

# KELSAY

## Environmental Consulting

June 22, 2020

Mr. Kevin Strong  
Business Manager  
Sweet Home School District Office  
1920 Long Street  
Sweet Home, Oregon 97386

RE: Long-Term Radon Sampling at the Sweet Home District Office (DRAFT)

Kelsay Environmental performed a long-term radon survey at Sweet Home District Office on November 21, 2019 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, the Sweet Home School District Office 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. The District Office does not have a basement. Therefore, no samples were taken from a basement. Samples were collected using Alpha Track AT-100 diffusion-based track radon monitors from Accustar Labs. A total of 18 rooms were tested (see attached table for locations). In addition, two duplicates, one blank and one spike were submitted to the lab to ensure quality control. A total of 22 detectors kits were used.

Radon detectors were placed in each occupied space, particularly within the height of the normal breathing zone (between 2 and 6 feet in height) on November 21, 2019. 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 March 26, 2020, providing for 126 total days of sampling, and then submitted to the Accustar Laboratory 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.

**Laboratory results indicate all measured radon gas concentrations did not exceed the 4.0 picocuries per liter of air (pCi/L) Action Level.**

**Spiked samples** were within acceptable parameters for quality assurance based on the Relative Percentage Error (RPE). 6.1 pCi/L is the analytical result for the spikes from Bowser-Morner.

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

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

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

**TABLE 1**  
**SPIKE/DUPLICATE/BLANK SAMPLE RESULTS**  
**SWEET HOME SCHOOL DISTRICT**

Sample No.	Sample Variety	Location	Results (pCi/L)	Relative Percentage Error/Difference	Acceptance
4326954	Spike	NA	6.6	-8.10%	Yes
4326992/ 4326994	Duplicate/Original	Board Room	1.2 & 1.1	-8.69%	Yes
4326861 4326991	Duplicate/Original	Custodian Office	1.2 & 1.2	0%	Yes
4326862	Blank	NA	<0.04	<0.04	Yes

\*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

June 22, 2020  
Mr. Kevin Strong  
Long-Term Radon Sampling at Sweet Home District Office

## 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 (ORS 332.166-167) requires schools to re-test for radon every 10 years regardless of initial testing results or whether mitigation was done.

Sincerely,



Lisa Janik  
Industrial Hygienist

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

**Radon Sampling Table**  
**Sweet Home School District**  
**1920 Long St.**  
**Sweet Home, OR**

DEVICE NUMBER	START DATE	STOP DATE	Total Days	LOCATION	RADON pCi/L
4326973	11/21/2020	3/26/2020	126	Front Office	0.8
4326971	11/21/2020	3/26/2020	126	Conference	0.7
4326972	11/21/2020	3/26/2020	126	Mail Room	0.9
4326875	11/21/2020	3/26/2020	126	Kim Armstrong Office	0.9
4326874	11/21/2020	3/26/2020	126	Mrs. Jubb	1.0
4326873	11/21/2020	3/26/2020	126	Payroll	0.8
4326872	11/21/2020	3/26/2020	126	Kevin's Office	1.0
4326995	11/21/2020	3/26/2020	126	Admin Office	0.9
4326871	11/21/2020	3/26/2020	126	Tom's Office	0.9
4326994	11/21/2020	3/26/2020	126	Board Room	1.1
4326992	11/21/2020	3/26/2020	126	Board Room Duplicate	1.2
4326993	11/21/2020	3/26/2020	126	Student Services Office	1.4
4326890	11/21/2020	3/26/2020	126	Student Services	1.9
4326882	11/21/2020	3/26/2020	126	Student Services - Kristi Walker	1.9
4326881	11/21/2020	3/26/2020	126	Billi Cannon Shelf	1.3
4326991	11/21/2020	3/26/2020	126	Custodian Office	1.2
4326861	11/21/2020	3/26/2020	126	Custodian Office Duplicate	1.2
4326900	11/21/2020	3/26/2020	126	Auditorium next to Desk	0.9
4326884	11/21/2020	3/26/2020	126	Mail Room	0.8
4326885	11/21/2020	3/26/2020	126	Room 5	1.2
4326954	11/21/2020	3/26/2020	126	Spike	6.6
4326862				Blank	TBD

**Bold** - Indicates Exceeds Action Level  
EPA Action Level: 4.0 pCi/L  
"<": Below the level of detection

Kelsay Environmental  
833 SE Main St., Suite 410  
Portland, Oregon 97214

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

Sweet Home School District  
1920 Long Street  
Sweet Home OR 97386

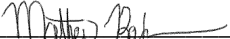
Log Number	Device Number	Test Exposure Duration:		Area Tested	Result pCi/L
2673898	4326973	11/21/2019	03/26/2020	Front Office	0.8
2673899	4326971	11/21/2019	03/26/2020	Conference	0.7
2673900	4326972	11/21/2019	03/26/2020	Mail Room	0.9
2673901	4326875	11/21/2019	03/26/2020	Kim Armstrong Office	0.9
2673902	4326874	11/21/2019	03/26/2020	Mrs. Jubb	1.0
2673903	4326873	11/21/2019	03/26/2020	Payroll	0.8
2673904	4326872	11/21/2019	03/26/2020	Kevin's Office	1.0
2673905	4326995	11/21/2019	03/26/2020	Admin Office	0.9
2673906	4326871	11/21/2019	03/26/2020	Tom Office	0.9
2673907	4326994	11/21/2019	03/26/2020	Board Room	1.1
2673908	4326992	11/21/2019	03/26/2020	Board Room Duplicate	1.2

**Comment:** AMENDED REPORT on 5/19/2020 to add he property test address. Confidential: Release results to client only. Kelsay Environmental was emailed a copy of this report.

Test Performed By: Placed: Lisa Janik Retrieved: Lisa Janik

Distributed by: Kelsay Environmental

Date Received: 04/07/2020 Date Logged: 04/22/2020 Date Analyzed: 05/06/2020 Date Reported: 05/19/2020

Report Reviewed By: 

Report Approved By: 

**Disclaimer:**

Shawn Price, Director of Laboratory Operations, AccuStar Labs

The 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. 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

Sweet Home School District  
1920 Long Street  
Sweet Home OR 97386

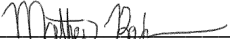
Log Number	Device Number	Test Exposure Duration:		Area Tested	Result pCi/L
2673909	4326993	11/21/2019	03/26/2020	Student Services Office	1.4
2673910	4326890	11/21/2019	03/26/2020	Student Services	1.9
2673911	4326882	11/21/2019	03/26/2020	Student Services - Kristi Walker	1.9
2673912	4326881	11/21/2019	03/26/2020	Billi Cannon Shelf	1.3
2673913	4326991	11/21/2019	03/26/2020	Custodian Office	1.2
2673914	4326861	11/21/2019	03/26/2020	Custodian Office Duplicate	1.2
2673915	4326900	11/21/2019	03/26/2020	Auditorium next to desk	0.9
2673916	4326884	11/21/2019	03/26/2020	Mail Room	0.8
2673917	4326885	11/21/2019	03/26/2020	Room 5	1.2
2673918	4326954	11/21/2019	03/26/2020	Spike	6.6

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Send Written Report To: (print clearly)

Kelsay Environmental  
633 SE Main St St 410  
Portland, OR 97214

Contact: Tel: 503-9850557

E-Mail Address: LSAnik.KES@gmail.com  
Bkelsay.kes

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

Project Number:

Site Name  
Address

City State Zip

Technician Name:

Technician Signature:

Lisa Janik

Sweet Home School District  
1920 Lang Street

(if required)

Tech Certification #:

(if required)

Lab Use Only	Device Number	Building #	Unit #	Floor	Name of Room	Start Date <small>Monthly/Day/Year</small>	Stop Date <small>Monthly/Day/Year</small>	Lab Use
✓	*4326973*		1		Front Office	11/21/19	3/26/20	
✓	*4326971*		2		Conference			
✓	*4326972*		3		mail Room			
✓	*4326875*		4		KIM ARMSTRONG Office			
✓	*4326874*		5		Mrs. Judd			
✓	*4326873*		6		payroll			
✓	*4326872*		7		Kevin's Office			
✓	*4326995*		8		Admin Office			
✓	*4326871*		9		TOM Office			
✓	*4326994*		10		band Room			



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

2/3

Alpha Track Test Datasheet

Send Written Report To: (print clearly)

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

Project Number:

Site Name

Address

City State Zip

Technician Name:

Technician Signature:

(if required)

Tech Certification #:

(if required)

Sweet Home S.D.

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
✓	4326882		11		Board Duplicate Room			
✓	4326883		12		Student Services Office			
✓	4326880		13		Student Services			
✓	4326882		14		Student Services Kishi Walker			
✓	4326881		15		Kristen Bill Custodian			
✓	4326891		16		Custodian Office			
✓	4326861		17		Cust Duplicate			
✓	4326800		18		Auditorium next to Deck			
✓	4326884		19		Mail Room			
✓	4326885		20		Room 5			

**Send Written Report To:**

Project Number:

**Site Name**  
**Address**

City State Zip

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

**Person Conducting Test:**

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

**Start and Stop Times and Dates must be entered**

[illegible]

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

Radon in Air Test Data Sheet

Send Written Report To:

## Kelsay Environmental

LStanik.keso@gmail.com

Contact: [BKELSAH.RES@q1kan.com](mailto:BKELSAH.RES@q1kan.com)

E-Mail Address: \_\_\_\_\_

Start Date:

**Stop Date:**

**Start and Stop Times and Dates must be entered**

Project Number:

Site Name

Address

City State Zip

Person Conducting Test:

Lisa Smith

Sweet Home School District  
1720 Long St.  
Sweet Home, OR

[illegible]

# EXPOSURE IN BOWSER-MORNER RADON CHAMBER

CLIENT Kelsay Environmental Job Number 194065

NOMINAL Conditions: Radon Conc 25.9 pCi/L Rel. Hum 30.1 % Temp. 70.2 F  
777.0 pCi/L

Date Start: 2/9/20 Date Stop: 3/10/20 Date Start: \_\_\_\_\_ Date Stop: \_\_\_\_\_

Time Start: 0817 Time Stop: 0817 Time Start: \_\_\_\_\_ Time Stop: \_\_\_\_\_

Device No.'s: (24) Alpha Tracks - Device No.'s: \_\_\_\_\_

4326967, 4326968, 4327065, 4326966,

4327143, 4326953, 4327142, 4326955,

4327063, 4327061, 4327064, 4327141,

4327092, 4327093, 4327094, 4327091,

4326970, 4327095, 4326954, 4327050,

MS Right 4327060, 4327062, 4326969, 4327144

$$126 \text{ DAY Conversion: } 30 \times 25.9 / 126 = 6.1 \text{ pCi/L}$$