



November 12, 2019

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

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

Regarding: Fern Ridge Middle School – Short-Term Radon Testing  
88831 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 Fern Ridge Middle School located 88831 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, two (2) sample blanks 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
9290399	10/07/2019	10/10/2019	1	1 <sup>st</sup>	1.1
9290384	10/07/2019	10/10/2019	10	1 <sup>st</sup>	0.9
9290378	10/07/2019	10/10/2019	11	1 <sup>st</sup>	0.7
9290377	10/07/2019	10/10/2019	12	1 <sup>st</sup>	0.9
9290383	10/07/2019	10/10/2019	13	1 <sup>st</sup>	<0.3
9290382	10/07/2019	10/10/2019	14	1 <sup>st</sup>	0.8
9290381	10/07/2019	10/10/2019	15	1 <sup>st</sup>	1.1
9290394	10/07/2019	10/10/2019	16	1 <sup>st</sup>	1.0
9290401	10/07/2019	10/10/2019	17	1 <sup>st</sup>	0.9
9290402	10/07/2019	10/10/2019	18	1 <sup>st</sup>	0.7
9290419	10/07/2019	10/10/2019	19	1 <sup>st</sup>	0.7
9290398	10/07/2019	10/10/2019	2	1 <sup>st</sup>	1.2
9290416	10/07/2019	10/10/2019	20	1 <sup>st</sup>	0.9

Kit Number	Start Date	End Date	Room	Floor	Result
9290411	10/07/2019	10/10/2019	21	1 <sup>st</sup>	1.0
9290412	10/07/2019	10/10/2019	22	1 <sup>st</sup>	1.0
9290413	10/07/2019	10/10/2019	23	1 <sup>st</sup>	1.0
9290414	10/07/2019	10/10/2019	24	1 <sup>st</sup>	1.8
9290410	10/07/2019	10/10/2019	25	1 <sup>st</sup>	2.0
9290409	10/07/2019	10/10/2019	25	1 <sup>st</sup>	1.8
9290404	10/07/2019	10/10/2019	26	1 <sup>st</sup>	1.9
9290408	10/07/2019	10/10/2019	27	1 <sup>st</sup>	<0.3
9290403	10/07/2019	10/10/2019	28	1 <sup>st</sup>	1.6
9290397	10/07/2019	10/10/2019	3	1 <sup>st</sup>	1.2
9290396	10/07/2019	10/10/2019	4	1 <sup>st</sup>	1.1
9290395	10/07/2019	10/10/2019	6	1 <sup>st</sup>	1.1
9290392	10/07/2019	10/10/2019	7	1 <sup>st</sup>	1.2
9290391	10/07/2019	10/10/2019	8	1 <sup>st</sup>	1.2
9290390	10/07/2019	10/10/2019	9	1 <sup>st</sup>	1.0
9290418	10/07/2019	10/10/2019	Boys Locker Room	1 <sup>st</sup>	1.4
9290380	10/07/2019	10/10/2019	Break Room	1 <sup>st</sup>	0.9
9290376	10/07/2019	10/10/2019	Counselor	1 <sup>st</sup>	0.8
9290400	10/07/2019	10/10/2019	Custodian	1 <sup>st</sup>	0.8
9290417	10/07/2019	10/10/2019	Girls Locker Room	1 <sup>st</sup>	1.7
9290407	10/07/2019	10/10/2019	Gym E. Side	1 <sup>st</sup>	0.6
9290406	10/07/2019	10/10/2019	Gym E. Side	1 <sup>st</sup>	0.5
9290405	10/07/2019	10/10/2019	Gym W. Side	1 <sup>st</sup>	<0.3
9290415	10/07/2019	10/10/2019	Hall 21/22	1 <sup>st</sup>	0.7
9290374	10/07/2019	10/10/2019	Health Room	1 <sup>st</sup>	1.1
9290387	10/07/2019	10/10/2019	Library	1 <sup>st</sup>	0.7
9290385	10/07/2019	10/10/2019	Library	1 <sup>st</sup>	0.8
9290386	10/07/2019	10/10/2019	Library	1 <sup>st</sup>	0.8
9290379	10/07/2019	10/10/2019	Principal	1 <sup>st</sup>	0.8
9290373	10/07/2019	10/10/2019	Reception	1 <sup>st</sup>	0.7
9290375	10/07/2019	10/10/2019	Staff Room	1 <sup>st</sup>	1.1
9290388	10/07/2019	10/10/2019	Study Room	1 <sup>st</sup>	0.6
9290389	10/07/2019	10/10/2019	Study Room 2	1 <sup>st</sup>	0.9

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](mailto: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:

**FERN RIDGE MIDDLE SCHOOL  
FERN RIDGE MIDDLE SCHOOL**

Kit #	Room Id	Started	Ended	pCi/L	Analyzed
9290399	1	2019-10-07 @ 1:00 pm	2019-10-10 @ 8:00 am	1.1 ± 0.3	2019-10-11
9290384	10	2019-10-07 @ 1:00 pm	2019-10-10 @ 8:00 am	0.9 ± 0.3	2019-10-11
9290378	11	2019-10-07 @ 1:00 pm	2019-10-10 @ 8:00 am	0.7 ± 0.3	2019-10-11
9290377	12	2019-10-07 @ 1:00 pm	2019-10-10 @ 8:00 am	0.9 ± 0.3	2019-10-11
9290383	13	2019-10-07 @ 1:00 pm	2019-10-10 @ 8:00 am	< 0.3	2019-10-11
9290382	14	2019-10-07 @ 1:00 pm	2019-10-10 @ 8:00 am	0.8 ± 0.3	2019-10-11
9290381	15	2019-10-07 @ 1:00 pm	2019-10-10 @ 8:00 am	1.1 ± 0.3	2019-10-11
9290394	16	2019-10-07 @ 1:00 pm	2019-10-10 @ 8:00 am	1.0 ± 0.3	2019-10-11
9290401	17	2019-10-07 @ 1:00 pm	2019-10-10 @ 8:00 am	0.9 ± 0.3	2019-10-11
9290402	18	2019-10-07 @ 1:00 pm	2019-10-10 @ 8:00 am	0.7 ± 0.3	2019-10-11
9290419	19	2019-10-07 @ 2:00 pm	2019-10-10 @ 8:00 am	0.7 ± 0.3	2019-10-11
9290398	2	2019-10-07 @ 1:00 pm	2019-10-10 @ 8:00 am	1.2 ± 0.3	2019-10-11
9290416	20	2019-10-07 @ 2:00 pm	2019-10-10 @ 8:00 am	0.9 ± 0.3	2019-10-11
9290411	21	2019-10-07 @ 2:00 pm	2019-10-10 @ 8:00 am	1.0 ± 0.3	2019-10-11
9290412	22	2019-10-07 @ 2:00 pm	2019-10-10 @ 8:00 am	1.0 ± 0.3	2019-10-11
9290413	23	2019-10-07 @ 2:00 pm	2019-10-10 @ 8:00 am	1.0 ± 0.3	2019-10-11
9290414	24	2019-10-07 @ 2:00 pm	2019-10-10 @ 8:00 am	1.8 ± 0.3	2019-10-11
9290410	25	2019-10-07 @ 1:00 pm	2019-10-10 @ 8:00 am	2.0 ± 0.3	2019-10-11
9290409	25	2019-10-07 @ 1:00 pm	2019-10-10 @ 8:00 am	1.8 ± 0.3	2019-10-11
9290404	26	2019-10-07 @ 1:00 pm	2019-10-10 @ 8:00 am	1.9 ± 0.3	2019-10-11
9290408	27	2019-10-07 @ 1:00 pm	2019-10-10 @ 8:00 am	< 0.3	2019-10-11
9290403	28	2019-10-07 @ 1:00 pm	2019-10-10 @ 9:00 am	1.6 ± 0.3	2019-10-11
9290397	3	2019-10-07 @ 1:00 pm	2019-10-10 @ 8:00 am	1.2 ± 0.3	2019-10-11
9290396	4	2019-10-07 @ 1:00 pm	2019-10-10 @ 8:00 am	1.1 ± 0.3	2019-10-11
9290395	6	2019-10-07 @ 1:00 pm	2019-10-10 @ 8:00 am	1.1 ± 0.3	2019-10-11
9290392	7	2019-10-07 @ 1:00 pm	2019-10-10 @ 8:00 am	1.2 ± 0.3	2019-10-11
9290391	8	2019-10-07 @ 1:00 pm	2019-10-10 @ 8:00 am	1.2 ± 0.3	2019-10-11
9290390	9	2019-10-07 @ 1:00 pm	2019-10-10 @ 8:00 am	1.0 ± 0.3	2019-10-11
9290418	BOYS LOCKERROOM	2019-10-07 @ 2:00 pm	2019-10-10 @ 8:00 am	1.4 ± 0.3	2019-10-11
9290380	BREAK ROOM	2019-10-07 @ 1:00 pm	2019-10-10 @ 8:00 am	0.9 ± 0.3	2019-10-11
9290376	COUNSELOR	2019-10-07 @ 12:00 pm	2019-10-10 @ 8:00 am	0.8 ± 0.3	2019-10-11
9290400	CUSTODIAN	2019-10-07 @ 1:00 pm	2019-10-10 @ 8:00 am	0.8 ± 0.3	2019-10-11
9290417	GIRLS LOCKER ROOM	2019-10-07 @ 2:00 pm	2019-10-10 @ 8:00 am	1.7 ± 0.3	2019-10-11
9290407	GYM EAST	2019-10-07 @ 1:00 pm	2019-10-10 @ 8:00 am	0.6 ± 0.3	2019-10-11
9290406	GYM EAST	2019-10-07 @ 1:00 pm	2019-10-10 @ 8:00 am	0.5 ± 0.3	2019-10-11
9290405	GYM WEST	2019-10-07 @ 1:00 pm	2019-10-10 @ 8:00 am	< 0.3	2019-10-11
9290415	HALL 21 AND 22	2019-10-07 @ 2:00 pm	2019-10-10 @ 8:00 am	0.7 ± 0.3	2019-10-11

October 11, 2019

**\*\* LABORATORY ANALYSIS REPORT \*\***

Radon test result report for:

**FERN RIDGE MIDDLE SCHOOL  
FERN RIDGE MIDDLE SCHOOL**

<b>Kit #</b>	<b>Room Id</b>	<b>Started</b>	<b>Ended</b>	<b>pCi/L</b>	<b>Analyzed</b>
9290374	HEALTH ROOM	2019-10-07 @ 12:00 pm	2019-10-10 @ 8:00 am	1.1 ± 0.3	2019-10-11
9290387	LIBRARY	2019-10-07 @ 1:00 pm	2019-10-10 @ 8:00 am	0.7 ± 0.3	2019-10-11
9290385	LIBRARY	2019-10-07 @ 1:00 pm	2019-10-10 @ 8:00 am	0.8 ± 0.3	2019-10-11
9290386	LIBRARY	2019-10-07 @ 1:00 pm	2019-10-10 @ 8:00 am	0.8 ± 0.3	2019-10-11
9290379	PRINCIPAL	2019-10-07 @ 12:00 pm	2019-10-10 @ 8:00 am	0.8 ± 0.3	2019-10-11
9290373	RECEPTION	2019-10-07 @ 12:00 pm	2019-10-10 @ 8:00 am	0.7 ± 0.3	2019-10-11
9290375	STAFF ROOM	2019-10-07 @ 12:00 pm	2019-10-10 @ 8:00 am	1.1 ± 0.3	2019-10-11
9290388	STUDY ROOM	2019-10-07 @ 1:00 pm	2019-10-10 @ 8:00 am	0.6 ± 0.3	2019-10-11
9290389	SUDY ROOM 2	2019-10-07 @ 1:00 pm	2019-10-10 @ 8:00 am	0.9 ± 0.3	2019-10-11

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

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October 14, 2019

**\*\* LABORATORY ANALYSIS REPORT \*\***

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Radon test result report for:

**FERN RIDGE MIDDLE SCHOOL  
FERN RIDGE MIDDLE SCHOOL**

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<b>Kit #</b>	<b>Room Id</b>	<b>Started</b>	<b>Ended</b>	<b>pCi/L</b>	<b>Analyzed</b>
7271053	B	2019-10-07 @ 7:00 am	2019-10-10 @ 4:00 pm	< 0.3	2019-10-11
7271056	B	2019-10-07 @ 7:00 am	2019-10-10 @ 4:00 pm	< 0.3	2019-10-11

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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**

<b>Kit #</b>	<b>Room Id</b>	<b>Started</b>	<b>Ended</b>	<b>pCi/L</b>	<b>Analyzed</b>
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

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