March 13, 2017

Joe Crelier
Director of Risk Management
Portland Public Schools
501 N Dixon Street
Portland, Oregon 97227

Via email: jcrelier@pps.net

Regarding: Continuous Radon Monitor Measurement Report
Six Locations at Ockley Green and Skyline Schools
Portland, Oregon
PBS Project No. 06500.618, Phase 0002

Dear Mr. Crelier:

From March 6, to March 10, 2017, PBS Engineering and Environmental Inc. (PBS) conducted continuous radon monitor (CRM) measurements at two Portland Public Schools (PPS) sites in six unique locations. These measurements were performed in response to elevated radon levels identified during previous short-term radon monitoring and represent conditions following the installation of temporary mitigation systems. Locations tested are identified in the following table:

Site	Building	Room
Ockley Green	Main	Gym
Ockley Green	Main	Dance
Ockley Green	Main	Room 305
Ockley Green	Main	Room 307
Skyline	Main	105A
Skyline	Main	105B

This testing was performed with Sun Nuclear Model 1027 continuous radon monitors, EPA- and industry-approved testing devices. CRM monitors were placed on desk or table tops in rooms identified for testing. Devices were placed on the morning of March 6, 2017, and collected March 10, 2017. The devices recorded radon level and tilt (an anti-tampering indication) data for 90 hours. Closed building conditions were not verified during the course of this testing.

The following table summarizes radon data collected:

Test Location	Start Time	Stop Time	Total Time*	Average Radon Concentration (pCi/L = picocuries per liter)
Ockley Green – Gym	03/06/2017 12:00 PM	03/10/2017 08:55 AM	90 Hours	4.1 pCi/l
Ockley Green – Dance	03/06/2017 12:05 PM	03/10/2017 08:59 AM	90 Hours	2.7 pCi/l
Ockley Green – Room 305	03/06/2017 12:01 PM	03/10/2017 08:58 AM	90 Hours	1.5 pCi/l
Ockley Green – Room 307	03/06/2017 12:02 PM	03/10/2017 08:55 AM	90 Hours	1.5 pCi/l
Skyline – 105A	03/06/2017 12:41 PM	03/10/2017 09:50 AM	90 Hours	0.6 pCi/l
Skyline – 105B	03/06/2017 12:43 PM	03/10/2017 09:50 AM	90 Hours	0.5 pCi/l

* Units log data once per hour for a maximum of the first 90 hours. Data for all hours between start and stop times may not be logged.

For more detail, please see the Report Graphs with Detailed Hourly Data for each test location (attached).

Please feel free to contact me at 503.417.7694 or chris.boyce@pbsusa.com with any questions or comments.

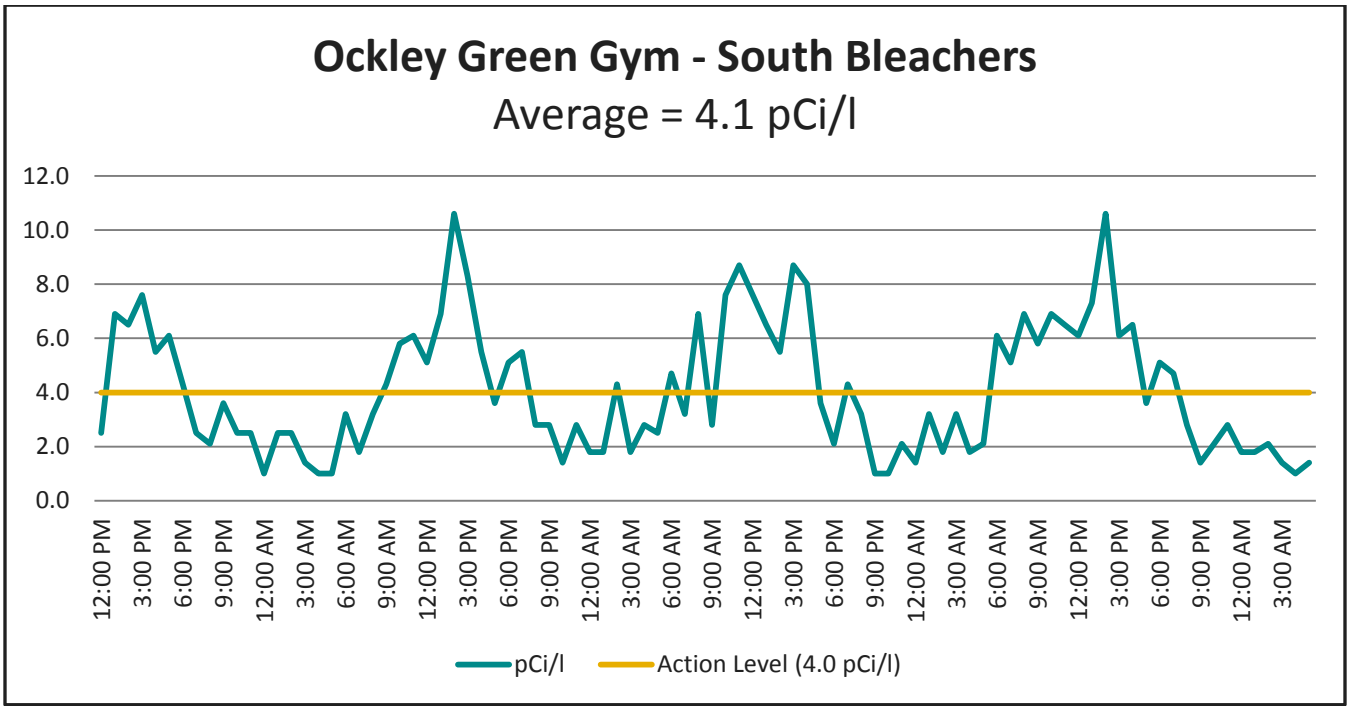
Sincerely,

Chris Boyce
Project Manager

Attachments: Report Graphs with Detailed Hourly Data (6)
CRM Statements of Calibration (Serial Numbers: 1407171, 1407172, 1407175, 1407176, 1407177, 1407179)

CB::rg

Unit Type: Sun Nuclear Model 1027
Serial Number: 1407179



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March 6, 2017	4:00 PM	5.5
March 6, 2017	5:00 PM	6.1
March 6, 2017	6:00 PM	4.3
March 6, 2017	7:00 PM	2.5
March 6, 2017	8:00 PM	2.1
March 6, 2017	9:00 PM	3.6
March 6, 2017	10:00 PM	2.5
March 6, 2017	11:00 PM	2.5
March 7, 2017	12:00 AM	1.0
March 7, 2017	1:00 AM	2.5
March 7, 2017	2:00 AM	2.5
March 7, 2017	3:00 AM	1.4
March 7, 2017	4:00 AM	1.0

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March 7, 2017	5:00 AM	1.0
March 7, 2017	6:00 AM	3.2
March 7, 2017	7:00 AM	1.8
March 7, 2017	8:00 AM	3.2
March 7, 2017	9:00 AM	4.3
March 7, 2017	10:00 AM	5.8
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March 7, 2017	1:00 PM	6.9
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March 8, 2017	8:00 AM	6.9
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March 8, 2017	3:00 PM	8.7
March 8, 2017	4:00 PM	8.0
March 8, 2017	5:00 PM	3.6
March 8, 2017	6:00 PM	2.1
March 8, 2017	7:00 PM	4.3
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March 8, 2017	9:00 PM	1.0

March 8, 2017	10:00 PM	1.0
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March 10, 2017	12:00 AM	1.8
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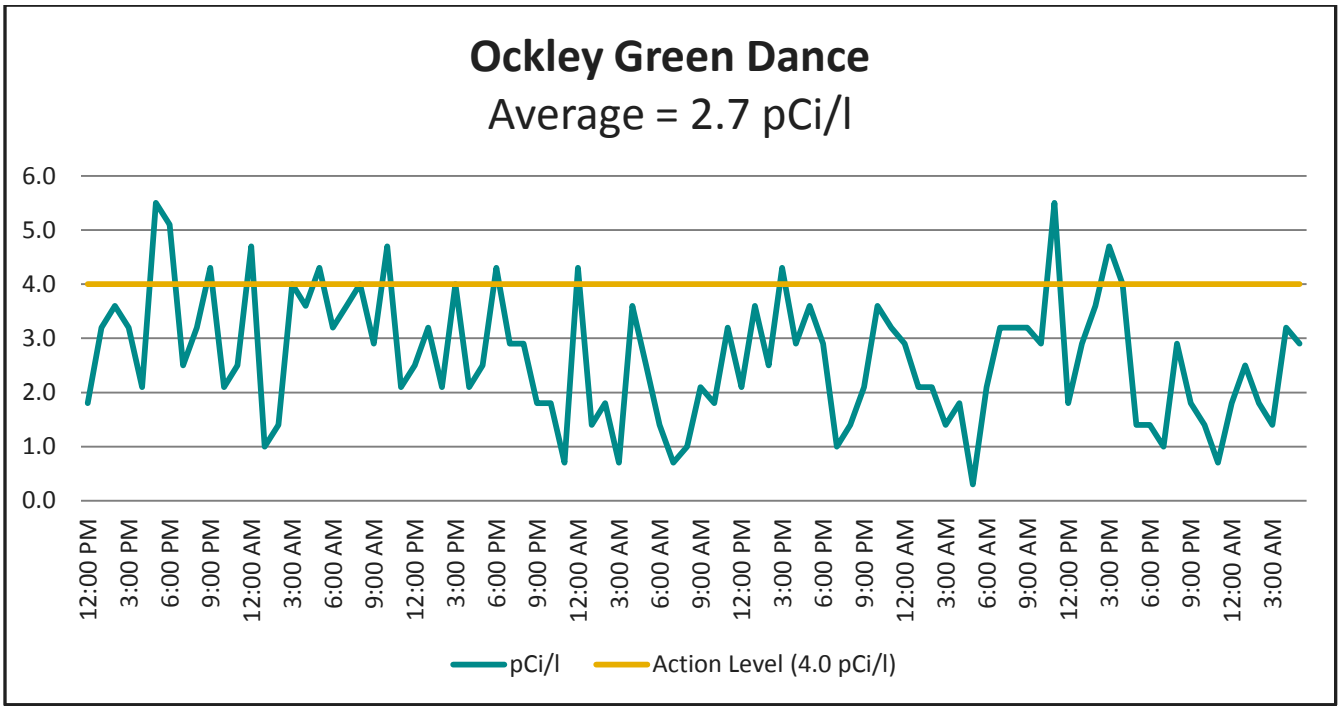
Unit Type: Sun Nuclear Model 1027
Serial Number: 1407177



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March 6, 2017	2:00 PM	3.6
March 6, 2017	3:00 PM	3.2
March 6, 2017	4:00 PM	2.1
March 6, 2017	5:00 PM	5.5
March 6, 2017	6:00 PM	5.1
March 6, 2017	7:00 PM	2.5
March 6, 2017	8:00 PM	3.2
March 6, 2017	9:00 PM	4.3
March 6, 2017	10:00 PM	2.1
March 6, 2017	11:00 PM	2.5
March 7, 2017	12:00 AM	4.7
March 7, 2017	1:00 AM	1.0
March 7, 2017	2:00 AM	1.4
March 7, 2017	3:00 AM	4.0
March 7, 2017	4:00 AM	3.6

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March 7, 2017	5:00 AM	4.3
March 7, 2017	6:00 AM	3.2
March 7, 2017	7:00 AM	3.6
March 7, 2017	8:00 AM	4.0
March 7, 2017	9:00 AM	2.9
March 7, 2017	10:00 AM	4.7
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March 8, 2017	4:00 PM	2.9
March 8, 2017	5:00 PM	3.6
March 8, 2017	6:00 PM	2.9
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March 8, 2017	8:00 PM	1.4
March 8, 2017	9:00 PM	2.1

March 8, 2017	10:00 PM	3.6
March 8, 2017	11:00 PM	3.2
March 9, 2017	12:00 AM	2.9
March 9, 2017	1:00 AM	2.1
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March 9, 2017	3:00 AM	1.4
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March 10, 2017	12:00 AM	1.8
March 10, 2017	1:00 AM	2.5
March 10, 2017	2:00 AM	1.8
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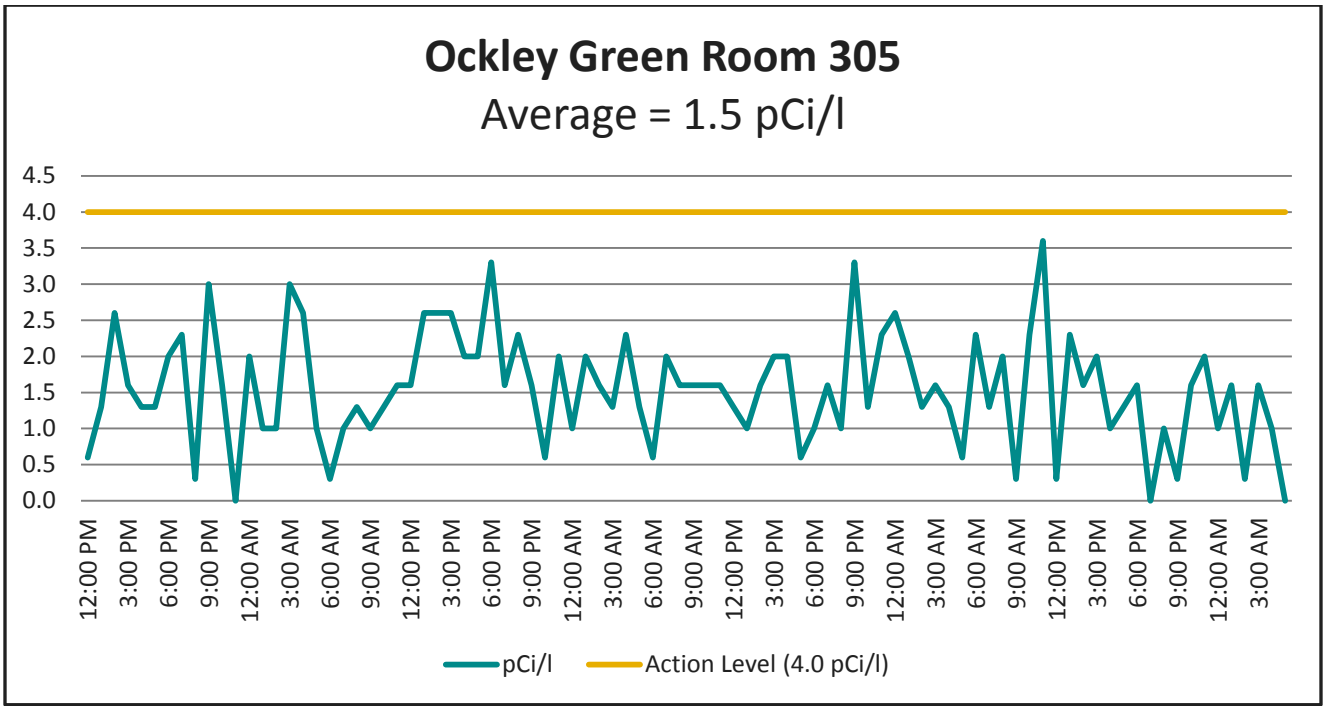
Unit Type: Sun Nuclear Model 1027
Serial Number: 1407176



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March 7, 2017	1:00 AM	1.0
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March 7, 2017	4:00 AM	2.6

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March 7, 2017	5:00 AM	1.0
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March 7, 2017	8:00 AM	1.3
March 7, 2017	9:00 AM	1.0
March 7, 2017	10:00 AM	1.3
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March 8, 2017	3:00 AM	1.3
March 8, 2017	4:00 AM	2.3
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March 8, 2017	6:00 AM	0.6
March 8, 2017	7:00 AM	2.0
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March 8, 2017	10:00 AM	1.6
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March 8, 2017	3:00 PM	2.0
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March 8, 2017	6:00 PM	1.0
March 8, 2017	7:00 PM	1.6
March 8, 2017	8:00 PM	1.0
March 8, 2017	9:00 PM	3.3

March 8, 2017	10:00 PM	1.3
March 8, 2017	11:00 PM	2.3
March 9, 2017	12:00 AM	2.6
March 9, 2017	1:00 AM	2.0
March 9, 2017	2:00 AM	1.3
March 9, 2017	3:00 AM	1.6
March 9, 2017	4:00 AM	1.3
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March 9, 2017	4:00 PM	1.0
March 9, 2017	5:00 PM	1.3
March 9, 2017	6:00 PM	1.6
March 9, 2017	7:00 PM	0.0
March 9, 2017	8:00 PM	1.0
March 9, 2017	9:00 PM	0.3
March 9, 2017	10:00 PM	1.6
March 9, 2017	11:00 PM	2.0
March 10, 2017	12:00 AM	1.0
March 10, 2017	1:00 AM	1.6
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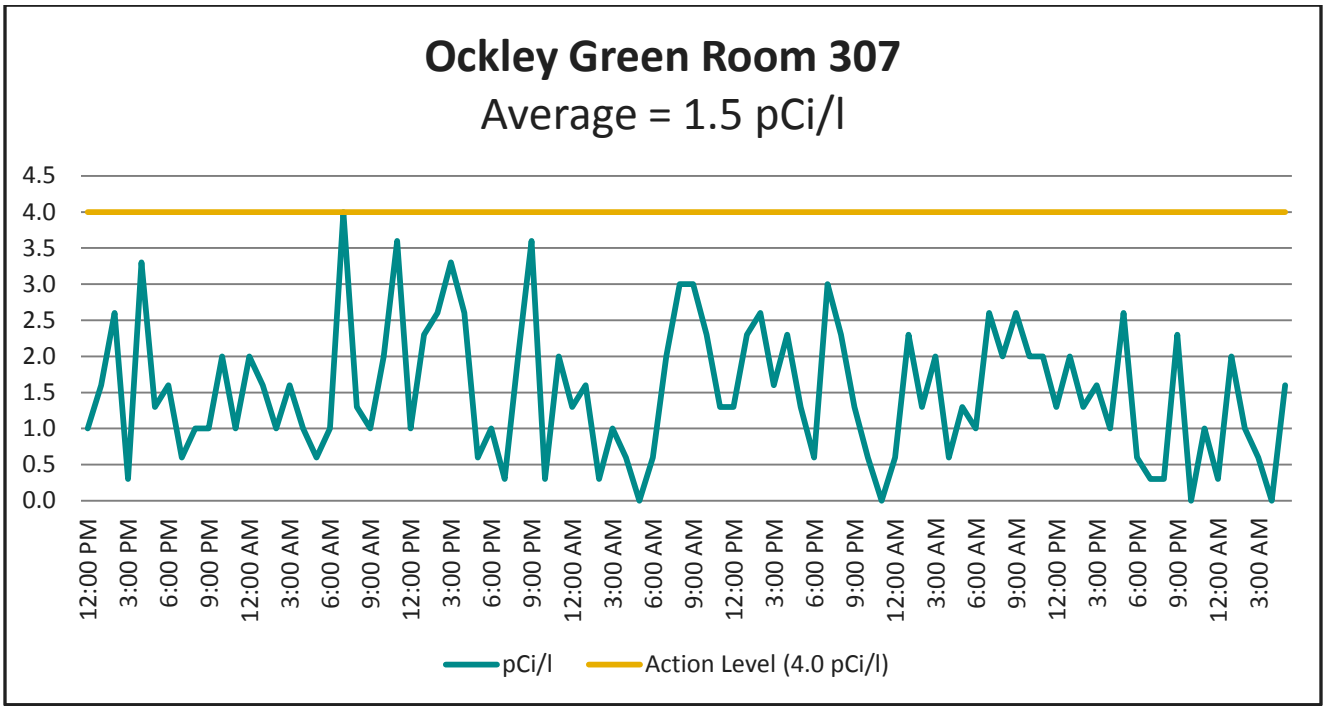
Unit Type: Sun Nuclear Model 1027
Serial Number: 1407175



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March 6, 2017	3:00 PM	0.3
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March 6, 2017	5:00 PM	1.3
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March 7, 2017	12:00 AM	2.0
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March 7, 2017	2:00 AM	1.0
March 7, 2017	3:00 AM	1.6
March 7, 2017	4:00 AM	1.0

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March 7, 2017	5:00 AM	0.6
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March 7, 2017	7:00 AM	4.0
March 7, 2017	8:00 AM	1.3
March 7, 2017	9:00 AM	1.0
March 7, 2017	10:00 AM	2.0
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March 8, 2017	2:00 AM	0.3
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March 8, 2017	8:00 PM	2.3
March 8, 2017	9:00 PM	1.3

March 8, 2017	10:00 PM	0.6
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March 9, 2017	12:00 AM	0.6
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March 9, 2017	7:00 PM	0.3
March 9, 2017	8:00 PM	0.3
March 9, 2017	9:00 PM	2.3
March 9, 2017	10:00 PM	0.0
March 9, 2017	11:00 PM	1.0
March 10, 2017	12:00 AM	0.3
March 10, 2017	1:00 AM	2.0
March 10, 2017	2:00 AM	1.0
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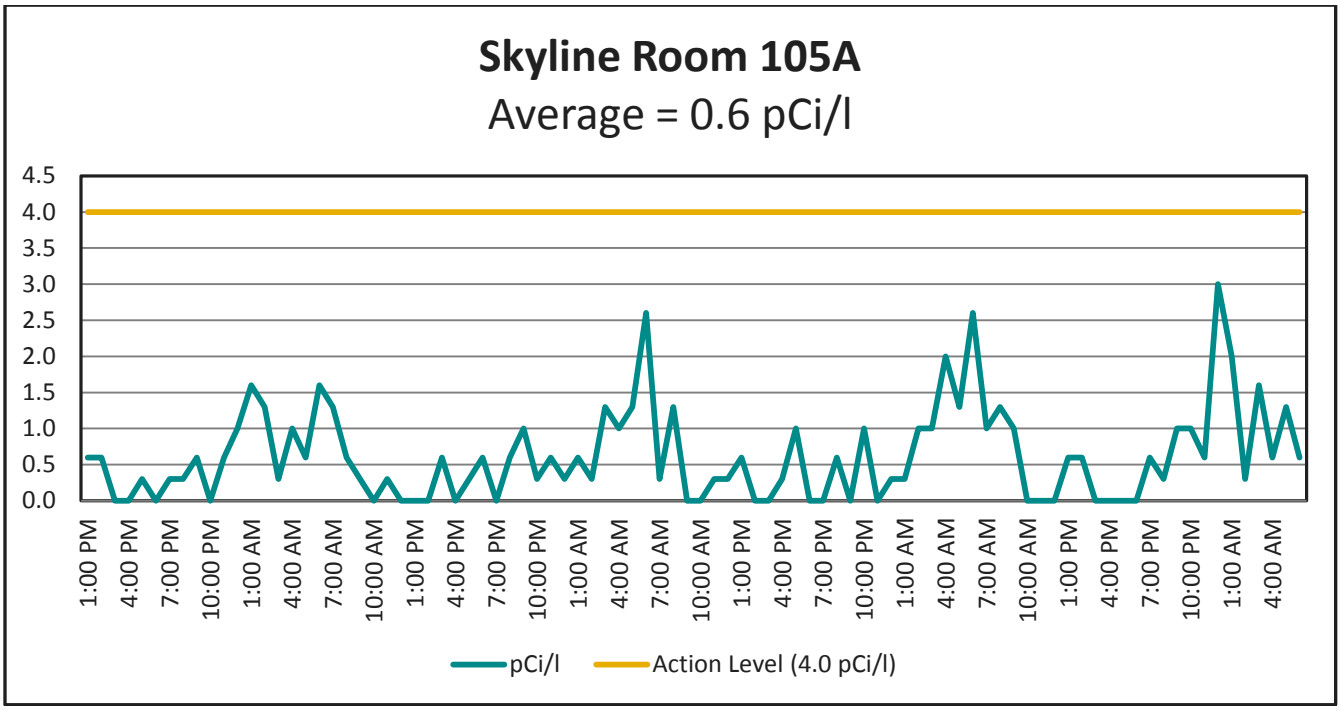
Unit Type: Sun Nuclear Model 1027
Serial Number: 1407171



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March 6, 2017	3:00 PM	0.0
March 6, 2017	4:00 PM	0.0
March 6, 2017	5:00 PM	0.3
March 6, 2017	6:00 PM	0.0
March 6, 2017	7:00 PM	0.3
March 6, 2017	8:00 PM	0.3
March 6, 2017	9:00 PM	0.6
March 6, 2017	10:00 PM	0.0
March 6, 2017	11:00 PM	0.6
March 6, 2017	12:00 AM	1.0
March 7, 2017	1:00 AM	1.6
March 7, 2017	2:00 AM	1.3
March 7, 2017	3:00 AM	0.3
March 7, 2017	4:00 AM	1.0
March 7, 2017	5:00 AM	0.6

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March 7, 2017	6:00 AM	1.6
March 7, 2017	7:00 AM	1.3
March 7, 2017	8:00 AM	0.6
March 7, 2017	9:00 AM	0.3
March 7, 2017	10:00 AM	0.0
March 7, 2017	11:00 AM	0.3
March 7, 2017	12:00 PM	0.0
March 7, 2017	1:00 PM	0.0
March 7, 2017	2:00 PM	0.0
March 7, 2017	3:00 PM	0.6
March 7, 2017	4:00 PM	0.0
March 7, 2017	5:00 PM	0.3
March 7, 2017	6:00 PM	0.6
March 7, 2017	7:00 PM	0.0
March 7, 2017	8:00 PM	0.6
March 7, 2017	9:00 PM	1.0
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March 8, 2017	6:00 AM	2.6
March 8, 2017	7:00 AM	0.3
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March 8, 2017	9:00 AM	0.0
March 8, 2017	10:00 AM	0.0
March 8, 2017	11:00 AM	0.3
March 8, 2017	12:00 PM	0.3
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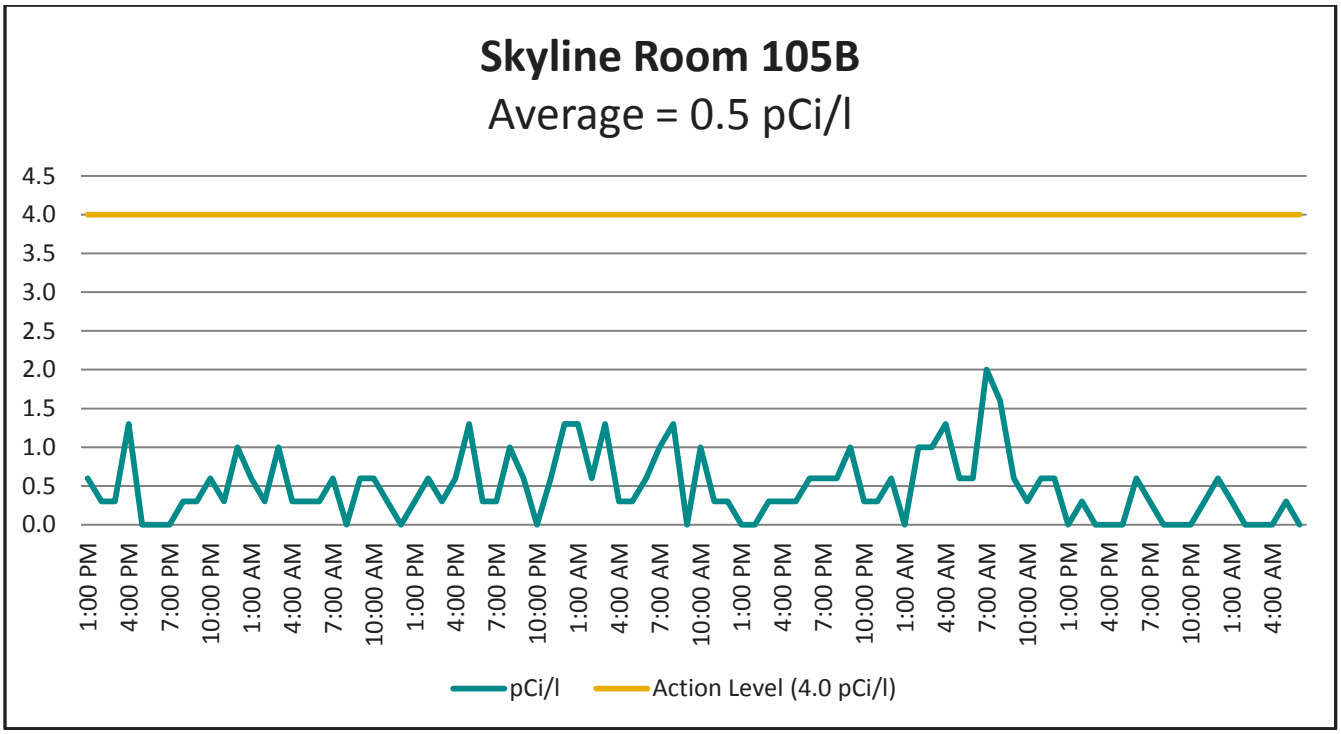
March 8, 2017	2:00 PM	0.0
March 8, 2017	3:00 PM	0.0
March 8, 2017	4:00 PM	0.3
March 8, 2017	5:00 PM	1.0
March 8, 2017	6:00 PM	0.0
March 8, 2017	7:00 PM	0.0
March 8, 2017	8:00 PM	0.6
March 8, 2017	9:00 PM	0.0
March 8, 2017	10:00 PM	1.0

March 8, 2017	11:00 PM	0.0
March 8, 2017	12:00 AM	0.3
March 9, 2017	1:00 AM	0.3
March 9, 2017	2:00 AM	1.0
March 9, 2017	3:00 AM	1.0
March 9, 2017	4:00 AM	2.0
March 9, 2017	5:00 AM	1.3
March 9, 2017	6:00 AM	2.6
March 9, 2017	7:00 AM	1.0
March 9, 2017	8:00 AM	1.3
March 9, 2017	9:00 AM	1.0
March 9, 2017	10:00 AM	0.0
March 9, 2017	11:00 AM	0.0
March 9, 2017	12:00 PM	0.0
March 9, 2017	1:00 PM	0.6
March 9, 2017	2:00 PM	0.6
March 9, 2017	3:00 PM	0.0
March 9, 2017	4:00 PM	0.0
March 9, 2017	5:00 PM	0.0
March 9, 2017	6:00 PM	0.0
March 9, 2017	7:00 PM	0.6
March 9, 2017	8:00 PM	0.3
March 9, 2017	9:00 PM	1.0
March 9, 2017	10:00 PM	1.0
March 9, 2017	11:00 PM	0.6
March 9, 2017	12:00 AM	3.0
March 10, 2017	1:00 AM	2.0
March 10, 2017	2:00 AM	0.3
March 10, 2017	3:00 AM	1.6
March 10, 2017	4:00 AM	0.6
March 10, 2017	5:00 AM	1.3
March 10, 2017	6:00 AM	0.6

Unit Type: Sun Nuclear Model 1027
Serial Number: 1407172



Date:	Time:	Radon (pCi/l)
March 6, 2017	1:00 PM	0.6
March 6, 2017	2:00 PM	0.3
March 6, 2017	3:00 PM	0.3
March 6, 2017	4:00 PM	1.3
March 6, 2017	5:00 PM	0.0
March 6, 2017	6:00 PM	0.0
March 6, 2017	7:00 PM	0.0
March 6, 2017	8:00 PM	0.3
March 6, 2017	9:00 PM	0.3
March 6, 2017	10:00 PM	0.6
March 6, 2017	11:00 PM	0.3
March 6, 2017	12:00 AM	1.0
March 7, 2017	1:00 AM	0.6
March 7, 2017	2:00 AM	0.3
March 7, 2017	3:00 AM	1.0
March 7, 2017	4:00 AM	0.3
March 7, 2017	5:00 AM	0.3

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March 7, 2017	6:00 AM	0.3
March 7, 2017	7:00 AM	0.6
March 7, 2017	8:00 AM	0.0
March 7, 2017	9:00 AM	0.6
March 7, 2017	10:00 AM	0.6
March 7, 2017	11:00 AM	0.3
March 7, 2017	12:00 PM	0.0
March 7, 2017	1:00 PM	0.3
March 7, 2017	2:00 PM	0.6
March 7, 2017	3:00 PM	0.3
March 7, 2017	4:00 PM	0.6
March 7, 2017	5:00 PM	1.3
March 7, 2017	6:00 PM	0.3
March 7, 2017	7:00 PM	0.3
March 7, 2017	8:00 PM	1.0
March 7, 2017	9:00 PM	0.6
March 7, 2017	10:00 PM	0.0
March 7, 2017	11:00 PM	0.6
March 7, 2017	12:00 AM	1.3
March 8, 2017	1:00 AM	1.3
March 8, 2017	2:00 AM	0.6
March 8, 2017	3:00 AM	1.3
March 8, 2017	4:00 AM	0.3
March 8, 2017	5:00 AM	0.3
March 8, 2017	6:00 AM	0.6
March 8, 2017	7:00 AM	1.0
March 8, 2017	8:00 AM	1.3
March 8, 2017	9:00 AM	0.0
March 8, 2017	10:00 AM	1.0
March 8, 2017	11:00 AM	0.3
March 8, 2017	12:00 PM	0.3
March 8, 2017	1:00 PM	0.0
March 8, 2017	2:00 PM	0.0
March 8, 2017	3:00 PM	0.3
March 8, 2017	4:00 PM	0.3
March 8, 2017	5:00 PM	0.3
March 8, 2017	6:00 PM	0.6
March 8, 2017	7:00 PM	0.6
March 8, 2017	8:00 PM	0.6
March 8, 2017	9:00 PM	1.0
March 8, 2017	10:00 PM	0.3

March 8, 2017	11:00 PM	0.3
March 8, 2017	12:00 AM	0.6
March 9, 2017	1:00 AM	0.0
March 9, 2017	2:00 AM	1.0
March 9, 2017	3:00 AM	1.0
March 9, 2017	4:00 AM	1.3
March 9, 2017	5:00 AM	0.6
March 9, 2017	6:00 AM	0.6
March 9, 2017	7:00 AM	2.0
March 9, 2017	8:00 AM	1.6
March 9, 2017	9:00 AM	0.6
March 9, 2017	10:00 AM	0.3
March 9, 2017	11:00 AM	0.6
March 9, 2017	12:00 PM	0.6
March 9, 2017	1:00 PM	0.0
March 9, 2017	2:00 PM	0.3
March 9, 2017	3:00 PM	0.0
March 9, 2017	4:00 PM	0.0
March 9, 2017	5:00 PM	0.0
March 9, 2017	6:00 PM	0.6
March 9, 2017	7:00 PM	0.3
March 9, 2017	8:00 PM	0.0
March 9, 2017	9:00 PM	0.0
March 9, 2017	10:00 PM	0.0
March 9, 2017	11:00 PM	0.3
March 9, 2017	12:00 AM	0.6
March 10, 2017	1:00 AM	0.3
March 10, 2017	2:00 AM	0.0
March 10, 2017	3:00 AM	0.0
March 10, 2017	4:00 AM	0.0
March 10, 2017	5:00 AM	0.3
March 10, 2017	6:00 AM	0.0

RADON REFERENCE LABORATORY

BOWSER MORNER®

STATEMENT OF CALIBRATION

Client Information:
PBS Engineering & Environmental Inc.
4412 Southwest Corbett Avenue
Portland, Oregon 97239
Attn: Chris Boyce

BMI Control Information:
Statement No.: 17581709
Issue Date: July 25, 2016
Calibrated on: July 25, 2016
Calibrated by: JPN
Calibration site: BMI Dayton

Description of Continuous Radon Monitor:
Manufacturer: Sun Nuclear **Model:** 1027 **Serial No.:** 1407171

The monitor was found to be in good physical condition. No power adapter was received with the monitor. The calibration was conducted using an adapter belonging to Bowser-Morner.

Initial Checks:

Visual Inspection	Batteries	Power Adapter	High Voltage	Software Version
Ok	Ok	See above	1199 VDC (Ok)	N5A

Result of Background Exposure (16 hr): 0.2 pCi/liter

Radon Chamber Conditions:

Exposure Duration	Radon Concentration	Relative Humidity	Temperature
48 hr	25.8 ± 0.5 pCi/liter	49.9 ± 0.5 %	70.0 ± 0.1 °F

The values listed above for the radon concentration, relative humidity and temperature are the means and standard deviations of the hourly average measurements of these parameters. The calibration of Bowser-Morner's Radon Monitoring System is maintained through comparisons with the USEPA radon laboratory in Las Vegas using a NIST traceable radium standard. The estimated total uncertainty of Bowser-Morner's average chamber concentration is ± 6.4% at the 95% confidence level.

Results of Calibration:

Average Monitor Reading	Relative Error As Received	Relative Error After Change of Calibration Factor
27.7 pCi/liter	6.6%	-3.1%

Based on the results of the calibration, the monitor's internal calibration factor was changed to the most accurate available setting. The background value listed above should be subtracted from the radon measurement and the result multiplied by the correction factor of 1.032.

The calibration was performed using BMI procedure number 42-001.

Authorized Signature Jill P. Newton, Manager Radon Reference Lab

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SUN NUCLEAR corporation

425-A Pineda Court
Melbourne, FL 32940-7508 U.S.A.
Ph: 321 259 6862 Fax: 321 259 7979
http://www.sunnuclear.com

Radon Certificate of Calibration

The following radon monitor was placed in the calibration chamber:

SNC Serial No: 1407172

Model No: 1027

Actual Reading	Error %	Correction Factor	Background
201.7 pCi/l	-0.3%	1.00	0.1

The Rn-222 gas concentration in the chamber, over the measurement interval was:

202.3 pCi/l, ±10% as measured with 100ml scintillation cells

The correction factor is a multiplicative and can be applied to the displayed value on the monitor.

The accuracy of this radon monitor is ± 25% or 1 pCi/l, which ever is greater, after a 24 hour period of deployment.

This instrument has been calibrated in accordance with the specifications set forth by the manufacturer. Radon gas calibrations are traceable to the NIST SRM 4973 Radon emanation standard.

The error of the chamber concentration is a best estimate based upon typical inter-comparison results with Bowser Morner Reference Laboratory. The most recent inter-comparison in which Sun Nuclear participated, March 2015, resulted in a 1.4% error in our reported measurement.

Frequency of re-calibration may vary depending upon local, state, or proficiency program requirements.

Sun Nuclear Corporation has successfully met the established and published requirements for Accreditation by the National Radon Safety Board as an accredited chamber. Certification No: NRSB TRC6001 expiring May 2017.

Calibration Date: 11/3/2016 Next Calibration Date: 11/3/2017

CG

Technician: _____

Please retain this document for record keeping purposes.

RADON REFERENCE LABORATORY

BOWSER MORNER®

STATEMENT OF CALIBRATION

Client Information:
PBS Engineering & Environmental Inc.
4412 Southwest Corbett Avenue
Portland, Oregon 97239
Attn: Chris Boyce

BMI Control Information:
Statement No.: 17581704
Issue Date: July 25, 2016
Calibrated on: July 25, 2016
Calibrated by: JPN
Calibration site: BMI Dayton

Description of Continuous Radon Monitor:
Manufacturer: Sun Nuclear **Model:** 1027 **Serial No.:** 1407175

The monitor was found to be in good physical condition.

Initial Checks:

Visual Inspection	Batteries	Power Adapter	High Voltage	Software Version
Ok	Replaced	11.1 VDC (Ok)	1114 VDC (Ok)	N5A

Result of Background Exposure (16 hr): 0.2 pCi/liter

Radon Chamber Conditions:

Exposure Duration	Radon Concentration	Relative Humidity	Temperature
48 hr	25.8 ± 0.5 pCi/liter	49.9 ± 0.5 %	70.0 ± 0.1 °F

The values listed above for the radon concentration, relative humidity and temperature are the means and standard deviations of the hourly average measurements of these parameters. The calibration of Bowser-Morner's Radon Monitoring System is maintained through comparisons with the USEPA radon laboratory in Las Vegas using a NIST traceable radium standard. The estimated total uncertainty of Bowser-Morner's average chamber concentration is ± 6.4% at the 95% confidence level.

Results of Calibration:

Average Monitor Reading	Relative Error As Received	Relative Error After Change of Calibration Factor
29.0 pCi/liter	11.6%	1.5%

Based on the results of the calibration, the monitor's internal calibration factor was changed to the most accurate available setting. The background value listed above should be subtracted from the radon measurement and the result multiplied by the correction factor of 0.986.

The calibration was performed using BMI procedure number 42-001.

Authorized Signature Jill P. Newton, Manager Radon Reference Lab

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RADON REFERENCE LABORATORY

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STATEMENT OF CALIBRATION

Client Information:
PBS Engineering & Environmental Inc.
4412 Southwest Corbett Avenue
Portland, Oregon 97239
Attn: Chris Boyce

BMI Control Information:
Statement No.: 17581705
Issue Date: July 25, 2016
Calibrated on: July 25, 2016
Calibrated by: JPN
Calibration site: BMI Dayton

Description of Continuous Radon Monitor:
Manufacturer: Sun Nuclear **Model:** 1027 **Serial No.:** 1407176

The monitor was found to be in good physical condition.

Initial Checks:

Visual Inspection	Batteries	Power Adapter	High Voltage	Software Version
Ok	Replaced	11.0 VDC (Ok)	1144 VDC (Ok)	N5A

Result of Background Exposure (16 hr): 0.1 pCi/liter

Radon Chamber Conditions:

Exposure Duration	Radon Concentration	Relative Humidity	Temperature
48 hr	25.8 ± 0.5 pCi/liter	49.9 ± 0.5 %	70.0 ± 0.1 °F

The values listed above for the radon concentration, relative humidity and temperature are the means and standard deviations of the hourly average measurements of these parameters. The calibration of Bowser-Morner's Radon Monitoring System is maintained through comparisons with the USEPA radon laboratory in Las Vegas using a NIST traceable radium standard. The estimated total uncertainty of Bowser-Morner's average chamber concentration is ± 6.4% at the 95% confidence level.

Results of Calibration:

Average Monitor Reading	Relative Error As Received	Relative Error After Change of Calibration Factor
28.0 pCi/liter	8.1%	-1.7%

Based on the results of the calibration, the monitor's internal calibration factor was changed to the most accurate available setting. The background value listed above should be subtracted from the radon measurement and the result multiplied by the correction factor of 1.017.

The calibration was performed using BMI procedure number 42-001.

Authorized Signature Jill P. Newton, Manager Radon Reference Lab

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SUN NUCLEAR corporation

425-A Pineda Court
Melbourne, FL 32940-7508 U.S.A.
Ph: 321 259 6862 Fax: 321 259 7979
http://www.sunnuclear.com

Radon Certificate of Calibration

The following radon monitor was placed in the calibration chamber:

SNC Serial No: 1407177

Model No: 1027

Actual Reading	Error %	Correction Factor	Background
210.2 pCi/l	3.9%	0.96	0.4

The Rn-222 gas concentration in the chamber, over the measurement interval was:

202.3 pCi/l, ±10% as measured with 100ml scintillation cells

The correction factor is a multiplicative and can be applied to the displayed value on the monitor.

The accuracy of this radon monitor is ± 25% or 1 pCi/l, which ever is greater, after a 24 hour period of deployment.

This instrument has been calibrated in accordance with the specifications set forth by the manufacturer. Radon gas calibrations are traceable to the NIST SRM 4973 Radon emanation standard.

The error of the chamber concentration is a best estimate based upon typical inter-comparison results with Bowser Morner Reference Laboratory. The most recent inter-comparison in which Sun Nuclear participated, March 2015, resulted in a 1.4% error in our reported measurement.

Frequency of re-calibration may vary depending upon local, state, or proficiency program requirements.

Sun Nuclear Corporation has successfully met the established and published requirements for Accreditation by the National Radon Safety Board as an accredited chamber. Certification No: NRSB TRC6001 expiring May 2017.

Calibration Date: 11/3/2016 Next Calibration Date: 11/3/2017

Technician: CG

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RADON REFERENCE LABORATORY

BOWSER MORNER®

STATEMENT OF CALIBRATION

Client Information:
PBS Engineering & Environmental Inc.
4412 Southwest Corbett Avenue
Portland, Oregon 97239
Attn: Chris Boyce

BMI Control Information:
Statement No.: 17581706
Issue Date: July 25, 2016
Calibrated on: July 25, 2016
Calibrated by: JPN
Calibration site: BMI Dayton

Description of Continuous Radon Monitor:
Manufacturer: Sun Nuclear **Model:** 1027 **Serial No.:** 1407179

The monitor was found to be in good physical condition.

Initial Checks:

Visual Inspection	Batteries	Power Adapter	High Voltage	Software Version
Ok	Replaced	10.9 VDC (Ok)	1155 VDC (Ok)	N5A

Result of Background Exposure (16 hr): 0.2 pCi/liter

Radon Chamber Conditions:

Exposure Duration	Radon Concentration	Relative Humidity	Temperature
48 hr	26.0 ± 0.3 pCi/liter	48.9 ± 0.6 %	70.0 ± 0.1 °F

The values listed above for the radon concentration, relative humidity and temperature are the means and standard deviations of the hourly average measurements of these parameters. The calibration of Bowser-Morner's Radon Monitoring System is maintained through comparisons with the USEPA radon laboratory in Las Vegas using a NIST traceable radium standard. The estimated total uncertainty of Bowser-Morner's average chamber concentration is ± 6.4% at the 95% confidence level.

Results of Calibration:

Average Monitor Reading	Relative Error As Received	Relative Error After Change of Calibration Factor
27.0 pCi/liter	3.1%	N/A

Based on the results of the calibration, the monitor's internal calibration factor as received was the most accurate available setting. The background value listed above should be subtracted from the radon measurement and the result multiplied by the correction factor of 0.970.

The calibration was performed using BMI procedure number 42-001.

Authorized Signature Gill P. Newton, Manager Radon Reference Lab

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