

INDUSTRIAL HYGIENE REPORT

RADON TESTING REPORT

Whiteaker Middle School

Report to: Vonnie B. Good, EHS Salem–Keizer Public Schools

By: Kathy Ellis, Senior Industrial Hygiene Consultant

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On-site: October 24–27, 2022

Report: November 1, 2022

PURPOSE

Radon retesting was done at Whiteaker Middle School to determine if there have been any changes in the background radon levels in the classrooms, offices and other rooms that are in contact with the ground since the 2013 tests. Whiteaker Middle School has also undergone construction that included remodeling offices and workspaces. These new areas also needed to be tested for radon levels.

This testing is a requirement in OAR 332.331 Healthy and Safe Schools Plan rules.

CONCLUSION and RECOMMENDATIONS

All tested rooms had low to non-detectable levels of radon.

TESTING

Radon testing was conducted using protocols recommended by the Oregon Health Authority per OAR 332.345. Radon Air-Chek short-term test devices were used in the rooms by suspending the device in each room. The testing occurred from October 24-27, 2022, during normal and routine school ventilation system operation. Weather conditions during the weeks prior to testing had been dry with moderate temperatures.

Quality assurance testing was also conducted by blank (QCB) test devices, and duplicate samples per the recommendations found in OAR 332.345.

EPA RADON GUIDELINES

The EPA has set an Action Level of 4.0 pCi/L (picoCuries per liter) for schools. If classrooms, offices or buildings have radon levels at or above 4.0 pCi/L, EPA recommends that schools take action to reduce the level. These actions include:

Step 1. If your result is 4.0 pCi/L or higher take a follow-up test (Step 2) to be sure.

Step 2. Follow up with either a long-term test or a second short-term test.

The World Health Organization has set their action level at 2.7 pCi/L. Salem-Keizer Public Schools has determined that 2.7 pCi/L is a target level where retesting should be done. No locations had radon levels at 2.7 pCi/L or above.

CONTROL OF RADON LEVELS IN SCHOOLS

The major control mechanism for lowering radon levels within school buildings is the use of dilution ventilation. If the amount of outside air delivered into a building increases, the radon levels should decrease.

Radon test result report for:**WHITEAKER MS
MAIN**

Kit #	Room Id	Started	Ended	pCi/L	Analyzed
11118274	101 LIBRARY N	2022-10-24 @ 9:00 am	2022-10-27 @ 9:00 am	0.6 ± 0.3	2022-10-31
11118276	101 LIBRARY OFFICE	2022-10-24 @ 9:00 am	2022-10-27 @ 9:00 am	0.6 ± 0.3	2022-10-31
11118275	101 LIBRARY S	2022-10-24 @ 9:00 am	2022-10-27 @ 9:00 am	< 0.3	2022-10-31
11118277	103	2022-10-24 @ 9:00 am	2022-10-27 @ 9:00 am	0.5 ± 0.3	2022-10-31
11118272	104	2022-10-24 @ 9:00 am	2022-10-27 @ 8:00 am	0.7 ± 0.3	2022-10-31
11118268	105	2022-10-24 @ 9:00 am	2022-10-27 @ 8:00 am	1.0 ± 0.3	2022-10-31
11118270	106E	2022-10-24 @ 9:00 am	2022-10-27 @ 8:00 am	0.9 ± 0.3	2022-10-31
11118269	106W	2022-10-24 @ 9:00 am	2022-10-27 @ 8:00 am	0.9 ± 0.3	2022-10-31
11118263	107 OFFICE	2022-10-24 @ 9:00 am	2022-10-27 @ 8:00 am	1.2 ± 0.3	2022-10-31
11118261	107N	2022-10-24 @ 9:00 am	2022-10-27 @ 8:00 am	< 0.3	2022-10-31
11118262	107SE	2022-10-24 @ 9:00 am	2022-10-27 @ 8:00 am	0.5 ± 0.3	2022-10-31
11118267	108	2022-10-24 @ 9:00 am	2022-10-27 @ 8:00 am	0.5 ± 0.3	2022-10-31
11118266	109	2022-10-24 @ 9:00 am	2022-10-27 @ 8:00 am	0.5 ± 0.3	2022-10-31
11118265	110N	2022-10-24 @ 9:00 am	2022-10-27 @ 8:00 am	1.7 ± 0.4	2022-10-31
11118264	110S	2022-10-24 @ 9:00 am	2022-10-27 @ 8:00 am	< 0.3	2022-10-31
11118256	115	2022-10-24 @ 8:00 am	2022-10-27 @ 8:00 am	< 0.3	2022-10-31
11118255	116	2022-10-24 @ 8:00 am	2022-10-27 @ 8:00 am	< 0.3	2022-10-31
11118252	117	2022-10-24 @ 8:00 am	2022-10-27 @ 8:00 am	0.9 ± 0.3	2022-10-31
11118253	118S	2022-10-24 @ 8:00 am	2022-10-27 @ 8:00 am	0.5 ± 0.3	2022-10-31
11118254	118W	2022-10-24 @ 8:00 am	2022-10-27 @ 8:00 am	0.6 ± 0.3	2022-10-31
11118251	119 OFFICE	2022-10-24 @ 8:00 am	2022-10-27 @ 8:00 am	0.6 ± 0.3	2022-10-31
11118250	119 PREP RM	2022-10-24 @ 8:00 am	2022-10-27 @ 8:00 am	< 0.3	2022-10-31
11118243	120	2022-10-24 @ 8:00 am	2022-10-27 @ 8:00 am	< 0.3	2022-10-31
11118240	121	2022-10-24 @ 8:00 am	2022-10-27 @ 8:00 am	< 0.3	2022-10-31
11118241	121 OFFICE	2022-10-24 @ 8:00 am	2022-10-27 @ 8:00 am	0.6 ± 0.3	2022-10-31
11118235	122	2022-10-24 @ 8:00 am	2022-10-27 @ 8:00 am	0.6 ± 0.3	2022-10-31
11118236	122 OFFICE	2022-10-24 @ 8:00 am	2022-10-27 @ 8:00 am	< 0.3	2022-10-31
11118237	122 PRACTICE	2022-10-24 @ 8:00 am	2022-10-27 @ 8:00 am	0.6 ± 0.3	2022-10-31
11118238	123SE	2022-10-24 @ 8:00 am	2022-10-27 @ 8:00 am	< 0.3	2022-10-31
11118239	123W	2022-10-24 @ 8:00 am	2022-10-27 @ 8:00 am	???? IF1	2022-10-31
11118233	130	2022-10-24 @ 8:00 am	2022-10-27 @ 8:00 am	0.9 ± 0.3	2022-10-31
11118232	131	2022-10-24 @ 8:00 am	2022-10-27 @ 8:00 am	0.6 ± 0.3	2022-10-31
11118234	132	2022-10-24 @ 8:00 am	2022-10-27 @ 8:00 am	< 0.3	2022-10-31
11118231	133NE	2022-10-24 @ 8:00 am	2022-10-27 @ 8:00 am	0.6 ± 0.3	2022-10-31
11118230	133SW	2022-10-24 @ 8:00 am	2022-10-27 @ 8:00 am	< 0.3	2022-10-31
11118229	134	2022-10-24 @ 8:00 am	2022-10-27 @ 8:00 am	0.6 ± 0.3	2022-10-31
11118228	135	2022-10-24 @ 8:00 am	2022-10-27 @ 8:00 am	< 0.3	2022-10-31

Radon test result report for:

**WHITEAKER MS
MAIN**

Kit #	Room Id	Started	Ended	pCi/L	Analyzed
11118227	136	2022-10-24 @ 8:00 am	2022-10-27 @ 8:00 am	0.9 ± 0.3	2022-10-31
11118226	137	2022-10-24 @ 8:00 am	2022-10-27 @ 8:00 am	< 0.3	2022-10-31
11118225	138	2022-10-24 @ 8:00 am	2022-10-27 @ 8:00 am	1.0 ± 0.3	2022-10-31
11118223	139NW	2022-10-24 @ 8:00 am	2022-10-27 @ 8:00 am	< 0.3	2022-10-31
11118224	139SE	2022-10-24 @ 8:00 am	2022-10-27 @ 8:00 am	< 0.3	2022-10-31
11118222	140	2022-10-24 @ 8:00 am	2022-10-27 @ 8:00 am	< 0.3	2022-10-31
11118221	141	2022-10-24 @ 8:00 am	2022-10-27 @ 8:00 am	< 0.3	2022-10-31
11118216	142	2022-10-24 @ 8:00 am	2022-10-27 @ 8:00 am	< 0.3	2022-10-31
11118218	142 RECORDS ROOM	2022-10-24 @ 8:00 am	2022-10-27 @ 8:00 am	< 0.3	2022-10-31
11118217	142A-K	2022-10-24 @ 8:00 am	2022-10-27 @ 8:00 am	< 0.3	2022-10-31
11118219	142L-Z	2022-10-24 @ 8:00 am	2022-10-27 @ 8:00 am	0.7 ± 0.3	2022-10-31
11118286	144	2022-10-24 @ 9:00 am	2022-10-27 @ 9:00 am	0.6 ± 0.3	2022-10-31
11118211	151	2022-10-24 @ 8:00 am	2022-10-27 @ 8:00 am	< 0.3	2022-10-31
11118210	152	2022-10-24 @ 8:00 am	2022-10-27 @ 8:00 am	< 0.3	2022-10-31
11118209	153	2022-10-24 @ 8:00 am	2022-10-27 @ 8:00 am	< 0.3	2022-10-31
11118213	154NW	2022-10-24 @ 8:00 am	2022-10-27 @ 8:00 am	< 0.3	2022-10-31
11118212	154SE	2022-10-24 @ 8:00 am	2022-10-27 @ 8:00 am	< 0.3	2022-10-31
11118215	155	2022-10-24 @ 8:00 am	2022-10-27 @ 8:00 am	< 0.3	2022-10-31
11118220	156	2022-10-24 @ 8:00 am	2022-10-27 @ 8:00 am	< 0.3	2022-10-31
11118214	156	2022-10-24 @ 8:00 am	2022-10-27 @ 8:00 am	< 0.3	2022-10-31
11118279	161	2022-10-24 @ 9:00 am	2022-10-27 @ 9:00 am	0.7 ± 0.3	2022-10-31
11118278	161A	2022-10-24 @ 9:00 am	2022-10-27 @ 9:00 am	< 0.3	2022-10-31
11118281	162E	2022-10-24 @ 9:00 am	2022-10-27 @ 9:00 am	< 0.3	2022-10-31
11118280	162N	2022-10-24 @ 9:00 am	2022-10-27 @ 9:00 am	0.5 ± 0.3	2022-10-31
11118285	163	2022-10-24 @ 9:00 am	2022-10-27 @ 9:00 am	< 0.3	2022-10-31
11118282	164S	2022-10-24 @ 9:00 am	2022-10-27 @ 9:00 am	< 0.3	2022-10-31
11118283	164W	2022-10-24 @ 9:00 am	2022-10-27 @ 9:00 am	< 0.3	2022-10-31
11118273	165	2022-10-24 @ 9:00 am	2022-10-27 @ 9:00 am	< 0.3	2022-10-31
11118284	166	2022-10-24 @ 9:00 am	2022-10-27 @ 9:00 am	0.5 ± 0.3	2022-10-31
11118202	ASSISTANT PRINCIPAL	2022-10-24 @ 8:00 am	2022-10-27 @ 8:00 am	1.2 ± 0.3	2022-10-31
11118246	AUX GYM E	2022-10-24 @ 8:00 am	2022-10-27 @ 8:00 am	1.2 ± 0.3	2022-10-31
11118247	AUX GYM S	2022-10-24 @ 8:00 am	2022-10-27 @ 8:00 am	1.7 ± 0.3	2022-10-31
11118245	BOY'S PE OFFICE	2022-10-24 @ 8:00 am	2022-10-27 @ 8:00 am	< 0.3	2022-10-31
11118259	CAFETERIA N	2022-10-24 @ 9:00 am	2022-10-27 @ 8:00 am	< 0.3	2022-10-31
11118260	CAFETERIA NE	2022-10-24 @ 9:00 am	2022-10-27 @ 8:00 am	< 0.3	2022-10-31
11118271	CUSTODIAN	2022-10-24 @ 9:00 am	2022-10-27 @ 8:00 am	0.9 ± 0.3	2022-10-31
11118244	GIRL'S PE OFFICE	2022-10-24 @ 8:00 am	2022-10-27 @ 8:00 am	< 0.3	2022-10-31

Radon test result report for:**WHITEAKER MS
MAIN**

Kit #	Room Id	Started	Ended	pCi/L	Analyzed
11118206	HEALTH RM	2022-10-24 @ 8:00 am	2022-10-27 @ 8:00 am	0.8 ± 0.3	2022-10-31
11118258	KITCHEN OFFICE	2022-10-24 @ 9:00 am	2022-10-27 @ 8:00 am	< 0.3	2022-10-31
11118248	MAIN GYM N	2022-10-24 @ 8:00 am	2022-10-27 @ 8:00 am	0.7 ± 0.3	2022-10-31
11118242	MUSIC STORAGE	2022-10-24 @ 8:00 am	2022-10-27 @ 8:00 am	0.5 ± 0.3	2022-10-31
11118204	OFFICE MANAGER	2022-10-24 @ 8:00 am	2022-10-27 @ 8:00 am	0.7 ± 0.3	2022-10-31
11118207	PRINCIPAL	2022-10-24 @ 8:00 am	2022-10-27 @ 8:00 am	< 0.3	2022-10-31
11118287	QCB 1	2022-10-24 @ 9:00 am	2022-10-27 @ 9:00 am	< 0.3	2022-10-31
11118288	QCB 2	2022-10-24 @ 9:00 am	2022-10-27 @ 9:00 am	< 0.3	2022-10-31
11118289	QCB 3	2022-10-24 @ 9:00 am	2022-10-27 @ 9:00 am	< 0.3	2022-10-31
11118290	QCB 4	2022-10-24 @ 9:00 am	2022-10-27 @ 9:00 am	< 0.3	2022-10-31
11118205	REGISTAR	2022-10-24 @ 8:00 am	2022-10-27 @ 8:00 am	< 0.3	2022-10-31
11118201	SCHOOL OFFICE	2022-10-24 @ 8:00 am	2022-10-27 @ 8:00 am	0.6 ± 0.3	2022-10-31
11118203	SOS	2022-10-24 @ 8:00 am	2022-10-27 @ 8:00 am	1.0 ± 0.3	2022-10-31
11118257	STAFF LUNCH ROOM	2022-10-24 @ 9:00 am	2022-10-27 @ 8:00 am	< 0.3	2022-10-31
11118208	WORKROOM	2022-10-24 @ 8:00 am	2022-10-27 @ 8:00 am	0.7 ± 0.3	2022-10-31

Air Chek 1936 Butler Bridge Rd, Mills River, NC 28759-3892 Phone: (828) 684-0893 Fax: (828) 684-8498

Note: QCB1-4 are blank samples and part of the quality control process for radon testing.

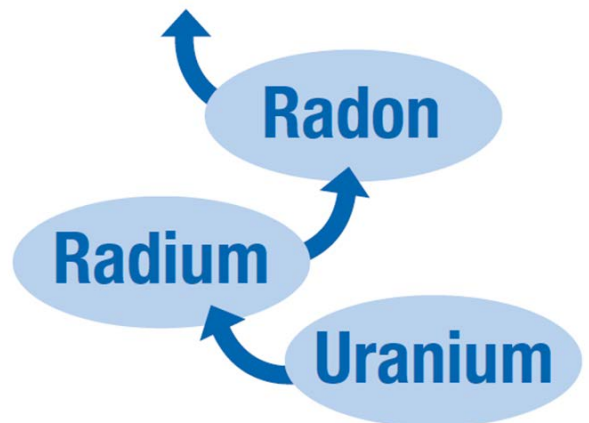
Radon in schools

Fact Sheet on Radon Exposure for Students and Staff



What is radon?

Radon is a radioactive gas you can't see, smell or taste. It is a decay product of uranium and is found all over the world. Uranium and its decay products are naturally found in the soil and rocks beneath buildings. Our school image (right) shows how uranium naturally decays into radium that further breaks down into radon gas. Radon moves up through the soil and enters buildings in contact.



Why is radon a problem in Oregon schools?

Radon is the 2nd leading cause of lung cancer, after smoking. The Environmental Protection Agency (EPA) estimates around 21,000 radon-related lung cancer deaths occur each year. Breathing high levels of radon in combination with smoking is even more dangerous and increases your risk by ten times.

Home is likely the most significant source for breathing radon. According to the EPA, 1 out of 15 homes has high radon levels. School is likely the second largest source of radon exposure for students and staff. The only way to know your radon levels is to test. The EPA recommends that **all** homes and schools be tested for radon.

EPA ACTION LEVEL

4.0 Picocuries / Liter of air

Testing at Home

Radon testing at home can be simple and inexpensive. You can find do-it-yourself test kits at most local hardware stores and online from the [American Lung Association](http://www.AmericanLungAssociation.org). Oregon Health Authority (OHA) Radon Program also offers FREE test kits to those living in areas where little data is available. To find out if you are eligible, contact radon.program@state.or.us.

Testing in Oregon Schools

By law (ORS 332.341-345), all Oregon schools are required to test for radon before January 1, 2021.

School radon testing involves the placement of small testing devices in all frequently occupied rooms on the lowest level of the building. Initial testing is short-term and lasts between 2 and 7 days. Test devices are not dangerous in any way.

Rooms that test at or above 4.0 picocuries per liter of air (pCi/L) (EPA recommended action level) are subject to longer confirmation testing and radon reduction systems.

*Test results for your school can be found at:

For more information about radon, visit www.healthoregon.org/radon.
If you have other questions or concerns about radon testing at your school, contact _____ at _____.

