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Radon Survey Analysis
Job #17-C155L

for

Corbett School District
High School
c/o Mark Wilson

property located at

35800 E Historic Columbia River Hwy

Corbett OR 97019

December 29, 2017

STATE OF OREGON
CERTIFIED
EMERGING SMALL BUSINESS

Introduction

The following report documents a study of radon levels for the property located at 35800 E Columbia River Hwy Corbett OR 97019. The goal of this study is to determine indoor radon levels in the lowest occupied level of the building per AARST/ANSI protocols and EPA protocols for schools.
Analysis assumes that the building tested was maintained under "closed-building" conditions (windows closed and exterior doors shut immediately after entering and exiting) 12 hours prior to the start of testing, as well as normal indoor temperatures, for the duration of the testing period.

Conclusions and Recommendations

Test was a "Short-Term" test, with minimum duration of 72 hours. See the chart below of areas in building that were tested, and the corresponding levels found. Note that one (1) out of the 27 locations tested had results ABOVE the USEPA Action Level of 4.0 pCi/L.

It is recommended that a certified radon mitigation company be contacted to mitigate the elevated radon level bringing them below the EPA Action Level. 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.

The concentration of radon gas in indoor air can vary widely. It may fluctuate from day to day, week to week, and season to season. Indoor radon levels may be affected by barometric pressure, strong winds, rain-soaked ground, snow cover, heating and A/C systems, house construction, open windows, and the like. For further confirmation of average, long-term radon levels, it is suggested a long-term, Alpha-Track type radon test be performed.

Radon Level Measurements

The building tested was assumed occupied during testing.
The measurement technique used (32) Air Chek activated charcoal kits.

Test Start Date: 12/23/2017 Test End Date: 12/26/2017

Measurements of radon levels were made in the following areas:

Results Table

Room	Location	Kit ID#	Test Start Time	Test End Time	Result (pCi/L)
Room 1	NW Wall	* Duplicate Avg	9:00 AM	12:00 PM	2.1
Room 2	NE Wall	7973807	9:00 AM	12:00 PM	0.9
Room 3	NE Wall	7973808	9:00 AM	12:00 PM	1.5
Room 4	NW Wall	7973812	9:00 AM	12:00 PM	1.2
Room 5	NW Wall	7973813	9:00 AM	12:00 PM	1.0
Room 6	NE Wall	7973809	9:00 AM	12:00 PM	0.8
Staff Room	NW Wall	7973805	9:00 AM	12:00 PM	1.0
Copy Room	**NW Wall**	**7973815**	**10:00 AM**	**12:00 PM**	**9.4**
Room 7	SE Wall	7973803	10:00 AM	12:00 PM	2.3
Room 8	SE Wall	*Duplicate Avg	10:00 AM	12:00 PM	1.7

Room	Location	Kit ID#	Test Start Time	Test End Time	Result (pCi/L)
Room 10	SW Wall	7973804	10:00 AM	12:00 PM	1.3
Room 9	SW Wall	7973814	10:00 AM	12:00 PM	1.1
Maintenance Room 2	SE Wall	7973811	10:00 AM	12:00 PM	0.8
Electrical Room	NE Wall	7973820	10:00 AM	12:00 PM	2.8
Maintenance Room	NE Wall	7973819	10:00 AM	12:00 PM	1.5
Commons North	NW Wall	7973818	10:00 AM	12:00 PM	1.0
Commons South	SW Wall	7973817	10:00 AM	12:00 PM	0.8
Room 18	SW Wall	7973821	10:00 AM	12:00 PM	0.8
Room 17	SW Wall	*Duplicate Avg	10:00 AM	12:00 PM	1.0
Room 14	SE Wall	7973822	10:00 AM	12:00 PM	0.9
Room 16	SW Wall	7973825	11:00 AM	12:00 PM	0.7
Room 15	SW Wall	7973824	11:00 AM	12:00 PM	0.8
Room 13	SW Wall	7973823	11:00 AM	12:00 PM	2.7
Student Store	NE Wall	7973828	11:00 AM	12:00 PM	2.1
Room 12	SW Wall	7973830	11:00 AM	12:00 PM	2.0
Meeting Room	NE Wall	7973829	11:00 AM	12:00 PM	2.3
Detention Room	SW Wall	7973826	11:00 AM	12:00 PM	1.2

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 4.0, should be within 25%. The results of the collated duplicates are provided in the Duplicate Table below. The applicable ARPD for this survey was not applicable and is thus in compliance.

***Duplicate Table**

Room	Kit ID#	Test Start Time	Test End Time	Result (pCi/L)	Average (pCi/L)	Avg > 3.9 pCi/L?	RPD%
Room 1	7973802	9:00 AM	12:00 PM	2.0			
	7973801	9:00 AM	12:00 PM	2.2	2.1	NO	N/A
Room 8	7973810	10:00 AM	12:00 PM	1.8			
	7973806	10:00 AM	12:00 PM	1.6	1.7	NO	N/A
Room 17	7973816	10:00 AM	12:00 PM	1.0			
	7973827	10:00 AM	12:00 PM	1.0	1.0	NO	N/A

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 the Blank Table below. 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.

Commons South	1	7973832		
Room 3	2	7973831		

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:	27.4 pCi/L
Concentration reported by lab:	31.7
Relative percent difference (RPD):	12%

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,

Tamara Linde
NRPP 108246 R1

Key:
X - Test kit placement
D - Duplicate Test Kit
B - Blank Test Kit

HIGH SCHOOL