

# KELSAY

## Environmental Consulting

September 15, 2017

Mr. Ryan Johnson  
Facility Operations Director  
Gladstone School District Office  
17789 Webster Rd.  
Gladstone, OR 97027

RE: Short-Term Radon Sampling at the Gladstone District Office – FOLLOW UP SURVEY

At your request, on September 11, 2017, Kelsay Environmental placed short-term radon samples at the Gladstone District Office as a follow-up to long-term sampling which indicated elevated levels of radon throughout the basement area and where general ventilation strategies were applied to reduce radon levels; particularly, having windows and exterior doors open as well as having floor fans placed at those basement doors to increase fresh air exchange. Short-term samples were collected on September 13, 2017. The screening was to determine if radon levels were above the Environmental Protection Agency's (EPA) action level prior to renovation to allow for additional HVAC design to mitigate potential elevated radon. The sampling protocol was based on the procedure in "Testing for Elevated Radon in Oregon Schools, A Protocol and Plan" and followed ORS 332.166-167 in addition to testing occupied spaces on the first floor. Testing locations included select areas on the ground floor and first floor levels.

### Sampling Procedures

Kelsay Environmental conducted sampling for radon gas in all frequently occupied rooms. Samples were collected using activated carbon diffusion short term detectors from Accustar Labs. A total of 17 rooms/spaces were tested (see attached table for locations). In addition, two duplicates and one blank were placed to ensure quality control; a total of 20 detectors kits were used. Radon detectors were placed within the breathing zone (between 2 and 6 feet). The HVAC system was operating under normal occupancy conditions on the first floor. The basement is not serviced by an HVAC system; however, doors and windows were opened throughout and additional fans were added to increase fresh air exchange from the outside atmosphere.

Under ORS 332.166-167 Radon testing in Oregon Schools must be done by January 1<sup>st</sup>, 2021. The EPA does not recommend using a single short-term test to determine whether remediation is necessary. Furthermore, initial screening samples did not span all occupied spaces. Follow-up measurements should be conducted to confirm initial results and to comply with the new regulations when renovation is completed.

All samples were set in locations and left for approximately 48 hours and then collected, sealed, and delivered for analysis. All samples were analyzed via EPA Method #402-R-92-004. Laboratory analysis was conducted by AccuStar in accordance with the National Environmental Laboratory Accreditation Program standards; NELAP Accredited Lab#: 11769.

### **Results**

Laboratory results indicate all measured radon gas concentrations were 0.8 picocuries/liter of air or less. According to the EPA, radon gas averages 1.3 pCi/L inside structures and 0.4 pCi/L inside homes and buildings across the country. Samples results less than 0.4 pCi/L were at or below the background detection limit. All results are below the EPA action level of 4.0 pCi/L. Due to the short duration of the sampling period, long term samples should be collected to ensure that levels stay consistent throughout the year. Additional short term samples are only necessary when results are much greater than the action level.

### **Recommendations**

Kelsay Environmental recommends that a short-term follow-up be performed proceeding the installation and operation of an HVAC unit that services the occupied basement spaces. A long-term follow up sampling event will also need to be conducted throughout all occupied spaces in the basement to adhere to the new radon regulations for the state of Oregon and, more specifically, to confirm that radon levels are below the EPA action level over a long-term span of time. Note that updated long-term empirical data is required to refute data from the original survey in 2017.

After all occupied spaces have been tested and radon gas reduced to below the action level, when necessary, ORS 332.166-167 requires schools to test 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 847-513-4160.

Sincerely,



Kevin Rohrer  
Industrial Hygienist

Attachments: Short Term Radon Sampling Table  
Labs Results/Chain of Custody

Short-Term Radon Sampling Table  
 Gladstone District Office  
 17789 Webster Road  
 Gladstone, OR 97027

LOCATION	DEVICE NUMBER	START DATE AND TIME		STOP DATE AND TIME		RADON pCi/L
Basement - Tech Office (Rm 1)	596589	9/11/2017	11:48	9/13/2017	12:15	0.8
Basement - Room 2	596591	9/11/2017	11:50	9/13/2017	12:16	0.7
Basement - Room 3	596592	9/11/2017	11:52	9/13/2017	12:16	0.6
Basement - Room 4	596587	9/11/2017	11:54	9/13/2017	12:18	0.7
Basement - Room 4 Duplicate	596590	9/11/2017	11:54	9/13/2017	12:18	0.7
Basement - Supply Room	596588	9/11/2017	11:56	9/13/2017	12:21	0.8
Basement - Office Supply Shelf	596593	9/11/2017	11:57	9/13/2017	12:17	0.7
1st Floor - Superintendent Secretary Office	596594	9/11/2017	12:00	9/13/2017	12:23	0.5
1st Floor - Superintendent Secretary Office	596600	9/11/2017	12:00	9/13/2017	12:23	<0.4
1st Floor - Superintendent Office	596601	9/11/2017	12:02	9/13/2017	12:23	0.6
1st Floor - Meeting/Board Room	596602	9/11/2017	12:03	9/13/2017	12:26	0.4
1st Floor - Kelly's Office	596595	9/11/2017	12:04	9/13/2017	12:24	0.4
1st Floor - Laura's Office	596599	9/11/2017	12:05	9/13/2017	12:25	0.4
1st Floor - Samantha's Office	596598	9/11/2017	12:06	9/13/2017	12:25	0.5
1st Floor - Sandi's Office	596597	9/11/2017	12:07	9/13/2017	12:26	<0.4
1st Floor - Main Entrance Back Office	596606	9/11/2017	12:08	9/13/2017	12:27	0.5
1st Floor - Main Entrance Back Office	596605	9/11/2017	12:08	9/13/2017	12:27	<0.4
1st Floor - Assistant Superintendent Office	596604	9/11/2017	12:10	9/13/2017	12:29	0.5
1st Floor - Tammy's Office	596603	9/11/2017	12:10	9/13/2017	12:30	<0.4
1st Floor - Temporary Office	596596	9/11/2017	12:11	9/13/2017	12:28	0.5

**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 101193 AL  
NRSB ARL0017

EPA Method #402-R-92-004  
Charcoal Canister  
NRPP Device Code 1017, 1159  
NRSB Device Code 10302,10320

Laboratory Report for:

Property Tested: Project # 7089.01

Kelsay Environmental  
833 South East Main Street Suite 410  
Portland OR

Gladstone District Office  
17789 Webster Road  
Gladstone OR 97027


Log Number	Device Number	Test Exposure Duration:	Area Tested	Result (pCi/L)
2163301	596589	09/11/2017 11:48 am 09/13/2017 12:15 pm	Joe Kyle Ellen Basement Tech Office	0.8
2163302	596591	09/11/2017 11:50 am 09/13/2017 12:16 pm	Dee Anne Basement Room 2	0.7
2163303	596592	09/11/2017 11:52 am 09/13/2017 12:16 pm	Mary Anne Basement Room 3	0.6
2163304	596587	09/11/2017 11:54 am 09/13/2017 12:18 pm	Ryan's New Office Basement Room 4	0.7
2163305	596590	09/11/2017 11:54 am 09/13/2017 12:18 pm	Ryan's New Office Basement Room 4 Duplicate	0.7
2163306	596588	09/11/2017 11:56 am 09/13/2017 12:21 pm	Basement Supply Room for Back	0.8
2163307	596593	09/11/2017 11:57 am 09/13/2017 12:17 pm	Basement Office Supply by Paper	0.7
2163308	596594	09/11/2017 12:00 pm 09/13/2017 12:23 pm	Floor 1 Superintendent Secretary Office	0.5
2163309	596600	09/11/2017 12:00 pm 09/13/2017 12:23 pm	Floor 1 Superintendent Secretary Office Blank	< 0.4
2163310	596601	09/11/2017 12:00 pm 09/13/2017 12:23 pm	Floor 1 Superintendent Office	0.6


**Comment:** Confidential: Release results to client only. Kelsay Environmental was emailed a copy of this report.

Test Performed By: Kevin Rohrer

Distributed by: Kelsay Environmental

Date Received: 09/14/2017 Date Logged: 09/14/2017 Date Analyzed: 09/14/2017 Date Reported: 09/14/2017

Report Reviewed By: 

Report Approved By: 

**Disclaimer:**

The uncertainty of this radon measurement is +/- 10 %. 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 101193 AL  
NRSB ARL0017

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Log Number	Device Number	Test Exposure Duration:	Area Tested	Result (pCi/L)
2163311	596602	09/11/2017 12:03 pm 09/13/2017 12:26 pm	Floor 1 Meeting Board Room	0.4
2163312	596595	09/11/2017 12:04 pm 09/13/2017 12:24 pm	Floor 1 Kelly's Office	0.4
2163313	596599	09/11/2017 12:05 pm 09/13/2017 12:25 pm	Floor 1 Laura's Office	0.4
2163314	596598	09/11/2017 12:06 pm 09/13/2017 12:25 pm	Floor 1 Samantha's Office	0.5
2163315	596597	09/11/2017 12:07 pm 09/13/2017 12:26 pm	Floor 1 Sandi's Office	< 0.4
2163316	596606	09/11/2017 12:08 pm 09/13/2017 12:27 pm	Floor 1 Main Entry Office Area	0.5
2163317	596605	09/11/2017 12:08 pm 09/13/2017 12:27 pm	Floor 1 Main Entry Office Duplicate	< 0.4
2163318	596604	09/11/2017 12:10 pm 09/13/2017 12:29 pm	Floor 1 Assistant Superintendent Office	0.5
2163319	596603	09/11/2017 12:10 pm 09/13/2017 12:30 pm	Floor 1 Tammy's Office	< 0.4
2163320	596596	09/11/2017 12:11 pm 09/13/2017 12:28 pm	Floor 1 Temp Office	0.5


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