July 2, 2025

Molly Howell
Project Coordinator
Beaverton School District

Via email: molly_howell@beaverton.k12.or.us

Regarding: Long-Term Radon Testing
Fir Grove Elementary School
6300 SW Wilson Avenue
Beaverton, Oregon 97008

Dear Ms. Howell:

From March 14 through June 16, 2025, PBS Engineering and Environmental LLC (PBS) conducted a follow-up long-term radon test in Room A116 at Fir Grove Elementary School in Beaverton, Oregon.

This testing followed short-term radon measurements that indicated concentrations of 4.1 and 4.4 picocuries per liter (pCi/L) of air. The Environmental Protection Agency (EPA) recommends, and the Oregon Health Authority (OHA) requires, that radon concentrations in school buildings remain below 4.0 pCi/L.

Due to the short-term results slightly exceeding the 4.0 pCi/L threshold, long-term sampling was completed to provide a more representative assessment of radon levels during the school year.

PBS deployed a Radtrak^3 long-term radon test kit (manufactured by Radonova, Inc.) in Room A116. The test device remained in place until the end of the school year to measure cumulative exposure.

RESULTS

The long-term test revealed a radon concentration of 1.8 pCi/L—well below the EPA's action level of 4.0 pCi/L.

As noted in the short-term testing report, Room A116 is used for book storage and could be considered a closet. The frequently closed conditions and limited ventilation likely contributed to the elevated short-term readings. This long term sample reveals that the concentration of redon in the room over time, is below the EPA action level. This result is consistent with the findings from adjacent classrooms.

Please refer to the attached laboratory analysis report for detailed results.

RECOMMENDATIONS

Based on the long-term radon test result of 1.8 pCi/L, which is below the EPA action level of 4.0 pCi/L, no immediate mitigation is recommended. However, PBS offers the following recommendations:

- Continue to monitor radon levels in accordance with Oregon Health Authority guidelines, which suggest re-testing at least every 10 years or following significant building modifications.
- If the use or ventilation of Room A116 changes in the future (e.g., if it becomes occupied or used regularly), consider conducting a follow-up test to verify radon concentrations remain within acceptable limits.

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 503.417.7603 or rich@pbsusa.com with any questions or comments.

Sincerely,

Digitally signed by Rich Dufresne
Date: 2025.07.02 10:28:18 -07'00'

Rich Dufresne
Senior Project Manager

Attachment: Radonova Laboratory Radon Monitoring Report

radonova
The global leader in radon measurement

REPORT NUMBER 8049976:1
REPORT DATE 07/01/2025
REPORT PAGE 1 of 2
PRINT DATE 07/01/2025
OWN ID N/A
BY Apex Companies LLC (Portland)

Apex Companies LLC

RADON MONITORING REPORT

Description of the measurement

The measurement was performed with a closed alpha-track detector (Radtrak²®/Radtrak³®) following the measurement protocols given by AARST/ANSI.

The detector(s) arrived to Radonova Laboratories **06/20/2025**.
They were measured **06/27/2025**.

Test data have been given by Apex Companies LLC

Property data and address

MEASURE SITE ADDRESS
Fir Grove Elementary School

BUILDING ID

Test results

DETECTOR	MEASUREMENT PERIOD	DESCRIPTION / LOCATION	DETECTOR TYPE	FLOOR	RADON RESULT
104 638 903 [Radtrak³®]	*03/14/2025 – 06/16/2025*	*Room A116*	*Primary*	*First floor*	1.8 ± 0.3 pCi/L

Comment to the results

Sandra Fisher (Electronically signed)

Signature Radonova Laboratories Laboratory Measurement Specialist

SWEDAC ACKREDITERING
Accred. no. 1489
Testing
ISO/IEC 17025

RADONOVA INC.
1 EAST 22nd STREET, SUITE 200
LOMBARD, IL 60148
331.814.2200, help@radonova.com

radonova

The global leader in radon measurement

Measurement method: Closed alpha-track detector

The radon measurement was performed with a closed alpha-track detector following the quality assurance guidance given in the AARST/ANSI Measurement Protocols. The detector container is manufactured from electrically conducting plastic. Through a small slit (filter), radon gas enters the detector. The track-detecting material (film) inside the detector is hit by alpha particles generated by the radon entering the container and the decay products formed from it. On the film, the alpha particles make small tracks which are enlarged through chemical etching and later counted in a microscope in order to determine the radon exposure. Radonova Laboratories (P.O. Box 6522, SE-751 38 Uppsala, Sweden) is accredited (no. 1489) by SWEDAC to conduct radon-gas measurements using the closed alpha-track detector method. The analysis equipment is checked daily and the detectors are calibrated at regular intervals. NRPP Licenses: 107831 AL, 107830 RT

Measured radon concentrations

For each detector, the measured value of the radon concentration is provided. For each value an uncertainty associated with the measurement to a 95% confidence level is also provided. For example a measurement result of 4.0 ± 0.5 pCi/L means that the radon concentration is most likely contained in the range 3.5 - 4.5 pCi/L. If the start or end date of the measurement has not been provided, the radon concentration cannot be calculated. In such cases, the total exposure in pCi*days/L will be reported. The reported measured values are related to the detectors as received by Radonova Laboratories. Detector deployment is not performed by Radonova Laboratories. Measurement information such as monitoring period (dates) and placement location is provided to Radonova Laboratories by the end user. The presented result applies only to the sample tested as received by the laboratory.

Codes on non-reportable detectors

DNR	Not Reported – Detector Not Returned
VTW	Not Reported – Visibly Tampered With
FBD	Not Reported – Film Broken or Damaged
LIL	Not Reported – Lost in Lab
DTO	Not Reported – Detector Too Old

Measurement method versions used when the report was created

ANSI/AARST MAH-2023, Protocol for Conducting Measurements of Radon and Radon Decay Products in Homes
ANSI/AARST MA-MFLB-2023, Protocol for Measurements of Radon in Multifamily, School, Commercial and Mixed-Use Buildings

Radon measurements in Multifamily Buildings, Schools and Large Buildings

The United States Environmental Protection Agency (EPA) recommends remediation if the results of one long-term test or the average of two short-term tests conducted in an occupied room are 4.0 pCi/L or higher. The average yearly residential indoor radon level in the US is estimated to be around 1.3 pCi/L. Long-term tests are conducted for more than 90 days. Short-term tests are conducted between 2 and 90 days and should be performed under closed building conditions.
If an initial short-term test result is less than 4 pCi/L, a follow-up measurement is probably not needed.
If an initial short-term test result is between 4 pCi/L and 8 pCi/L, a long-term or a short-term follow-up measurement is recommended.
If an initial short-term test result is greater than 8 pCi/L, a short term follow-up measurement is recommended in order to get a fast result.

More information about radon measurements and mitigation can be found in the ANSI/AARST publications:

- ANSI/AARST Protocol for Conducting Measurements of Radon and Radon-Decay Products in Schools and Large Buildings.
- ANSI/AARST Protocol for Conducting Radon and Radon Decay Product Measurements in Multifamily Buildings.
- ANSI/AARST Radon Mitigation Standards for Schools and Large Buildings.
- ANSI/AARST Radon Mitigation Standards for Multifamily Buildings.

For more information about the interpretation of your test results or about other radon related issues we suggest contacting your state radon office.

Signature on the report

With the signature on the report, the person responsible for the radon analysis at Radonova Laboratories hereby certifies that the measurement procedures follows the guidance in accordance with the ANSI/AARST Measurement Protocols and that the demands from SWEDAC are fulfilled.

Measurement information displayed in italics on report has been provided by the customer.

Certification no:

107831-AL, 107830-RMP, NRSB ARL1904, NY ELAP ID: 12042,

SWEDAC ACKREDITERING
Accred. no. 1489
Testing
ISO/IEC 17025

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