



November 12, 2019

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

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

Regarding: Elmira High School – Short-Term Radon Testing
24936 Fir Grove Lane
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 High School located at 24936 Fir Grove Ln 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
9290472	10/07/2019	10/10/2019	1	1 st	<0.3
9290437	10/07/2019	10/10/2019	10	1 st	1.2
9290434	10/07/2019	10/10/2019	103	1 st	1.7
9290438	10/07/2019	10/10/2019	11	1 st	<0.3
9290439	10/07/2019	10/10/2019	12	1 st	<0.3
9290440	10/07/2019	10/10/2019	13	1 st	<0.3
9290443	10/07/2019	10/10/2019	14	1 st	0.9
9290441	10/07/2019	10/10/2019	15	1 st	0.5
9290442	10/07/2019	10/10/2019	16	1 st	1.5
9290444	10/07/2019	10/10/2019	17	1 st	2.7
9290453	10/07/2019	10/10/2019	18	1 st	2.4
9290452	10/07/2019	10/10/2019	19	1 st	1.6
9290473	10/07/2019	10/10/2019	2	1 st	1.0

Kit Number	Start Date	End Date	Room	Floor	Result
9290451	10/07/2019	10/10/2019	20	1 st	1.1
9290450	10/07/2019	10/10/2019	21	1 st	0.7
9290449	10/07/2019	10/10/2019	22	1 st	1.0
9290448	10/07/2019	10/10/2019	23	1 st	0.9
9290447	10/07/2019	10/10/2019	23	1 st	1.0
9290460	10/07/2019	10/10/2019	24	1 st	1.9
9290458	10/07/2019	10/10/2019	25	1 st	1.4
9290461	10/07/2019	10/10/2019	26	1 st	1.6
9290462	10/07/2019	10/10/2019	27	1 st	0.9
9290463	10/07/2019	10/10/2019	28	1 st	0.6
9290464	10/07/2019	10/10/2019	29	1 st	0.9
9290474	10/07/2019	10/10/2019	3	1 st	<0.3
9290465	10/07/2019	10/10/2019	30	1 st	0.6
9290466	10/07/2019	10/10/2019	31	1 st	1.1
9290468	10/07/2019	10/10/2019	32	1 st	1.0
9290467	10/07/2019	10/10/2019	33	1 st	0.7
9290481	10/07/2019	10/10/2019	34	1 st	1.4
9290482	10/07/2019	10/10/2019	34	1 st	1.7
9290469	10/07/2019	10/10/2019	35	1 st	<0.3
9290483	10/07/2019	10/10/2019	36	1 st	0.8
9290470	10/07/2019	10/10/2019	37	1 st	<0.3
9290484	10/07/2019	10/10/2019	38	1 st	1.2
9290486	10/07/2019	10/10/2019	39	1 st	0.7
9290485	10/07/2019	10/10/2019	39	1 st	0.9
9290433	10/07/2019	10/10/2019	4 East Side	1 st	1.3
9290432	10/07/2019	10/10/2019	4 West Side	1 st	1.2
9290435	10/07/2019	10/10/2019	5	1 st	2.6
9290429	10/07/2019	10/10/2019	6	1 st	1.0
9290427	10/07/2019	10/10/2019	7	1 st	1.1
9290436	10/07/2019	10/10/2019	9	1 st	1.0
9290422	10/07/2019	10/10/2019	Aux. Gym	1 st	<0.3
9290426	10/07/2019	10/10/2019	Aux Gym N.	1 st	<0.3
9290423	10/07/2019	10/10/2019	Bookkeeper	1 st	0.8
9290454	10/07/2019	10/10/2019	Cafeteria N. Side	1 st	<0.3
9290455	10/07/2019	10/10/2019	Cafeteria S. Side	1 st	0.6
9290428	10/07/2019	10/10/2019	Counseling Room	1 st	0.6
9290459	10/07/2019	10/10/2019	Facilities	1 st	0.6
9290430	10/07/2019	10/10/2019	Faculty Lounge	1 st	0.7
9290475	10/07/2019	10/10/2019	Girls Locker Room	1 st	0.7
9290489	10/07/2019	10/10/2019	Gym N. Side	1 st	0.9
9290490	10/07/2019	10/10/2019	Gym S. Side	1 st	0.8
9290421	10/07/2019	10/10/2019	Health Room	1 st	0.7
9290420	10/07/2019	10/10/2019	Main Office	1 st	0.5

Kit Number	Start Date	End Date	Room	Floor	Result
9290476	10/07/2019	10/10/2019	Media Room 1	1 st	0.5
9290477	10/07/2019	10/10/2019	Media Room 2	1 st	<0.3
9290471	10/07/2019	10/10/2019	Men's Locker Room	1 st	0.6
9290478	10/07/2019	10/10/2019	Office	1 st	<0.3
9290479	10/07/2019	10/10/2019	Office 2	1 st	<0.3
9290425	10/07/2019	10/10/2019	Main Area Office	1 st	0.6
9290487	10/07/2019	10/10/2019	Shop Storage	1 st	2.1
9290488	10/07/2019	10/10/2019	Special Ed	1 st	0.5
9290445	10/07/2019	10/10/2019	Theatre N. Side	1 st	0.7
9290446	10/07/2019	10/10/2019	Theatre S. Side	1 st	0.8
9290457	10/07/2019	10/10/2019	Warehouse N. Side	1 st	0.9
9290456	10/07/2019	10/10/2019	Warehouse S. Side	1 st	1.0
9290424	10/07/2019	10/10/2019	Workroom	1 st	<0.3

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 HIGH SCHOOL
ELMIRA HIGH SCHOOL

Kit #	Room Id	Started	Ended	pCi/L	Analyzed
9290472	1	2019-10-07 @ 4:00 pm	2019-10-10 @ 10:00 am	< 0.3	2019-10-11
9290437	10	2019-10-07 @ 3:00 pm	2019-10-10 @ 9:00 am	1.2 ± 0.3	2019-10-11
9290434	103	2019-10-07 @ 3:00 pm	2019-10-10 @ 9:00 am	1.7 ± 0.3	2019-10-11
9290438	11	2019-10-07 @ 3:00 pm	2019-10-10 @ 9:00 am	< 0.3	2019-10-11
9290439	12	2019-10-07 @ 3:00 pm	2019-10-10 @ 9:00 am	< 0.3	2019-10-11
9290440	13	2019-10-07 @ 3:00 pm	2019-10-10 @ 9:00 am	< 0.3	2019-10-11
9290443	14	2019-10-07 @ 3:00 pm	2019-10-10 @ 9:00 am	0.9 ± 0.3	2019-10-11
9290441	15	2019-10-07 @ 3:00 pm	2019-10-10 @ 11:00 am	0.5 ± 0.3	2019-10-11
9290442	16	2019-10-07 @ 3:00 pm	2019-10-10 @ 9:00 am	1.5 ± 0.3	2019-10-11
9290444	17	2019-10-07 @ 3:00 pm	2019-10-10 @ 9:00 am	2.7 ± 0.3	2019-10-11
9290453	18	2019-10-07 @ 3:00 pm	2019-10-10 @ 10:00 am	2.4 ± 0.3	2019-10-11
9290452	19	2019-10-07 @ 3:00 pm	2019-10-10 @ 10:00 am	1.6 ± 0.3	2019-10-11
9290473	2	2019-10-07 @ 4:00 pm	2019-10-10 @ 10:00 am	1.0 ± 0.3	2019-10-11
9290451	20	2019-10-07 @ 3:00 pm	2019-10-10 @ 10:00 am	1.1 ± 0.3	2019-10-11
9290450	21	2019-10-07 @ 3:00 pm	2019-10-10 @ 10:00 am	0.7 ± 0.3	2019-10-11
9290449	22	2019-10-07 @ 3:00 pm	2019-10-10 @ 9:00 am	1.0 ± 0.3	2019-10-11
9290448	23	2019-10-07 @ 3:00 pm	2019-10-10 @ 9:00 am	0.9 ± 0.3	2019-10-11
9290447	23	2019-10-07 @ 3:00 pm	2019-10-10 @ 9:00 am	1.0 ± 0.3	2019-10-11
9290460	24	2019-10-07 @ 3:00 pm	2019-10-10 @ 10:00 am	1.9 ± 0.3	2019-10-11
9290458	25	2019-10-07 @ 3:00 pm	2019-10-10 @ 10:00 am	1.4 ± 0.3	2019-10-11
9290461	26	2019-10-07 @ 3:00 pm	2019-10-10 @ 10:00 am	1.6 ± 0.3	2019-10-11
9290462	27	2019-10-07 @ 3:00 pm	2019-10-10 @ 10:00 am	0.9 ± 0.3	2019-10-11
9290463	28	2019-10-07 @ 3:00 pm	2019-10-10 @ 10:00 am	0.6 ± 0.3	2019-10-11
9290464	29	2019-10-07 @ 3:00 pm	2019-10-10 @ 10:00 am	0.9 ± 0.3	2019-10-11
9290474	3	2019-10-07 @ 4:00 pm	2019-10-10 @ 10:00 am	< 0.3	2019-10-11
9290465	30	2019-10-07 @ 3:00 pm	2019-10-10 @ 10:00 am	0.6 ± 0.3	2019-10-11
9290466	31	2019-10-07 @ 4:00 pm	2019-10-10 @ 10:00 am	1.1 ± 0.3	2019-10-11
9290468	32	2019-10-07 @ 4:00 pm	2019-10-10 @ 10:00 am	1.0 ± 0.3	2019-10-11
9290467	33	2019-10-07 @ 4:00 pm	2019-10-10 @ 10:00 am	0.7 ± 0.3	2019-10-11
9290481	34	2019-10-07 @ 4:00 pm	2019-10-10 @ 10:00 am	1.4 ± 0.3	2019-10-11
9290482	34	2019-10-07 @ 4:00 pm	2019-10-10 @ 10:00 am	1.7 ± 0.3	2019-10-11
9290469	35	2019-10-07 @ 4:00 pm	2019-10-10 @ 10:00 am	< 0.3	2019-10-11
9290483	36	2019-10-07 @ 4:00 pm	2019-10-10 @ 10:00 am	0.8 ± 0.3	2019-10-11
9290470	37	2019-10-07 @ 4:00 pm	2019-10-10 @ 10:00 am	< 0.3	2019-10-11
9290484	38	2019-10-07 @ 4:00 pm	2019-10-10 @ 10:00 am	1.2 ± 0.3	2019-10-11
9290486	39	2019-10-07 @ 4:00 pm	2019-10-10 @ 10:00 am	0.7 ± 0.3	2019-10-11
9290485	39	2019-10-07 @ 4:00 pm	2019-10-10 @ 10:00 am	0.9 ± 0.3	2019-10-11

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

Kit #	Room Id	Started	Ended	pCi/L	Analyzed
9290433	4 EAST	2019-10-07 @ 3:00 pm	2019-10-10 @ 9:00 am	1.3 ± 0.3	2019-10-11
9290432	4 WEST	2019-10-07 @ 3:00 pm	2019-10-10 @ 9:00 am	1.2 ± 0.3	2019-10-11
9290435	5	2019-10-07 @ 3:00 pm	2019-10-10 @ 9:00 am	2.6 ± 0.3	2019-10-11
9290429	6	2019-10-07 @ 3:00 pm	2019-10-10 @ 9:00 am	1.0 ± 0.3	2019-10-11
9290427	7	2019-10-07 @ 3:00 pm	2019-10-10 @ 9:00 am	1.1 ± 0.3	2019-10-11
9290436	9	2019-10-07 @ 3:00 pm	2019-10-10 @ 9:00 am	1.0 ± 0.3	2019-10-11
9290422	AUX GYM	2019-10-07 @ 2:00 pm	2019-10-10 @ 9:00 am	< 0.3	2019-10-11
9290426	AUX GYM NORTH	2019-10-07 @ 2:00 pm	2019-10-10 @ 9:00 am	< 0.3	2019-10-11
9290423	BOOKEEPER	2019-10-07 @ 2:00 pm	2019-10-10 @ 9:00 am	0.8 ± 0.3	2019-10-11
9290454	CAFETERIA NORTH	2019-10-07 @ 3:00 pm	2019-10-10 @ 10:00 am	< 0.3	2019-10-11
9290455	CAFETERIA SOUTH	2019-10-07 @ 3:00 pm	2019-10-10 @ 10:00 am	0.6 ± 0.3	2019-10-11
9290428	COUNSELING ROOM	2019-10-07 @ 3:00 pm	2019-10-10 @ 10:00 am	0.6 ± 0.3	2019-10-11
9290459	FACILITIES	2019-10-07 @ 3:00 pm	2019-10-10 @ 10:00 am	0.6 ± 0.3	2019-10-11
9290430	FACULTY LOUNGE	2019-10-07 @ 3:00 pm	2019-10-10 @ 10:00 am	0.7 ± 0.3	2019-10-11
9290475	GIRLS LOCKERROOM	2019-10-07 @ 4:00 pm	2019-10-10 @ 10:00 am	0.7 ± 0.3	2019-10-11
9290489	GYM NORTH	2019-10-07 @ 4:00 pm	2019-10-10 @ 10:00 am	0.9 ± 0.3	2019-10-11
9290490	GYM SOUTH	2019-10-07 @ 4:00 pm	2019-10-10 @ 10:00 am	0.8 ± 0.3	2019-10-11
9290421	HEALTH ROOM	2019-10-07 @ 2:00 pm	2019-10-10 @ 9:00 am	0.7 ± 0.3	2019-10-11
9290420	MAIN OFFICE	2019-10-07 @ 2:00 pm	2019-10-10 @ 9:00 am	0.5 ± 0.3	2019-10-11
9290476	MEDIA ROOM 1	2019-10-07 @ 4:00 pm	2019-10-10 @ 10:00 am	0.5 ± 0.3	2019-10-11
9290477	MEDIA ROOM 2	2019-10-07 @ 4:00 pm	2019-10-10 @ 10:00 am	< 0.3	2019-10-11
9290471	MENS LOCKERROOM	2019-10-07 @ 4:00 pm	2019-10-10 @ 10:00 am	0.6 ± 0.3	2019-10-11
9290478	OFFICE	2019-10-07 @ 4:00 pm	2019-10-10 @ 11:00 am	< 0.3	2019-10-11
9290479	OFFICE 2	2019-10-07 @ 4:00 pm	2019-10-10 @ 10:00 am	< 0.3	2019-10-11
9290425	OFFICE IN MAIN AREA	2019-10-07 @ 2:00 pm	2019-10-10 @ 9:00 am	0.6 ± 0.3	2019-10-11
9290487	SHOP STORAGE	2019-10-07 @ 4:00 pm	2019-10-10 @ 10:00 am	2.1 ± 0.3	2019-10-11
9290488	SPECIAL ED	2019-10-07 @ 4:00 pm	2019-10-10 @ 10:00 am	0.5 ± 0.3	2019-10-11
9290445	THEATRE NORTH	2019-10-07 @ 3:00 pm	2019-10-10 @ 9:00 am	0.7 ± 0.3	2019-10-11
9290446	THEATRE SOUTH	2019-10-07 @ 3:00 pm	2019-10-10 @ 9:00 am	0.8 ± 0.3	2019-10-11
9290457	WAREHOUSE NORTH	2019-10-07 @ 3:00 pm	2019-10-10 @ 10:00 am	0.9 ± 0.3	2019-10-11
9290456	WAREHOUSE SOUTH	2019-10-07 @ 3:00 pm	2019-10-10 @ 11:00 am	1.0 ± 0.3	2019-10-11
9290424	WORKROOM	2019-10-07 @ 2:00 pm	2019-10-10 @ 9:00 am	< 0.3	2019-10-11

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