



November 12, 2019

Greg Baker
Fern Ridge School District
88834 Territorial Hwy
Elmira, OR 97437

Via email: gbaker@fernridge.k12.or.us

Regarding: Elmira Elementary School– Short-Term Radon Testing
88960 Territorial Hwy
Elmira, OR 97437
PBS Project 52525.000

Dear Mr. Baker:

From October 7, to October 10, 2019 PBS Engineering and Environmental Inc. (PBS) performed short-term radon testing for Elmira Elementary School located at 88960 Territorial Highway in Elmira, Oregon.

The Environmental Protection Agency (EPA) and Oregon Health Authority (OHA) recommend that buildings be tested for radon, and that any radon concentrations be maintained below 4.0 picocuries per liter (pCi/L) of air. PBS used Air Chek, Inc., single-use, short-term radon test kits to measure radon levels in frequently occupied rooms that are in contact with the ground or above unoccupied basements or crawlspaces. **No samples taken by PBS were found to be above the EPA action level of 4.0 pCi/L.**

In addition to the single-use, short-term radon test kits deployed in frequently occupied rooms, one (1) sample blank and six (6) spike samples were analyzed by Air Chek, Inc. in Mills River, North Carolina for quality control (QC) purposes.

The following table presents the results of all tests conducted during this study. Results are listed in pCi/L.

Kit Number	Start Date	End Date	Room	Floor	Result
9290372	10/07/2019	10/10/2019	1	1 st	0.8
9290355	10/07/2019	10/10/2019	10	1 st	3.7
9290354	10/07/2019	10/10/2019	11	1 st	3.2
9290353	10/07/2019	10/10/2019	12	1 st	2.6
9290350	10/07/2019	10/10/2019	13	1 st	1.6
9290349	10/07/2019	10/10/2019	14	1 st	2.1
9290348	10/07/2019	10/10/2019	15	1 st	1.4
9290347	10/07/2019	10/10/2019	18, Comp. Lab	1 st	1.2
9290371	10/07/2019	10/10/2019	2	1 st	0.7
9290370	10/07/2019	10/10/2019	3	1 st	0.6
9290368	10/07/2019	10/10/2019	4	1 st	0.6
9290363	10/07/2019	10/10/2019	5	1 st	1.1
9290362	10/07/2019	10/10/2019	6	1 st	1.0

Kit Number	Start Date	End Date	Room	Floor	Result
9290361	10/07/2019	10/10/2019	7	1 st	1.9
9290359	10/07/2019	10/10/2019	8	1 st	1.3
9290356	10/07/2019	10/10/2019	9	1 st	3.5
9290346	10/07/2019	10/10/2019	Break Room	1 st	1.1
9290367	10/07/2019	10/10/2019	Cafeteria E.	1 st	0.8
9290366	10/07/2019	10/10/2019	Cafeteria W.	1 st	0.7
9290352	10/07/2019	10/10/2019	Conference Room	1 st	1.7
9290364	10/07/2019	10/10/2019	Gym N. Side	1 st	0.5
9290365	10/07/2019	10/10/2019	Gym S. Side	1 st	0.8
9290357	10/07/2019	10/10/2019	Library	1 st	<0.3
9290358	10/07/2019	10/10/2019	Library	1 st	<0.3
9290344	10/07/2019	10/10/2019	Principal	1 st	2.1
9290343	10/07/2019	10/10/2019	Reception	1 st	1.2
9290342	10/07/2019	10/10/2019	Reception	1 st	1.6
9290345	10/07/2019	10/10/2019	Work Room	1 st	1.9
9290360	10/07/2019	10/10/2019	Work Room	1 st	0.7
9290351	10/07/2019	10/10/2019	Work Room	1 st	2.0
9290369	10/07/2019	10/10/2019	Work Room	1 st	0.6

See the attached laboratory analysis report for more details.

In addition to the EPA recommendation that radon concentrations not exceed 4.0 pCi/L, OHA recommends that the following steps be conducted based on the results of a room's initial short-term test:

- **If the result is less than 2.0 pCi/L**, school districts are required to test again every 10 years, per Oregon Revised Statute 332.166-167.
- **If the result is between 2.0 pCi/L and 4.0 pCi/L**, consider fixing (i.e., lowering) the radon in that room.
- **If the result is from 4.0 pCi/L to 8.0 pCi/L**, perform a follow-up measurement of that room using a long-term test. This test should be conducted over as much of a nine-month school year as possible, when the room is likely to be occupied. If that result is equal to or greater than 4.0 pCi/L, the radon in the room should be fixed (i.e., lowered).
- **If the initial short-term test result is equal to or greater than 8.0 pCi/L**, conduct a second short-term test and average its result with the initial short-term test result. If the average of the two is equal to or greater than 4.0 pCi/L, radon in the room should be fixed (i.e., lowered).

Note: A great difference in the results of the short-term tests may indicate a flaw in the testing process. Investigate and consider retesting. For situations in which one of the test results is equal to or greater than 4.0 pCi/L, if the higher result is two or more times the lower result, repeat the test.

LIMITATIONS OF SCOPE

This study was limited to the tests and locations as previously indicated. The site as a whole may have other environmental concerns that will not be characterized by this study. The findings and conclusions of this work are not scientific certainties, but probabilities based on professional judgment concerning the significance of the data

gathered during the course of this investigation. PBS is not able to represent conditions on the site or adjoining sites beyond those detected or observed by PBS.

Please feel free to contact me at 541.868.0955 or jeff.heeren@pbsusa.com with any questions or comments.

Sincerely,

Jeff Heeren
Senior Project Manager

Attachment: AirChek, Inc., Laboratory Analysis Report
AirChek, Inc., Laboratory Analysis Report – QC Samples

Radon test result report for:
ELMIRA ELEMENTARY
ELEMENTARY

Kit #	Room Id	Started	Ended	pCi/L	Analyzed
9290372	1	2019-10-07 @ 11:00 am	2019-10-10 @ 11:00 am	0.8 ± 0.3	2019-10-11
9290355	10	2019-10-07 @ 11:00 am	2019-10-10 @ 11:00 am	3.7 ± 0.3	2019-10-11
9290354	11	2019-10-07 @ 11:00 am	2019-10-10 @ 11:00 am	3.2 ± 0.3	2019-10-11
9290353	12	2019-10-07 @ 11:00 am	2019-10-10 @ 11:00 am	2.6 ± 0.3	2019-10-11
9290350	13	2019-10-07 @ 11:00 am	2019-10-10 @ 11:00 am	1.6 ± 0.3	2019-10-11
9290349	14	2019-10-07 @ 11:00 am	2019-10-10 @ 11:00 am	2.1 ± 0.3	2019-10-11
9290348	15	2019-10-07 @ 11:00 am	2019-10-10 @ 11:00 am	1.4 ± 0.3	2019-10-11
9290347	18 COMPUTER LAB	2019-10-07 @ 11:00 am	2019-10-10 @ 11:00 am	1.2 ± 0.3	2019-10-11
9290371	2	2019-10-07 @ 11:00 am	2019-10-10 @ 11:00 am	0.7 ± 0.3	2019-10-11
9290370	3	2019-10-07 @ 11:00 am	2019-10-10 @ 11:00 am	0.6 ± 0.3	2019-10-11
9290368	4	2019-10-07 @ 11:00 am	2019-10-10 @ 11:00 am	0.6 ± 0.3	2019-10-11
9290363	5	2019-10-07 @ 11:00 am	2019-10-10 @ 11:00 am	1.1 ± 0.3	2019-10-11
9290362	6	2019-10-07 @ 11:00 am	2019-10-10 @ 11:00 am	1.0 ± 0.3	2019-10-11
9290361	7	2019-10-07 @ 11:00 am	2019-10-10 @ 11:00 am	1.9 ± 0.3	2019-10-11
9290359	8	2019-10-07 @ 11:00 am	2019-10-10 @ 11:00 am	1.3 ± 0.3	2019-10-11
9290356	9	2019-10-07 @ 11:00 am	2019-10-10 @ 11:00 am	3.5 ± 0.3	2019-10-11
9290346	BREAK ROOM	2019-10-07 @ 11:00 am	2019-10-10 @ 11:00 am	1.1 ± 0.3	2019-10-11
9290367	CAFETERIA EAST	2019-10-07 @ 11:00 am	2019-10-10 @ 11:00 am	0.8 ± 0.3	2019-10-11
9290366	CAFETERIA WEST	2019-10-07 @ 11:00 am	2019-10-10 @ 11:00 am	0.7 ± 0.3	2019-10-11
9290352	CONFERENCE ROOM	2019-10-07 @ 11:00 am	2019-10-10 @ 11:00 am	1.7 ± 0.3	2019-10-11
9290364	GYM NORTH	2019-10-07 @ 11:00 am	2019-10-10 @ 11:00 am	0.5 ± 0.3	2019-10-11
9290365	GYM SOUTH	2019-10-07 @ 11:00 am	2019-10-10 @ 11:00 am	0.8 ± 0.3	2019-10-11
9290357	LIBRARY	2019-10-07 @ 11:00 am	2019-10-10 @ 11:00 am	< 0.3	2019-10-11
9290358	LIBRARY	2019-10-07 @ 11:00 am	2019-10-10 @ 11:00 am	< 0.3	2019-10-11
9290344	PRINCIPAL	2019-10-07 @ 11:00 am	2019-10-10 @ 11:00 am	2.1 ± 0.3	2019-10-11
9290343	RECEPTION	2019-10-07 @ 11:00 am	2019-10-10 @ 11:00 am	1.2 ± 0.3	2019-10-11
9290342	RECEPTION	2019-10-07 @ 11:00 am	2019-10-10 @ 11:00 am	1.6 ± 0.3	2019-10-11
9290345	WORK ROOM	2019-10-07 @ 11:00 am	2019-10-10 @ 11:00 am	1.9 ± 0.3	2019-10-11
9290360	WORK ROOM	2019-10-07 @ 11:00 am	2019-10-10 @ 11:00 am	0.7 ± 0.3	2019-10-11
9290351	WORK ROOM	2019-10-07 @ 11:00 am	2019-10-10 @ 11:00 am	2.0 ± 0.3	2019-10-11
9290369	WORK ROOM	2019-10-07 @ 11:00 am	2019-10-10 @ 11:00 am	0.6 ± 0.3	2019-10-11

October 14, 2019

**** LABORATORY ANALYSIS REPORT ****

Radon test result report for:
ELMIRA ELEMENTARY
ELEMENTARY

Kit #	Room Id	Started	Ended	pCi/L	Analyzed
7271052	B	2019-10-07 @ 7:00 am	2019-10-10 @ 4:00 pm	< 0.3	2019-10-11

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

October 14, 2019

**** LABORATORY ANALYSIS REPORT ****

Radon test result report for:
ELMIRA HIGH SCHOOL
ELMIRA HIGH SCHOOL

Kit #	Room Id	Started	Ended	pCi/L	Analyzed
7271054	B	2019-10-07 @ 7:00 am	2019-10-10 @ 4:00 pm	< 0.3	2019-10-11
7271057	B	2019-10-07 @ 7:00 am	2019-10-10 @ 4:00 pm	< 0.3	2019-10-11
9290303	SP	2019-10-06 @ 7:00 am	2019-10-09 @ 7:00 am	31.1 ± 1.9	2019-10-11
9290301	SP	2019-10-06 @ 7:00 am	2019-10-09 @ 7:00 am	25.9 ± 1.6	2019-10-11
9290306	SP	2019-10-06 @ 7:00 am	2019-10-09 @ 7:00 am	28.2 ± 1.7	2019-10-11
9290304	SP	2019-10-06 @ 7:00 am	2019-10-09 @ 7:00 am	29.2 ± 1.8	2019-10-11
9290302	SP	2019-10-06 @ 7:00 am	2019-10-09 @ 7:00 am	27.2 ± 1.6	2019-10-11
9290305	SP	2019-10-06 @ 7:00 am	2019-10-09 @ 7:00 am	27.7 ± 1.7	2019-10-11

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