Consortium is supporting revision of ASTM 1465

There must be serious discussion about how far a completely volunteer standards development effort can go. Resources are needed to strengthen the foundation of our nation's radon program - - - standards

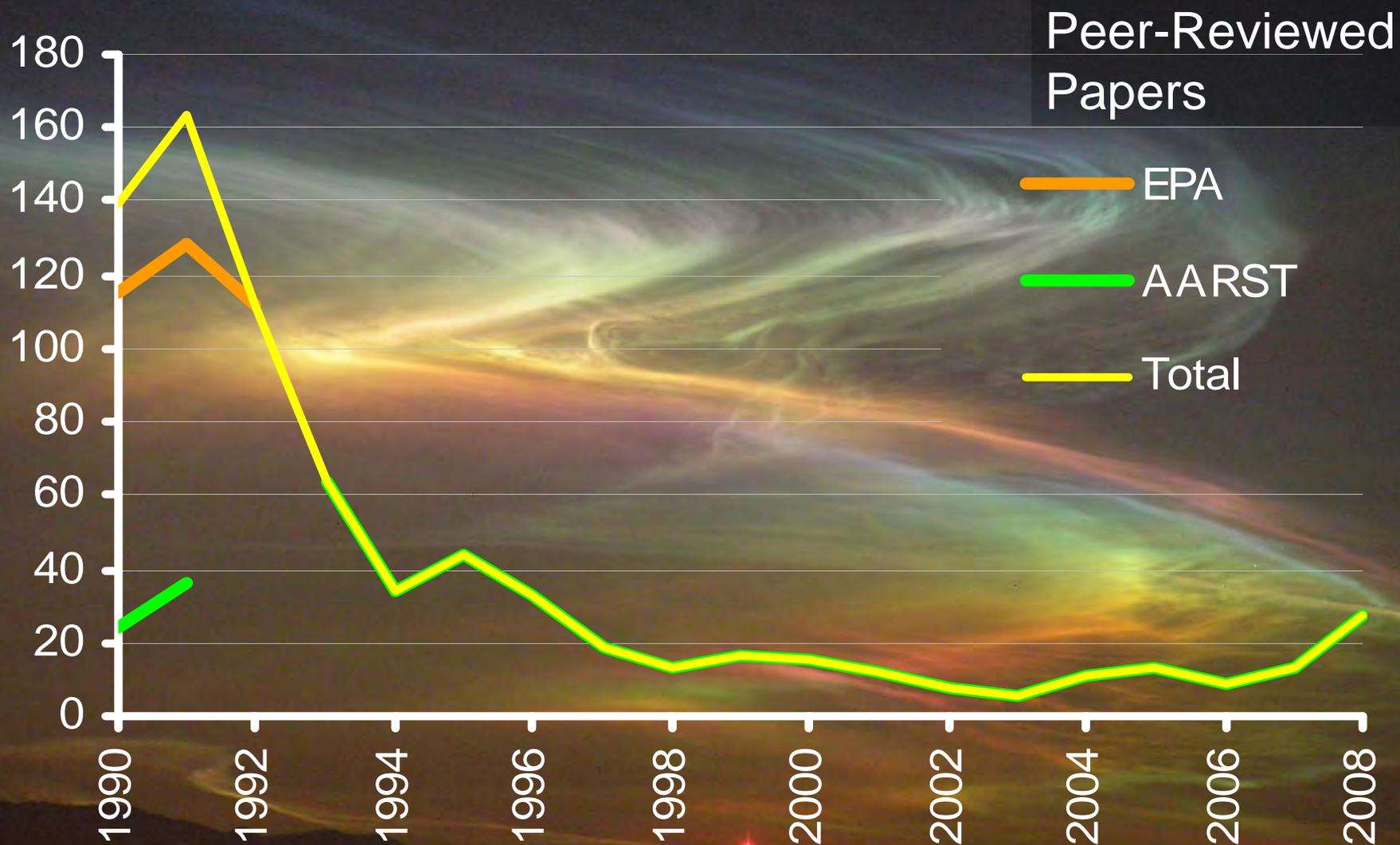
We Have Come a Long Way (Cumulative) - - -
Bill Long may have an update

Year	Units Mitigated	LCDP~ Mitigation	Zone 1 New with Rn Control	LCDP~ New Rn Control	Total LCDP
2000	397	2,412	589	513	3,036
2003	514	3,328	731	894	4,333
2006	714	4,573	935	1,384	6,068
2007					
2008					
2009e	1,007	6,326	1,163	1,994	8,432
2012e	1,451	8,839	1,482	2,772	11,722

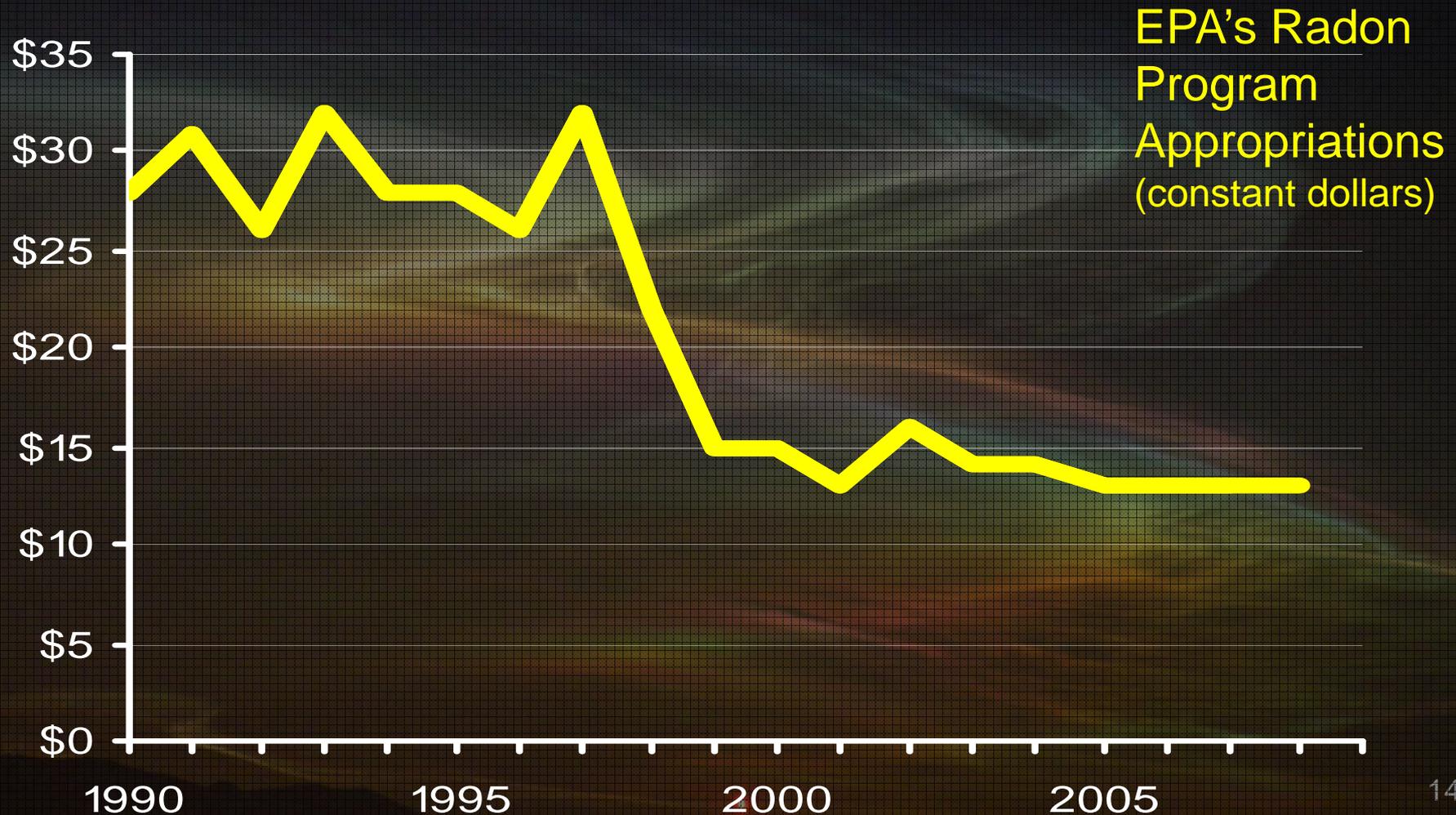
But We Have a Long Way to Go!

- We need to strengthen standards of practice
- We need to increase
 - Applied research
 - Our “seed corn”
 - Investment in cost-effective public sector radon programs
 - Our partners
 - Quality radon testing and mitigation in real estate transactions
 - Not the cheapest
 - Effective radon control options in new homes
 - Installed by certified and/or licensed radon professionals

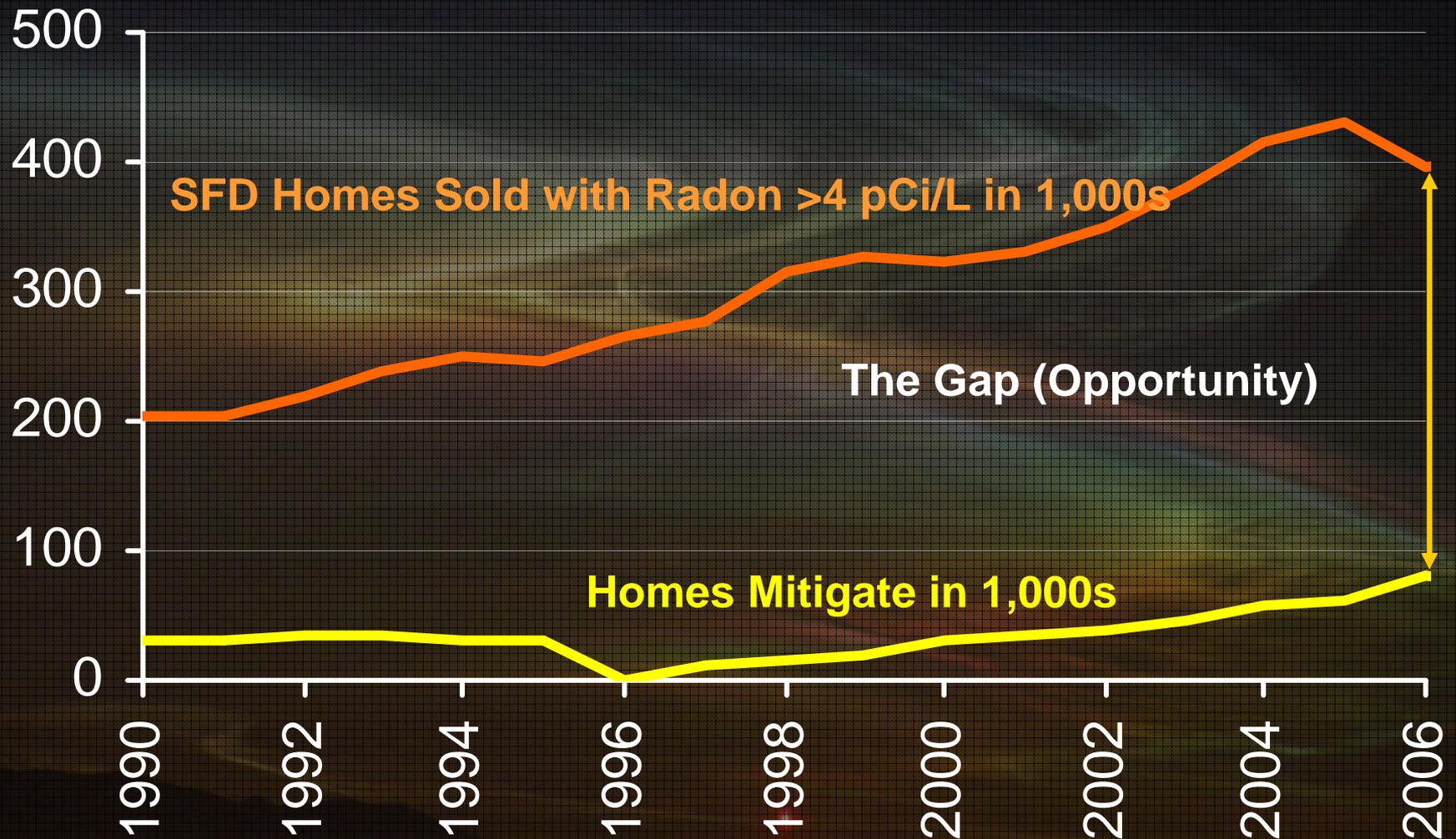
We Need to Increase Research and . . . its Application



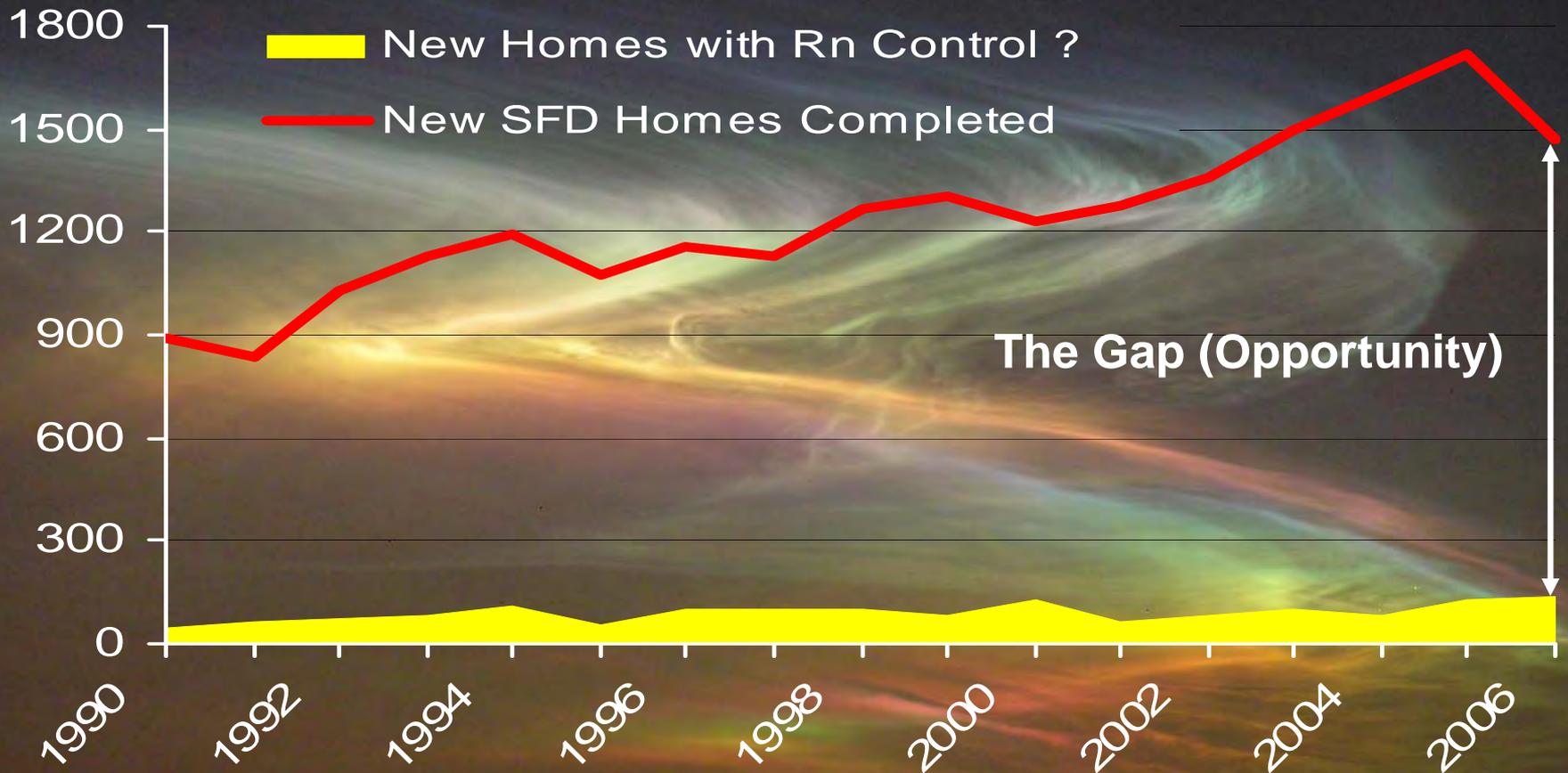
We Need to Increase Investments in Cost – Effective Public Sector Programs



We Need to Increase Testing and Mitigation in Real Estate Transactions



U.S. New Homes Completed versus New Homes with Rn Control Features? (annual)



The New Homes with Rn Control data are based on unqualified and unverified builder representations and therefore, should be suspect - - - in otherwords, most certainly these data overstate the number of new homes with effective radon control

AARST's 2009 National Legislation

- Indoor Radon Hazard Reduction Act (IRHRA) of 2009
- Based on the successful 1992 Lead Hazard Reduction Act
 - Sets clear mandates for HUD and EPA
 - Sets clear goals for development and reporting
- Action
 - AARST – CanSAR January visits Congressional offices
 - House, e.g., IL Roskam and Costello,
 - Senate, e.g., IL Durbin, WI Feingold, MA Kennedy, NJ Lautenberg, MN Klobuchar, AL Shelby, Salazar CO, OR Wyden
 - Currently finalizing IRHRA

2009 IRHRA Requires

- Radon testing for
 - Federal assisted mortgages, e.g., FHA
 - Mortgages sold on the secondary mortgage
- Radon notification for all mortgages
- Radon control in new homes financed with federal assisted mortgages (e.g., FHA)
- National certification or licensing of radon professionals
- Testing and mitigation of federally owned or assisted housing

2009 IRHRA Authorizes \$100 Million in Funding

- Increased funding for
 - EPA's Radon Program including
 - State Indoor Radon Grants
- New funding for
 - HUD training and development
 - Low income testing and mitigation
 - Standards development
 - Research

AARST's 2009 Action Plan

- Currently, CanSAR and AARST are
 - Seeking Congressional sponsors
 - Seeking NGO supporters
- In late March, we will file the 2009 IRHRA
- In April, AARST will initiate \$200,000 fundraising campaign
 - Email Campaign – please support
 - This campaign will allow Radon Professionals to hire staff to tell the radon story (lobby) the U.S. Congress

What's Coming

- WHO Radon Handbook will be released
 - Expect “some news”
- International Radon Symposium
 - September 20-23 in St. Louis
 - Held in tandem with CRCPD’s National Radon Meeting
- Hopefully, additional resources from
 - Current year stimulus appropriations
 - FY 10 appropriation
- Remember, great things are possible through team work: AARST – CRCPD – EPA – **and YOU**

What We Need from You?

1. Your membership in AARST
2. Your participation and contributions through
 - A. AARST and Standards Consortium committees and
 - B. AARST chapters
3. Your contribution to the policy campaign
4. Your opinions on how to make our collective future as strong as we can
 - Helping each other succeed
5. Your continuing commitment to professionalism and high standards

Radon Resistant New Construction

Shaun West

Cherokee Nation Environmental Programs

House Size

- 4800 square feet

Radon Resistant Methods

- Vapor barrier
- Submembrane depressurization
- Drain-Tile Depressurization
- Sub-Slab Depressurization

Cost during Construction

- \$1500.00 - \$2000.00

Contractor

Garrison Construction

WHOLESALE *Locke*
HEATING * PLUMBING
COOLING * ELECTRIC



2006 6 12



JUN 15 2006



2006 6 12



2006 6 12





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01/15/2009



01/15/2009



Radon Mitigation

Cherokee Nation
Environmental Programs



TRIBAL FACILITIES

- Head Starts
 - 3-5 year olds
- Ga Du Gi Clinic
 - Employee health center
- Jack Brown Center
 - Drug rehabilitation, 20-30 residents
- Youth Shelter
 - Troubled teens (12-18 year old), 20 residents
- Jack Brown Resident Manager House
 - Now a Bed & Breakfast
- Talking Leaves Job Corps

Oosdi



Ga Du Gi Clinic



Ga Du Gi Clinic



Ga Du Gi Clinic



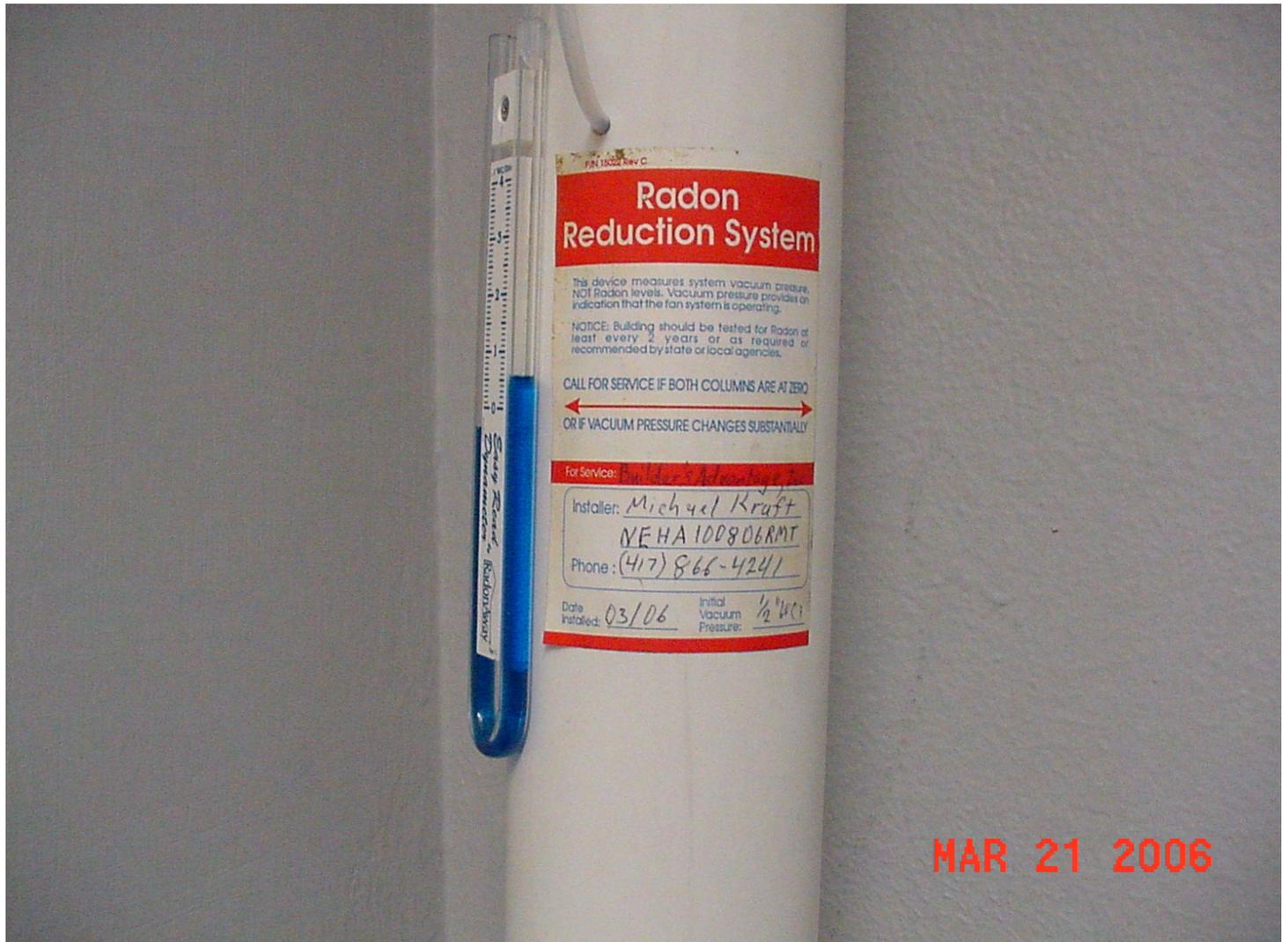
Ga Du Gi Clinic



Ga Du Gi Clinic



Ga Du Gi Clinic



MAR 21 2006

Ga Du Gi Clinic



Ga Du Gi Clinic



Ga Du Gi Clinic



2006 3 21

Jack Brown Center



Youth Shelter



Jack Brown House



Jack Brown House



Jack Brown House



Job Corps



Job Corps



Sequoyah High School



Jail



Courthouse



Courthouse





Tribal Member's Homes

- Taylor
- Hummingbird
- McCoy

Taylor



Taylor



Taylor



Taylor



Taylor



Hummingbird



Hummingbird



Hummingbird



Hummingbird



Hummingbird



Hummingbird



Hummingbird



Hummingbird



Hummingbird



Hummingbird



Hummingbird



Hummingbird



Hummingbird



Hummingbird



Hummingbird



Hummingbird



Hummingbird



Hummingbird



McCoy



McCoy



Building Partnerships

Healthy Homes Initiative

Keisha Cornelius, Oklahoma Department of Environmental Quality

Roger Nagl, Miami Tribe of Oklahoma



Healthy Homes Initiative

- Housing Conditions can significantly affect public health.
- Childhood lead poisoning, injuries, respiratory diseases, and quality of life issues have been linked to the more than 6 million substandard housing units nationwide.
- Residents of these units are also at an increased risk for fire, electrical injuries, falls, rodent bites, and indoor air issues including radon.

Healthy Homes Initiative

- In 1999, the U.S. Department of Housing and Urban Development (HUD) launched its Healthy Homes Initiative to address disease, injuries and unhealthy conditions related to substandard housing.



Healthy Homes Initiative

- Most public health efforts take a categorical approach to health and safety hazards in the home, focusing narrowly on one issue, even in the presence of multiple issues.
- A Healthy Homes approach is holistic and comprehensive.



Healthy Homes Initiative seeks to:

- Build capacity and competency by providing training and tools to public health officials to address the broad range of housing deficiencies and hazards.
- Promote, develop and implement cross-disciplinary activities at the federal, state, tribal and community levels to address unhealthy and unsafe housing.
- Facilitate the collections of local data and monitor progress toward reducing or eliminating housing deficiencies.

Healthy Homes Initiative seeks to:

- Develop guidelines to assess, reduce, and eliminate health and safety risks.
- Broaden the scope of single-issue public health programs to address multiple housing deficiencies that affect health and safety.

Building Partnerships through the Healthy Homes Initiative

- For over a year now, Federal agencies including the Centers for Disease Control & Prevention (CDC), the Environmental Protection Agency (EPA), and the US Department of Agriculture (USDA) have turned their attention to the Healthy Homes Initiative and started their collaboration with HUD.



Building Partnerships through the Health Homes Initiative

- In Sept. 2008, HUD, CDC, EPA, and USDA co-sponsored the first National Healthy Homes Conference, “Building a Framework for Healthy Housing” in Baltimore.
- The event brought together over 200 experts with a broad range of experience relevant to health and housing to discuss policy, research, and outreach to ensure safe, healthy and efficient housing



BUILDING A FRAMEWORK
FOR HEALTHY HOUSING

2008 National Healthy Homes Conference

Oklahoma Healthy Homes Initiative

- In response to that shift in focus, the Oklahoma Childhood Lead Poisoning Prevention Program (OCLPPP) has begun to identify the appropriate experts in our state to further develop the capacity to meet this challenge.
- October 30, 2008 Healthy Homes Initiative Work Group



Oklahoma Healthy Homes Initiative

- Two- day course entitled “Essentials for Healthy Homes Practitioners” offered in Oklahoma City and Tulsa in 2008.
- Oklahoma State Department of Health offered the course “Launching a Healthy Homes Initiative” on November 18, 2008 with Dr. Tom Neltner, the Director of the National Center for Healthy Housing Training Center.



Tom Neltner

Oklahoma Healthy Homes Initiative

- These courses signal the beginning of an important time in Oklahoma as we expand our capacity beyond the identification of a single hazard and begin to focus on multiple housing hazards and unsafe living conditions which affect the health and safety of Oklahomans.
- More courses offered in 2009!!



Healthy Home Specialist (HHS) Credential



- The National Environmental Health Association developed the Healthy Homes Specialist (HHS) credential in partnership with the National Center for Healthy Housing (NCHH) and National Healthy Homes Training Center & Network.



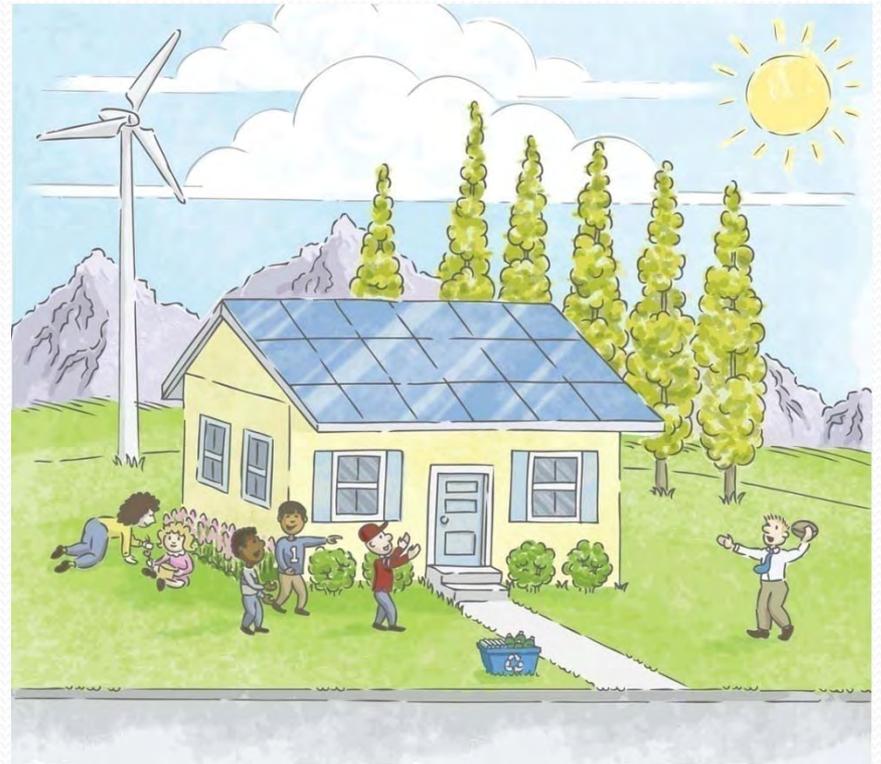
Healthy Homes Specialist

- This credential is targeted for public, private, and non-profit sectors including
 - Certified or licensed lead risk assessors, radon measurement professionals or mold professionals
 - Public health nurses
 - Health department and housing agency staff
 - Certified home inspectors
 - Remodeling and Rehab Professionals
 - Home Performance Specialists



What is a Healthy Home?

- A healthy home is a home designed, constructed, maintained or rehabilitated in a manner that supports the health of residents.



Housing and Health Hazards

- Allergens & Asthma
- Lead-Based Paint Hazards
- Radon
- Carbon Monoxide
- Environmental Tobacco Smoke
- Mold & Moisture
- Unintentional Injury Hazards



Seven Principles of Health Homes

The major health hazards in a home have been associated with seven principles

- Keep it Dry
- Keep it Clean
- Keep it Pest Free
- Keep it Ventilated
- Keep it Contaminant-Free
- Keep it Safe
- Keep it Maintained



How is Radon Associated with Healthy Homes Principles

- **Keep it ventilated**: A well ventilated home reduces the concentration of radon under safe limits.
- **Keep it Contaminant Free**: A home can have acceptable indoor radon levels by following the EPA-recommended home testing guidelines.
- **Keep it Maintained**: Keep a home well maintained by ensuring that there are no cracks in floors or wall or other openings that allow radon gas to migrate from the soil into the structure.

For more information on Healthy Homes Initiative

- Housing and Urban Development
<http://www.hud.gov/offices/lead/hhi/index.cfm>
- Centers for Disease Control
<http://www.cdc.gov/healthyplaces/healthyhomes.htm>
- US Department of Agriculture
http://www.csrees.usda.gov/nea/family/in_focus/housing_if_healthyhomes.html
- National Healthy Homes Training Center and Network
<http://www.healthyhomestraining.org/>
- Environmental Protection Agency
<http://www.epa.gov/reg5rcra/ptb/lead/healthyhomes.htm>

Oklahoma Healthy Homes Initiative

- Special thanks to OSDH Oklahoma Childhood Lead Poisoning Prevention Program.



Questions