



## David Douglas School District

*Learn - Grow - Thrive*

Ken Richardson, *Superintendent* | 11300 NE Halsey Street, Portland, Oregon 97220 | Phone 503-252-2900 | Fax 503-256-5218

December 6, 2018

To: David Douglas School Board

From: Patt Komar, Director of Administrative Services  
David Callaway, Operations Manager

Re: Update on Radon Testing

The District is completing radon testing on the remainder of the locations as required in our Safe and Healthy Schools Plan. The results from testing completed this fall are attached.

### **Alice Ott Middle School:**

Initial results at Alice Ott found two elevated rooms. These are not the rooms that we have previously mitigated. We are adjusting HVAC settings and installing an exhaust fan. Once this is completed, the rooms will be retested.

### **Earl Boyles Elementary School:**

Initial results at Earl Boyles indicate all results are below the recommended 4.0pCi/L.

### **Gilbert Park Elementary School:**

Initial test results show one area just above the recommended 4.0pCi/L level. A long-term test is in process and results should be received by April 2019.

A summary is below of previous results:

### **Cherry Park:**

Initial results at Cherry Park found many elevated rooms. Maintenance made adjustments to the HVAC system. The rooms were retested, and all rooms were below 4.0pCi/L.

### **Gilbert Heights:**

Initial results showed three rooms at elevated levels. Maintenance added an exhaust fan to the rooms noted as "Thomas" and retested and both rooms are under 4.0pCi/L. The remaining space had a long term test. All areas are now under the recommended level.

### **Menlo Park:**

Initial results showed 22 areas with elevated radon levels. Maintenance completed adjustments to the HVAC system. Two rooms still have elevated levels, and we are working on getting ventilation into the rooms as the initial design for the space was to be not occupied.

### **Mill Park:**

Initial results showed 7 areas with elevated radon levels. Maintenance added ventilation, added

Visit our website: [www.ddouglas.k12.or.us](http://www.ddouglas.k12.or.us) Email: [David\\_Douglas@ddouglas.k12.or.us](mailto:David_Douglas@ddouglas.k12.or.us)

School Board | Bryce Anderson Donna Barber Frieda Christopher Christine Larsen Kyle Riggs Stephanie Stephens Andrea Valderrama

exhaust fans, and adjusted outside air dampers. All areas are under the recommended level.

**South Powellhurst:**

Initial results showed 17 areas with elevated radon levels. Maintenance completed HVAC adjustments and added new heat pumps to the basement areas. 10 areas remain with higher levels. Cascade Radon is looking at options for mitigation for the south end of the building.

**Ventura Park:**

Initial results showed 8 areas with elevated radon levels. Maintenance added exhaust fans which mitigated the office areas. After retesting we still have 6 areas with elevated levels. We are completing long term testing and will review in a few months.

**Performing Arts Center:**

Maintenance completed HVAC adjustments and all areas are below recommended levels.

**North High School:**

Originally 12 areas were above recommended levels. After the DDC project, we replaced fans and retested. Four areas remain at elevated levels. Maintenance is working on adjustments and replacement of exhaust fans and will retest.

**South High School:**

32 areas originally tested above recommended levels. Cascade Radon completed some continuous radon monitoring on the remaining elevated areas under the stage and the gym areas and are working on subslab depressurization for the four remaining areas that have elevated levels.

**Aquatics Center:**

No areas tested above recommended levels.

**North Powellhurst:**

One room tested above recommended levels. Maintenance is working on getting more ventilation to this room.

As a reminder, "U.S. EPA recommends reducing the concentration of radon in indoor environments to below the radon action level of 4.0 pCi/L. This action is not health-based; there is no safe level of radon exposure. While the radon in most buildings can be lowered below 4.0 pCi/L, this may depend on the building's and its grounds' characteristics. Yet because outdoor levels of radon across the country average 0.4 pCi/L, it's not possible to reduce people's risk from radon exposure to zero. Although no amount of radon is good for a person, radon reduction's goal is to reduce the level and, thus, reduce potential harm, per "Oregon Health Authority's Testing for Elevated Radon in Oregon Schools: A Protocol and Plan."

All radon results, testing schedule, and a link to EPA and OHA guidance can be found on the District's website at: <https://www.ddouglas.k12.or.us/departments/facilities/radon-testing/>.



November 27, 2018

David Callaway  
David Douglas School District  
11300 NE Halsey Street  
Portland, Oregon 97220

Via email: david\_callaway@ddsd40.org

Regarding: District-Wide Radon Testing  
Alice Ott Middle School  
12500 SE Ramona Street  
Portland, Oregon  
PBS Project 23179.065, Phase 0001

Dear Mr. Callaway:

From November 13 to 16, 2018, PBS Engineering and Environmental Inc. (PBS) performed short-term radon testing at Alice Ott Middle School, located at 12500 SE Ramona Street in Portland, Oregon.

The Environmental Protection Agency (EPA) recommends, and the Oregon Health Authority (OHA) requires, that school 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., brand 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.

The following table lists all samples in which radon levels were found to be above the EPA action level.

**Test Kits with Radon 4.0 pCi/L or above**

Test Kit Number	Sample Location	Radon Level (pCi/L)
9122800	Mr. Bennor Counseling Office	4.2
9124161	Room under weight room (old locker rooms)	8.4

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).

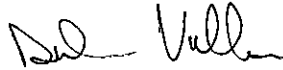
Note: A great difference in the results of the short-term tests may indicate a flaw in the testing process. Investigate and consider retesting. For situations in which one of the test results is equal to or greater than 4.0 pCi/L, if the higher result is two or more times the lower result, repeat the 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 503.935.5484 or [dale.voeller@pbsusa.com](mailto:dale.voeller@pbsusa.com) with any questions or comments.

Sincerely,



Digitally signed by Dale  
Voeller  
Date: 2018.11.27 15:04:40  
-08'00'

Dale Voeller, CHMM, CSP  
Senior Project Manager

Attachment: AirChek, Inc., Laboratory Analysis Report

DSV:mo

Radon test result report for:**ALICE OTT  
MAIN**

Kit #	Room Id	Started	Ended	pCi/L	Analyzed
9124162	CAFETERIA 1	2018-11-13 @ 10:00 am	2018-11-16 @ 12:00 pm	1.7 ± 0.4	2018-11-20
9124167	CAFETERIA 2	2018-11-13 @ 10:00 am	2018-11-16 @ 12:00 pm	1.4 ± 0.4	2018-11-20
9124198	GIRLS LOCKER OFF	2018-11-13 @ 11:00 am	2018-11-16 @ 12:00 pm	1.3 ± 0.4	2018-11-20
9124183	GYM 1	2018-11-13 @ 11:00 am	2018-11-16 @ 12:00 pm	1.3 ± 0.3	2018-11-20
9124178	GYM 2	2018-11-13 @ 11:00 am	2018-11-16 @ 12:00 pm	1.7 ± 0.4	2018-11-20
9124197	GYM OFFICE	2018-11-13 @ 11:00 am	2018-11-16 @ 12:00 pm	0.8 ± 0.4	2018-11-20
9124192	GYM OFFICE BLANK	2018-11-13 @ 11:00 am	2018-11-16 @ 12:00 pm	< 0.3	2018-11-20
9124190	GYM OFFICE DUP	2018-11-13 @ 11:00 am	2018-11-16 @ 12:00 pm	1.2 ± 0.4	2018-11-20
9124137	HEALTH RM	2018-11-13 @ 9:00 am	2018-11-16 @ 11:00 am	3.5 ± 0.4	2018-11-20
9124163	KITCH. OFF BLANK	2018-11-13 @ 10:00 am	2018-11-16 @ 12:00 pm	< 0.3	2018-11-20
9124168	KITCHEN OFFICE	2018-11-13 @ 10:00 am	2018-11-16 @ 12:00 pm	< 0.3	2018-11-20
9124189	LIBRARY 1	2018-11-13 @ 11:00 am	2018-11-16 @ 12:00 pm	3.1 ± 0.4	2018-11-20
9124173	LIBRARY 1 DUP	2018-11-13 @ 11:00 am	2018-11-16 @ 12:00 pm	3.5 ± 0.4	2018-11-20
9124188	LIBRARY 2	2018-11-13 @ 11:00 am	2018-11-16 @ 12:00 pm	3.0 ± 0.4	2018-11-20
9124139	MAIN OFFICE	2018-11-13 @ 9:00 am	2018-11-16 @ 11:00 am	2.3 ± 0.4	2018-11-20
9122800	MR. BENNOR COUNC	2018-11-13 @ 9:00 am	2018-11-16 @ 11:00 am	4.2 ± 0.5	2018-11-20
9122799	MR. FILLIS OFFIC	2018-11-13 @ 9:00 am	2018-11-16 @ 11:00 am	2.8 ± 0.4	2018-11-20
9124187	MUSIC OFFICE	2018-11-13 @ 11:00 am	2018-11-16 @ 12:00 pm	1.2 ± 0.4	2018-11-20
9122797	OFFICE CONF.	2018-11-13 @ 9:00 am	2018-11-16 @ 11:00 am	1.3 ± 0.3	2018-11-20
9122795	OFFICE WORK RM	2018-11-13 @ 9:00 am	2018-11-16 @ 11:00 am	1.1 ± 0.4	2018-11-20
9124138	PRINCIPAL OFF.	2018-11-13 @ 9:00 am	2018-11-16 @ 11:00 am	2.3 ± 0.4	2018-11-20
9124143	RM 30	2018-11-13 @ 9:00 am	2018-11-16 @ 11:00 am	1.6 ± 0.4	2018-11-20
9122796	RM 32 WRK RM DUP	2018-11-13 @ 9:00 am	2018-11-16 @ 11:00 am	1.9 ± 0.4	2018-11-20
9124161	RM UNDER WEIGHT	2018-11-13 @ 10:00 am	2018-11-16 @ 12:00 pm	8.4 ± 0.6	2018-11-20
9122798	RM. 32 WORK RM	2018-11-13 @ 9:00 am	2018-11-16 @ 11:00 am	1.9 ± 0.4	2018-11-20
9124145	ROOM 1	2018-11-13 @ 10:00 am	2018-11-16 @ 11:00 am	1.1 ± 0.4	2018-11-20
9124160	ROOM 10	2018-11-13 @ 10:00 am	2018-11-16 @ 11:00 am	2.4 ± 0.4	2018-11-20
9124154	ROOM 11	2018-11-13 @ 10:00 am	2018-11-16 @ 11:00 am	1.3 ± 0.3	2018-11-20
9124158	ROOM 11A	2018-11-13 @ 10:00 am	2018-11-16 @ 11:00 am	2.3 ± 0.4	2018-11-20
9124152	ROOM 12	2018-11-13 @ 10:00 am	2018-11-16 @ 11:00 am	1.4 ± 0.4	2018-11-20
9124153	ROOM 13	2018-11-13 @ 10:00 am	2018-11-16 @ 11:00 am	1.3 ± 0.4	2018-11-20
9124148	ROOM 14	2018-11-13 @ 10:00 am	2018-11-16 @ 12:00 pm	1.1 ± 0.3	2018-11-20
9124172	ROOM 15	2018-11-13 @ 10:00 am	2018-11-16 @ 12:00 pm	1.0 ± 0.4	2018-11-20
9124171	ROOM 15 BLANK	2018-11-13 @ 10:00 am	2018-11-16 @ 12:00 pm	< 0.3	2018-11-20
9124142	ROOM 15D	2018-11-13 @ 11:00 am	2018-11-16 @ 12:00 pm	2.6 ± 0.4	2018-11-20
9124170	ROOM 16	2018-11-13 @ 10:00 am	2018-11-16 @ 12:00 pm	1.5 ± 0.4	2018-11-20
9124166	ROOM 16 DUP	2018-11-13 @ 10:00 am	2018-11-16 @ 12:00 pm	1.3 ± 0.4	2018-11-20

Radon test result report for:**ALICE OTT  
MAIN**

Kit #	Room Id	Started	Ended	pCi/L	Analyzed
9124165	ROOM 17	2018-11-13 @ 10:00 am	2018-11-16 @ 12:00 pm	1.4 ± 0.4	2018-11-20
9124164	ROOM 18	2018-11-13 @ 10:00 am	2018-11-16 @ 12:00 pm	2.0 ± 0.4	2018-11-20
9124157	ROOM 19	2018-11-13 @ 10:00 am	2018-11-16 @ 12:00 pm	1.7 ± 0.4	2018-11-20
9124146	ROOM 2	2018-11-13 @ 10:00 am	2018-11-16 @ 11:00 am	1.0 ± 0.4	2018-11-20
9124147	ROOM 2 DUP	2018-11-13 @ 10:00 am	2018-11-16 @ 11:00 am	0.8 ± 0.3	2018-11-20
9124182	ROOM 20	2018-11-13 @ 11:00 am	2018-11-16 @ 12:00 pm	1.8 ± 0.4	2018-11-20
9124169	ROOM 20 DUP	2018-11-13 @ 11:00 am	2018-11-16 @ 12:00 pm	1.9 ± 0.4	2018-11-20
9124181	ROOM 21	2018-11-13 @ 11:00 am	2018-11-16 @ 12:00 pm	1.3 ± 0.3	2018-11-20
9124177	ROOM 22	2018-11-13 @ 10:00 am	2018-11-16 @ 12:00 pm	0.6 ± 0.3	2018-11-20
9124176	ROOM 23	2018-11-13 @ 10:00 am	2018-11-16 @ 12:00 pm	0.6 ± 0.4	2018-11-20
9124175	ROOM 24	2018-11-13 @ 10:00 am	2018-11-16 @ 12:00 pm	0.6 ± 0.3	2018-11-20
9124186	ROOM 25	2018-11-13 @ 11:00 am	2018-11-16 @ 12:00 pm	1.8 ± 0.4	2018-11-20
9124174	ROOM 26	2018-11-13 @ 11:00 am	2018-11-16 @ 12:00 pm	1.8 ± 0.4	2018-11-20
9124185	ROOM 27	2018-11-13 @ 11:00 am	2018-11-16 @ 12:00 pm	1.2 ± 0.3	2018-11-20
9124180	ROOM 28	2018-11-13 @ 11:00 am	2018-11-16 @ 12:00 pm	1.3 ± 0.4	2018-11-20
9124179	ROOM 29	2018-11-13 @ 11:00 am	2018-11-16 @ 12:00 pm	1.1 ± 0.4	2018-11-20
9124155	ROOM 3	2018-11-13 @ 10:00 am	2018-11-16 @ 11:00 am	0.8 ± 0.3	2018-11-20
9124144	ROOM 31	2018-11-13 @ 9:00 am	2018-11-16 @ 11:00 am	1.5 ± 0.4	2018-11-20
9124140	ROOM 32	2018-11-13 @ 9:00 am	2018-11-16 @ 11:00 am	1.4 ± 0.4	2018-11-20
9124156	ROOM 4	2018-11-13 @ 10:00 am	2018-11-16 @ 11:00 am	0.6 ± 0.3	2018-11-20
9124141	ROOM 5	2018-11-13 @ 10:00 am	2018-11-16 @ 11:00 am	1.1 ± 0.4	2018-11-20
9124151	ROOM 6	2018-11-13 @ 10:00 am	2018-11-16 @ 11:00 am	1.9 ± 0.4	2018-11-20
9124149	ROOM 7	2018-11-13 @ 10:00 am	2018-11-16 @ 11:00 am	2.1 ± 0.4	2018-11-20
9124150	ROOM 8	2018-11-13 @ 10:00 am	2018-11-16 @ 11:00 am	2.4 ± 0.4	2018-11-20
9124159	ROOM 9	2018-11-13 @ 10:00 am	2018-11-16 @ 11:00 am	3.0 ± 0.4	2018-11-20
9124184	SPEECH BY MUSIC	2018-11-13 @ 11:00 am	2018-11-16 @ 12:00 pm	1.3 ± 0.4	2018-11-20
9124119	VICE PRINCIPAL	2018-11-13 @ 9:00 am	2018-11-16 @ 11:00 am	2.1 ± 0.4	2018-11-20
9124133	WENDLER COUNC.	2018-11-13 @ 9:00 am	2018-11-16 @ 11:00 am	2.2 ± 0.4	2018-11-20



November 27, 2018

David Callaway  
David Douglas School District  
11300 NE Halsey Street  
Portland, Oregon 97220

Via email: david\_callaway@ddsd40.org

Regarding: District-Wide Radon Testing  
Earl Boyles Elementary School  
10822 SE Bush Street  
Portland, Oregon  
PBS Project 23179.065, Phase 0001

Dear Mr. Callaway:

From November 13 to 16, 2018, PBS Engineering and Environmental Inc. (PBS) performed short-term radon testing at Earl Boyles Elementary School, located at 10822 SE Bush Street in Portland, Oregon.

The Environmental Protection Agency (EPA) recommends, and the Oregon Health Authority (OHA) requires, that school 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., brand 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.

Laboratory results indicate that all short-term radon tests at Earl Boyles Elementary School were below 4.0 pCi/L.

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).

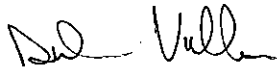
Note: A great difference in the results of the short-term tests may indicate a flaw in the testing process. Investigate and consider retesting. For situations in which one of the test results is equal to or greater than 4.0 pCi/L, if the higher result is two or more times the lower result, repeat the 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 503.935.5484 or [dale.voeller@pbsusa.com](mailto:dale.voeller@pbsusa.com) with any questions or comments.

Sincerely,



Digitally signed by Dale  
Voeller  
Date: 2018.11.27 15:05:35  
-08'00'

Dale Voeller, CHMM, CSP  
Senior Project Manager

Attachment: AirChek, Inc., Laboratory Analysis Report

DSV:mo



Radon test result report for:  
**EARL BOYLES**  
**MAIN**

Kit #	Room Id	Started	Ended	pCi/L	Analyzed
9123099	CAFETERIA 1	2018-11-13 @ 5:00 pm	2018-11-16 @ 6:00 pm	1.8 ± 0.4	2018-11-20
9123096	CAFETERIA 2	2018-11-13 @ 5:00 pm	2018-11-16 @ 6:00 pm	1.4 ± 0.3	2018-11-20
9123806	COMPUTER RM	2018-11-13 @ 5:00 pm	2018-11-16 @ 7:00 pm	< 0.3	2018-11-20
9123094	CUSTODIAL OFFICE	2018-11-13 @ 5:00 pm	2018-11-16 @ 6:00 pm	0.9 ± 0.4	2018-11-20
9123083	GYM 1	2018-11-13 @ 4:00 pm	2018-11-16 @ 7:00 pm	2.2 ± 0.3	2018-11-20
9123084	GYM 2	2018-11-13 @ 4:00 pm	2018-11-16 @ 7:00 pm	1.9 ± 0.3	2018-11-20
9123081	GYM OFFICE	2018-11-13 @ 4:00 pm	2018-11-16 @ 7:00 pm	2.3 ± 0.4	2018-11-20
9123056	HEALTH ROOM	2018-11-13 @ 3:00 pm	2018-11-16 @ 6:00 pm	1.5 ± 0.4	2018-11-20
9123095	KITCHEN OFF DUP	2018-11-13 @ 5:00 pm	2018-11-16 @ 6:00 pm	2.0 ± 0.3	2018-11-20
9123100	KITCHEN OFFICE	2018-11-13 @ 5:00 pm	2018-11-16 @ 6:00 pm	1.9 ± 0.3	2018-11-20
9123807	LIBRARY 1	2018-11-13 @ 5:00 pm	2018-11-16 @ 7:00 pm	1.8 ± 0.3	2018-11-20
9123808	LIBRARY 2	2018-11-13 @ 5:00 pm	2018-11-16 @ 7:00 pm	2.3 ± 0.4	2018-11-20
9123801	LIBRARY OFFICE	2018-11-13 @ 5:00 pm	2018-11-16 @ 7:00 pm	2.2 ± 0.4	2018-11-20
9123051	MAIN OFFICE	2018-11-13 @ 3:00 pm	2018-11-16 @ 6:00 pm	0.9 ± 0.3	2018-11-20
9123070	OBSERV. 1 BLANK	2018-11-13 @ 4:00 pm	2018-11-16 @ 6:00 pm	< 0.3	2018-11-20
9123078	OBSERVATION 1	2018-11-13 @ 4:00 pm	2018-11-16 @ 6:00 pm	0.8 ± 0.4	2018-11-20
9123075	OBSERVATION 2	2018-11-13 @ 4:00 pm	2018-11-16 @ 6:00 pm	2.6 ± 0.4	2018-11-20
9123052	OFFICE 51	2018-11-13 @ 4:00 pm	2018-11-16 @ 6:00 pm	1.5 ± 0.4	2018-11-20
9123054	OFFICE 52	2018-11-13 @ 4:00 pm	2018-11-16 @ 6:00 pm	0.6 ± 0.3	2018-11-20
9123053	OFFICE 53	2018-11-13 @ 4:00 pm	2018-11-16 @ 6:00 pm	< 0.3	2018-11-20
9123059	OFFICE 54	2018-11-13 @ 4:00 pm	2018-11-16 @ 6:00 pm	1.3 ± 0.4	2018-11-20
9123060	OFFICE 55	2018-11-13 @ 4:00 pm	2018-11-16 @ 6:00 pm	1.7 ± 0.3	2018-11-20
9123061	OFFICE 56	2018-11-13 @ 4:00 pm	2018-11-16 @ 6:00 pm	1.1 ± 0.4	2018-11-20
9123055	OFFICE WORK RM	2018-11-13 @ 3:00 pm	2018-11-16 @ 6:00 pm	0.9 ± 0.3	2018-11-20
9123062	PRINCIPAL OFFICE	2018-11-13 @ 3:00 pm	2018-11-16 @ 6:00 pm	0.8 ± 0.3	2018-11-20
9123057	RM 1	2018-11-13 @ 4:00 pm	2018-11-16 @ 6:00 pm	1.2 ± 0.3	2018-11-20
9123074	RM 10	2018-11-13 @ 4:00 pm	2018-11-16 @ 6:00 pm	2.0 ± 0.4	2018-11-20
9123073	RM 11	2018-11-13 @ 4:00 pm	2018-11-16 @ 6:00 pm	1.7 ± 0.3	2018-11-20
9123072	RM 12	2018-11-13 @ 4:00 pm	2018-11-16 @ 6:00 pm	3.0 ± 0.4	2018-11-20
9123071	RM 13	2018-11-13 @ 4:00 pm	2018-11-16 @ 6:00 pm	1.6 ± 0.3	2018-11-20
9123069	RM 15	2018-11-13 @ 4:00 pm	2018-11-16 @ 6:00 pm	2.3 ± 0.3	2018-11-20
9123097	RM 15 DUP	2018-11-13 @ 4:00 pm	2018-11-16 @ 6:00 pm	2.1 ± 0.4	2018-11-20
9123068	RM 16	2018-11-13 @ 4:00 pm	2018-11-16 @ 6:00 pm	1.1 ± 0.4	2018-11-20
9123098	RM 16 BLANK	2018-11-13 @ 4:00 pm	2018-11-16 @ 6:00 pm	< 0.3	2018-11-20
9123067	RM 17	2018-11-13 @ 4:00 pm	2018-11-16 @ 7:00 pm	0.9 ± 0.3	2018-11-20
9123082	RM 18	2018-11-13 @ 4:00 pm	2018-11-16 @ 7:00 pm	1.3 ± 0.3	2018-11-20
9123091	RM 19	2018-11-13 @ 4:00 pm	2018-11-16 @ 7:00 pm	1.7 ± 0.4	2018-11-20

Radon test result report for:  
**EARL BOYLES**  
**MAIN**

<b>Kit #</b>	<b>Room Id</b>	<b>Started</b>	<b>Ended</b>	<b>pCi/L</b>	<b>Analyzed</b>
9123050	RM 2	2018-11-13 @ 4:00 pm	2018-11-16 @ 6:00 pm	0.9 ± 0.4	2018-11-20
9123087	RM 20	2018-11-13 @ 4:00 pm	2018-11-16 @ 7:00 pm	0.8 ± 0.3	2018-11-20
9123092	RM 21	2018-11-13 @ 4:00 pm	2018-11-16 @ 7:00 pm	< 0.3	2018-11-20
9123089	RM 22	2018-11-13 @ 4:00 pm	2018-11-16 @ 7:00 pm	0.6 ± 0.3	2018-11-20
9123088	RM 23	2018-11-13 @ 4:00 pm	2018-11-16 @ 7:00 pm	0.7 ± 0.3	2018-11-20
9123090	RM 25	2018-11-13 @ 4:00 pm	2018-11-16 @ 7:00 pm	0.8 ± 0.3	2018-11-20
9123085	RM 26	2018-11-13 @ 4:00 pm	2018-11-16 @ 7:00 pm	0.7 ± 0.3	2018-11-20
9123086	RM 27	2018-11-13 @ 4:00 pm	2018-11-16 @ 7:00 pm	1.1 ± 0.3	2018-11-20
9123093	RM 27 DUP	2018-11-13 @ 4:00 pm	2018-11-16 @ 7:00 pm	1.0 ± 0.3	2018-11-20
9123064	RM 3	2018-11-13 @ 4:00 pm	2018-11-16 @ 6:00 pm	0.8 ± 0.3	2018-11-20
9123063	RM 4	2018-11-13 @ 4:00 pm	2018-11-16 @ 6:00 pm	0.8 ± 0.3	2018-11-20
9123066	RM 5	2018-11-13 @ 4:00 pm	2018-11-16 @ 6:00 pm	0.9 ± 0.3	2018-11-20
9123080	RM 7	2018-11-13 @ 4:00 pm	2018-11-16 @ 6:00 pm	1.0 ± 0.4	2018-11-20
9123079	RM 7 DUP	2018-11-13 @ 4:00 pm	2018-11-16 @ 6:00 pm	0.9 ± 0.3	2018-11-20
9123077	RM 8	2018-11-13 @ 4:00 pm	2018-11-16 @ 6:00 pm	1.2 ± 0.4	2018-11-20
9123076	RM 9	2018-11-13 @ 4:00 pm	2018-11-16 @ 6:00 pm	1.6 ± 0.3	2018-11-20



November 27, 2018

David Callaway  
David Douglas School District  
11300 NE Halsey Street  
Portland, Oregon 97220

Via email: david\_callaway@ddsd40.org

Regarding: District-Wide Radon Testing  
Gilbert Park Elementary School  
13132 SE Ramona Street  
Portland, Oregon  
PBS Project 23179.065, Phase 0001

Dear Mr. Callaway:

From November 13 to 16, 2018, PBS Engineering and Environmental Inc. (PBS) performed short-term radon testing at Gilbert Park Elementary School, located at 13132 SE Ramona Street in Portland, Oregon.

The Environmental Protection Agency (EPA) recommends, and the Oregon Health Authority (OHA) requires, that school 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., brand 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.

The following table lists all samples in which radon levels were found to be above the EPA action level.

**Test Kits with Radon 4.0 pCi/L or above**

Test Kit Number	Sample Location	Radon Level (pCi/L)
9123009	Room 6	4.2

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 503.935.5484 or [dale.voeller@pbsusa.com](mailto:dale.voeller@pbsusa.com) with any questions or comments.

Sincerely,



Digitally signed by Dale Voeller  
Date: 2018.11.27 15:09:50  
-08'00'

Dale Voeller, CHMM, CSP  
Senior Project Manager

Attachment: AirChek, Inc., Laboratory Analysis Report

DSV:mo

Radon test result report for:  
**GILBERT PARK**  
**MAIN**

Kit #	Room Id	Started	Ended	pCi/L	Analyzed
9123041	BOYS LOCKER OFF	2018-11-13 @ 2:00 pm	2018-11-16 @ 3:00 pm	0.6 ± 0.3	2018-11-20
9123004	CAF 1	2018-11-13 @ 1:00 pm	2018-11-16 @ 2:00 pm	1.3 ± 0.3	2018-11-20
9123011	CAF 2	2018-11-13 @ 1:00 pm	2018-11-16 @ 2:00 pm	0.7 ± 0.3	2018-11-20
9123016	CAF BLANK	2018-11-13 @ 1:00 pm	2018-11-16 @ 2:00 pm	< 0.3	2018-11-20
9124199	COMPUTER LAB	2018-11-13 @ 12:00 pm	2018-11-16 @ 2:00 pm	2.8 ± 0.4	2018-11-20
9123047	CUSTODIAN OFFICE	2018-11-13 @ 2:00 pm	2018-11-16 @ 2:00 pm	2.6 ± 0.4	2018-11-20
9123045	GIRLS LOCKER OFF	2018-11-13 @ 2:00 pm	2018-11-16 @ 3:00 pm	0.8 ± 0.3	2018-11-20
9123042	GYM 1	2018-11-13 @ 2:00 pm	2018-11-16 @ 3:00 pm	< 0.3	2018-11-20
9123049	GYM 2	2018-11-13 @ 2:00 pm	2018-11-16 @ 3:00 pm	< 0.3	2018-11-20
9123046	GYM OFF DUP	2018-11-13 @ 2:00 pm	2018-11-16 @ 3:00 pm	0.7 ± 0.3	2018-11-20
9123048	GYM OFFICE	2018-11-13 @ 2:00 pm	2018-11-16 @ 3:00 pm	0.6 ± 0.3	2018-11-20
9124196	HEALTH	2018-11-13 @ 12:00 pm	2018-11-16 @ 2:00 pm	0.9 ± 0.3	2018-11-20
9123017	LIBRARY 1	2018-11-13 @ 1:00 pm	2018-11-16 @ 3:00 pm	0.8 ± 0.3	2018-11-20
9123018	LIBRARY 2	2018-11-13 @ 1:00 pm	2018-11-16 @ 3:00 pm	0.8 ± 0.3	2018-11-20
9124191	MAIN OFFICE	2018-11-13 @ 12:00 pm	2018-11-16 @ 2:00 pm	0.5 ± 0.3	2018-11-20
9123019	MS DINA COUNS	2018-11-13 @ 1:00 pm	2018-11-16 @ 2:00 pm	2.7 ± 0.4	2018-11-20
9123003	MS. DINA DUP	2018-11-13 @ 1:00 pm	2018-11-16 @ 2:00 pm	2.3 ± 0.4	2018-11-20
9123012	MS. TATGE OFFICE	2018-11-13 @ 1:00 pm	2018-11-16 @ 2:00 pm	2.4 ± 0.4	2018-11-20
9124193	PRINCIPAL	2018-11-13 @ 12:00 pm	2018-11-16 @ 2:00 pm	0.7 ± 0.3	2018-11-20
9123005	ROOM 1	2018-11-13 @ 12:00 pm	2018-11-16 @ 2:00 pm	2.5 ± 0.4	2018-11-20
9123010	ROOM 1 DUP	2018-11-13 @ 12:00 pm	2018-11-16 @ 2:00 pm	2.8 ± 0.4	2018-11-20
9123001	ROOM 10	2018-11-13 @ 12:00 pm	2018-11-16 @ 2:00 pm	2.5 ± 0.4	2018-11-20
9124194	ROOM 100	2018-11-13 @ 12:00 pm	2018-11-16 @ 2:00 pm	0.5 ± 0.3	2018-11-20
9123039	ROOM 11	2018-11-13 @ 1:00 pm	2018-11-16 @ 2:00 pm	3.0 ± 0.4	2018-11-20
9123034	ROOM 12	2018-11-13 @ 1:00 pm	2018-11-16 @ 2:00 pm	1.9 ± 0.4	2018-11-20
9123029	ROOM 13	2018-11-13 @ 1:00 pm	2018-11-16 @ 2:00 pm	3.1 ± 0.4	2018-11-20
9123030	ROOM 14	2018-11-13 @ 1:00 pm	2018-11-16 @ 2:00 pm	1.2 ± 0.4	2018-11-20
9123033	ROOM 15	2018-11-13 @ 1:00 pm	2018-11-16 @ 2:00 pm	1.1 ± 0.3	2018-11-20
9123025	ROOM 16	2018-11-13 @ 1:00 pm	2018-11-16 @ 2:00 pm	1.7 ± 0.4	2018-11-20
9123023	ROOM 16 DUP	2018-11-13 @ 1:00 pm	2018-11-16 @ 2:00 pm	1.6 ± 0.3	2018-11-20
9123026	ROOM 17	2018-11-13 @ 1:00 pm	2018-11-16 @ 2:00 pm	2.5 ± 0.4	2018-11-20
9123031	ROOM 18	2018-11-13 @ 1:00 pm	2018-11-16 @ 3:00 pm	1.4 ± 0.3	2018-11-20
9123032	ROOM 19	2018-11-13 @ 1:00 pm	2018-11-16 @ 2:00 pm	1.1 ± 0.4	2018-11-20
9123007	ROOM 2	2018-11-13 @ 12:00 pm	2018-11-16 @ 2:00 pm	2.6 ± 0.4	2018-11-20
9123015	ROOM 20	2018-11-13 @ 1:00 pm	2018-11-16 @ 2:00 pm	1.4 ± 0.4	2018-11-20
9123024	ROOM 21	2018-11-13 @ 1:00 pm	2018-11-16 @ 2:00 pm	0.5 ± 0.3	2018-11-20
9123040	ROOM 21 DUP	2018-11-13 @ 1:00 pm	2018-11-16 @ 2:00 pm	< 0.3	2018-11-20

Radon test result report for:  
**GILBERT PARK**  
**MAIN**

Kit #	Room Id	Started	Ended	pCi/L	Analyzed
9123043	ROOM 22	2018-11-13 @ 1:00 pm	2018-11-16 @ 2:00 pm	1.0 ± 0.3	2018-11-20
9123037	ROOM 22 BLANK	2018-11-13 @ 1:00 pm	2018-11-16 @ 2:00 pm	< 0.3	2018-11-20
9123038	ROOM 23	2018-11-13 @ 1:00 pm	2018-11-16 @ 2:00 pm	1.2 ± 0.3	2018-11-20
9123036	ROOM 24	2018-11-13 @ 1:00 pm	2018-11-16 @ 2:00 pm	0.7 ± 0.3	2018-11-20
9123044	ROOM 25	2018-11-13 @ 1:00 pm	2018-11-16 @ 2:00 pm	1.0 ± 0.3	2018-11-20
9123027	ROOM 26	2018-11-13 @ 1:00 pm	2018-11-16 @ 2:00 pm	0.7 ± 0.3	2018-11-20
9123028	ROOM 27	2018-11-13 @ 1:00 pm	2018-11-16 @ 2:00 pm	1.2 ± 0.4	2018-11-20
9123035	ROOM 28	2018-11-13 @ 1:00 pm	2018-11-16 @ 2:00 pm	1.0 ± 0.3	2018-11-20
9123008	ROOM 3	2018-11-13 @ 12:00 pm	2018-11-16 @ 2:00 pm	2.5 ± 0.4	2018-11-20
9124200	ROOM 4	2018-11-13 @ 12:00 pm	2018-11-16 @ 2:00 pm	2.6 ± 0.4	2018-11-20
9123002	ROOM 5	2018-11-13 @ 12:00 pm	2018-11-16 @ 2:00 pm	2.4 ± 0.4	2018-11-20
9123009	ROOM 6	2018-11-13 @ 12:00 pm	2018-11-16 @ 2:00 pm	4.2 ± 0.4	2018-11-20
9123006	ROOM 7	2018-11-13 @ 12:00 pm	2018-11-16 @ 2:00 pm	3.4 ± 0.4	2018-11-20
9123013	ROOM 8	2018-11-13 @ 12:00 pm	2018-11-16 @ 2:00 pm	2.6 ± 0.4	2018-11-20
9123014	ROOM 9	2018-11-13 @ 12:00 pm	2018-11-16 @ 2:00 pm	2.6 ± 0.4	2018-11-20
9123020	STAFF RM BY 11	2018-11-13 @ 1:00 pm	2018-11-16 @ 2:00 pm	3.9 ± 0.4	2018-11-20
9124195	STAFF ROOM	2018-11-13 @ 12:00 pm	2018-11-16 @ 2:00 pm	0.9 ± 0.3	2018-11-20
9123021	STAGE STAFF RM	2018-11-13 @ 1:00 pm	2018-11-16 @ 2:00 pm	1.4 ± 0.4	2018-11-20



November 30, 2018

David Callaway  
David Douglas School District  
11300 NE Halsey Street  
Portland, Oregon 97220

Via email: david\_callaway@ddsd40.org

Regarding: District-Wide Radon Testing  
Mill Park Elementary School  
1900 SE 117th Avenue  
Portland, Oregon  
PBS Project 23179.065, Phase 0001

Dear Mr. Callaway:

From September 10 to 14, 2018, PBS Engineering and Environmental Inc. (PBS) performed short-term radon testing in the cafeteria, stage, and adjacent offices at Mill Park Elementary School, located at 1900 SE 117th Avenue in Portland, Oregon.

This testing was completed after adjustments and modifications had been made to the HVAC system in these areas.

The Environmental Protection Agency (EPA) recommends, and the Oregon Health Authority (OHA) requires, that school 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., brand 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.

Laboratory results indicate that all short-term radon tests in these areas were below 4.0 pCi/L.

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 503.935.5484 or dale.voeller@pbsusa.com with any questions or comments.

Sincerely,

 Digitally signed by Dale  
Voeller  
Date: 2018.11.30 14:03:49  
-08'00'

Dale Voeller, CHMM, CSP  
Senior Project Manager

Attachment: AirChek, Inc., Laboratory Analysis Report

DSV:mo



September 17, 2018

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

Radon test result report for:  
**MILL PARK ES**  
**MAIN**

Kit #	Room Id	Started	Ended	pCi/L	Analyzed
9014902	140 - STAGE OFFICE	2018-09-10 @ 7:00 pm	2018-09-14 @ 6:00 am	3.3 ± 0.5	2018-09-17
9014909	147 - SUN OFFICE	2018-09-10 @ 7:00 pm	2018-09-14 @ 6:00 am	2.6 ± 0.4	2018-09-17
9014910	151 - OFFICE	2018-09-10 @ 7:00 pm	2018-09-14 @ 6:00 am	1.1 ± 0.3	2018-09-17
9014907	CAFETERIA - EAST	2018-09-10 @ 7:00 pm	2018-09-14 @ 6:00 am	2.1 ± 0.4	2018-09-17
9014908	CAFETERIA - WEST	2018-09-10 @ 7:00 pm	2018-09-14 @ 6:00 am	1.9 ± 0.4	2018-09-17
9014905	STAGE	2018-09-10 @ 7:00 pm	2018-09-14 @ 6:00 am	2.0 ± 0.4	2018-09-17

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



November 28, 2018

David Callaway  
David Douglas School District  
11300 NE Halsey Street  
Portland, Oregon 97220

Via email: david\_callaway@ddsd40.org

Regarding: District-Wide Radon Testing  
South Powellhurst  
2900 SE 122nd Avenue  
Portland, Oregon  
PBS Project 23179.065, Phase 0001

Dear Mr. Callaway:

From November 6 to 9, 2018, PBS Engineering and Environmental Inc. (PBS) performed short-term radon testing in Room 102C and the basement bus garage offices at South Powellhurst, located at 2900 SE 122nd Avenue in Portland, Oregon.

This testing was completed after adjustments and modifications had been made to the HVAC system in these areas.

The Environmental Protection Agency (EPA) recommends, and the Oregon Health Authority (OHA) requires, that school 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., brand 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.

The following table lists all samples in which radon levels were found to be above the EPA action level.

**Test Kits with Radon 4.0 pCi/L or above**

Test Kit Number	Sample Location	Radon Level (pCi/L)
9124123	Room 208	5.4
9124128	Room 210	7.6
9124129	Room 212	6.6
9124130	Room 214	5.6
9122793	Room 216A	4.4
9124122	Room 217	5.5
9124120	Room 217 (Duplicate)	5.7
9124131	Room 218	7.6
9122794	Room 218A	7.2

Test Kit Number	Sample Location	Radon Level (pCi/L)
9124124	Room 220	10.0
9124126	Room 220A	14.8

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).

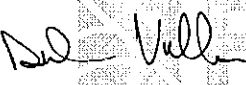
Note: A great difference in the results of the short-term tests may indicate a flaw in the testing process. Investigate and consider retesting. For situations in which one of the test results is equal to or greater than 4.0 pCi/L, if the higher result is two or more times the lower result, repeat the 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 503.935.5484 or dale.voeller@pbsusa.com with any questions or comments.

Sincerely,

 Digitally signed by Dale  
Voeller  
Date: 2018.11.30  
14:09:49 -08'00'

Dale Voeller, CHMM, CSP  
Senior Project Manager

Attachment: AirChek, Inc., Laboratory Analysis Report

DSV:mo

November 12, 2018

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

Radon test result report for:  
**SOUTH POWELLHURST  
MAIN**

Kit #	Room Id	Started	Ended	pCi/l	Analyzed
9124121	ROOM 102C	2018-11-06 @ 1:00 pm	2018-11-09 @ 1:00 pm	1.0 ± 0.3	2018-11-12
9124123	ROOM 208	2018-11-06 @ 2:00 pm	2018-11-09 @ 1:00 pm	5.4 ± 0.4	2018-11-12
9124128	ROOM 210	2018-11-06 @ 2:00 pm	2018-11-09 @ 1:00 pm	7.6 ± 0.5	2018-11-12
9122792	ROOM 211	2018-11-06 @ 2:00 pm	2018-11-09 @ 1:00 pm	3.3 ± 0.4	2018-11-12
9124129	ROOM 212	2018-11-06 @ 2:00 pm	2018-11-09 @ 1:00 pm	6.6 ± 0.5	2018-11-12
9124130	ROOM 214	2018-11-06 @ 2:00 pm	2018-11-09 @ 1:00 pm	5.6 ± 0.5	2018-11-12
9124125	ROOM 216	2018-11-06 @ 2:00 pm	2018-11-09 @ 1:00 pm	3.9 ± 0.4	2018-11-12
9122793	ROOM 216A	2018-11-06 @ 2:00 pm	2018-11-09 @ 1:00 pm	4.4 ± 0.4	2018-11-12
9124122	ROOM 217	2018-11-06 @ 2:00 pm	2018-11-09 @ 1:00 pm	5.5 ± 0.4	2018-11-12
9124120	ROOM 217 DUP	2018-11-06 @ 2:00 pm	2018-11-09 @ 1:00 pm	5.7 ± 0.4	2018-11-12
9124131	ROOM 218	2018-11-06 @ 1:00 pm	2018-11-09 @ 1:00 pm	7.6 ± 0.5	2018-11-12
9122794	ROOM 218A	2018-11-06 @ 1:00 pm	2018-11-09 @ 1:00 pm	7.2 ± 0.4	2018-11-12
9124124	ROOM 220	2018-11-06 @ 1:00 pm	2018-11-09 @ 1:00 pm	10.0 ± 0.5	2018-11-12
9124126	ROOM 220 A	2018-11-06 @ 1:00 pm	2018-11-09 @ 1:00 pm	14.8 ± 0.7	2018-11-12

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



November 30, 2018

David Callaway  
David Douglas School District  
11300 NE Halsey Street  
Portland, Oregon 97220

Via email: david\_callaway@ddsd40.org

Regarding: District-Wide Radon Testing  
Ventura Park Elementary School  
145 SE 117th Avenue  
Portland, Oregon  
PBS Project 23179.065, Phase 0001

Dear Mr. Callaway:

From November 6 to 9, 2018, PBS Engineering and Environmental Inc. (PBS) performed short-term radon testing in the multi-purpose room, office area, health room, faculty lunch room, work room, and Room 9 at Ventura Park Elementary School, located at 145 SE 117<sup>th</sup> Avenue in Portland, Oregon.

This testing was completed after adjustments and modifications had been made to the HVAC system in these areas. An initial retest of these areas in June 2018 showed that all results were below the EPA action level of 4.0 picocuries per liter (pCi/L) of air. Current testing shows that some areas are slightly above 4.0 pCi/L.

The Environmental Protection Agency (EPA) recommends, and the Oregon Health Authority (OHA) requires, that school buildings be tested for radon and that any radon concentrations be maintained below 4.0 pCi/L of air. PBS used Air Chek, Inc., brand 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.

The following table lists all samples in which radon levels were found to be above the EPA action level.

**Test Kits with Radon 4.0 pCi/L or above – November 2018**

Test Kit Number	Sample Location	Radon Level (pCi/L)
9122789	Counseling office	4.6
9124136	Faculty lunch room	4.3
9124127	Main office	4.5
9124134	Multi-purpose room 1	4.8
9122790	Multi-purpose room 2	5.0
9124135	Principal's office	6.5

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 503.935.5484 or dale.voeller@pbsusa.com with any questions or comments.

Sincerely,

 Digitally signed by Dale Voeller  
Date: 2018.11.30 14:49:54  
-08'00'

Dale Voeller, CHMM, CSP  
Senior Project Manager

Attachment: AirChek, Inc., Laboratory Analysis Report

DSV:mo

November 12, 2018

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

Radon test result report for:  
**VENTURA PARK  
MAIN**

Kit #	Room Id	Started	Ended	pCi/L	Analyzed
9122789	COUNSELOR OFFICE	2018-11-06 @ 2:00 pm	2018-11-09 @ 2:00 pm	4.6 ± 0.4	2018-11-12
9124136	FACULTY LUNCH	2018-11-06 @ 2:00 pm	2018-11-09 @ 2:00 pm	4.3 ± 0.4	2018-11-12
9122788	HEALTH RM.	2018-11-06 @ 2:00 pm	2018-11-09 @ 2:00 pm	3.7 ± 0.4	2018-11-12
9124127	MAIN OFFICE	2018-11-06 @ 2:00 pm	2018-11-09 @ 2:00 pm	4.5 ± 0.4	2018-11-12
9124134	MULTI PURPOSE 1	2018-11-06 @ 2:00 pm	2018-11-09 @ 2:00 pm	4.8 ± 0.4	2018-11-12
9122790	MULTI PURPOSE 2	2018-11-06 @ 2:00 pm	2018-11-09 @ 2:00 pm	5.0 ± 0.4	2018-11-12
9124135	PRINCIPAL OFFICE	2018-11-06 @ 2:00 pm	2018-11-09 @ 2:00 pm	6.5 ± 0.4	2018-11-12
9122791	ROOM 9	2018-11-06 @ 2:00 pm	2018-11-09 @ 2:00 pm	2.2 ± 0.3	2018-11-12
9124132	WORK ROOM	2018-11-06 @ 2:00 pm	2018-11-09 @ 2:00 pm	3.6 ± 0.4	2018-11-12

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Kif Number	Start Date	Start Time	End Date	End Time	Temp.	Facility	Building	Room	Project ID	Floor	Result
9014593	2018-05-29	3:00 pm	2018-06-03	1:00 pm	70	VENTURA PARK 2	MAIN	FACULTY LUNCH	DAVID DOUGLAS SD	1	0.9
9014594	2018-05-29	2:00 pm	2018-06-01	3:00 pm	70	VENTURA PARK 2	MAIN	WORK ROOM	DAVID DOUGLAS SD	1	1.3
9014595	2018-05-29	2:00 pm	2018-06-01	3:00 pm	70	VENTURA PARK 2	MAIN	PRINCIPAL'S OFFI	DAVID DOUGLAS SD	1	1.8
9014598	2018-05-29	2:00 pm	2018-06-01	3:00 pm	70	VENTURA PARK 2	MAIN	MAIN OFFICE	DAVID DOUGLAS SD	1	1.3
9014889	2018-05-29	3:00 pm	2018-06-01	3:00 pm	70	VENTURA PARK 2	MAIN	COUNSELOR	DAVID DOUGLAS SD	1	1.4
9014890	2018-05-29	3:00 pm	2018-06-01	3:00 pm	70	VENTURA PARK 2	MAIN	HEALTH ROOM	DAVID DOUGLAS SD	1	0.9
9014891	2018-05-29	3:00 pm	2018-06-01	3:00 pm	70	VENTURA PARK 2	MAIN	MULTI PURPOSE SO	DAVID DOUGLAS SD	1	1.0
9014892	2018-05-29	3:00 pm	2018-06-01	3:00 pm	70	VENTURA PARK 2	MAIN	ROOM 9	DAVID DOUGLAS SD	1	1.1
9014897	2018-05-29	3:00 pm	2018-06-01	3:00 pm	70	VENTURA PARK 2	MAIN	MULTI PURPOSE NO	DAVID DOUGLAS SD	1	1.4

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