



Cascade Radon, Inc.
Testing, Mitigation,
Systems Design
CCB 180537 / CASCARI927C1
Fed ID 26-1809992

12839 NE Airport Way Bldg. 9
Portland, Oregon 97230
Phone: (503) 421-4813
Fax: (503) 281-6170
Office@CascadeRadon.com

Cesar Chavez Middle School

(C-68154)

5103 N Willis Blvd., Portland, OR 97203

March 24, 2020



Cascade Radon, Inc.
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CCB 180537 / CASCARI927C1
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Purpose

Initial short-term testing was performed by PBS Engineering and Environmental Inc. in 38 locations throughout the building beginning October 25, 2016 and ending October 28, 2016. Testing indicated 5 pCi/L in room 19, Room 152 2.6 pCi/L, Room 163 3.3 pCi/L and 5.2 pCi/L in room 164.

In November 2016 to May of 2017 3 follow up long-term was performed in some of these rooms as a confirmation test, the result of those tests came back with a long-term radon average of 6.5 pCi/L in Room 19, Room 164 the test kit was missing and 2.4 pCi/L room 167.

Shortly after these long-term test were completed there was a remodel project near room 19 to install a new elevator. After the completion of the construction project PBS Engineering and Environmental Inc per OHA protocol placed 4 continuous radon monitors in early December of 2018. The result of the follow up testing came back with averages of 7.1 pCi/L in room 19, 4.6 pCi/L in room 152, 5.8 pCi/L in room 163 and 8.4 pCi/L in room 164. PBS continued to monitor the 4 rooms until a mitigation strategy was developed in February of 2019.

The installation of 3 sub-slab depressurization systems was used to reduce the radon below the EPA action level of 4 pCi/L. See attached pages for a description of the system components and post-mitigation testing.



System #1 mitigation fan is located on the eastern roof of the building. A single AMG Eagle model fan was used due to the less porous soil beneath the concrete slab of room 19.



System #2 & 3 mitigation fans are located in the western fenced courtyard. Two AMG Fury model fans were used due to the porous soil beneath the concrete slab in the crawlspace below rooms 152, 163 and 164. Each fan has an exterior rated pressure gauge



Suction point location in a storage closet adjacent to room 19. Schedule 80 vent piping was used from the floor up to the ceiling to protect against accidental impacts.



Pressure Gauge

System #1, The suction point is located in a storage closet next to room 19 . The vent piping continues into the drop ceiling of room 19 and routes to the western courtyard. The system includes a manometer (pressure gauge), which is a simple means of seeing the system is working mechanically. A manometer also shows how much negative pressure (depressurization) the system is creating. It is understood such a pressure gauge DOES NOT monitor radon levels.



This portion of system #1 vent piping continues from the drop ceiling and western storage-room of room 19. The vent piping continues up the building exterior of the western courtyard and to the fan location on the roof.



System #2 & 3, the suction points are located in the crawlspace drilled through the concrete slab below rooms 152, 163 and 164. Numerous cracks and holes from plumbing penetrations in the concrete slab had to be sealed to maintain negative pressure and to seal any radon entry points. The vent piping continues to the fan locations in the fenced western courtyard. The system includes two exterior rated pressure gauges, which is a simple means of seeing the system is working mechanically. A manometer also shows how much negative pressure (depressurization) the system is creating. It is understood such a pressure gauge DOES NOT monitor radon levels.

Credentials

Cascade Radon, Inc.
12839 NE Airport Way Bldg. 9
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CCB180537
CASCARI977C1
NEHA/NRPP# 104815RMT
NRSB# 1G0008

Christensen Electric, Inc.
17201 NE Sacramento Street
Portland, OR 97230
(503)419-3300
info@christenson.com
CCB458

Accurate Concrete Cutting
6816 NE 40th Ave.
Vancouver, WA 98661
lj@accurate-concrete-cut.com
CCB191788
W.A. Contr. License# ACCURCC153M2



CASCADE RADON, INC.

Testing, Mitigation,
Systems Design
CCB 180537 / CASCARI927C1

12839 NE Airport Way
Portland, OR 97230
Phone: (503) 421-4813
Fax: (503) 281-6170
Office@CascadeRadon.com

March 24, 2020
C-68154

To: Portland Public Schools
501 N. Dixon Street
Portland, OR 97227

RE: Cesar Chavez Middle School
5102 N Willis Blvd.
Portland, OR 97203

Effective: February 14, 2020

Cascade Radon, Inc. warrants that all work has been performed in a workmanlike manner and according to the best standard practices. All materials and equipment are new, unless otherwise specified, and of first quality.

Cascade Radon, Inc. guarantees that the installation will maintain average, long-term, indoor radon levels, based upon approved 9 month duration Alpha-Track testing at or below 4 pCi/L for a period of 10 years.

With the exception of the exhaust fan unit(s), Cascade Radon, Inc. warrants that all labor, work, materials and equipment will be free from faults in material or workmanship for period of ten (10) years from the date of substantial completion.

Includes 5-year manufactures replacement warranty on exhaust fan unit(s), beginning at time of initial activation, with any related work and materials provided at no cost to the Client.

All warranties and guarantees are transferable to future owners of the same property.

Warranty or service inquires, please call (503) 421-4813

Sincerely,
Wade Gervais
Division Manager
Cascade Radon, Inc.

Radon Inspection Report

Test Location:

Cesar Chavez Middle School
5103 N Willis Blvd
Portland, OR 97203

Test For:

Portland Public Schools

Inspected By:

Cascade Radon, Inc.
12839 NE Airport Way Bldg. 9
Portland, OR 97230

Bldg. Type: Educational

Type: Post-Mitigation

Test Result: Pass

Overall Average:

0.3 pCi/l

EPA Average:

0.3 pCi/l

Test Device Details:

Serial Number: 241996006
Model Number: 1028XP
Last Calibration: 05/06/2019
Next Calibration: 05/06/2020
Cal-Factors: 2.71
Motion Error: No

Test Site Condition:

Structure Type: Middle School
Mitigation Sys: Installed and Active

Test Summary:

<u>CRM Location:</u>	<u>Start:</u>	<u>Stop:</u>	<u>Interval:</u>	<u>Duration:</u>
Room 19	01/04/2020 04:14 AM	01/06/2020 07:14 AM	1 hr	51 hr
*First 4 hrs of data excluded	<u>Min:</u>	<u>Max:</u>	<u>Average:</u>	<u>Measurement Units:</u>
Radon Concentration:	0.0	1.5	0.3	pCi/l

Comments:

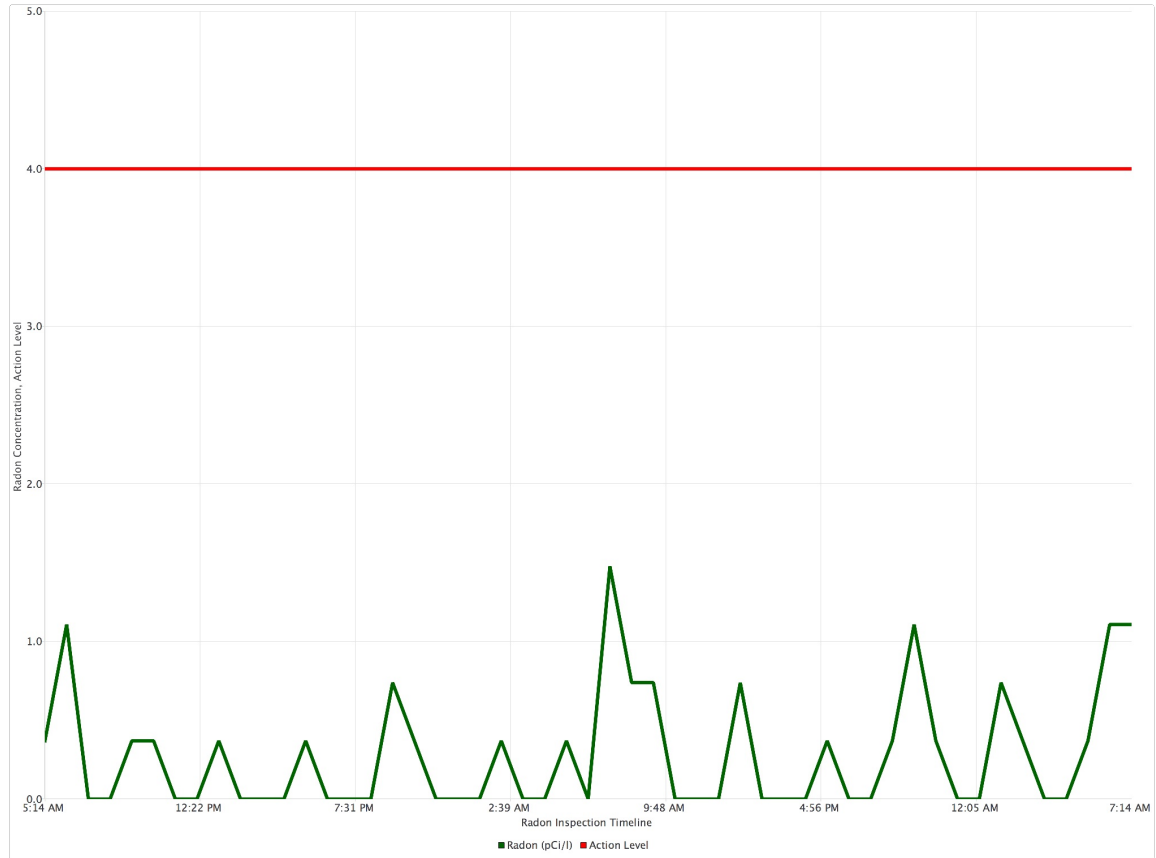
Lic/Cert Signature

104815RMT

Inspection Report Date: 01/07/2020

OneRADON™ Version 2.2.33

Radon Inspection Chart



Test Result: Pass

Test Location: 5103 N Willis Blvd Portland, OR 97203

Inspection Report Date: 01/07/2020

Test Table

* Data from first 4 hours excluded from EPA calculations

<u>Date/Time</u>	<u>Radon(pCi/l)</u>	<u>Flags</u>
01/04/20 05:14 AM	0.4	-
01/04/20 06:14 AM	1.1	-
01/04/20 07:14 AM	0.0	-
01/04/20 08:14 AM	0.0	-
01/04/20 09:14 AM	0.4	-
01/04/20 10:14 AM	0.4	-
01/04/20 11:14 AM	0.0	-
01/04/20 12:14 PM	0.0	-
01/04/20 01:14 PM	0.4	-
01/04/20 02:14 PM	0.0	-
01/04/20 03:14 PM	0.0	-
01/04/20 04:14 PM	0.0	-
01/04/20 05:14 PM	0.4	-
01/04/20 06:14 PM	0.0	-
01/04/20 07:14 PM	0.0	-
01/04/20 08:14 PM	0.0	-
01/04/20 09:14 PM	0.7	-
01/04/20 10:14 PM	0.4	-
01/04/20 11:14 PM	0.0	-
01/05/20 12:14 AM	0.0	-
01/05/20 01:14 AM	0.0	-
01/05/20 02:14 AM	0.4	-
01/05/20 03:14 AM	0.0	-
01/05/20 04:14 AM	0.0	-
01/05/20 05:14 AM	0.4	-
01/05/20 06:14 AM	0.0	-
01/05/20 07:14 AM	1.5	-
01/05/20 08:14 AM	0.7	-
01/05/20 09:14 AM	0.7	-
01/05/20 10:14 AM	0.0	-
01/05/20 11:14 AM	0.0	-
01/05/20 12:14 PM	0.0	-
01/05/20 01:14 PM	0.7	-
01/05/20 02:14 PM	0.0	-
01/05/20 03:14 PM	0.0	-
01/05/20 04:14 PM	0.0	-
01/05/20 05:14 PM	0.4	-
01/05/20 06:14 PM	0.0	-
01/05/20 07:14 PM	0.0	-
01/05/20 08:14 PM	0.4	-
01/05/20 09:14 PM	1.1	-
01/05/20 10:14 PM	0.4	-
01/05/20 11:14 PM	0.0	-
01/06/20 12:14 AM	0.0	-

Test Result: Pass

Test Location: 5103 N Willis Blvd Portland, OR 97203

Inspection Report Date: 01/07/2020

Test Table

* Data from first 4 hours excluded from EPA calculations

<u>Date/Time</u>	<u>Radon(pCi/l)</u>	<u>Flags</u>
01/06/20 01:14 AM	0.7	-
01/06/20 02:14 AM	0.4	-
01/06/20 03:14 AM	0.0	-
01/06/20 04:14 AM	0.0	-
01/06/20 05:14 AM	0.4	-
01/06/20 06:14 AM	1.1	-
01/06/20 07:14 AM	1.1	-

Test Result: Pass

Test Location: 5103 N Willis Blvd Portland, OR 97203

Inspection Report Date: 01/07/2020



Certification of Calibration

Device Information

Serial Number: **241996006**
Model Number: 1028-XP - Continuous Radon Monitor
Calibration Date: 5/6/2019
Device Firmware: 01.0.8
Device NRPP Code: CR2282

Calibration Chamber Information

Certification #: NRSB TRC600001
Certification Expiration Date: 05/31/2019
NIST Traceability Standard: SRM 4973
Last Inter-comparison: 03/2018
Inter-Comparison Error: 4.1

Device Calibration Test Details

Chamber #: 10
Operator: 594
Test Start: 5/3/2019 4:16 PM
Test Stop: 5/6/2019 6:58 AM

Test Details	Units	Value	Limits	Results
Radon Concentration	pCi/l	174.5	40 - 200	Pass
Background Level	pCi/l	0.1	<= 0.5	Pass
Calibration Factor	(count/hr)/(pCi/l)	2.7	2.6 - 3.4	Pass

This instrument has been calibrated in accordance with the specifications set forth by the manufacturer.

Calibration Result: **Pass**
Next Calibration Due Date: **5/6/2020**

Reviewed and Certified by:

David Rayburn
Radon Measurement Specialist
NRSB Certification #9SS057
Date: 5/6/2019

Sun Nuclear Corporation
3275 Suntree Blvd.
Melbourne, Florida 32940 U.S.A.

Tel: +1 321 255-7011
Email: radon@sunnuclear.com
Web: www.sunnuclear.com

Radon Inspection Report

Test Location:

Cesar Chavez Middle School
5103 N Willis Blvd.
Portland, OR 97203

Test For:

Portland Public School

Inspected By:

Cascade Radon, Inc.
12839 NE Airport Way Bldg. 9
Portland, OR 97230

Bldg. Type: Educational

Type: Post-Mitigation

Test Result: Pass

Overall Average:

1.1 pCi/l

EPA Average:

1.0 pCi/l

Test Device Details:

Serial Number: 240235012
Model Number: 1028XP
Last Calibration: 03/13/2019
Next Calibration: 03/13/2020
Cal-Factors: 2.99
Motion Error: No

Test Site Condition:

Structure Type: Middle School
Mitigation Sys: Installed and Active

Test Summary:

<u>CRM Location:</u>	<u>Start:</u>	<u>Stop:</u>	<u>Interval:</u>	<u>Duration:</u>
Room 152	01/04/2020 04:21 AM	01/06/2020 07:21 AM	1 hr	51 hr
*First 4 hrs of data excluded	<u>Min:</u>	<u>Max:</u>	<u>Average:</u>	<u>Measurement Units:</u>
Radon Concentration:	0.0	3.7	1.0	pCi/l

Comments:

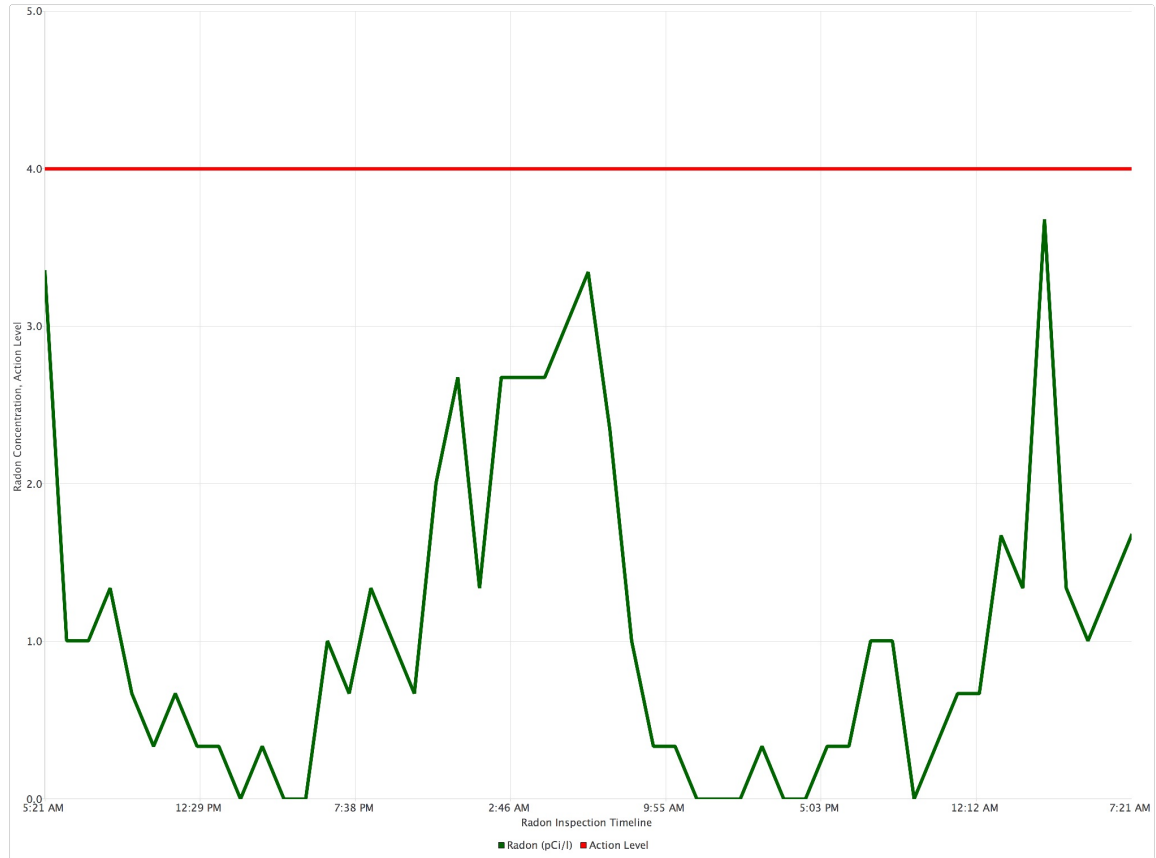
Lic/Cert Signature

104815RMT

Inspection Report Date: 01/07/2020

OneRADON™ Version 2.2.33

Radon Inspection Chart



Test Result: Pass

Test Location: 5103 N Willis Blvd. Portland, OR 97203

Inspection Report Date: 01/07/2020

Test Table

* Data from first 4 hours excluded from EPA calculations

Date/Time	Radon(pCi/l)	Flags
01/04/20 05:21 AM	3.3	-
01/04/20 06:21 AM	1.0	-
01/04/20 07:21 AM	1.0	-
01/04/20 08:21 AM	1.3	-
01/04/20 09:21 AM	0.7	-
01/04/20 10:21 AM	0.3	-
01/04/20 11:21 AM	0.7	-
01/04/20 12:21 PM	0.3	-
01/04/20 01:21 PM	0.3	-
01/04/20 02:21 PM	0.0	-
01/04/20 03:21 PM	0.3	-
01/04/20 04:21 PM	0.0	-
01/04/20 05:21 PM	0.0	-
01/04/20 06:21 PM	1.0	-
01/04/20 07:21 PM	0.7	-
01/04/20 08:21 PM	1.3	-
01/04/20 09:21 PM	1.0	-
01/04/20 10:21 PM	0.7	-
01/04/20 11:21 PM	2.0	-
01/05/20 12:21 AM	2.7	-
01/05/20 01:21 AM	1.3	-
01/05/20 02:21 AM	2.7	-
01/05/20 03:21 AM	2.7	-
01/05/20 04:21 AM	2.7	-
01/05/20 05:21 AM	3.0	-
01/05/20 06:21 AM	3.3	-
01/05/20 07:21 AM	2.3	-
01/05/20 08:21 AM	1.0	-
01/05/20 09:21 AM	0.3	-
01/05/20 10:21 AM	0.3	-
01/05/20 11:21 AM	0.0	-
01/05/20 12:21 PM	0.0	-
01/05/20 01:21 PM	0.0	-
01/05/20 02:21 PM	0.3	-
01/05/20 03:21 PM	0.0	-
01/05/20 04:21 PM	0.0	-
01/05/20 05:21 PM	0.3	-
01/05/20 06:21 PM	0.3	-
01/05/20 07:21 PM	1.0	-
01/05/20 08:21 PM	1.0	-
01/05/20 09:21 PM	0.0	-
01/05/20 10:21 PM	0.3	-
01/05/20 11:21 PM	0.7	-
01/06/20 12:21 AM	0.7	-

Test Result: Pass

Test Location: 5103 N Willis Blvd. Portland, OR 97203

Inspection Report Date: 01/07/2020

Test Table

* Data from first 4 hours excluded from EPA calculations

<u>Date/Time</u>	<u>Radon(pCi/l)</u>	<u>Flags</u>
01/06/20 01:21 AM	1.7	-
01/06/20 02:21 AM	1.3	-
01/06/20 03:21 AM	3.7	-
01/06/20 04:21 AM	1.3	-
01/06/20 05:21 AM	1.0	-
01/06/20 06:21 AM	1.3	-
01/06/20 07:21 AM	1.7	-

Test Result: Pass

Test Location: 5103 N Willis Blvd. Portland, OR 97203

Inspection Report Date: 01/07/2020



Certification of Calibration

Device Information

Serial Number: **240235012**
Model Number: 1028-XP - Continuous Radon Monitor
Calibration Date: 3/13/2019
Device Firmware: 01.0.8
Device NRPP Code: CR2282

Calibration Chamber Information

Certification #: NRSB TRC600001
Certification Expiration Date: 05/31/2019
NIST Traceability Standard: SRM 4973
Last Inter-comparison: 03/2018
Inter-Comparison Error: 4.1

Device Calibration Test Details

Chamber #: 9
Operator: 594
Test Start: 3/11/2019 2:09 PM
Test Stop: 3/13/2019 12:26 PM

Test Details	Units	Value	Limits	Results
Radon Concentration	pCi/l	136.4	40 - 200	Pass
Background Level	pCi/l	0.2	<= 0.5	Pass
Calibration Factor	(count/hr)/(pCi/l)	3.0	2.3 - 3.2	Pass

This instrument has been calibrated in accordance with the specifications set forth by the manufacturer.

Calibration Result: **Pass**
Next Calibration Due Date: **3/13/2020**

Reviewed and Certified by:

David Rayburn
Radon Measurement Specialist
NRSB Certification #9SS057
Date: 3/13/2019

Sun Nuclear Corporation
3275 Suntree Blvd.
Melbourne, Florida 32940 U.S.A.

Tel: +1 321 255-7011
Email: radon@sunnuclear.com
Web: www.sunnuclear.com

Radon Inspection Report

Test Location:

Cesar Chavez Middle School
5103 N Willis Blvd.
Portland, OR 97203

Test For:

Portland Public Schools

Inspected By:

Cascade Radon, Inc.
12839 NE Airport Way Bldg. 9
Portland, OR 97230

Bldg. Type: Educational

Type: Post-Mitigation

Test Result: Pass

Overall Average:

0.4 pCi/l

EPA Average:

0.4 pCi/l

Test Device Details:

Serial Number: 241778029
Model Number: 1028XP
Last Calibration: 07/18/2019
Next Calibration: 07/18/2020
Cal-Factors: 2.90
Motion Error: No

Test Site Condition:

Structure Type: Middle School
Mitigation Sys: Installed and Active

Test Summary:

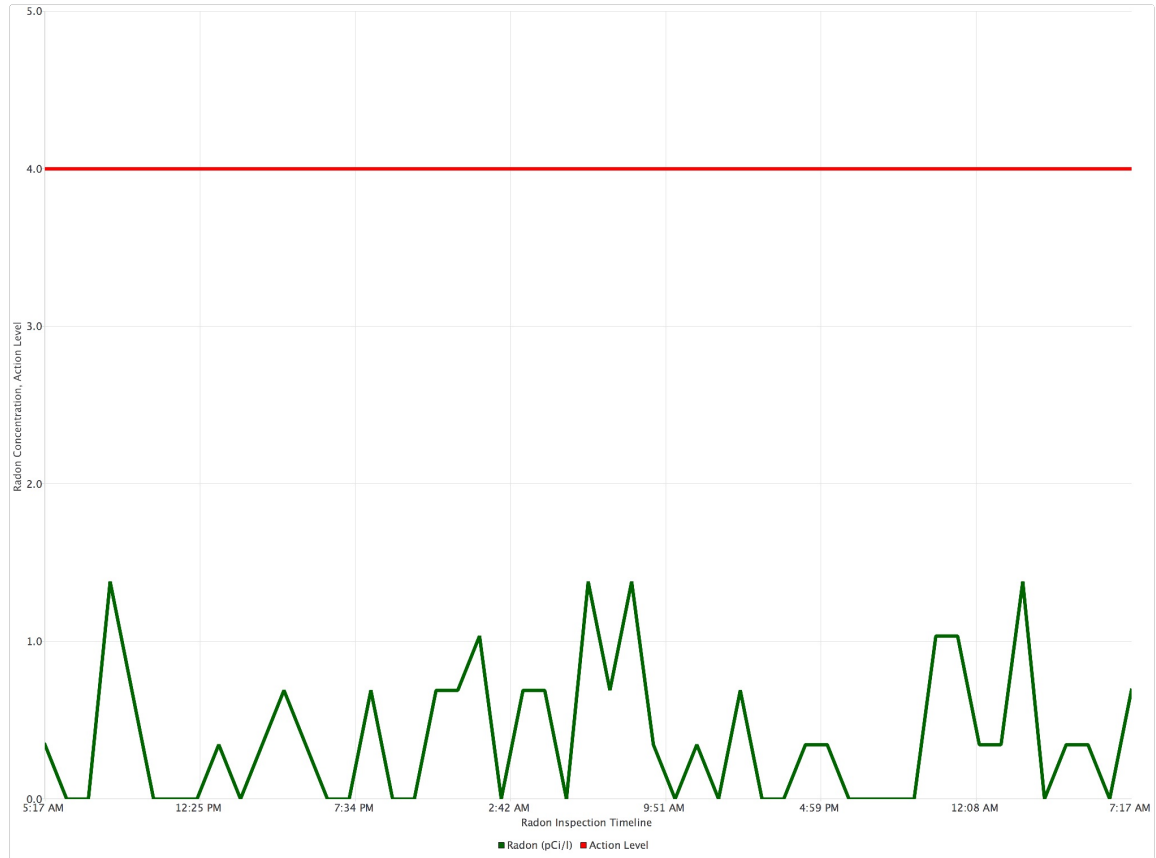
<u>CRM Location:</u>	<u>Start:</u>	<u>Stop:</u>	<u>Interval:</u>	<u>Duration:</u>
Room 163	01/04/2020 04:17 AM	01/06/2020 07:17 AM	1 hr	51 hr
*First 4 hrs of data excluded	<u>Min:</u>	<u>Max:</u>	<u>Average:</u>	<u>Measurement Units:</u>
Radon Concentration:	0.0	1.4	0.4	pCi/l

Comments:

Lic/Cert Signature
104815RMT

Inspection Report Date: 01/07/2020

Radon Inspection Chart



Test Result: Pass

Test Location: 5103 N Willis Blvd. Portland, OR 97203

Inspection Report Date: 01/07/2020

Test Table

* Data from first 4 hours excluded from EPA calculations

Date/Time	Radon(pCi/l)	Flags
01/04/20 05:17 AM	0.3	-
01/04/20 06:17 AM	0.0	-
01/04/20 07:17 AM	0.0	-
01/04/20 08:17 AM	1.4	-
01/04/20 09:17 AM	0.7	-
01/04/20 10:17 AM	0.0	-
01/04/20 11:17 AM	0.0	-
01/04/20 12:17 PM	0.0	-
01/04/20 01:17 PM	0.3	-
01/04/20 02:17 PM	0.0	-
01/04/20 03:17 PM	0.3	-
01/04/20 04:17 PM	0.7	-
01/04/20 05:17 PM	0.3	-
01/04/20 06:17 PM	0.0	-
01/04/20 07:17 PM	0.0	-
01/04/20 08:17 PM	0.7	-
01/04/20 09:17 PM	0.0	-
01/04/20 10:17 PM	0.0	-
01/04/20 11:17 PM	0.7	-
01/05/20 12:17 AM	0.7	-
01/05/20 01:17 AM	1.0	-
01/05/20 02:17 AM	0.0	-
01/05/20 03:17 AM	0.7	-
01/05/20 04:17 AM	0.7	-
01/05/20 05:17 AM	0.0	-
01/05/20 06:17 AM	1.4	-
01/05/20 07:17 AM	0.7	-
01/05/20 08:17 AM	1.4	-
01/05/20 09:17 AM	0.3	-
01/05/20 10:17 AM	0.0	-
01/05/20 11:17 AM	0.3	-
01/05/20 12:17 PM	0.0	-
01/05/20 01:17 PM	0.7	-
01/05/20 02:17 PM	0.0	-
01/05/20 03:17 PM	0.0	-
01/05/20 04:17 PM	0.3	-
01/05/20 05:17 PM	0.3	-
01/05/20 06:17 PM	0.0	-
01/05/20 07:17 PM	0.0	-
01/05/20 08:17 PM	0.0	-
01/05/20 09:17 PM	0.0	-
01/05/20 10:17 PM	1.0	-
01/05/20 11:17 PM	1.0	-
01/06/20 12:17 AM	0.3	-

Test Result: Pass

Test Location: 5103 N Willis Blvd. Portland, OR 97203

Inspection Report Date: 01/07/2020

Test Table

* Data from first 4 hours excluded from EPA calculations

<u>Date/Time</u>	<u>Radon(pCi/l)</u>	<u>Flags</u>
01/06/20 01:17 AM	0.3	-
01/06/20 02:17 AM	1.4	-
01/06/20 03:17 AM	0.0	-
01/06/20 04:17 AM	0.3	-
01/06/20 05:17 AM	0.3	-
01/06/20 06:17 AM	0.0	-
01/06/20 07:17 AM	0.7	-

Test Result: Pass

Test Location: 5103 N Willis Blvd. Portland, OR 97203

Inspection Report Date: 01/07/2020



Certification of Calibration

Device Information

Serial Number: **241778029**
Model Number: 1028-XP - Continuous Radon Monitor
Calibration Date: 7/18/2019
Device Firmware: 01.1.1
Device NRPP Code: CR2282

Calibration Chamber Information

Certification #: NRSB TRC600001
Certification Expiration Date: 05/30/2020
NIST Traceability Standard: SRM 4973
Last Inter-comparison: 03/2018
Inter-Comparison Error: 4.1

Device Calibration Test Details

Chamber #: 9
Operator: 594
Test Start: 7/16/2019 11:53 AM
Test Stop: 7/18/2019 10:29 AM

Test Details	Units	Value	Limits	Results
Radon Concentration	pCi/l	119.3	40 - 200	Pass
Background Level	pCi/l	0.3	<= 0.5	Pass
Calibration Factor	(count/hr)/(pCi/l)	2.9	2.6 - 3.4	Pass

This instrument has been calibrated in accordance with the specifications set forth by the manufacturer.

Calibration Result: **Pass**
Next Calibration Due Date: **7/18/2020**

Reviewed and Certified by:

David Rayburn
Radon Measurement Specialist
NRSB Certification #9SS057
Date: 7/18/2019

Radon Inspection Report

Test Location:

Cesar Chavez Middle School
5103 N Willis Blvd
Portland, OR 97203

Test For:

Portland Public Schools

Inspected By:

Cascade Radon, Inc.
12839 NE Airport Way Bldg. 9
Portland, OR 97230

Bldg. Type: Educational

Type: Post-Mitigation

Test Result: Pass

Overall Average:

0.5 pCi/l

EPA Average:

0.5 pCi/l

Test Device Details:

Serial Number: 241778015
Model Number: 1028XP
Last Calibration: 07/18/2019
Next Calibration: 07/18/2020
Cal-Factors: 2.83
Motion Error: No

Test Site Condition:

Structure Type: Middle School
Mitigation Sys: Installed and Active

Test Summary:

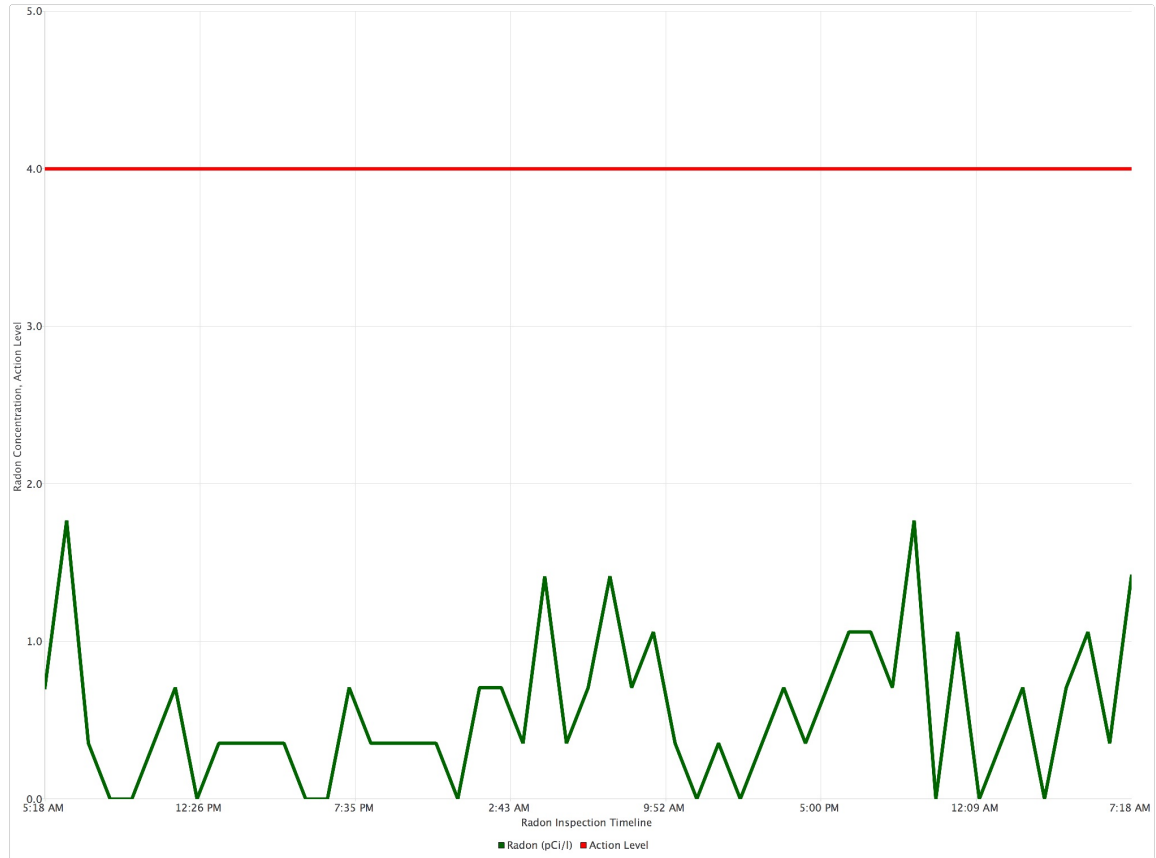
<u>CRM Location:</u>	<u>Start:</u>	<u>Stop:</u>	<u>Interval:</u>	<u>Duration:</u>
Room 164	01/04/2020 04:18 AM	01/06/2020 07:18 AM	1 hr	51 hr
*First 4 hrs of data excluded	<u>Min:</u>	<u>Max:</u>	<u>Average:</u>	<u>Measurement Units:</u>
Radon Concentration:	0.0	1.8	0.5	pCi/l

Comments:

Lic/Cert Signature
104815RMT

Inspection Report Date: 01/07/2020

Radon Inspection Chart



Test Result: Pass

Test Location: 5103 N Willis Blvd Portland, OR 97203

Inspection Report Date: 01/07/2020

Test Table

* Data from first 4 hours excluded from EPA calculations

Date/Time	Radon(pCi/l)	Flags
01/04/20 05:18 AM	0.7	-
01/04/20 06:18 AM	1.8	-
01/04/20 07:18 AM	0.4	-
01/04/20 08:18 AM	0.0	-
01/04/20 09:18 AM	0.0	-
01/04/20 10:18 AM	0.4	-
01/04/20 11:18 AM	0.7	-
01/04/20 12:18 PM	0.0	-
01/04/20 01:18 PM	0.4	-
01/04/20 02:18 PM	0.4	-
01/04/20 03:18 PM	0.4	-
01/04/20 04:18 PM	0.4	-
01/04/20 05:18 PM	0.0	-
01/04/20 06:18 PM	0.0	-
01/04/20 07:18 PM	0.7	-
01/04/20 08:18 PM	0.4	-
01/04/20 09:18 PM	0.4	-
01/04/20 10:18 PM	0.4	-
01/04/20 11:18 PM	0.4	-
01/05/20 12:18 AM	0.0	-
01/05/20 01:18 AM	0.7	-
01/05/20 02:18 AM	0.7	-
01/05/20 03:18 AM	0.4	-
01/05/20 04:18 AM	1.4	-
01/05/20 05:18 AM	0.4	-
01/05/20 06:18 AM	0.7	-
01/05/20 07:18 AM	1.4	-
01/05/20 08:18 AM	0.7	-
01/05/20 09:18 AM	1.1	-
01/05/20 10:18 AM	0.4	-
01/05/20 11:18 AM	0.0	-
01/05/20 12:18 PM	0.4	-
01/05/20 01:18 PM	0.0	-
01/05/20 02:18 PM	0.4	-
01/05/20 03:18 PM	0.7	-
01/05/20 04:18 PM	0.4	-
01/05/20 05:18 PM	0.7	-
01/05/20 06:18 PM	1.1	-
01/05/20 07:18 PM	1.1	-
01/05/20 08:18 PM	0.7	-
01/05/20 09:18 PM	1.8	-
01/05/20 10:18 PM	0.0	-
01/05/20 11:18 PM	1.1	-
01/06/20 12:18 AM	0.0	-

Test Result: Pass

Test Location: 5103 N Willis Blvd Portland, OR 97203

Inspection Report Date: 01/07/2020

Test Table

* Data from first 4 hours excluded from EPA calculations

<u>Date/Time</u>	<u>Radon(pCi/l)</u>	<u>Flags</u>
01/06/20 01:18 AM	0.4	-
01/06/20 02:18 AM	0.7	-
01/06/20 03:18 AM	0.0	-
01/06/20 04:18 AM	0.7	-
01/06/20 05:18 AM	1.1	-
01/06/20 06:18 AM	0.4	-
01/06/20 07:18 AM	1.4	-

Test Result: Pass

Test Location: 5103 N Willis Blvd Portland, OR 97203

Inspection Report Date: 01/07/2020



Certification of Calibration

Device Information

Serial Number: **238738015**
Model Number: 1028-XP - Continuous Radon Monitor
Calibration Date: 2/6/2019
Device Firmware: 01.0.8
Device NRPP Code: CR2282

Calibration Chamber Information

Certification #: NRSB TRC600001
Certification Expiration Date: 05/31/2019
NIST Traceability Standard: SRM 4973
Last Inter-comparison: 03/2018
Inter-Comparison Error: 4.1

Device Calibration Test Details

Chamber #: 9
Operator: 594
Test Start: 2/4/2019 1:46 PM
Test Stop: 2/6/2019 11:56 AM

Test Details	Units	Value	Limits	Results
Radon Concentration	pCi/l	147.2	40 - 200	Pass
Background Level	pCi/l	0.2	<= 0.5	Pass
Calibration Factor	(count/hr)/(pCi/l)	2.7	2.3 - 3.2	Pass

This instrument has been calibrated in accordance with the specifications set forth by the manufacturer.

Calibration Result: **Pass**
Next Calibration Due Date: **2/6/2020**

Reviewed and Certified by:

David Rayburn
Radon Measurement Specialist
NRSB Certification #9SS057
Date: 2/6/2019

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