

INDUSTRIAL HYGIENE REPORT

RADON TESTING REPORT

Schirle School

Report to: Vonnie B. Good, EHS Salem Keizer School District

By: Kathy Ellis, Senior Industrial Hygiene Consultant

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

On-site: March 14–17, 2017

Report: April 10, 2017

PURPOSE

After initial testing showed radon levels above EPA's Action Level of 4.0 picoCuries/L (pCi/L) in a few of the rooms at Schirle, a radon mitigation system was installed in March of 2016. To ensure that the systems are functioning properly and levels are well below EPA's Action Level, annual radon testing is performed.

CONCLUSION AND RECOMMENDATION

All classrooms had very low to non-detectable levels of radon.

The test kit labeled CHECK in #3 was a "spike kit," part of the Quality Assurance process. This test kit was exposed at a spiking laboratory at 16.9 pCi/L. The lab result of 21.1 pCi/L is within the passing criteria for spikes, which is a plus or minus 25 % error.

TESTING

Radon testing was conducted using protocols recommended by the Oregon Health Authority per ORS 332.166-.167. Radon Air-Chek short-term test devices were used in the rooms by suspending the device in each room. The testing occurred from March 14-17, 2017, during normal and routine school ventilation system operation, as well as with the radon mitigation system in operation.

Quality assurance testing was also conducted by utilizing blank, duplicate, and spiked samples per the recommendations found in ORS 332.166-.167. Check In 1 & 2 are blanks. The analysis on those two test kits was <0.3 pCi/L. Check In 3 was a spike. It was spiked in a lab at 17.0 pCi/l. The analysis on that test kit was 21.1 pCi/L. This is just within the passing criteria for spikes, which is a plus or minus 25 % error. There are four duplicates, Rooms B1, C1, E1, and Principal's Office. All of the duplicates were within the acceptable variation. These quality assurance testing data validate the lab results.

EPA RADON GUIDELINES

The EPA has set an Action Level of 4.0 pCi/L (picoCuries per liter) for schools. If classrooms 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 School District 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. A subslab depressurization system was installed in in this school.

Sample Data Attached

March 28, 2017

**** LABORATORY ANALYSIS REPORT ****

Radon test result report for:

**SK
SCHIRLE**

Kit #	Room Id	Started	Ended	pCi/L	Analyzed
7854711	B1	2017-03-14 @ 10:00 am	2017-03-17 @ 12:00 pm	0.7 ± 0.2	2017-03-20
7854712	B1	2017-03-14 @ 10:00 am	2017-03-17 @ 12:00 pm	0.5 ± 0.2	2017-03-20
7854713	B2	2017-03-14 @ 10:00 am	2017-03-17 @ 12:00 pm	0.5 ± 0.2	2017-03-20
7854714	B3	2017-03-14 @ 10:00 am	2017-03-17 @ 12:00 pm	0.6 ± 0.2	2017-03-20
7854715	B4	2017-03-14 @ 10:00 am	2017-03-17 @ 12:00 pm	0.7 ± 0.3	2017-03-20
7854716	B5	2017-03-14 @ 10:00 am	2017-03-17 @ 12:00 pm	0.6 ± 0.2	2017-03-20
7854717	B6	2017-03-14 @ 10:00 am	2017-03-17 @ 12:00 pm	0.6 ± 0.2	2017-03-20
8153286	BLEA	2017-03-14 @ 10:00 am	2017-03-17 @ 12:00 pm	< 0.3	2017-03-20
7854704	C1	2017-03-14 @ 10:00 am	2017-03-17 @ 12:00 pm	0.5 ± 0.2	2017-03-20
7854705	C1	2017-03-14 @ 10:00 am	2017-03-17 @ 12:00 pm	< 0.3	2017-03-20
7854706	C2	2017-03-14 @ 10:00 am	2017-03-17 @ 12:00 pm	0.7 ± 0.2	2017-03-20
7854707	C3	2017-03-14 @ 10:00 am	2017-03-17 @ 12:00 pm	0.9 ± 0.2	2017-03-20
7854708	C4	2017-03-14 @ 10:00 am	2017-03-17 @ 12:00 pm	0.5 ± 0.2	2017-03-20
7854709	C5	2017-03-14 @ 10:00 am	2017-03-17 @ 12:00 pm	0.9 ± 0.3	2017-03-20
7854710	C6	2017-03-14 @ 10:00 am	2017-03-17 @ 12:00 pm	0.7 ± 0.2	2017-03-20
7854747	CHECK IN 1	2017-03-14 @ 10:00 am	2017-03-17 @ 12:00 pm	< 0.3	2017-03-20
7854748	CHECK IN 2	2017-03-14 @ 10:00 am	2017-03-17 @ 12:00 pm	< 0.3	2017-03-20
7151239	CHECK IN 3	2017-03-13 @ 12:00 pm	2017-03-15 @ 12:00 pm	21.1 ± 1.5	2017-03-20
7854701	COMMUNITY RM	2017-03-14 @ 10:00 am	2017-03-17 @ 12:00 pm	0.7 ± 0.2	2017-03-20
7854722	CONFERENCE RM	2017-03-14 @ 10:00 am	2017-03-17 @ 12:00 pm	0.9 ± 0.2	2017-03-20
8153300	CUSTODIAN OFFICE	2017-03-14 @ 10:00 am	2017-03-17 @ 12:00 pm	0.7 ± 0.3	2017-03-20
8153289	E1	2017-03-14 @ 10:00 am	2017-03-17 @ 12:00 pm	< 0.3	2017-03-20
8153285	E1	2017-03-14 @ 10:00 am	2017-03-17 @ 12:00 pm	0.7 ± 0.3	2017-03-20
8153290	E2	2017-03-14 @ 10:00 am	2017-03-17 @ 12:00 pm	< 0.3	2017-03-20
8153291	E3	2017-03-14 @ 10:00 am	2017-03-17 @ 12:00 pm	< 0.3	2017-03-20
8153292	E4	2017-03-14 @ 10:00 am	2017-03-17 @ 12:00 pm	< 0.3	2017-03-20
8153293	E5	2017-03-14 @ 10:00 am	2017-03-17 @ 12:00 pm	< 0.3	2017-03-20
8153294	E6	2017-03-14 @ 10:00 am	2017-03-17 @ 12:00 pm	< 0.3	2017-03-20
8153295	E7	2017-03-14 @ 10:00 am	2017-03-17 @ 12:00 pm	0.7 ± 0.3	2017-03-20
8153298	GYM	2017-03-14 @ 10:00 am	2017-03-17 @ 12:00 pm	0.6 ± 0.3	2017-03-20
8153299	GYM	2017-03-14 @ 10:00 am	2017-03-17 @ 12:00 pm	< 0.3	2017-03-20
8153297	GYM	2017-03-14 @ 10:00 am	2017-03-17 @ 12:00 pm	< 0.3	2017-03-20
7854703	HEADSTART	2017-03-14 @ 10:00 am	2017-03-17 @ 12:00 pm	< 0.3	2017-03-20
8153296	KITCHEN	2017-03-14 @ 10:00 am	2017-03-17 @ 12:00 pm	< 0.3	2017-03-20
7854718	MEDIA	2017-03-14 @ 10:00 am	2017-03-17 @ 12:00 pm	0.5 ± 0.2	2017-03-20
7854719	MEDIA	2017-03-14 @ 10:00 am	2017-03-17 @ 12:00 pm	< 0.3	2017-03-20
7854720	MEDIA - COMPUTER	2017-03-14 @ 10:00 am	2017-03-17 @ 12:00 pm	< 0.3	2017-03-20

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

March 28, 2017

**** LABORATORY ANALYSIS REPORT ****

Radon test result report for:

**SK
SCHIRLE**

Kit #	Room Id	Started	Ended	pCi/L	Analyzed
8153288	O'KEEFE	2017-03-14 @ 10:00 am	2017-03-17 @ 12:00 pm	0.7 ± 0.3	2017-03-20
7854702	PE TEACHER RM	2017-03-14 @ 10:00 am	2017-03-17 @ 12:00 pm	1.1 ± 0.2	2017-03-20
8153284	PRINCIPAL	2017-03-14 @ 10:00 am	2017-03-17 @ 12:00 pm	0.8 ± 0.3	2017-03-20
7854721	PRINCIPAL	2017-03-14 @ 10:00 am	2017-03-17 @ 12:00 pm	< 0.3	2017-03-20
8153287	STAFF COMPUTER R	2017-03-14 @ 10:00 am	2017-03-17 @ 12:00 pm	< 0.3	2017-03-20
7854723	TIME OUT ROOM	2017-03-14 @ 10:00 am	2017-03-17 @ 12:00 pm	< 0.3	2017-03-20

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