

Educating School Personnel and Testing Alaska's Schools for Radon

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Outline

- History of past radon testing in Alaska
- Geological considerations
- School selection
- Training and testing procedures
- Results
- Conclusions

Past Radon Testing in Alaska- All Residential

Research based testing in Alaska has occurred:

- Alaska Department of Transportation (07/1987) tested 38 homes above 229 meter contour in Fairbanks using Air-Chek charcoal detectors.
- Alaska Department of Geology and Geophysical Survey (winter of 1989) tested 1312 homes in statewide using charcoal detectors.
- Alaska Center for Energy and Power researcher Jack Schmid (1996-1998 heating seasons) tested 57 homes in Fairbanks using Alpha Track detectors.

Geological Considerations

In the 1989 survey, radon concentrations over 4.1 were as follows for parts of Alaska:

- Interior- 17.6%
- Southcentral- 13.2%
- Anchorage- 3.7%
- Southeast- 1.8%
- Northern/Western- 1.8%

- The highest rate was in the Interior (includes the Yukon)
 - Koyukuk School District tested schools which were not on permafrost (with elevated foundations). Currently other Interior districts are being tested.
- The second highest rate was in southcentral (includes Kenai Peninsula Borough School District and Matanuska Susitna Borough School District). These districts were urban and rural and the few that were willing to test when the districts statewide were solicited. (Since then, Anchorage has agreed to participate this year).

USGS Map of Alaska Indicating Zone 2

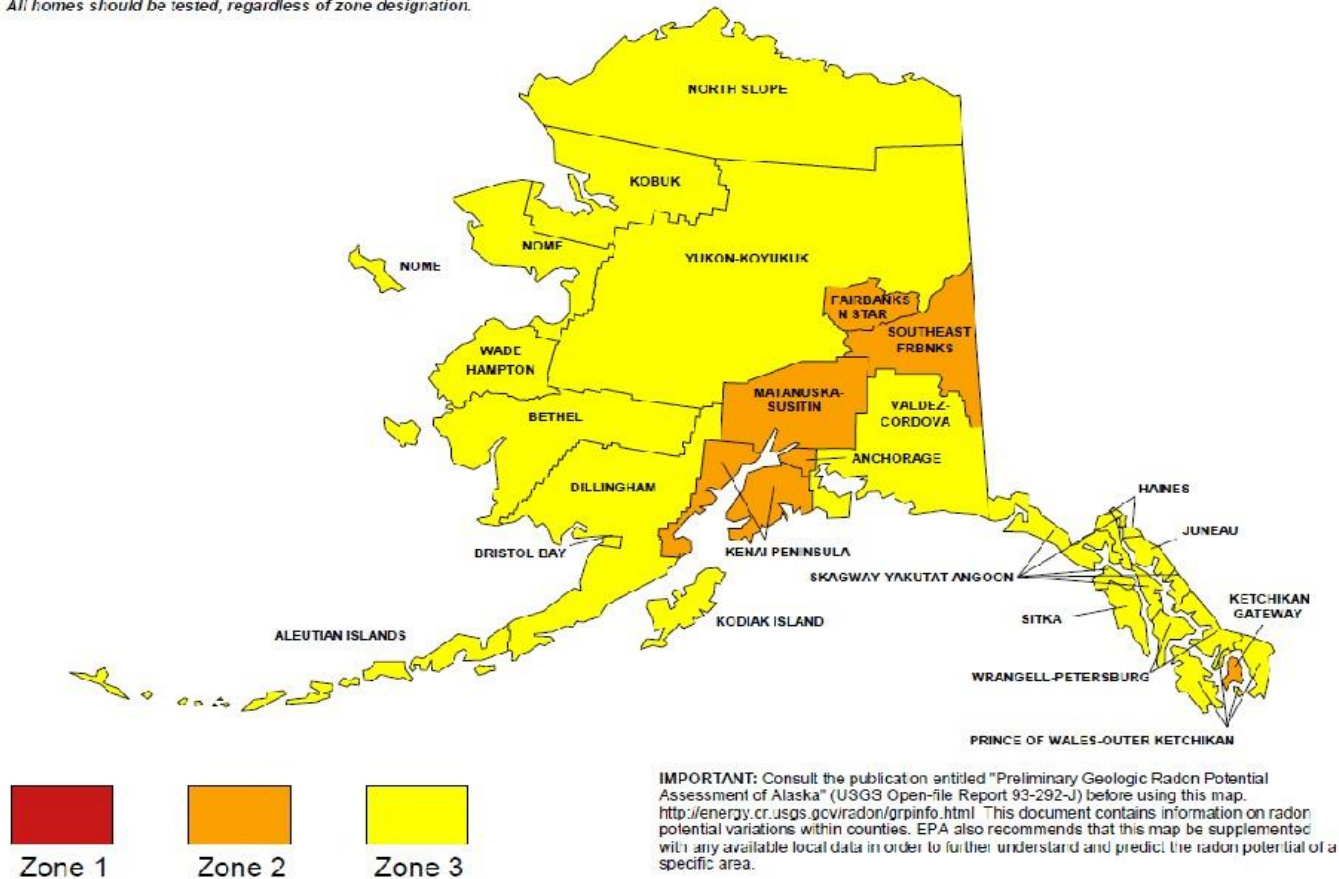
ALASKA - EPA Map of Radon Zones

<http://www.epa.gov/radon/zonemap.html>

The purpose of this map is to assist National, State and local organizations to target their resources and to implement radon-resistant building codes.

This map is not intended to determine if a home in a given zone should be tested for radon. Homes with elevated levels of radon have been found in all three zones.

All homes should be tested, regardless of zone designation.



Schools Selected for Testing

- Yukon Koyukuk School District
- Kenai Peninsula Borough School District
- Matanuska-Susitna Borough School District

Training and Testing Procedures-1

- There was sufficient concern about the radon being elevated that short-term tests were preferred over long-term tests.
- Arrangements were made with a charcoal canister lab for the requisite number of devices.
- Arrangements were made for overnight shipping back to the lab and quick analysis by the lab.

Training and Testing Procedures-2

- “Closed Building” conditions were employed with the cooperation of the school principals, teachers and school maintenance personnel.
- Teachers in each classroom were talked to prior to the placement of the devices.
- 10 % of the tests were duplicates (blind to the lab), 5 % were field blanks (blind to the lab)
- Local weather conditions helped guarantee that the windows and doors remained closed.

Training and Testing Procedures-3

- School maintenance personnel were assigned to attend training sessions and, later, test the schools.
- A live training session was augmented with a PowerPoint presentation at each school district.
- Schools far from the classroom watched the presentation on closed circuit TV.
- All forms necessary to log tests were furnished
- Burkhart was able to accompany the retrieval team for one school district, verifying that placement procedures, closed building conditions and logging of QC tests and retrieval procedures were followed.

Example of Training Slide:

Enter the room and talk to the occupant



- If someone normally occupies the room, and if they are present, tell them that a radon test will be placed on their desk.
- Ask them to not move or cover the test.
- Tell them you will retrieve it in 48 hours.

Example of a Training Slide:

What does the “R” mean?

LOG BOOK

School Name _____ Building Name _____
Logger's Name _____ Placer's Name _____

Room #	Description	Canister serial #	Date Opened	Time Opened	Date Closed	Time Closed	Type of Test
							R
	same as above						Duplicate
	same as above						R
							R
							R

- At the end of the first row, you will see the letter “R”.
- This is simply our way of identifying the primary, or “regular” test that is going in the room.
- Do not write anything in this right-hand column. It tells you what kind of a test to place.

Radon Results

School	No. of tests	< 2	>2 and <4	>4
K-Beach	46	46		
Redoubt	40	40		
Seward	46	46		
Ninilchik	27	27		
Paul Banks	33	33		
Nikiski North Star	49	49		
M School	11	10	1	1

Radon Results

School	No. of tests	< 2	>2 and <4	>4
Manley Hot Springs	7	2	5	0
J. O.	5	0	0	5
Merrelaine A. Kangas	9	9	0	0
Jimmy Huntington	11	11	0	0
Matsu 2	34	34	0	0
Matsu 1	165	165	0	0

Conclusions

- All duplicates and blanks were within specifications. **This round of tests is considered valid.**
- The radon was lower than expected, with most tests being below the U.S. EPA action level of 4.0 pCi/L or 148 Bq/m³
- Two schools were higher, with J. O. school reporting all rooms around 11-13 pCi/L.
- The only known difficulty was that some schools returned the canisters to the lab without the data sheets in the box.
- However, because serial numbers were recorded, names of schools and room numbers were able to be added after the fact.
- Now that training materials and trained personnel are available, it is hoped that future testing can be done by the schools themselves.