



Cascade Environmental LLC

4346 NE 73<sup>rd</sup> Avenue  
Portland, OR 97218

Phone 503 984 9737

[www.cascadenviro.com](http://www.cascadenviro.com)

January 19, 2017

Mr. Scott Woods  
Newberg School District 29J  
703 South Blaine  
Newberg, OR 97132

**Re: Radon Testing & Analysis Report  
Ewing Young Elementary  
17600 NE North Valley Road  
Newberg, Oregon 97132  
Cascade Environmental Project No. 11282016-01**

Dear Mr. Woods:

Cascade Environmental is pleased to present this letter report which details the findings of radon sampling conducted at the above referenced facility located in Newberg, Yamhill County, Oregon. The purpose of this study was to determine if levels of radon within the select subgrade and ground floor rooms are above the Environmental Protection Agency's (EPA) recommended action level for radon. The sampling was conducted in compliance with Oregon Revised Statute (ORS) 332.166-167. Sampling was conducted per the protocols provided in "Testing for Elevated Radon Levels in Oregon, A Protocol and Plan" (The protocol) produced by the Oregon Health Authority.

## Introduction

Radon is a naturally occurring colorless, odorless gas that is a by-product of the decay of radioactive materials potentially present in bedrock and soil. Radon gas may enter the lowest level of a building through floor cracks, structural joints, or plumbing conduits. The EPA's recommended action level for annual exposure to radon gas is 4.0 picoCuries per liter of air (pCi/L). This recommended action level is not a regulatory requirement, but is the level at which the EPA recommends that building owners take action to reduce the level.

## Sampling Methodology

Cascade Environmental conducted a survey for radon gas in all frequently occupied rooms in contact with the soil, whether the contact was slab-on-grade, a basement, a room above a crawl space or any combination of the above. A total of twenty-six rooms were tested from November 28, 2016 through December 1, 2016. Sampling was conducted by Mr. Robert Burns, Industrial Hygienist with Cascade Environmental and Mr. Scott Woods, District Risk Management Supervisor with Newberg School District. In addition, three duplicate samples, two blank samples and one spike sample were collected for quality control purposes per the protocol. The survey was performed to determine the potential presence of radon gas concentrations, and to develop recommendations for follow-up testing and/or potential mitigation systems as necessary. The canisters were left in place for no less than 48 hours and no longer than 96 hours, in accordance with the sampling protocol provided by the laboratory. The open canisters were placed at breathing air level under normal occupancy conditions. To ensure the canisters would be in place at the end of the sampling period, sample locations were identified in areas where the potential for disturbance was minimal. A total of 35 canisters (including duplicates, blanks, spikes and additional samples collected in rooms larger than 2,000 square feet) were collected, sealed, and forwarded for



analysis to AccuStar Labs in Medway, Massachusetts and were analyzed using EPA Method 402-R-92-004. The spike samples were submitted to Radon Measurements Lab (RML) in Colorado Springs, Colorado to be “spiked” with a known amount of radon prior to submittal to AccuStar Labs for quality control purposes. The laboratory analytical reports are included in Appendix A.

The following tables summarize the results of the radon gas samples collected from the facility:

<b>Table 1</b> <b>Ewing Young Elementary</b> <b>17600 NE North Valley Road</b> <b>Newberg, Oregon 97132</b> <b>Radon Survey Results 2016</b>			
<b>Sampler Number</b>	<b>Location</b>	<b>Floor</b>	<b>Results (pCi/L)</b>
01	Room 1	Main	1.1
02	Room 2	Main	2.1
03	Office	Main	1.6
04	Conference	Main	1.7
05	Principal's Office	Main	1.5
06	Principal's Office (Duplicate)	Main	1.4
07	Health Room (Blank)	Main	<0.4
08	Health Room	Main	1.6
09	Work Room	Main	1.4
10	Room 3	Main	0.8
11	Custodial Office	Main	1.0
12	Custodial Office (Duplicate)	Main	1.3
13	Gym	Main	1.0
14	Gym	Main	2.0
15	Gym	Main	1.6
16	PE Office	Main	1.3
17	Cafeteria	Main	1.1
18	Cafeteria	Main	0.9
19	Room 10	Main	1.7
20	Room 10 (Duplicate)	Main	1.6
21	Staff Room	Main	1.2

<b>Table 1</b> <b>Ewing Young Elementary</b> <b>17600 NE North Valley Road</b> <b>Newberg, Oregon 97132</b> <b>Radon Survey Results 2016</b>			
<b>Sampler Number</b>	<b>Location</b>	<b>Floor</b>	<b>Results (pCi/L)</b>
22	Reading Room	Main	2.9
23	Counseling	Main	2.0
24	Speech	Main	1.2
25	Learning Resource Center	Main	1.3
26	Room 4	Main	1.3
27	Room 4 (Blank)	Main	<0.4
28	Library	Main	1.3
29	Library	Main	1.8
30	Room 5	Main	1.4
31	Room 6	Main	1.0
32	Room 7	Main	0.9
33	Room 8	Main	1.0
34	Room 9	Main	1.0

<b>Table 2</b> <b>Ewing Young Elementary</b> <b>17600 NE North Valley Road</b> <b>Newberg, Oregon 97132</b> <b>Spike Results</b>		
<b>Sampler Number/ Device Number</b>	<b>Spike Value (pCi/L) (RML)</b>	<b>Results (pCi/L) (AccuStar Labs)</b>
3275458	16.4	17.2

## CONCLUSION

The short-term radon sample results for Ewing Young Elementary School, located at 17600 NE North Valley Road in Newberg, Yamhill County, Oregon revealed concentrations of radon gas below the EPA's recommended action level of 4.0 pCi/L in all of the rooms tested. In addition, the results from the duplicates, blanks and spikes collected for quality control purposes were all within acceptable parameters per the protocol.

Based on the sample results, Cascade Environmental does not recommend further investigation at this time.

## LIMITATIONS

This report provides a summary of the evidence collected and observations made by Cascade Environmental during this assessment. Cascade Environmental performed short-term radon testing to evaluate impacts to selected areas at this single point in time. Actual radon concentrations can vary between sample points, site conditions and usage. This report is based upon the information developed by Cascade Environmental as a result of this one-time sampling and does not guarantee that the site is free of radon or potentially hazardous materials or conditions, or that latent or undiscovered conditions will not become evident in the future.

Thank you for this opportunity to be of service to Newberg School District 29J. If you have any questions, please feel free to contact us at 503-984-9737 or via email at bob@cascadenviro.com.

Sincerely,

**Cascade Environmental**

A handwritten signature in black ink, appearing to read "R Burns", is written over a horizontal line.

Robert Burns  
Principal

Attachments: Appendix A – Laboratory Results and Chain-of-Custody Documentation  
Appendix B – Site Plan

APPENDIX A

LABORATORY RESULTS &  
CHAIN OF CUSTODY DOCUMENTATION

NELAC NY 11769  
NRPP 101193 AL  
NRSB ARL0017

EPA Method #402-R-92-004  
Liquid Scintillation  
NRPP Device Code 8088  
NRSB Device Code 12193

Laboratory Report for:

Property Tested:

Cascade Environmental Robert Burns  
4346 Northeast 73rd Avenue  
Portland OR 97218

Ewing Young Elementary School  
17600 Northeast North Valley Road  
Newberg OR 97132

Log Number	Device Number	Test Exposure Duration:		Area Tested	Result (pCi/L)
2018179	3286778	11/28/2016 7:07 am	12/01/2016 6:59 am	Room 1	1.4
2018180	3286769	11/28/2016 7:08 am	12/01/2016 7:00 am	Room 2	2.1
2018181	3286764	11/28/2016 7:10 am	12/01/2016 7:01 am	Office	1.6
2018182	3286781	11/28/2016 7:11 am	12/01/2016 7:02 am	Conference	1.7
2018183	3286762	11/28/2016 7:12 am	12/01/2016 7:03 am	Principal's Office	1.5
2018184	3286763	11/28/2016 7:12 am	12/01/2016 7:03 am	Principal's Office Duplicate	1.4
2018185	3286772	11/28/2016 7:16 am	12/01/2016 7:04 am	Health Room Blank	< 0.4
2018186	3286765	11/28/2016 7:16 am	12/01/2016 7:04 am	Health Room	1.6
2018187	3286767	11/28/2016 7:17 am	12/01/2016 7:07 am	Work Room	1.4
2018188	3286761	11/28/2016 7:20 am	12/01/2016 7:09 am	Room 3	0.8

**Comment:** Confidential: Results sent to Cascade Environmental only

Test Performed By: Robert Burns and Scott Woods

Distributed by: Cascade Environmental

Date Received: 12/07/2016    Date Logged: 12/07/2016    Date Analyzed: 12/08/2016    Date Reported: 12/08/2016

Report Reviewed By: Michelle Cleveland

Report Approved By: Carolyn D. Koke

Carolyn D. Koke, President, AccuStar Labs

**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.

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NRPP 101193 AL  
NRSB ARL0017

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Liquid Scintillation  
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Laboratory Report for:

Property Tested:

Cascade Environmental Robert Burns  
4346 Northeast 73rd Avenue  
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Newberg OR 97132

Log Number	Device Number	Test Exposure Duration:		Area Tested	Result (pCi/L)
2018189	3286768	11/28/2016 7:21 am	12/01/2016 7:10 am	Custodial Office	1.0
2018190	3286771	11/28/2016 7:21 am	12/01/2016 7:10 am	Custodial Office Duplicate	1.3
2018191	3286770	11/28/2016 7:23 am	12/01/2016 7:11 am	Gym Stage Right	1.0
2018192	3286779	11/28/2016 7:24 am	12/01/2016 7:12 am	Gym Stage Left	2.0
2018193	3286777	11/28/2016 7:25 am	12/01/2016 7:13 am	Gym Office Window	1.6
2018194	3286773	11/28/2016 7:37 am	12/01/2016 7:17 am	PE Office	1.3
2018195	3286782	11/28/2016 7:27 am	12/01/2016 7:16 am	Cafeteria btwn 2000 and 4000 SF	1.1
2018196	3286766	11/28/2016 7:28 am	12/01/2016 7:18 am	Cafeteria by Fire Extinguisher	0.9
2018197	3286794	11/28/2016 7:35 am	12/01/2016 7:19 am	Room 10	1.7
2018198	3286787	11/28/2016 7:35 am	12/01/2016 7:19 am	Room 10 Duplicate	1.6

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Log Number	Device Number	Test Exposure Duration:		Area Tested	Result (pCi/L)
2018199	3286786	11/28/2016 7:37 am	12/01/2016 7:16 am	Staff Room	1.2
2018200	3286783	11/28/2016 7:36 am	12/01/2016 7:15 am	Reading Room	2.9
2018201	3286791	11/28/2016 7:33 am	12/01/2016 7:14 am	Counseling	2.0
2018202	3286790	11/28/2016 7:32 am	12/01/2016 7:13 am	Speech	1.2
2018203	3286775	11/28/2016 7:30 am	12/01/2016 7:12 am	Learning Resource Center	1.3
2018204	3286792	11/28/2016 7:28 am	12/01/2016 7:11 am	Room 4	1.3
2018205	3286784	11/28/2016 7:28 am	12/01/2016 7:11 am	Room 4 Blank	< 0.4
2018206	3286793	11/28/2016 7:24 am	12/01/2016 7:10 am	Library Fiction Shelf	1.3
2018207	3286780	11/28/2016 7:23 am	12/01/2016 7:09 am	Library History Shelf	1.8
2018208	3286788	11/28/2016 7:19 am	12/01/2016 7:08 am	Room 5	1.4

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17600 Northeast North Valley Road  
Newberg OR 97132

Log Number	Device Number	Test Exposure Duration:		Area Tested	Result (pCi/L)
2018209	3286789	11/28/2016 7:16 am	12/01/2016 7:07 am	Room 6	1.0
2018210	3286785	11/28/2016 7:14 am	12/01/2016 7:06 am	Room 7	0.9
2018211	3286776	11/28/2016 7:12 am	12/01/2016 7:05 am	Room 8	1.0
2018212	3286774	11/28/2016 7:08 am	12/01/2016 7:03 am	Room 9	1.0

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NRPP 101193 AL  
NRSB ARL0017

EPA Method #402-R-92-004  
Liquid Scintillation  
NRPP Device Code 8088  
NRSB Device Code 12193

Laboratory Report for:

Property Tested:

Cascade Environmental  
4346 Northeast 73rd Avenue  
Portland OR 97218

Aspen Village Unit 14  
1220 Northwest Aspen Boulevard  
Mollala OR 97206

Log Number	Device Number	Test Exposure Duration:	Area Tested	Result (pCi/L)
2021135	3275458	12/12/2016 10:40 am 12/14/2016 1:10 pm	Bldg. C Unit 14 Main Living Room	17.2

**Comment:** Confidential: Results sent to Cascade Environmental only

Test Performed By: Bob Burns

Distributed by: Cascade Environmental

Date Received: 12/19/2016 Date Logged: 12/19/2016 Date Analyzed: 12/20/2016 Date Reported: 12/20/2016

Report Reviewed By: Michelle Cleveland

Report Approved By: Carolyn D. Koke

Carolyn D. Koke, President, AccuStar Labs

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Radon Measurements Lab



Dr. James F. Burkhart
1420 Austin Bluffs Parkway
Colorado Springs, CO 80918
719.255.3584

Date: 12/15/16

These are the results of the spiking that we performed on the device(s) listed below:

Table with 6 columns: Device Serial #, Start Date, Start Time, Stop Date, Stop Time, Chamber Value. Contains 3 rows of data for devices 3275461, 3275458, and 3275460.

These devices were spiked in our chamber at an average relative humidity of 38.0 %.
These devices were spiked in our chamber at a chamber temperature of 75.3° F.
This chamber is at an elevation of approximately 6479 feet.

The additional information below is provided as a service for our customers who have furnished Radon Measurements Lab with the customer's measured values for the above devices. This equation calculates the difference between our chamber value and the customer's measured value and is called the percent error. It is calculated as follows:

% Error = (Measured Value - Chamber Value) / Chamber Value \* 100

Measured Value Chamber Value % Error of Each of Your Devices

Thank you for your patronage. If we can be of further help, please call us at (719) 255-3584.

Sincerely,

Dr. James F. Burkhart

Ewing Young Elementary School  
 17600 NE North Valley Road  
 Newberg, Oregon 97132  
 Radon Testing 2016

Tester Name(s): Robert Burns / Scott Woods

Start Date: 11-28-16

Stop Date: 12-1-16

Lab Use Only	Sample #	Device #	Floor	Room	Start Time	Stop Time	Comments	Lab Use
	1	3286 778	Main	Room 1	0707	0659	File cabinet	
	2	3286 769	Main	Room 2	0708	0700	shelf to left	
	3	3286 764	Main	Office	0710	0701	behind desk	
	4	3286 781	Main	Conference	0711	0702		
	5	3286 762	Main	Principal's Office	0712	0703	Duplicate	
	6	3286 763	Main	Principal's Office	0712	0703		
	7	3286 772	Main	Health Room	0716	0704	Blank	
	8	3286 765	Main	Health Room	0716	0704	Top of Cabinet	
	9	3286 767	Main	Work Room	0717	0707	by paper cutter	
	10	3286 761	Main	Room 3	0720	0709	Teacher Desk	
	11	3286 768	Main	Custodial Office	0721	0710	Paper towel shelf	
	12	3286 771	Main	Custodial Office	0721	0710	Duplicate	

Ewing Young Elementary School  
 17600 NE North Valley Road  
 Newberg, Oregon 97132  
 Radon Testing 2016

Lab Use Only	Sample #	Device #	Floor	Room	Start Time	Stop Time	Comments	Lab Use
	13	3286 770	Main	Gym	0723	0711	Stage left Between 4,000 and 6,000 SF	
	14	3286 779	Main	Gym	0724	0712	Stage left	
	15	3286 777	Main	Gym	0725	0713	windows sill to PE office	
	16	3286 <del>782</del> 773	Main	PE Office	0737	0717	Ball shelf	
	17	3286 782	Main	Cafeteria	0727	0716	Cabinets now empty Between 2,000 and 4,000 SF	
	18	3286 766	Main	Cafeteria	0728	0718	windows sill to Room 10 extinguisher	
	19	3286 794	Main	Room 10	0735	0719	shelf	
	20	3286 787	Main	Room 10	0735	0719	Duplicate	
	21	3286 786	Main	Staff Room	0757	0716		
	22	3286 785	Main	Reading Room	0736	0715		
	23	3286 791	Main	Counseling	0735	0714		
	24	3286 790	Main	Speech	0732	0713		
	25	3286 775	Main	Learning Resource Center	0730	0712		
	26	3286 792	Main	Room 4	0728	0711		
	27	3286 784	Main	Room 4	—	—	Blank	



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 Radon Testing 2016

Lab Use Only	Sample #	Device #	Floor	Room	Start Time	Stop Time	Comments	Lab Use
	28	3286 793	Main	Library	07:24	07:10	Fiction shelf by dragon Between 2,000 and 4,000 SF	
	29	3286 780	Main	Library	07:23	07:09	History Shelf by Duck	
	30	3286 788	Main	Room 5	07:19	07:08	Tall cabinet by Orange cabinet	
	31	3286 789	Main	Room 6	07:16	07:07	File cabinet by Teacher	
	32	3286 785	Main	Room 7	07:14	07:06	File cabinet by door	
	33	3286 776	Main	Room 8	07:12	07:05	Teachers Desk	
	34	3286 774	Main	Room 9	07:08am	07:03	File cabinet by door	



APPENDIX B

SITE PLAN



# Ewing Young Elementary

