



September 5, 2023

Mr. Jim Seipel  
Springwater Environmental Sciences School  
16491 S Springwater Rd,  
Oregon City, OR 97045

RE: Long-Term Radon Sampling at Springwater Environmental Sciences School

Kelsay Environmental performed a long-term radon survey at Springwater Environmental Sciences School on November 11, 2022, as a screening for potential radon concerns in compliance with Oregon Revised Statute (ORS) 332.116-167. *Long-term sampling* is defined by a minimum of 90 days which helps account for normal fluctuations in building conditions over time.

Under ORS 332.166-167, radon testing in Oregon Schools must be performed by January 1<sup>st</sup>, 2021. The sampling protocol was derived from a document produced by the Oregon Health Authority called "Testing for Elevated Radon in Oregon Schools, A Protocol and Plan". The screening was performed to determine if radon levels in the building were above the Environmental Protection Agency's (EPA) action level of 4.0 pCi/L (picocuries per liter). If levels exceed the action level, a remediation process must be enacted to mitigate exposure levels. This survey would be the basis of that remediation plan.

Testing locations included every occupied room on the lowest floor of the structure. In this case, Springwater Environmental Sciences School does not have a basement or occupied spaces lower than the first floor.

### **Sampling Procedures**

Kelsay Environmental conducted sampling for radon gas in all occupied rooms that were bordered by ground or soil. Springwater Environmental Sciences School has a slab on grade foundation and, therefore, the first floor requires screening. Samples were collected using Alpha Track AT-100 diffusion-based track radon monitors from Accustar Labs. A total of 16 rooms were tested (see attached table for locations). In addition, one batch blank was submitted to the lab, and one spiked sample was submitted to the lab to ensure quality control. A total of 20 detector kits were used.

Radon detectors were placed in each occupied space, particularly within the height of the normal breathing zone (between 4 and 6 feet in height) on November 11, 2022. The conditions of the building were such that the HVAC system was operating under normal occupancy conditions and the building was occupied as usual on a day-to-day basis. Samples were retrieved on May 24, 2023, providing for 195 total days of sampling, and then submitted to the Accustar Laboratory

September 5, 2023

Mr. Jim Seipel

Long-Term Radon Sampling at Springwater Environmental Sciences School

Page 2

for analysis, a NELAP accredited lab, using electrochemical etching to process its alpha track foils which are subsequently counted with computer-aided image analysis equipment.

Samples to be spiked for quality control are sent to the Bowser-Morner Radon Reference Laboratory. Samples are exposed to specific concentrations of radon in a radon reference chamber and are then submitted to the Accustar Labs for analysis. The results are compared to the known spike concentration to ensure quality control.

### **Results and Discussion**

Radon gas is generally always present in varying quantities, inside and outside of buildings. According to the EPA, radon gas averages 1.3 pCi/L inside buildings across the country, with 0.4 pCi/L generally considered background level. The background level is also the analytical level of detection for AccuStar Labs, levels below which cannot be accurately measured.

If the result is less than 2.0 pCi/L, Oregon Revised Statute 332.166-167 requires school districts to test again every ten years. All results were less than 0.6 pCi/L.

**Laboratory results indicate all measured radon gas concentrations were 0.6 picocuries per liter of air (pCi/L) or less.**

Spiked samples were within acceptable parameters for quality assurance based on the Relative Percentage Error (RPE). 18.3 pCi/L is the analytical result for the blanks from Bowser-Morner.

$$((\text{Measured Value} - \text{Reference Value})/\text{Reference Value}) \times 100\%$$

Duplicate and blank samples were well within acceptable parameters based on the Relative Percent Difference:

$$((\text{Initial Result} - \text{Duplicate Result})/\text{Average of Both Results}) \times 100\%$$

September 5, 2023

Mr. Jim Seipel

Long-Term Radon Sampling at Springwater Environmental Sciences School

Page 3

**Radon Results Table**  
**Springwater Environmental Sciences School**

<b>Sample No.</b>	<b>Sample Variety</b>	<b>Location</b>	<b>Results (pCi/L)</b>	<b>Relative Percentage Error/Difference</b>	<b>Acceptance</b>
6128832/ 6128878	Duplicate/Original	Main Bldg. Office 1	<0.4/<0.4	0%	
6128834	Original	Main Bldg. Office 2	<0.4		
6128833	Original	Main Bldg. Art 3	0.5		
6128870	Original	Main Bldg. Office 9	0.4		
6128872	Original	Main Bldg. Gym	0.4		
6128875	Original	Main Bldg. Learning Lab	0.4		
6128873	Original	Main Bldg. First Grade Class	0.6		
6128813	Original	Main Bldg. Kinder	<0.4		
6128886	Original	Port 1 Room 14	<0.4		
6128890	Original	Port 1 Room 15	<0.4		
6128888/ 6128877	Duplicate/Original	Port 2 Room 16	<0.4/<0.4	0%	
6128889	Original	Port 2 Room 17	<0.4		
6128876	Original	Port 3 Room 18	<0.4		
6128887	Original	Port 3 Room 19	<0.4		
6128880	Original	Port 4 Room 20	<0.4		
6128879	Original	Port 4 Room 21	<0.4		
6152408	Blank	NA	<0.4		
6128837	Spike	NA	21.8	9.5%	Expected Range

\*Blanks should be close to 0.00 pCi/L or near the laboratory analytical level of detection

\*A trend in RPE values over +/-30 pCi/L should be investigated

\*RPD values of >27% should be questioned for results over 4.0 pCi/L

\*RPD values of >49% should be questioned for results between 2.0-3.9 pCi/L

September 5, 2023

Mr. Jim Seipel

Long-Term Radon Sampling at Springwater Environmental Sciences School

Page 4

### **Recommendations**

Radon levels throughout the structure were all below the EPA Action Level of 4.0 pCi/L and therefore remediation procedures are not required now. Oregon Health Authority requires schools to re-test for radon every 10 years.

Please find the attached lab results and chain of custody. Should you have questions or need anything further, please call me at 503-705-0514

Sincerely,



Brad Kelsay

Industrial Hygienist

Attachments: Long-Term Radon Sampling Table  
Lab Results/Chain of Custody

NELAC NY 11769  
NRPP 103216 AL  
NRSB ARL0017

EPA Method #402-R-92-004  
Alpha Track  
NRPP Device Code 8205  
NRSB Device Code 12001

Laboratory Report for:

Property Tested:

Kelsay Environmental  
833 Southeast Main Street 410  
Portland OR 97214


Springwater MS  
16491 S Springwater  
Oregon City OR 97045


Log Number	Device Number	Test Exposure Duration:		Area Tested	Result pCi/L
8367927	6128832	11/11/2022	05/24/2023	Bldg. Main Office 1	< 0.4
8367928	6128834	11/11/2022	05/24/2023	Bldg. Main Office 2	< 0.4
8367929	6128833	11/11/2022	05/24/2023	Bldg. Main Art 3	0.5
8367930	6128870	11/11/2022	05/24/2023	Bldg. Main Office 9	0.4
8367931	6128872	11/11/2022	05/24/2023	Bldg. Main Gym	0.4
8367932	6128875	11/11/2022	05/24/2023	Bldg. Main Learning Lab	0.4
8367933	6128873	11/11/2022	05/24/2023	Bldg. Main First Grade Class	0.6
8367934	6128813	11/11/2022	05/24/2023	Bldg. Main Kinder	< 0.4
8367935	6128886	11/11/2022	05/24/2023	Bldg. Port 1 Room 14	< 0.4
8367936	6128890	11/11/2022	05/24/2023	Bldg. Port 1 Room 15	< 0.4
8367937	6128888	11/11/2022	05/24/2023	Bldg. Port 2 Room 16	< 0.4

**Comment:** AMENDED REPORT for !! on \$\$ to add the property test address. Confidential: Release results to Kelsay Environmental only.

Distributed by: Kelsay Environmental

Date Received: 05/30/2023    Date Logged: 06/07/2023    Date Analyzed: 08/11/2023    Date Reported: 08/11/2023

Report Reviewed By: 

Report Approved By: 

**Disclaimer:**

Shawn Price, Director of Laboratory Operations, AccuStar Labs

The counting uncertainty of this radon measurement is +/- 15 %. Factors contributing to uncertainty include statistical variations, daily and seasonal variations in radon concentrations, sample collection techniques, and operation of the dwelling. Interference with test conditions may influence the test results.

This report may only be transferred to a third party in its entirety. Laboratory personnel were not involved in the placement or retrieval of the samples. Analytical results relate to the samples as received by the laboratory. Results shown on this report represent levels of radon gas measured between the dates shown in the room or area of the site identified above as "Property Tested". Incorrect information will affect results. The results may not be construed as either predictive or supportive of measurements conducted in any area of this structure at any other time. AccuStar Labs, its employees and agents are not responsible for the consequences of any action taken or not taken based upon the results reported or any verbal or written interpretation of the results.

NELAC NY 11769  
NRPP 103216 AL  
NRSB ARL0017

EPA Method #402-R-92-004  
Alpha Track  
NRPP Device Code 8205  
NRSB Device Code 12001

Laboratory Report for:

Property Tested:

Kelsay Environmental  
833 Southeast Main Street 410  
Portland OR 97214


Springwater MS  
16491 S Springwater  
Oregon City OR 97045

Log Number	Device Number	Test Exposure Duration:		Area Tested	Result pCi/L
8367938	6128889	11/11/2022	05/24/2023	Bldg. Port 2 Room 17	< 0.4
8367939	6128876	11/11/2022	05/24/2023	Bldg. Port 3 Room 18	< 0.4
8367940	6128887	11/11/2022	05/24/2023	Bldg. Port 3 Room 19	< 0.4
8367941	6128880	11/11/2022	05/24/2023	Bldg. Port 4 Room 20	< 0.4
8367942	6128879	11/11/2022	05/24/2023	Bldg. Port 4 Room 21	< 0.4
8367943	6128878	11/11/2022	05/24/2023	Bldg. Main Office 1	< 0.4
8367944	6128877	11/11/2022	05/24/2023	Bldg. Port 4 Room 16	< 0.4
8367945	6152408	11/11/2022	05/24/2023	Field Blank	< 0.4

**Comment:** AMENDED REPORT for !! on \$\$ to add the property test address. Confidential: Release results to Kelsay Environmental only.

Distributed by: Kelsay Environmental

Date Received: 05/30/2023    Date Logged: 06/07/2023    Date Analyzed: 08/11/2023    Date Reported: 08/11/2023

Report Reviewed By: 

Report Approved By: 

**Disclaimer:**

Shawn Price, Director of Laboratory Operations, AccuStar Labs

The counting uncertainty of this radon measurement is +/- 15 %. Factors contributing to uncertainty include statistical variations, daily and seasonal variations in radon concentrations, sample collection techniques, and operation of the dwelling. Interference with test conditions may influence the test results.

This report may only be transferred to a third party in its entirety. Laboratory personnel were not involved in the placement or retrieval of the samples. Analytical results relate to the samples as received by the laboratory. Results shown on this report represent levels of radon gas measured between the dates shown in the room or area of the site identified above as "Property Tested". Incorrect information will affect results. The results may not be construed as either predictive or supportive of measurements conducted in any area of this structure at any other time. AccuStar Labs, its employees and agents are not responsible for the consequences of any action taken or not taken based upon the results reported or any verbal or written interpretation of the results.

NELAC NY 11769  
NRPP 103216 AL  
NRSB ARL0017

EPA Method #402-R-92-004  
Alpha Track  
NRPP Device Code 8205  
NRSB Device Code 12001

Laboratory Report for:

Property Tested:

Kelsay Environmental  
833 Southeast Main Street 410  
Portland OR 97214

Ore Trail and Springwater - Spikes

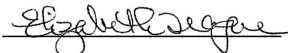
Log Number	Device Number	Test Exposure Duration:		Area Tested	Result pCi/L
8367946	6152410	04/10/2023	05/08/2023	Spike	27.6
8367947	6152411	04/10/2023	05/08/2023	Spike	26.4
8367948	6152412	04/10/2023	05/08/2023	Spike	26.6
8367949	6152483	04/10/2023	05/08/2023	Spike	25.2
8367950	6128837	04/10/2023	05/08/2023	Spike	21.8
8367951	6152482	04/10/2023	05/08/2023	Spike	27.5


**Comment:** Devices exposed 28 days. EPA protocol for long term testing is 91 to 365 days. Confidential: Release results to Kelsay Environmental only.

Test Performed By: Placed: Brad Kelsay Retrieved: Brad Kelsay

Distributed by: Kelsay Environmental

Date Received: 05/30/2023 Date Logged: 06/07/2023 Date Analyzed: 08/04/2023 Date Reported: 08/08/2023

Report Reviewed By: 

Report Approved By: 

**Disclaimer:**

Shawn Price, Director of Laboratory Operations, AccuStar Labs

The counting uncertainty of this radon measurement is +/- 15 %. Factors contributing to uncertainty include statistical variations, daily and seasonal variations in radon concentrations, sample collection techniques, and operation of the dwelling. Interference with test conditions may influence the test results.

This report may only be transferred to a third party in its entirety. Laboratory personnel were not involved in the placement or retrieval of the samples. Analytical results relate to the samples as received by the laboratory. Results shown on this report represent levels of radon gas measured between the dates shown in the room or area of the site identified above as "Property Tested". Incorrect information will affect results. The results may not be construed as either predictive or supportive of measurements conducted in any area of this structure at any other time. AccuStar Labs, its employees and agents are not responsible for the consequences of any action taken or not taken based upon the results reported or any verbal or written interpretation of the results.



AccuStar Labs  
2 Saber Way  
Ward Hill, MA 01835  
888-480-8812

Send Written Report To: (print clearly)

Project Number: \_\_\_\_\_  
Site Name: ORIE TRAIL & SPRING WATER  
Address: \_\_\_\_\_  
City State Zip: \_\_\_\_\_

KELSKY ENVIRON MENTAL  
833 SE MAIN ST SUITE 410  
PTD OR 97214

Contact: Brad Kelsay Tel: 505-705-0514

Technician Name: BRAD KELSAY

E-Mail Address: ~~brad@kelsay.com~~ b.kelsay@gsmtl.com Technician Signature: \_\_\_\_\_

(if required) \_\_\_\_\_ Tech Certification #: \_\_\_\_\_ (if required)

Start your test before the expiration date shown on your device or your test results will be invalid.

Lab Use Only	Device Number	Building #	Unit #	Floor	Name of Room	Start Date <small>Month/Day/Year</small>	Stop Date <small>Month/Day/Year</small>	Lab Use	
	6152410	SPIKE				4/10/23	5/8/23		
	6152411								
	6152412								
	6152483								
	<del>6152483</del> 6152482								
	6152482								

Place up to 10 devices together with the matching datasheet in a plastic "zip lock" bag. Please see the back of this datasheet for test instructions.



Send Written Report To:

KELSY ENVIRON MENTAL

SPRING WATER MS

Project Number:  
 Site Name:  
 Address:  
 City State Zip:

Person Conducting Test:

Contact: Tel: \_\_\_\_\_  
 E-Mail Address: \_\_\_\_\_

Start Date: \_\_\_\_\_ Stop Date: \_\_\_\_\_

Start and Stop Times and Dates must be entered

Lab Use Only	Device Number	Building #	Unit #	Floor	Name of Room	Start Time	Stop Time	Lab Use
	6128886	PORT 1			ROOM 14	11/11	5/24	✓
	6128896	↓			ROOM 15			✓
	6128888	PORT 2			ROOM 16		5/25	✓
	6128889	↓			ROOM 17			✓
	6128876	PORT 3			ROOM 18			✓
	618887	↓			ROOM 19			✓
	6128880	PORT 4			ROOM 20			✓
	6128879	↓			ROOM 21			✓
	6128878	MAIN OFFICE			OFFICE 2	11/14	5/24	✓
	6128877	PORTABLE			ROOM 16	11/14	5/25	✓

2 of 3



Start test before expiration date on device or result will be invalid.

Radon in Air Test Data Sheet

Send Written Report To:

KELSAY ENVIRONMENTAL  
833SE MAIN ST STE 410  
PTLD OR 97244

Project Number:

SPRING WATER MS

Site Name:

Address:

City State Zip

Person Conducting Test:

Contact: BRAD Tel: \_\_\_\_\_  
 E-Mail Address: bkelsay@kes@guaric.com  
 Start Date: \_\_\_\_\_ Stop Date: \_\_\_\_\_

Start and Stop Times and Dates must be entered

Lab Use Only	Device Number	Building #	Unit #	Floor	Name of Room	Start Time	Stop Time	Lab Use
	6128832	MAIN			OFFICE 1	11/11	5/24	✓
	6128834	MAIN			OFFICE 2	11/11		✓
	6128833	MAIN			ART - 3	11/11		✓
	6128870	MAIN			OFFICE 9			✓
	6128871				GYM			✓
	6128872				GYM			✓
	6128874				STAGE 11			✓
	6128875				SHARON LAB			✓
	6129873				1st GRADE CLASS			✓
	6128813				KIDREN			✓

Please include this data sheet with your recapped test vials. Return test devices to AccuStar immediately. If the test devices are not returned promptly the test may be invalid.

\* VOIDED SAMPLES