



Testing, Mitigation, System Design
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Radon Survey Analysis Job# 19-C119R

for

Central Point School District
Sams Valley Elementary School
c/o Dale Giovannetti

property located at

14235 Table Rock Rd

Central Point, OR 97502

January 24, 2020



STATE OF OREGON
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ESB#10782

Introduction

The following report documents a study of radon levels for the property located at 14235 Table Rock Rd Central Point OR 97502. The goal of this study is to determine indoor radon levels for all areas in contact with the ground. Testing was performed per Oregon Health Authority School Testing Protocols.

Analysis assumes that the buildings tested were maintained under “closed-building” conditions (windows closed and exterior doors shut immediately after entering and exiting), as well as normal indoor temperatures, for the duration of the testing period. The H-VAC system for each building was set to normal occupied settings for the entirety of the testing period.

Conclusions and Recommendations

Test was a “Short-Term” test, with minimum duration of 60 hours. See the chart below of areas in buildings that were tested, and the corresponding levels found. All current test results are provided in Table 1. Maps of the test levels are provided in Appendix A. Note that all forty (40) locations tested had results below the USEPA Action Level of 4.0 pCi/L. Results in Table one notated with asterisk* had doors propped open at the test pick up and the results are inconclusive. Teachers stated that doors were propped open to set up for a holiday event and were not open long. Not maintaining closed building conditions in the entire building can effect the results of the surrounding units.

No mitigation action is recommended at this time. While the USEPA recommends buildings be fixed if the radon level is 4.0 pCi/L or more, because there is no known safe level of exposure to radon, the US EPA also suggests individuals consider fixing buildings for radon levels between 2.0 pCi/L and 4.0 pCi/L.

This report represents the average radon concentration for the period that testing was and at the specific location(s) within the building. The concentration of radon gas in indoor air can vary widely; it fluctuates daily, seasonally, and with weather conditions. Indoor radon levels may be affected by barometric pressure, strong winds, rain-soaked ground, snow cover, heating and A/C systems, building construction, open windows, and the like. For further confirmation of average, long-term radon levels, it is suggested that long-term, Alpha-Track type radon testing be performed.

NOTE: It is recommended that any building indicating low radon values be retested at least every 5 years. In areas where mitigation has been performed, it is recommended to test using long-term testing at least every 2 years.

Radon Level Measurements

The building tested was assumed occupied during testing. The measurement technique used (48) AirChek activated charcoal kits.

Test Start Date: 12/16/2019

Test End Date: 12/19/2019

Measurements of radon levels were made in the following areas:

Table 1: Results

Room	Floor	Kit ID #	Test Start Time	Test End Time	Result (pCi/L)
Pavilion	1	9336301	05:34 PM	02:59 PM	0.3
11	1	Duplicate Avg*	05:04 PM	02:54 PM	0.7
Sensory room	1	9336303	04:51 PM	02:50 PM	0.8
East cafeteria	1	9336304	05:31 PM	03:06 PM	0.7
Kitchen	1	9336306	05:28 PM	03:03 PM	0.6*
14	1	9336308	04:54 PM	02:56 PM	0.6
Cafeteria west	1	9336311	05:16 PM	03:01 PM	0.8*
Pbis office	1	9336312	05:11 PM	03:08 PM	1.0
12	1	9336313	04:56 PM	02:56 PM	0.7
13	1	9336314	04:55 PM	02:57 PM	0.6
Stage	1	9336316	05:19 PM	03:02 PM	0.6
Kitchen office	1	9336317	05:27 PM	03:06 PM	0.7
Pbis lobby	1	9336319	05:13 PM	03:08 PM	0.8
10	1	9336320	05:07 PM	02:53 PM	0.3*
After school room	1	Duplicate Avg*	05:22 PM	03:04 PM	0.9
Se cafeteria	1	9336337	05:17 PM	03:01 PM	0.7*
8	1	9336342	04:27 PM	02:43 PM	1.5
18	1	9336343	04:36 PM	02:45 PM	0.9
5	1	9336344	04:16 PM	02:37 PM	1.7
1	1	9336345	04:15 PM	02:37 PM	1.7
Break room	1	9336346	04:47 PM	02:52 PM	0.8
17	1	9336347	04:38 PM	02:46 PM	0.3
7	1	9336349	04:29 PM	02:41 PM	1.6*
Supply room	1	9336350	04:08 PM	02:35 PM	1.8
Library	1	9336351	04:44 PM	02:49 PM	0.9
16	1	9336352	04:40 PM	02:47 PM	0.8
Head start office	1	Duplicate Avg*	04:33 PM	02:44 PM	1.1
Librarian	1	9336354	04:49 PM	02:51 PM	0.7
4	1	9336356	04:25 PM	02:42 PM	1.7

Room	Floor	Kit ID #	Test Start Time	Test End Time	Result (pCi/L)
Main office	1	9336358	04:01 PM	02:34 PM	1.6
15	1	9336359	04:42 PM	02:48 PM	1.0
Speech	1	9336360	04:45 PM	02:53 PM	0.6
2	1	9336361	04:18 PM	02:38 PM	1.7
3	1	9336362	04:24 PM	02:42 PM	1.7
Psychology	1	9336363	04:03 PM	02:34 PM	1.7
Staff room	1	Duplicate Avg*	04:10 PM	02:35 PM	1.5
Health room	1	9336365	04:04 PM	02:34 PM	1.6
Principal	1	9336367	04:02 PM	02:33 PM	1.4
6	1	Duplicate Avg*	04:20 PM	02:39 PM	1.7*

Duplicate measurements were conducted as a means to assess the precision of the test measurements. The criteria of acceptance is that the average relative percent difference (ARPD) of the results of the two measurement results for results whose averages are greater than 4.0pCi/L, should be within 25%. The results of the collated duplicates are provided in Table 2. The applicable ARPD for this survey was not applicable and is thus in compliance.

*Table 2: *Duplicate Table*

Room	Kit ID#	Test Start Time	Test End Time	Result (pCi/L)	Average (pCi/L)	Avg > 3.9 pCi/L?	RPD %
Staff Room	9336364	04:10 PM	02:35 PM	1.3	1.5	No	N/A
	9336366	04:11 PM	02:35 PM	1.6			
6	9336369	04:20 PM	02:39 PM	1.8	1.7	No	N/A
	9336368	04:20 PM	02:39 PM	1.5			
Head Start Office	9336353	04:33 PM	02:44 PM	1.0	1.1	No	N/A
	9336355	04:33 PM	02:44 PM	1.2			
11	9336302	05:04 PM	02:54 PM	0.6	0.7	No	N/A
	9336315	05:05 PM	02:54 PM	0.8			
After School Room	9336327	05:22 PM	03:04 PM	0.8	0.9	No	N/A
	9336318	05:23 PM	03:04 PM	1.0			
Average RPD for Duplicate Averages more than 3.9 pCi/L:							

Room	Kit ID#	Test Start Time	Test End Time	Result (pCi/L)	Average (pCi/L)	Avg > 3.9 pCi/L?	RPD %
In Compliance:							Yes

As a means to determine any biases in the results, detectors were deployed but not opened. At the time of test retrieval of the regular test, the devices were removed from their packaging and sent to the laboratory for blind analysis. The results of these unexposed devices are shown in Table 3. As can be seen, the laboratory reported these at the lower level of detection, indicating that no biases were introduced in handling and shipping of the devices.

Table 3: Blanks

Room	Blank #	Kit ID #	Result (pCi/L)	In Compliance?
4	1	9336348	0.3	Yes
libarian	2	9336307	0.3	Yes

A device was also selected from the lot of detectors that were utilized for exposure to a known radon environment at a spiking chamber (Bowser-Morner, NEHANRPP ID# 101 TC). After exposure, the device was submitted as a blind measurement to the laboratory. A comparison of the reported reading from the lab and the known concentration in the chamber is as follows:

Chamber concentration to which device was exposed:	25.5 pCi/L
Concentration reported by lab:	28.0
Relative percent difference (RPD):	9.3

Chamber concentration to which device was exposed:	25.5 pCi/L
Concentration reported by lab:	23.1.0
Relative percent difference (RPD):	9.9

The RPD between the reported and spiking concentration is well within normal limits.

Key:

pCi/L: Picocuries per liter – units of radon concentration.

Average (Avg): Cumulative average of the entire period since the test started.

Please contact me if you have any questions.

Thank you,

Rachell Meyers
NRPP 110320 RT

Appendix A: Test Results Map

Appendix B: Test Placement Map

