

INDUSTRIAL HYGIENE REPORT

RADON TESTING REPORT

McKay High School

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

By: Kathy Ellis, Senior Industrial Hygiene Consultant

Reviewed By: DeEtta Burrows, MSPH, CIH – Wise Steps, Inc.

On-site: November 16-19, 2021

Report: December 1, 2021

PURPOSE

Radon retesting was done at McKay High 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 2014 tests. McKay High School has also undergone a major construction project that included additional classrooms, offices and workspaces. These new areas also needed to be tested for radon levels.

This testing is a requirement in per ORS 332.341-345 and is part of the Healthy and Safe Schools Plan rules, ORS 332166-167.

CONCLUSION and RECOMMENDATIONS

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

TESTING

Radon testing was conducted using protocols recommended by the Oregon Health Authority per ORS 332.341-345. Radon Air-Chek short-term test devices were used in the rooms by suspending the device in each room. The testing occurred from November 9-12, 2021, during normal and routine school ventilation system operation. Weather conditions during the weeks prior of testing had been wet with moderate temperatures.

This testing was conducted under COVID-19 recommended precautions of having increased outside air supplied to the building.

Quality assurance testing was also conducted by blank (QCB) test devices, and duplicate samples per the recommendations found in ORS 332.341-345.

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.

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.

November 29, 2021

**** LABORATORY ANALYSIS REPORT ****

Radon test result report for:

**MCKAY
MAIN**

Kit #	Room Id	Started	Ended	pCi/L	Analyzed
9604612	100	2021-11-16 @ 6:00 am	2021-11-19 @ 6:00 am	< 0.3	2021-11-22
9604611	100A	2021-11-16 @ 6:00 am	2021-11-19 @ 6:00 am	< 0.3	2021-11-22
9604613	100C	2021-11-16 @ 6:00 am	2021-11-19 @ 7:00 am	< 0.3	2021-11-22
9604610	101B	2021-11-16 @ 6:00 am	2021-11-19 @ 6:00 am	< 0.3	2021-11-22
9601976	102C	2021-11-16 @ 6:00 am	2021-11-19 @ 6:00 am	1.0 ± 0.3	2021-11-22
9601997	103	2021-11-16 @ 6:00 am	2021-11-19 @ 6:00 am	0.7 ± 0.3	2021-11-22
9601996	103A	2021-11-16 @ 6:00 am	2021-11-19 @ 6:00 am	1.8 ± 0.3	2021-11-22
9601979	104A	2021-11-16 @ 6:00 am	2021-11-19 @ 6:00 am	1.6 ± 0.3	2021-11-22
9601982	104A	2021-11-16 @ 6:00 am	2021-11-19 @ 6:00 am	1.4 ± 0.3	2021-11-22
9601983	104AF	2021-11-16 @ 6:00 am	2021-11-19 @ 6:00 am	< 0.3	2021-11-22
9601981	104AH	2021-11-16 @ 6:00 am	2021-11-19 @ 6:00 am	< 0.3	2021-11-22
9601980	104AJ	2021-11-16 @ 6:00 am	2021-11-19 @ 6:00 am	0.5 ± 0.3	2021-11-22
9601978	104B	2021-11-16 @ 6:00 am	2021-11-19 @ 6:00 am	< 0.3	2021-11-22
9601977	104C	2021-11-16 @ 6:00 am	2021-11-19 @ 6:00 am	< 0.3	2021-11-22
9601975	104F	2021-11-16 @ 6:00 am	2021-11-19 @ 6:00 am	< 0.3	2021-11-22
9601984	104K	2021-11-16 @ 6:00 am	2021-11-19 @ 6:00 am	0.7 ± 0.3	2021-11-22
9604688	104L	2021-11-16 @ 8:00 am	2021-11-19 @ 8:00 am	1.0 ± 0.3	2021-11-22
9601988	104L	2021-11-16 @ 6:00 am	2021-11-19 @ 6:00 am	0.6 ± 0.3	2021-11-22
9601986	104L	2021-11-16 @ 6:00 am	2021-11-19 @ 6:00 am	0.9 ± 0.3	2021-11-22
9601989	104N	2021-11-16 @ 6:00 am	2021-11-19 @ 6:00 am	1.1 ± 0.3	2021-11-22
9604686	104N	2021-11-16 @ 8:00 am	2021-11-19 @ 8:00 am	< 0.3	2021-11-22
9601991	104Q	2021-11-16 @ 6:00 am	2021-11-19 @ 6:00 am	0.7 ± 0.3	2021-11-22
9604687	104S	2021-11-16 @ 8:00 am	2021-11-19 @ 8:00 am	< 0.3	2021-11-22
9601987	104Y	2021-11-16 @ 6:00 am	2021-11-19 @ 6:00 am	1.6 ± 0.3	2021-11-22
9604685	105	2021-11-16 @ 8:00 am	2021-11-19 @ 8:00 am	0.5 ± 0.3	2021-11-22
9604684	107	2021-11-16 @ 8:00 am	2021-11-19 @ 8:00 am	< 0.3	2021-11-22
9604619	108C	2021-11-16 @ 6:00 am	2021-11-19 @ 7:00 am	0.8 ± 0.3	2021-11-22
9604683	108S	2021-11-16 @ 8:00 am	2021-11-19 @ 8:00 am	< 0.3	2021-11-22
9604682	108W	2021-11-16 @ 8:00 am	2021-11-19 @ 8:00 am	< 0.3	2021-11-22
9604680	109	2021-11-16 @ 8:00 am	2021-11-19 @ 8:00 am	< 0.3	2021-11-22
9604620	109B	2021-11-16 @ 7:00 am	2021-11-19 @ 7:00 am	< 0.3	2021-11-22
9604679	110	2021-11-16 @ 8:00 am	2021-11-19 @ 8:00 am	0.5 ± 0.3	2021-11-22
9604678	111	2021-11-16 @ 8:00 am	2021-11-19 @ 7:00 am	0.7 ± 0.3	2021-11-22
9604681	112	2021-11-16 @ 8:00 am	2021-11-19 @ 8:00 am	< 0.3	2021-11-22
9604677	113	2021-11-16 @ 8:00 am	2021-11-19 @ 7:00 am	0.5 ± 0.3	2021-11-22
9604662	114	2021-11-16 @ 8:00 am	2021-11-19 @ 7:00 am	< 0.3	2021-11-22
9604661	115	2021-11-16 @ 8:00 am	2021-11-19 @ 7:00 am	< 0.3	2021-11-22

November 29, 2021

**** LABORATORY ANALYSIS REPORT ****

Radon test result report for:

**MCKAY
MAIN**

Kit #	Room Id	Started	Ended	pCi/L	Analyzed
9604660	116	2021-11-16 @ 7:00 am	2021-11-19 @ 7:00 am	< 0.3	2021-11-22
9604659	117	2021-11-16 @ 7:00 am	2021-11-19 @ 7:00 am	< 0.3	2021-11-22
9604658	118	2021-11-16 @ 7:00 am	2021-11-19 @ 7:00 am	< 0.3	2021-11-22
9604657	119	2021-11-16 @ 7:00 am	2021-11-19 @ 7:00 am	0.7 ± 0.3	2021-11-22
9604656	120N	2021-11-16 @ 7:00 am	2021-11-19 @ 7:00 am	0.7 ± 0.3	2021-11-22
9604655	120S	2021-11-16 @ 7:00 am	2021-11-19 @ 7:00 am	1.2 ± 0.3	2021-11-22
9604654	121	2021-11-16 @ 7:00 am	2021-11-19 @ 7:00 am	< 0.3	2021-11-22
9604653	122	2021-11-16 @ 7:00 am	2021-11-19 @ 7:00 am	< 0.3	2021-11-22
9604652	123	2021-11-16 @ 7:00 am	2021-11-19 @ 7:00 am	< 0.3	2021-11-22
9604646	124	2021-11-16 @ 7:00 am	2021-11-19 @ 7:00 am	< 0.3	2021-11-22
9604647	124 OFFICE	2021-11-16 @ 7:00 am	2021-11-19 @ 7:00 am	< 0.3	2021-11-22
9604645	125	2021-11-16 @ 7:00 am	2021-11-19 @ 7:00 am	< 0.3	2021-11-22
9604644	126	2021-11-16 @ 7:00 am	2021-11-19 @ 7:00 am	< 0.3	2021-11-22
9604643	126 OFFICE	2021-11-16 @ 7:00 am	2021-11-19 @ 7:00 am	< 0.3	2021-11-22
9604635	127	2021-11-16 @ 7:00 am	2021-11-19 @ 7:00 am	1.4 ± 0.3	2021-11-22
9604634	128	2021-11-16 @ 7:00 am	2021-11-19 @ 7:00 am	0.9 ± 0.3	2021-11-22
9604633	129	2021-11-16 @ 7:00 am	2021-11-19 @ 7:00 am	0.6 ± 0.3	2021-11-22
9604631	130	2021-11-16 @ 7:00 am	2021-11-19 @ 7:00 am	< 0.3	2021-11-22
9604630	131E	2021-11-16 @ 7:00 am	2021-11-19 @ 7:00 am	0.6 ± 0.3	2021-11-22
9604629	131N	2021-11-16 @ 7:00 am	2021-11-19 @ 7:00 am	< 0.3	2021-11-22
9604627	132	2021-11-16 @ 7:00 am	2021-11-19 @ 7:00 am	1.1 ± 0.3	2021-11-22
9604623	133	2021-11-16 @ 7:00 am	2021-11-19 @ 7:00 am	< 0.3	2021-11-22
9604622	134	2021-11-16 @ 7:00 am	2021-11-19 @ 7:00 am	< 0.3	2021-11-22
9604621	135	2021-11-16 @ 7:00 am	2021-11-19 @ 7:00 am	< 0.3	2021-11-22
9604689	161	2021-11-16 @ 8:00 am	2021-11-19 @ 8:00 am	< 0.3	2021-11-22
9604676	325	2021-11-16 @ 8:00 am	2021-11-19 @ 7:00 am	< 0.3	2021-11-22
9604675	325	2021-11-16 @ 8:00 am	2021-11-19 @ 7:00 am	0.7 ± 0.3	2021-11-22
9604671	335	2021-11-16 @ 8:00 am	2021-11-19 @ 7:00 am	< 0.3	2021-11-22
9604670	338	2021-11-16 @ 8:00 am	2021-11-19 @ 7:00 am	< 0.3	2021-11-22
9604669	338N	2021-11-16 @ 8:00 am	2021-11-19 @ 7:00 am	0.5 ± 0.3	2021-11-22
9604668	342	2021-11-16 @ 8:00 am	2021-11-19 @ 7:00 am	0.7 ± 0.3	2021-11-22
9604667	344	2021-11-16 @ 8:00 am	2021-11-19 @ 7:00 am	1.3 ± 0.3	2021-11-22
9604666	345	2021-11-16 @ 8:00 am	2021-11-19 @ 7:00 am	< 0.3	2021-11-22
9604665	349	2021-11-16 @ 8:00 am	2021-11-19 @ 7:00 am	< 0.3	2021-11-22
9604624	AUDITORIUM	2021-11-16 @ 7:00 am	2021-11-19 @ 7:00 am	< 0.3	2021-11-22
9604663	AUX GYM 357	2021-11-16 @ 8:00 am	2021-11-19 @ 7:00 am	1.0 ± 0.3	2021-11-22
9601974	BOOKEEPER	2021-11-16 @ 6:00 am	2021-11-19 @ 6:00 am	< 0.3	2021-11-22

Radon test result report for:**MCKAY
MAIN**

Kit #	Room Id	Started	Ended	pCi/L	Analyzed
9604650	BOYS LOCKER RM OFFICE	2021-11-16 @ 7:00 am	2021-11-19 @ 7:00 am	< 0.3	2021-11-22
9604626	BUILDING SERVICES	2021-11-16 @ 7:00 am	2021-11-19 @ 7:00 am	< 0.3	2021-11-22
9604632	CSOC	2021-11-16 @ 7:00 am	2021-11-19 @ 7:00 am	0.6 ± 0.3	2021-11-22
9604651	GIRLS LOCKER RM OFFICE	2021-11-16 @ 7:00 am	2021-11-19 @ 7:00 am	< 0.3	2021-11-22
9604648	GYM E	2021-11-16 @ 7:00 am	2021-11-19 @ 7:00 am	< 0.3	2021-11-22
9604649	GYM W	2021-11-16 @ 7:00 am	2021-11-19 @ 7:00 am	< 0.3	2021-11-22
9601995	KITCHEN	2021-11-16 @ 6:00 am	2021-11-19 @ 6:00 am	< 0.3	2021-11-22
9604625	KITCHEN OFFICE	2021-11-16 @ 7:00 am	2021-11-19 @ 7:00 am	< 0.3	2021-11-22
9604672	LIB 329W	2021-11-16 @ 8:00 am	2021-11-19 @ 7:00 am	< 0.3	2021-11-22
9604673	LIB OFFICE 331	2021-11-16 @ 8:00 am	2021-11-19 @ 7:00 am	< 0.3	2021-11-22
9604674	LIC 329S	2021-11-16 @ 8:00 am	2021-11-19 @ 7:00 am	< 0.3	2021-11-22
9602000	M102A	2021-11-16 @ 6:00 am	2021-11-19 @ 6:00 am	< 0.3	2021-11-22
9601999	M102C	2021-11-16 @ 6:00 am	2021-11-19 @ 6:00 am	< 0.3	2021-11-22
9601998	M102W	2021-11-16 @ 6:00 am	2021-11-19 @ 6:00 am	< 0.3	2021-11-22
9604618	M108	2021-11-16 @ 6:00 am	2021-11-19 @ 7:00 am	1.1 ± 0.3	2021-11-22
9604617	M109	2021-11-16 @ 6:00 am	2021-11-19 @ 7:00 am	< 0.3	2021-11-22
9604616	M114E	2021-11-16 @ 6:00 am	2021-11-19 @ 7:00 am	< 0.3	2021-11-22
9604615	M117N	2021-11-16 @ 6:00 am	2021-11-19 @ 7:00 am	0.5 ± 0.3	2021-11-22
9604614	M117W	2021-11-16 @ 6:00 am	2021-11-19 @ 7:00 am	< 0.3	2021-11-22
9601973	MAIN OFFICE	2021-11-16 @ 6:00 am	2021-11-19 @ 6:00 am	0.8 ± 0.3	2021-11-22
9604628	MAPS	2021-11-16 @ 7:00 am	2021-11-19 @ 7:00 am	0.5 ± 0.3	2021-11-22
9604690	QCB1	2021-11-16 @ 8:00 am	2021-11-19 @ 8:00 am	< 0.3	2021-11-22
9604691	QCB2	2021-11-16 @ 9:00 am	2021-11-19 @ 8:00 am	< 0.3	2021-11-22
9604692	QCB3	2021-11-16 @ 9:00 am	2021-11-19 @ 8:00 am	< 0.3	2021-11-22
9604693	QCB4	2021-11-16 @ 9:00 am	2021-11-19 @ 8:00 am	< 0.3	2021-11-22
9604694	QCB5	2021-11-16 @ 9:00 am	2021-11-19 @ 8:00 am	< 0.3	2021-11-22
9601992	R	2021-11-16 @ 6:00 am	2021-11-19 @ 6:00 am	0.8 ± 0.3	2021-11-22
9601993	S	2021-11-16 @ 6:00 am	2021-11-19 @ 6:00 am	1.0 ± 0.3	2021-11-22
9601994	STUDENT CENTER	2021-11-16 @ 6:00 am	2021-11-19 @ 6:00 am	< 0.3	2021-11-22
9604664	WGT	2021-11-16 @ 8:00 am	2021-11-19 @ 7:00 am	0.5 ± 0.3	2021-11-22

November 29, 2021

**** LABORATORY ANALYSIS REPORT ****

Radon test result report for:

**MCKAY
CT**

Kit #	Room Id	Started	Ended	pCi/L	Analyzed
9604636	CT102SE	2021-11-16 @ 7:00 am	2021-11-19 @ 7:00 am	< 0.3	2021-11-22
9604637	CT102W	2021-11-16 @ 7:00 am	2021-11-19 @ 7:00 am	0.5 ± 0.3	2021-11-22
9604640	CT103N	2021-11-16 @ 7:00 am	2021-11-19 @ 7:00 am	0.5 ± 0.3	2021-11-22
9604639	CT103S	2021-11-16 @ 7:00 am	2021-11-19 @ 7:00 am	0.7 ± 0.3	2021-11-22
9604642	CT104	2021-11-16 @ 7:00 am	2021-11-19 @ 7:00 am	< 0.3	2021-11-22
9604638	CT108 OFFICE	2021-11-16 @ 7:00 am	2021-11-19 @ 7:00 am	0.5 ± 0.3	2021-11-22
9604641	CT110	2021-11-16 @ 7:00 am	2021-11-19 @ 7:00 am	< 0.3	2021-11-22

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

Radon test result report for:

**MCKAY
ANNEX**

Kit #	Room Id	Started	Ended	pCi/L	Analyzed
9604695	101	2021-11-16 @ 9:00 am	2021-11-19 @ 8:00 am	< 0.3	2021-11-22
9604696	102	2021-11-16 @ 9:00 am	2021-11-19 @ 8:00 am	< 0.3	2021-11-22
9604697	1A	2021-11-16 @ 9:00 am	2021-11-19 @ 8:00 am	< 0.3	2021-11-22
9604700	2E	2021-11-16 @ 9:00 am	2021-11-19 @ 8:00 am	< 0.3	2021-11-22
9604699	2S	2021-11-16 @ 9:00 am	2021-11-19 @ 8:00 am	< 0.3	2021-11-22
9601742	3A	2021-11-16 @ 9:00 am	2021-11-19 @ 8:00 am	< 0.3	2021-11-22
9604698	A103	2021-11-16 @ 9:00 am	2021-11-19 @ 8:00 am	< 0.3	2021-11-22
9601745	A106	2021-11-16 @ 9:00 am	2021-11-19 @ 8:00 am	< 0.3	2021-11-22
9601743	A111	2021-11-16 @ 9:00 am	2021-11-19 @ 8:00 am	< 0.3	2021-11-22
9601744	A113	2021-11-16 @ 9:00 am	2021-11-19 @ 8:00 am	< 0.3	2021-11-22

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

Note: QCB1-5 are blank samples and part of the quality control process for radon testing.

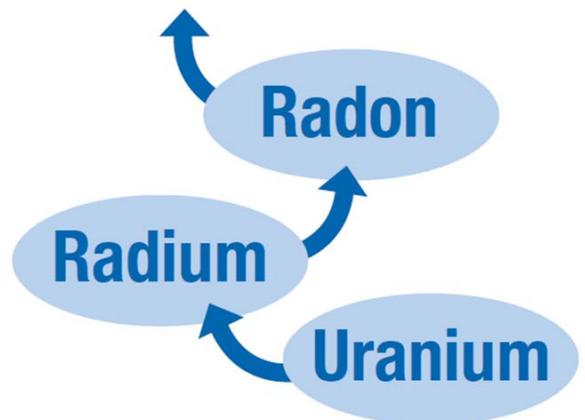
Radon in schools

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.

Testing in Oregon Schools

By law (ORS 332.166-167), 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:
