



**MCPS RADON TESTING - EXECUTIVE SUMMARY**

Site Name	Candlewood Elementary School
Date of Report	2/3/2020
Round of Testing	Initial Follow-up Post Remediation 2 year testing <b>5 year testing</b> HVAC Upgrade Window Replacement New Addition New Facility
# of Rooms Tested	44
# Rooms $\geq$ 4.0 pCi/L	0
Lowest Value	<0.3 pCi/L
Highest Value	0.9 pCi/L

**Project Status**

Current Project Status at this time: Testing Complete; no further action.



2/3/2020

Mr. Richard Cox, MS  
Environmental Team Leader  
Montgomery County Public Schools  
Division of Maintenance  
Gaithersburg, Maryland 20879

Re: Radon Testing Services

KCI Job #12146341126

**Location: Candlewood Elementary School**

7201 Osprey Drive  
Rockville, Maryland 20855

Dear Mr. Cox:

KCI Technologies, Inc. (KCI) is pleased to submit the following report to Montgomery County Public Schools pursuant to completing a “short-term” 3-day radon test for the Candlewood Elementary School, located at 7201 Osprey Drive in Rockville, Maryland 20855 (subject site).

**SCOPE OF SERVICES**

KCI conducted radon testing at the subject site to evaluate indoor radon levels relative to the USEPA's recommended action level of 4.0 picocuries per Liter (pCi/L) - the level at which EPA recommends that schools take action to reduce the level. KCI conducted the radon testing in accordance with American Association of Radon Scientists and Technologists (AARST) *Protocol for Conducting Measurements of Radon and Radon Decay Products in Schools and Large Buildings*. A National Radon Proficiency Program (NRPP) Radon Measurement Provider (certification #111004 RT) supervised the testing. Additional information on radon management and the health effects of radon exposure is available from <https://www.montgomeryschoolsmd.org/departments/facilities/maintenance/default.aspx?id=458858> or [www.epa.gov/radon](http://www.epa.gov/radon).

KCI visited the site on 12/17/2019 and deployed fifty-three (53) activated charcoal (AC) radon test kits. KCI deployed radon test kits in frequently-occupied ground contact rooms, and other areas, (if applicable) in accordance with AARST guidance.

A floor plan map of the building with the test locations is included as Appendix A of this report.

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As a quality control measure, KCI included duplicate samples, field blanks, lab transit blanks, and office blanks in accordance with AARST recommendations. In addition, KCI submitted sixty (60) test kits to Bowser-Morner, Inc. as spike samples. The spiked tests were exposed to a known radon concentration by Bowser-Morner, Inc. prior to being returned to the laboratory for analysis.

KCI returned to the site on 12/20/2019 to retrieve the radon sampling test kits. KCI shipped all radon tests via overnight delivery to Aircheck, Inc. for analysis by gamma-ray spectroscopy. Aircheck, Inc. is a National Radon Safety Board (NRSB) radon measurement provider and is a certified analytical laboratory for radon analysis (certification #ARL1402) located at 1936 Butler Bridge Road, Mills River, North Carolina.

### **EVALUATION OF TESTING CONDITIONS**

These tests represent:

- Follow-up to initial testing.

These tests were conducted to:

- Evaluate radon concentrations at the facility.

According to AARST, *Protocol for Conducting Measurements of Radon and Radon Decay Products in Schools and Large Buildings*, ideal testing conditions would be when the building is fully occupied and the heating system is active. For this test, the facility's HVAC system was operating in heating mode; therefore, KCI concludes that this test was conducted during ideal testing conditions.

KCI recorded observations of the following conditions in each room at the time of deployment and collection of the radon test kits:

- Indoor temperature,
- HVAC Operation,
- Dehumidifier operation,
- Humidifier operation,
- Ceiling fan operation, and
- Open windows or doors.

KCI also compiled weather data for the testing period and conducted observations of relevant field conditions. During the test period, weather records indicate low temperatures were in the lower-20s and high temperatures were in the lower-40s. Maximum sustained winds ranged from 12-26 miles per hour. Average humidity was around 67%. 0.54 inches of precipitation (rain and snow) was recorded during the testing period.

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## **RESULTS**

The sampling locations and analytical results are listed on Table 1 (Attachment B). The quality control sample locations and analytical results are listed on Table 2 (Attachment B). Sampling locations and associated test kit identification numbers and relevant field observations are listed on Table 3 (Attachment B). The laboratory analytical results are included in Attachment C. Laboratory results and exposure data for the spike samples are also included in Attachment C.

The results of the radon test analysis indicated the following:

<b>Radon Concentration</b>	<b>Room</b>	<b>Result</b>
≥4.0 pCi/L	None	N/A
≤4.0 pCi/L	See Attachment B	See Attachment B

<b>Quality Control Samples</b>	
Results of Blank Canisters:	The office blanks, and lab transit blanks had test results of less than the laboratory detection limit of 0.3 pCi/L.
Adequate Laboratory Precision?	Review of the duplicate sample analysis indicates that adequate laboratory measurement precision was achieved.
Spike Sample Analysis:	The Spike sample analysis results indicate the laboratory is operating within statistical control limits.

Our professional services have been performed in accordance with customary principles and practices in the field of industrial hygiene and engineering. If you have any questions or comments regarding this report, please feel free to contact me at 410-316-7800.

Sincerely,

Mr. Tyler P. McCleaf  
Radon Measurement Provider  
111004 RT

KCI Technologies, Inc.

Attachments:

A- Floor Plan with Test Locations

B - Tables 1-3, Radon Test Summary Spreadsheets

C- Laboratory Analytical Results

# ATTACHMENT A

## Floor Plan With Test Locations

# ATTACHMENT B

## Radon Test Summary Spreadsheet

**Table Notes:**

AC- Activated Charcoal

ACI- Air Chek, Inc.

D- Duplicate

FB- Field Blank

KCI- KCI Technologies, Inc.

OB- Office Blank

PM- Project Manager

QC- Quality Control

Table 1- Radon Testing Results		
Candlewood Elementary School		
Test Period: 12/17/2019-12/20/2019		
Kit Number	Room / Area	Result
9340228	100C	0.9
9340229	100A	0.7
9340230	102A	< 0.3
9340231	102	0.6
9340232	100D	0.5
9340233	115	< 0.3
9340234	114	< 0.3
9340235	100	< 0.3
9340236	111	< 0.3
9340237	115	< 0.3
9340238	115	< 0.3
9340239	122	0.5
9340240	101	< 0.3
9340241	101A	< 0.3
9340242	104	< 0.3
9340243	128	< 0.3
9340244	125	0.8
9340245	118	< 0.3
9340246	121	0.5
9340247	128	< 0.3
9340248	124	< 0.3
9340249	132	0.7
9340250	136	< 0.3
9340251	138	< 0.3
9340252	142	< 0.3
9340253	139	< 0.3
9340254	139	< 0.3
9340255	133	0.8
9340256	137	< 0.3
9340257	146	0.8
9340258	145	0.6
9340259	150	< 0.3
9340260	149	< 0.3
9340261	154	< 0.3
9340262	152	< 0.3
9340263	157	0.5
9340264	165	< 0.3
9340265	168	0.7
9340266	161	< 0.3
9340267	168L	0.8
9340268	158	< 0.3
9340269	112	0.7
9340270	168	< 0.3
9340271	169	< 0.3
9340272	112	0.9
9340273	165	0.6
9340274	165	< 0.3
9340275	110	0.7
9340276	200	< 0.3
9340277	200	< 0.3



9340278	245	< 0.3
9340279	221	< 0.3
9340281	216	< 0.3
9341390	OFFICE BLANK	< 0.3

Table 2- Radon Testing Results			
Candlewood Elementary School			
Test Period: 12/16/2019-12/19/2019			
Kit Number	QC Type	Room / Area	Result
9340238	D	115	<0.3
9340237	FB	115	<0.3
9340247	D	128	<0.3
9340253	D	139	<0.3
9340273	D	165	0.6
9340274	FB	165	<0.3
9340277	D	200	<0.3
9341377	TRANSIT BLANK	NA	0.5
9341379	TRANSIT BLANK	NA	< 0.3
9341380	TRANSIT BLANK	NA	< 0.3
9341398	TRANSIT BLANK	NA	< 0.3



# ATTACHMENT C

## Laboratory Analytical Results

Radon test result report for:

**CANDLEWOOD ELEMENTARY SCHOOL****508**

Kit #	Room Id	Started	Ended	pCi/L	Analyzed
9340235	100	2019-12-17 @ 8:00 am	2019-12-20 @ 8:00 am	< 0.3	2019-12-24
9340229	100A	2019-12-17 @ 8:00 am	2019-12-20 @ 8:00 am	0.7 ± 0.4	2019-12-24
9340228	100C	2019-12-17 @ 8:00 am	2019-12-20 @ 8:00 am	0.9 ± 0.4	2019-12-24
9340232	100D	2019-12-17 @ 8:00 am	2019-12-20 @ 8:00 am	0.5 ± 0.4	2019-12-24
9340240	101	2019-12-17 @ 8:00 am	2019-12-20 @ 8:00 am	< 0.3	2019-12-24
9340241	101A	2019-12-17 @ 8:00 am	2019-12-20 @ 8:00 am	< 0.3	2019-12-24
9340231	102	2019-12-17 @ 8:00 am	2019-12-20 @ 8:00 am	0.6 ± 0.3	2019-12-24
9340230	102A	2019-12-17 @ 8:00 am	2019-12-20 @ 8:00 am	< 0.3	2019-12-24
9340242	104	2019-12-17 @ 8:00 am	2019-12-20 @ 8:00 am	< 0.3	2019-12-24
9340275	110	2019-12-17 @ 9:00 am	2019-12-20 @ 8:00 am	0.7 ± 0.4	2019-12-24
9340236	111	2019-12-17 @ 8:00 am	2019-12-20 @ 8:00 am	< 0.3	2019-12-24
9340269	112	2019-12-17 @ 10:00 am	2019-12-20 @ 8:00 am	0.7 ± 0.4	2019-12-24
9340272	112	2019-12-17 @ 10:00 am	2019-12-20 @ 8:00 am	0.9 ± 0.4	2019-12-24
9340234	114	2019-12-17 @ 8:00 am	2019-12-20 @ 8:00 am	< 0.3	2019-12-24
9340237	115	2019-12-17 @ 8:00 am	2019-12-20 @ 8:00 am	< 0.3	2019-12-24
9340233	115	2019-12-17 @ 8:00 am	2019-12-20 @ 8:00 am	< 0.3	2019-12-24
9340238	115	2019-12-17 @ 8:00 am	2019-12-20 @ 8:00 am	< 0.3	2019-12-24
9340245	118	2019-12-17 @ 8:00 am	2019-12-20 @ 8:00 am	< 0.3	2019-12-24
9340246	121	2019-12-17 @ 8:00 am	2019-12-20 @ 8:00 am	0.5 ± 0.4	2019-12-24
9340239	122	2019-12-17 @ 8:00 am	2019-12-20 @ 8:00 am	0.5 ± 0.4	2019-12-24
9340248	124	2019-12-17 @ 8:00 am	2019-12-20 @ 8:00 am	< 0.3	2019-12-24
9340244	125	2019-12-17 @ 8:00 am	2019-12-20 @ 8:00 am	0.8 ± 0.4	2019-12-24
9340247	128	2019-12-17 @ 9:00 am	2019-12-20 @ 8:00 am	< 0.3	2019-12-24
9340243	128	2019-12-17 @ 9:00 am	2019-12-20 @ 8:00 am	< 0.3	2019-12-24
9340249	132	2019-12-17 @ 9:00 am	2019-12-20 @ 8:00 am	0.7 ± 0.4	2019-12-24
9340255	133	2019-12-17 @ 9:00 am	2019-12-20 @ 8:00 am	0.8 ± 0.4	2019-12-24
9340250	136	2019-12-17 @ 9:00 am	2019-12-20 @ 8:00 am	< 0.3	2019-12-24
9340256	137	2019-12-17 @ 9:00 am	2019-12-20 @ 8:00 am	< 0.3	2019-12-24
9340251	138	2019-12-17 @ 9:00 am	2019-12-20 @ 8:00 am	< 0.3	2019-12-24
9340254	139	2019-12-17 @ 9:00 am	2019-12-20 @ 8:00 am	< 0.3	2019-12-24
9340253	139	2019-12-17 @ 9:00 am	2019-12-20 @ 8:00 am	< 0.3	2019-12-24
9340252	142	2019-12-17 @ 9:00 am	2019-12-20 @ 8:00 am	< 0.3	2019-12-24
9340258	145	2019-12-17 @ 9:00 am	2019-12-20 @ 9:00 am	0.6 ± 0.4	2019-12-24
9340257	146	2019-12-17 @ 9:00 am	2019-12-20 @ 9:00 am	0.8 ± 0.4	2019-12-24
9340260	149	2019-12-17 @ 9:00 am	2019-12-20 @ 9:00 am	< 0.3	2019-12-24
9340259	150	2019-12-17 @ 9:00 am	2019-12-20 @ 9:00 am	< 0.3	2019-12-24
9340262	152	2019-12-17 @ 9:00 am	2019-12-20 @ 9:00 am	< 0.3	2019-12-24

Radon test result report for:**CANDLEWOOD ELEMENTARY SCHOOL  
508**

<b>Kit #</b>	<b>Room Id</b>	<b>Started</b>	<b>Ended</b>	<b>pCi/L</b>	<b>Analyzed</b>
9340261	154	2019-12-17 @ 9:00 am	2019-12-20 @ 9:00 am	< 0.3	2019-12-24
9340263	157	2019-12-17 @ 9:00 am	2019-12-20 @ 9:00 am	0.5 ± 0.4	2019-12-24
9340268	158	2019-12-17 @ 9:00 am	2019-12-20 @ 9:00 am	< 0.3	2019-12-24
9340266	161	2019-12-17 @ 9:00 am	2019-12-20 @ 9:00 am	< 0.3	2019-12-24
9340264	165	2019-12-17 @ 9:00 am	2019-12-20 @ 9:00 am	< 0.3	2019-12-24
9340274	165	2019-12-17 @ 9:00 am	2019-12-20 @ 9:00 am	< 0.3	2019-12-24
9340273	165	2019-12-17 @ 9:00 am	2019-12-20 @ 9:00 am	0.6 ± 0.4	2019-12-24
9340265	168	2019-12-17 @ 9:00 am	2019-12-20 @ 9:00 am	0.7 ± 0.3	2019-12-24
9340270	168	2019-12-17 @ 9:00 am	2019-12-20 @ 9:00 am	< 0.3	2019-12-24
9340267	168L	2019-12-17 @ 9:00 am	2019-12-20 @ 9:00 am	0.8 ± 0.4	2019-12-24
9340271	169	2019-12-17 @ 10:00 am	2019-12-20 @ 9:00 am	< 0.3	2019-12-24
9340276	200	2019-12-17 @ 10:00 am	2019-12-20 @ 9:00 am	< 0.3	2019-12-24
9340277	200	2019-12-17 @ 10:00 am	2019-12-20 @ 9:00 am	< 0.3	2019-12-24
9340281	216	2019-12-17 @ 10:00 am	2019-12-20 @ 9:00 am	< 0.3	2019-12-24
9340279	221	2019-12-17 @ 10:00 am	2019-12-20 @ 9:00 am	< 0.3	2019-12-24
9340278	245	2019-12-17 @ 10:00 am	2019-12-20 @ 9:00 am	< 0.3	2019-12-24

# EXPOSURE IN BOWSER-MORNER RADON CHAMBER

CLIENT KCI Technologies Inc. Job Number 193598

NOMINAL Conditions: Radon Conc \_\_\_\_\_ pCi/L Rel. Hum \_\_\_\_\_ % Temp. \_\_\_\_\_ F

Temp °F 70.1  
RH % 50.1  
Avg pCi/L 25.4

Date Start: 12/21/19 Date Stop: 12/23/19

Time Start: 0815 Time Stop: 0815

(Group 1)  
Device No.'s: (20) Char. Bags-

9340001 thru 9340020

55

Temp °F 70.1  
RH % 50.1  
Avg pCi/L 25.4

Date Start: 12/21/19 Date Stop: 12/23/19

Time Start: 0829 Time Stop: 0820

(Group 2)  
Device No.'s: (20) Char. Bags-

9340021 thru 9340040

54

Temp °F 70.1  
RH % 50.1  
Avg pCi/L 25.4

Date Start: 12/21/19 Date Stop: 12/23/19

Time Start: 0825 Time Stop: 0825

(Group 3)  
Device No.'s: (20) Char. Bags-

9340041 thru 9340060

53

Note: All times are in 24-hour (military) notation, Eastern Standard Time (EST)  
Background = 7 µR/h Elevation = 820 ft

Radon test result report for:

MCPS - Spike Sample Lab Results. Measured values are satisfactory, i.e., within  $\pm 25\%$  of the chamber's reference value (25.7 pCi/L).

Kit #	Room Id	Started	Ended	pCi/L	Analyzed
9340067	N/A	2019-12-21 @ 9:00 am	2019-12-23 @ 9:00 am	25.1 $\pm$ 2.4 D	2020-01-03
9340035	N/A	2019-12-21 @ 8:00 am	2019-12-23 @ 8:00 am	22.5 $\pm$ 2.3 D	2020-01-03
9340003	N/A	2019-12-21 @ 8:00 am	2019-12-23 @ 8:00 am	25.2 $\pm$ 2.4 D	2020-01-03
9340089	N/A	2019-12-21 @ 9:00 am	2019-12-23 @ 9:00 am	23.3 $\pm$ 2.3 D	2020-01-03
9340072	N/A	2019-12-21 @ 9:00 am	2019-12-23 @ 9:00 am	18.3 $\pm$ 2.0 D	2020-01-03
9340040	N/A	2019-12-21 @ 8:00 am	2019-12-23 @ 8:00 am	27.3 $\pm$ 2.6 D	2020-01-03
9340008	N/A	2019-12-21 @ 8:00 am	2019-12-23 @ 8:00 am	24.8 $\pm$ 2.5 D	2020-01-03
9340094	N/A	2019-12-21 @ 9:00 am	2019-12-23 @ 9:00 am	24.7 $\pm$ 2.5 D	2020-01-03
9340099	N/A	2019-12-21 @ 9:00 am	2019-12-23 @ 9:00 am	27.5 $\pm$ 2.6 D	2020-01-03
9340077	N/A	2019-12-21 @ 9:00 am	2019-12-23 @ 9:00 am	25.2 $\pm$ 2.5 D	2020-01-03
9340045	N/A	2019-12-21 @ 8:00 am	2019-12-23 @ 8:00 am	24.7 $\pm$ 2.4 D	2020-01-03
9340013	N/A	2019-12-21 @ 8:00 am	2019-12-23 @ 8:00 am	25.9 $\pm$ 2.6 D	2020-01-03
9340018	N/A	2019-12-21 @ 8:00 am	2019-12-23 @ 8:00 am	29.1 $\pm$ 2.8 D	2020-01-03
9341704	N/A	2019-12-21 @ 9:00 am	2019-12-23 @ 9:00 am	25.1 $\pm$ 2.4 D	2020-01-03
9340050	N/A	2019-12-21 @ 8:00 am	2019-12-23 @ 8:00 am	27.2 $\pm$ 2.6 D	2020-01-03
9340023	N/A	2019-12-21 @ 8:00 am	2019-12-23 @ 8:00 am	28.2 $\pm$ 2.7 D	2020-01-03
9341709	N/A	2019-12-21 @ 9:00 am	2019-12-23 @ 9:00 am	25.5 $\pm$ 2.4 D	2020-01-03
9340055	N/A	2019-12-21 @ 8:00 am	2019-12-23 @ 8:00 am	27.8 $\pm$ 2.6 D	2020-01-03
9340060	N/A	2019-12-21 @ 8:00 am	2019-12-23 @ 8:00 am	27.3 $\pm$ 2.5 D	2020-01-03
9340028	N/A	2019-12-21 @ 8:00 am	2019-12-23 @ 8:00 am	23.9 $\pm$ 2.3 D	2020-01-03
9341714	N/A	2019-12-21 @ 9:00 am	2019-12-23 @ 9:00 am	28.3 $\pm$ 2.7 D	2020-01-03
9340082	N/A	2019-12-21 @ 9:00 am	2019-12-23 @ 9:00 am	26.4 $\pm$ 2.6 D	2020-01-03
9340065	N/A	2019-12-21 @ 9:00 am	2019-12-23 @ 9:00 am	24.2 $\pm$ 2.4 D	2020-01-03
9340033	N/A	2019-12-21 @ 8:00 am	2019-12-23 @ 8:00 am	26.2 $\pm$ 2.5 D	2020-01-03
9341719	N/A	2019-12-21 @ 9:00 am	2019-12-23 @ 9:00 am	26.7 $\pm$ 2.5 D	2020-01-03
9340001	N/A	2019-12-21 @ 8:00 am	2019-12-23 @ 8:00 am	26.3 $\pm$ 2.5 D	2020-01-03
9340087	N/A	2019-12-21 @ 9:00 am	2019-12-23 @ 9:00 am	24.8 $\pm$ 2.4 D	2020-01-03
9340070	N/A	2019-12-21 @ 9:00 am	2019-12-23 @ 9:00 am	19.5 $\pm$ 2.4 D	2020-01-03
9340038	N/A	2019-12-21 @ 8:00 am	2019-12-23 @ 8:00 am	24.7 $\pm$ 2.3 D	2020-01-03
9340006	N/A	2019-12-21 @ 8:00 am	2019-12-23 @ 8:00 am	25.2 $\pm$ 2.4 D	2020-01-03
9340092	N/A	2019-12-21 @ 9:00 am	2019-12-23 @ 9:00 am	31.4 $\pm$ 2.8 D	2020-01-03
9340097	N/A	2019-12-21 @ 9:00 am	2019-12-23 @ 9:00 am	26.7 $\pm$ 2.5 D	2020-01-03
9340075	N/A	2019-12-21 @ 9:00 am	2019-12-23 @ 9:00 am	29.6 $\pm$ 2.6 D	2020-01-03
9340043	N/A	2019-12-21 @ 8:00 am	2019-12-23 @ 8:00 am	28.1 $\pm$ 2.6 D	2020-01-03
9340011	N/A	2019-12-21 @ 8:00 am	2019-12-23 @ 8:00 am	26.8 $\pm$ 2.5 D	2020-01-03
9340016	N/A	2019-12-21 @ 8:00 am	2019-12-23 @ 8:00 am	23.2 $\pm$ 2.4 D	2020-01-03
9341702	N/A	2019-12-21 @ 9:00 am	2019-12-23 @ 9:00 am	26.8 $\pm$ 2.5 D	2020-01-03



Radon test result report for:**S****N/A**

Kit #	Room Id	Started	Ended	pCi/L	Analyzed
9340048	N/A	2019-12-21 @ 8:00 am	2019-12-23 @ 8:00 am	25.5 ± 2.4 D	2020-01-03
9340021	N/A	2019-12-21 @ 8:00 am	2019-12-23 @ 8:00 am	26.7 ± 2.6 D	2020-01-03
9341707	N/A	2019-12-21 @ 9:00 am	2019-12-23 @ 9:00 am	25.8 ± 2.4 D	2020-01-03
9340053	N/A	2019-12-21 @ 8:00 am	2019-12-23 @ 8:00 am	25.8 ± 2.5 D	2020-01-03
9340058	N/A	2019-12-21 @ 8:00 am	2019-12-23 @ 8:00 am	28.5 ± 2.7 D	2020-01-03
9340026	N/A	2019-12-21 @ 8:00 am	2019-12-23 @ 8:00 am	25.9 ± 2.4 D	2020-01-03
9341712	N/A	2019-12-21 @ 9:00 am	2019-12-23 @ 9:00 am	24.3 ± 2.4 D	2020-01-03
9340080	N/A	2019-12-21 @ 9:00 am	2019-12-23 @ 9:00 am	25.1 ± 2.4 D	2020-01-03
9340063	N/A	2019-12-21 @ 9:00 am	2019-12-23 @ 9:00 am	25.8 ± 2.5 D	2020-01-03
9340031	N/A	2019-12-21 @ 8:00 am	2019-12-23 @ 8:00 am	24.9 ± 2.4 D	2020-01-03
9341717	N/A	2019-12-21 @ 9:00 am	2019-12-23 @ 9:00 am	25.7 ± 2.4 D	2020-01-03
9340085	N/A	2019-12-21 @ 9:00 am	2019-12-23 @ 9:00 am	26.9 ± 2.5 D	2020-01-03
9340068	N/A	2019-12-21 @ 9:00 am	2019-12-23 @ 9:00 am	26.2 ± 2.5 D	2020-01-03
9340036	N/A	2019-12-21 @ 8:00 am	2019-12-23 @ 8:00 am	23.6 ± 2.3 D	2020-01-03
9340004	N/A	2019-12-21 @ 8:00 am	2019-12-23 @ 8:00 am	26.9 ± 2.6 D	2020-01-03
9340090	N/A	2019-12-21 @ 9:00 am	2019-12-23 @ 9:00 am	26.3 ± 2.5 D	2020-01-03
9340073	N/A	2019-12-21 @ 9:00 am	2019-12-23 @ 9:00 am	26.8 ± 2.5 D	2020-01-03
9340041	N/A	2019-12-21 @ 8:00 am	2019-12-23 @ 8:00 am	25.6 ± 2.4 D	2020-01-03
9340009	N/A	2019-12-21 @ 8:00 am	2019-12-23 @ 8:00 am	24.1 ± 2.4 D	2020-01-03
9340095	N/A	2019-12-21 @ 9:00 am	2019-12-23 @ 9:00 am	25.2 ± 2.5 D	2020-01-03
9340100	N/A	2019-12-21 @ 9:00 am	2019-12-23 @ 9:00 am	24.5 ± 2.4 D	2020-01-03
9340078	N/A	2019-12-21 @ 9:00 am	2019-12-23 @ 9:00 am	25.0 ± 2.4 D	2020-01-03
9340046	N/A	2019-12-21 @ 8:00 am	2019-12-23 @ 8:00 am	28.0 ± 2.6 D	2020-01-03
9340014	N/A	2019-12-21 @ 8:00 am	2019-12-23 @ 8:00 am	21.8 ± 2.8 D	2020-01-03
9340019	N/A	2019-12-21 @ 8:00 am	2019-12-23 @ 8:00 am	26.0 ± 2.5 D	2020-01-03
9341705	N/A	2019-12-21 @ 9:00 am	2019-12-23 @ 9:00 am	27.8 ± 2.6 D	2020-01-03
9340051	N/A	2019-12-21 @ 8:00 am	2019-12-23 @ 8:00 am	25.5 ± 2.4 D	2020-01-03
9340056	N/A	2019-12-21 @ 8:00 am	2019-12-23 @ 8:00 am	27.7 ± 2.6 D	2020-01-03
9340024	N/A	2019-12-21 @ 8:00 am	2019-12-23 @ 8:00 am	28.3 ± 2.5 D	2020-01-03
9341710	N/A	2019-12-21 @ 9:00 am	2019-12-23 @ 9:00 am	24.2 ± 2.3 D	2020-01-03
9340061	N/A	2019-12-21 @ 9:00 am	2019-12-23 @ 9:00 am	28.9 ± 2.6 D	2020-01-03
9340029	N/A	2019-12-21 @ 8:00 am	2019-12-23 @ 8:00 am	23.0 ± 2.3 D	2020-01-03
9341715	N/A	2019-12-21 @ 9:00 am	2019-12-23 @ 9:00 am	27.0 ± 2.5 D	2020-01-03
9340083	N/A	2019-12-21 @ 9:00 am	2019-12-23 @ 9:00 am	24.9 ± 2.4 D	2020-01-03
9340066	N/A	2019-12-21 @ 9:00 am	2019-12-23 @ 9:00 am	25.1 ± 2.4 D	2020-01-03
9340034	N/A	2019-12-21 @ 8:00 am	2019-12-23 @ 8:00 am	26.4 ± 2.5 D	2020-01-03
9341720	N/A	2019-12-21 @ 9:00 am	2019-12-23 @ 9:00 am	25.3 ± 2.5 D	2020-01-03

Radon test result report for:**S****N/A**

Kit #	Room Id	Started	Ended	pCi/L	Analyzed
9340002	N/A	2019-12-21 @ 8:00 am	2019-12-23 @ 8:00 am	25.7 ± 2.5 D	2020-01-03
9340088	N/A	2019-12-21 @ 9:00 am	2019-12-23 @ 9:00 am	26.4 ± 2.5 D	2020-01-03
9340071	N/A	2019-12-21 @ 9:00 am	2019-12-23 @ 9:00 am	24.9 ± 2.4 D	2020-01-03
9340039	N/A	2019-12-21 @ 8:00 am	2019-12-23 @ 8:00 am	26.9 ± 2.5 D	2020-01-03
9340007	N/A	2019-12-21 @ 8:00 am	2019-12-23 @ 8:00 am	26.9 ± 2.4 D	2020-01-03
9340093	N/A	2019-12-21 @ 9:00 am	2019-12-23 @ 9:00 am	25.1 ± 2.5 D	2020-01-03
9340098	N/A	2019-12-21 @ 9:00 am	2019-12-23 @ 9:00 am	26.8 ± 2.5 D	2020-01-03
9340076	N/A	2019-12-21 @ 9:00 am	2019-12-23 @ 9:00 am	25.1 ± 2.5 D	2020-01-03
9340044	N/A	2019-12-21 @ 8:00 am	2019-12-23 @ 8:00 am	25.2 ± 2.5 D	2020-01-03
9340012	N/A	2019-12-21 @ 8:00 am	2019-12-23 @ 8:00 am	22.5 ± 2.2 D	2020-01-03
9340017	N/A	2019-12-21 @ 8:00 am	2019-12-23 @ 8:00 am	25.3 ± 2.5 D	2020-01-03
9341703	N/A	2019-12-21 @ 9:00 am	2019-12-23 @ 9:00 am	26.0 ± 2.5 D	2020-01-03
9340049	N/A	2019-12-21 @ 8:00 am	2019-12-23 @ 8:00 am	26.0 ± 2.5 D	2020-01-03
9340022	N/A	2019-12-21 @ 8:00 am	2019-12-23 @ 8:00 am	28.6 ± 2.6 D	2020-01-03
9341708	N/A	2019-12-21 @ 9:00 am	2019-12-23 @ 9:00 am	28.8 ± 2.8 D	2020-01-03
9340054	N/A	2019-12-21 @ 8:00 am	2019-12-23 @ 8:00 am	26.8 ± 2.5 D	2020-01-03
9340059	N/A	2019-12-21 @ 8:00 am	2019-12-23 @ 8:00 am	26.5 ± 2.6 D	2020-01-03
9340027	N/A	2019-12-21 @ 8:00 am	2019-12-23 @ 8:00 am	26.6 ± 2.5 D	2020-01-03
9341713	N/A	2019-12-21 @ 9:00 am	2019-12-23 @ 9:00 am	26.5 ± 2.5 D	2020-01-03
9340081	N/A	2019-12-21 @ 9:00 am	2019-12-23 @ 9:00 am	18.4 ± 2.1 D	2020-01-03
9340064	N/A	2019-12-21 @ 9:00 am	2019-12-23 @ 9:00 am	26.5 ± 2.5 D	2020-01-03
9340032	N/A	2019-12-21 @ 8:00 am	2019-12-23 @ 8:00 am	26.1 ± 2.4 D	2020-01-03
9341718	N/A	2019-12-21 @ 9:00 am	2019-12-23 @ 9:00 am	23.7 ± 2.4 D	2020-01-03
9340086	N/A	2019-12-21 @ 9:00 am	2019-12-23 @ 9:00 am	26.9 ± 2.6 D	2020-01-03
9340069	N/A	2019-12-21 @ 9:00 am	2019-12-23 @ 9:00 am	25.6 ± 2.5 D	2020-01-03
9340037	N/A	2019-12-21 @ 8:00 am	2019-12-23 @ 8:00 am	28.4 ± 2.6 D	2020-01-03
9340005	N/A	2019-12-21 @ 8:00 am	2019-12-23 @ 8:00 am	???? DIF1	2020-01-03
9340091	N/A	2019-12-21 @ 9:00 am	2019-12-23 @ 9:00 am	26.5 ± 2.5 D	2020-01-03
9340096	N/A	2019-12-21 @ 9:00 am	2019-12-23 @ 9:00 am	26.2 ± 2.5 D	2020-01-03
9340074	N/A	2019-12-21 @ 9:00 am	2019-12-23 @ 9:00 am	27.7 ± 2.5 D	2020-01-03
9340042	N/A	2019-12-21 @ 8:00 am	2019-12-23 @ 8:00 am	26.6 ± 2.5 D	2020-01-03
9340010	N/A	2019-12-21 @ 8:00 am	2019-12-23 @ 8:00 am	27.5 ± 2.5 D	2020-01-03
9341701	N/A	2019-12-21 @ 9:00 am	2019-12-23 @ 9:00 am	22.9 ± 2.3 D	2020-01-03
9340047	N/A	2019-12-21 @ 8:00 am	2019-12-23 @ 8:00 am	26.7 ± 2.5 D	2020-01-03
9340015	N/A	2019-12-21 @ 8:00 am	2019-12-23 @ 8:00 am	25.4 ± 2.5 D	2020-01-03
9340020	N/A	2019-12-21 @ 8:00 am	2019-12-23 @ 8:00 am	24.1 ± 2.4 D	2020-01-03
9341706	N/A	2019-12-21 @ 9:00 am	2019-12-23 @ 9:00 am	31.0 ± 2.7 D	2020-01-03

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January 3, 2020

**\*\* LABORATORY ANALYSIS REPORT \*\***

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Radon test result report for:

**S**

**N/A**

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<b>Kit #</b>	<b>Room Id</b>	<b>Started</b>	<b>Ended</b>	<b>pCi/L</b>	<b>Analyzed</b>
9340052	N/A	2019-12-21 @ 8:00 am	2019-12-23 @ 8:00 am	27.4 ± 2.6 D	2020-01-03
9340057	N/A	2019-12-21 @ 8:00 am	2019-12-23 @ 8:00 am	27.3 ± 2.5 D	2020-01-03
9340025	N/A	2019-12-21 @ 8:00 am	2019-12-23 @ 8:00 am	25.1 ± 2.4 D	2020-01-03
9341711	N/A	2019-12-21 @ 9:00 am	2019-12-23 @ 9:00 am	22.5 ± 2.2 D	2020-01-03
9340079	N/A	2019-12-21 @ 9:00 am	2019-12-23 @ 9:00 am	26.9 ± 2.5 D	2020-01-03
9340062	N/A	2019-12-21 @ 9:00 am	2019-12-23 @ 9:00 am	25.6 ± 2.5 D	2020-01-03
9340030	N/A	2019-12-21 @ 8:00 am	2019-12-23 @ 8:00 am	25.0 ± 2.4 D	2020-01-03
9341716	N/A	2019-12-21 @ 9:00 am	2019-12-23 @ 9:00 am	25.1 ± 2.4 D	2020-01-03
9340084	N/A	2019-12-21 @ 9:00 am	2019-12-23 @ 9:00 am	24.5 ± 2.3 D	2020-01-03

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Air Chek 1936 Butler Bridge Rd, Mills River, NC 28759-3892 Phone: (828) 684-0893 Fax: (828) 684-8498



### Radon Test Kit Chain of Custody

Project Name: MCPS Radon 2019 Week 2

Name of Schools:

- |                               |                     |
|-------------------------------|---------------------|
| 1. Argyle M.S.                | 13. Candelwood E.S. |
| 2. Banneker M.S.              | 14. Drew E.S.       |
| 3. Bel Pre E.S.               | 15. Fallsmead E.S.  |
| 4. Bells Mill E.S.            | 16. Farquhar M.S.   |
| 5. Bethesda Maintenance Depot | 17. Kennedy H.S.    |
| 6. Beverly Farms E.S.         | 18. Luxmanor E.S.   |
| 7. Blake H.S.                 | 19. Magruder H.S.   |
| 8. Dufief E.S.                | 20. Redland M.S.    |
| 9. Briggs Chaney M.S.         | 21. Shriver E.S.    |
| 10. Brookhaven E.S.           | 22. Smith Center    |
| 11. Burtonsville E.S.         | 23. Viers Mill E.S. |
| 12. Cabin John M.S.           | 24. Wheaton H.S.    |

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	Date	Initials
Radon Test Kits Deployed	12/16/19 to 12/17/19	
Radon Test Kits Collected	12/19/19 to 12/20/19	
Radon Test Kits Shipped to Lab*	12/20/19	
Radon Test Kits Received by Lab*	12/23/19	

\*All samples sent to Air Check, Inc., 1936 Butler Bridge Rd, Mills River, NC 28759

**RADON SCREENING SURVEY – FOLLOW-UP - DRAFT**  
**CANDLEWOOD ELEMENTARY SCHOOL**  
**7210 Osprey Drive, Rockville, Maryland 20871**  
**5 February 2016**



**EXECUTIVE SUMMARY**

Name of Facility:	Candlewood Elementary School, Rockville, MD
Date of Test Report:	5 February 2016
Round of Testing:	Initial <b>Follow-up</b> Post Remediation
# rooms tested:	2 (Second Floor)
# rooms $\geq$ 4.0 pCi/L:	None
Low Value:	0.2 pCi/L
High Value:	0.4 pCi/L

At the request of Montgomery County Public Schools (MCPS), Leidos conducted a follow-up radon gas screening survey at Candlewood Elementary School (ES) for the occupied classrooms and offices on the second floor. On 28 December 2015, John Whelpley, P.E. (Leidos) installed sampling kits in ten percent of the 20 occupied classrooms and offices (i.e., two) on the second floor of Candlewood ES. The locations of these two sampling locations are shown in Figure 1.

The radon sampling survey followed the USEPA protocols including placing a dual sampling device in each room selected as a sampling location. Each device or kit contains two activated charcoal adsorption devices, set at a distance of 4 inches apart. A photograph of the radon sampling kit is shown in Figure 2. Each radon sampling kit was placed at least 20 inches above the ground surface, and was usually placed on top of a surface such as a 5-foot file cabinet or 6-foot shelf to avoid contact by students during the 3-day sampling period. The radon sampling kits were also placed away from exterior walls and windows, out of direct sunlight, and away from HVAC vents as much as possible.

The radon test kits were installed on Monday afternoon and were then picked up on early Thursday morning (i.e., approximately 69 hours later). According to the Building Services personnel, the HVAC system was functioning in the school during the testing period and no exterior windows were open during the testing period. The average outdoor temperature (46 degrees F), humidity (80%), wind (4 mph), and the total precipitation (0.63 inches) during the December 28-31 testing period were obtained from Weather Underground ([www.weatherunderground.com](http://www.weatherunderground.com)).

In accordance with the American Association of Radon Scientist and Technologist (AARST) recommendations, ten percent of the 20 occupied classrooms and offices on the second floor were sampled. All 35 occupied classrooms and offices on the first floor had been sampled over the December 10-14 period and the maximum radon gas detection was 1.5 pCi/L.

The radon test kits were shipped to EMSL Analytical, Inc. in Cinnaminson, NJ, on 31 December 2015 for analysis by liquid scintillation counter using the USEPA testing protocols for testing Radon in Air. EMSL is accredited by the National Radon Safety Board (NRSB) under ARL6006 for radon analysis and the radon test kits are approved devices by the NRSB under #12199. A total of four paired devices were submitted for analysis, including the screening

samples for two sampling locations, one duplicate sample, and one field blank. The Chain of Custody for the shipment of the radon test kits is shown in Appendix B. The laboratory analysis results are shown in Appendix C and are summarized in the table in Appendix A.

As shown in the table in Appendix A, none of the rooms had radon results above the USEPA Action Level of 4 Picocuries per Liter (pCi/L). Classroom 239 had an average radon result of 0.3 pCi/L whereas Classroom 225 had an average radon result of 0.2 pCi/L. As a result, in accordance with the USEPA procedures, none of the second floor rooms require retesting in the short term.

As part of the USEPA Quality Assurance (QA) procedures, Leidos also collected one duplicate and one field blank. The CW 44 duplicate had an average relative percent difference (ARPD) of 14% which is within the QA limit of 25%. The CW 46 field blank of 0.1 pCi/L was less than the QA limit of 1.0 pCi/L.

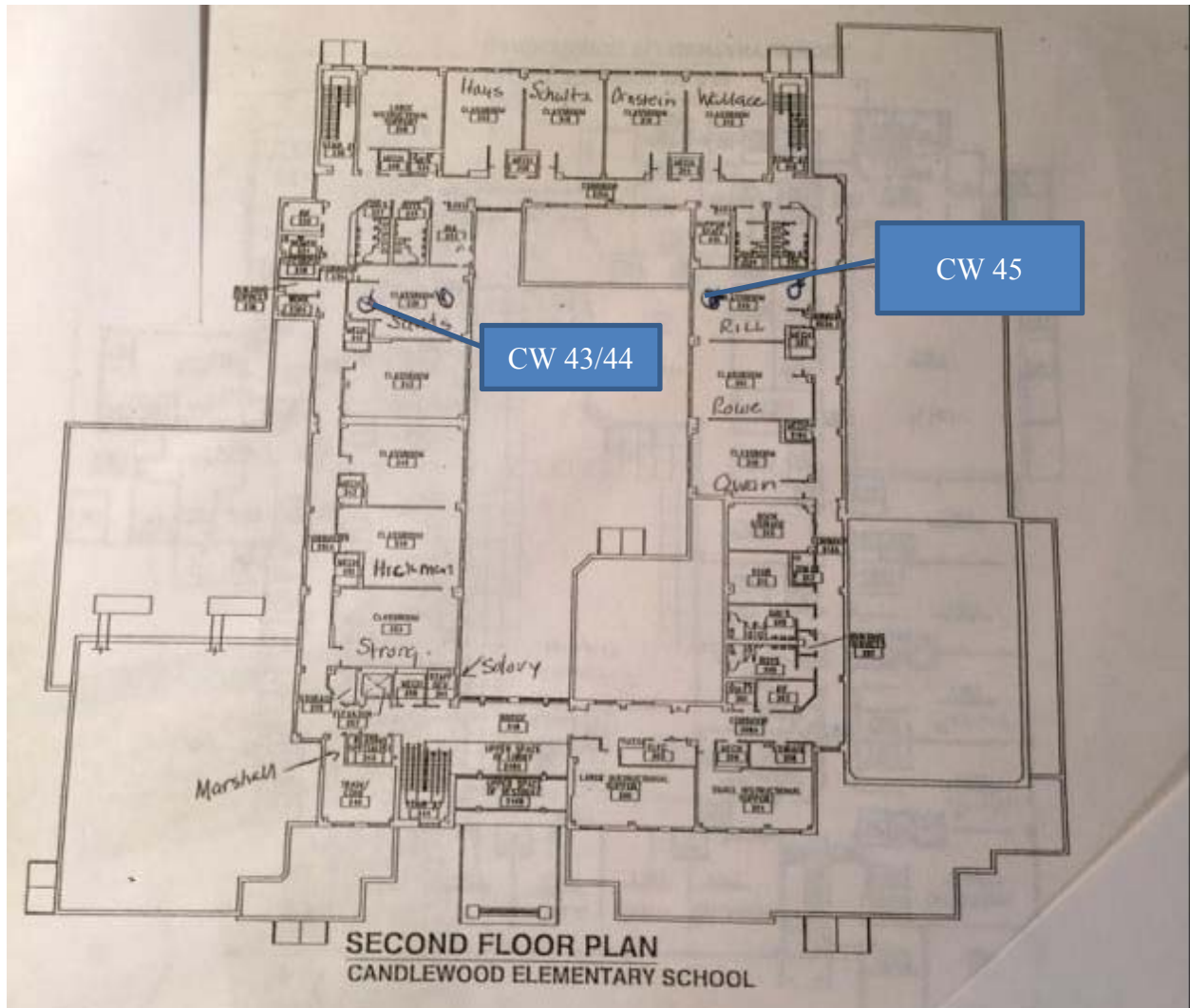
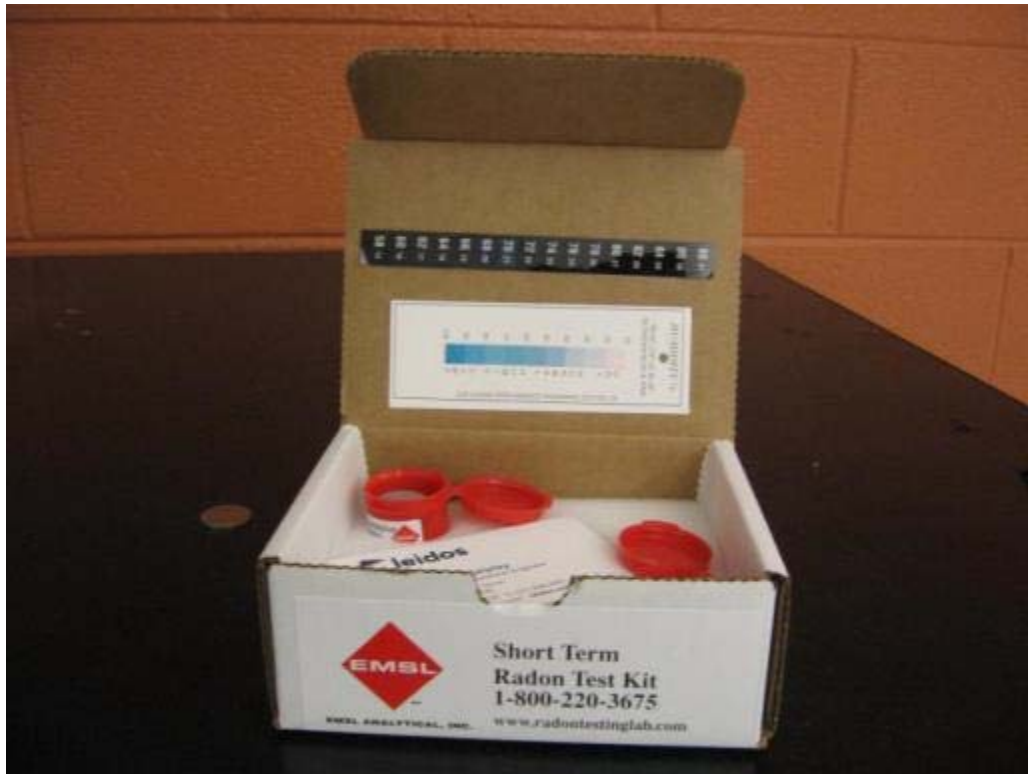


Figure 1. Locations of Follow-up Radon Samples





**Figure 2. Photograph of Typical Radon Test Kit With Dual Devices**

## **Appendix A. Radon Survey Results – Follow-up**

Unique Sample Identifier	Sample Location Description (Room Number, Area)	Sample Result
231842	CW 43 - Classroom 239, East side, 6 ft shelf	0.2
231746	CW 43 - Classroom 239, East side, 6 ft shelf	0.4
230388	CW 44 - Classroom 239, East side, 6 ft shelf	0.4
230158	CW 44 - Classroom 239, East side, 6 ft shelf	0.3
230105	CW 45 - Classroom 225, West side, 6 ft shelf	0.2
230130	CW 45 - Classroom 225, West side, 6 ft shelf	0.2
230144	CW 46 - Field Blank	0.1
230145	CW 46 - Field Blank	0.1

## **Appendix B. Chain of Custody – Follow-up**



**CHAIN OF CUSTODY  
RADON LABORATORY SERVICES  
(COMMERCIAL USE)**

RECEIVED  
EMSL  
CINNAMINSON, N.J.

EMSL ANALYTICAL, INC.  
200 ROUTE 130 NORTH  
CINNAMINSON, NJ 08077

EMSL ANALYTICAL, INC.

EMSL Job #: 381600108

JAN -5 P 4: 29  
PHONE: 800-220-3675  
FAX: 856-786-0327

**Company Information**

**Project / Property Information:**

Company Name: Leidos  
 EMSL Account #: LEID 42 3 day  
 Contact: John Whelpley  
 Address: 11951 Freedom Dr  
 City: Reston  
 State: VA Zip Code: 20190  
 Phone: 571-268-0697  
 Fax: -  
 Email: whelpley.j@leidos.com

Name: CANDLEWOOD ES  
 Address: 7210 Osprey Drive  
 City: Rockville  
 Municipality: - County: Montgomery  
 State: MD Zip Code: 20871  
 PO#/Project#: 316041.00.00.001  
 Please check box if this is a Post Mitigation Test  
 Technician Name: John Whelpley  
 Technician Certification #: -  
 Technician Signature: John Whelpley

**Disclaimer**

In no event shall EMSL be liable for indirect, special, consequential, or incidental damages for loss of profit or goodwill regardless of the negligence (either sole or concurrent) of EMSL and whether EMSL has been informed of the possibility of such damages arising out of or in connection with EMSL's services there under or the delivery, use, reliance upon or interpretation of test results by client or third party. We accept no legal responsibility for the purposes for which the client uses the test results. In no event shall EMSL be liable to a client or any third party, whether based upon theories of tort, contract or any other legal or equitable theory, in excess of the amount paid to EMSL by client thereafter.

Box Number	Device Number	Location	Exposure Period Beginning Date and Time	Exposure Period Ending Date and Time	Temperature, °F	Humidity, %
CW43	136292 / 231842	Classroom 239 E Side, 6' shelf	12/28/15 1304	12/31/15 0924	70°	40%
	231746	" "	" "	" "	"	"
CW44	136281 / 230388	D	12/28/15 1305	12/31/15 0925	70°	40%
	230158	D	" "	" "	"	"
CW45	136283 / 230105	Classroom 225 W Side, 6' shelf	12/28/15 1309	12/31/15 0929	68°	50%
	230130	" "	" "	" "	"	"
CW46	136282 / 230144	B	12/28/15 1311	12/31/15 0935	72°	60%
	230145	B	" "	" "	"	"

Relinquished By: John Whelpley 1400 to UPS  
 Received By:

## **Appendix C. Laboratory Results – Follow-up**

**EMSL Analytical, Inc.**

200 Route 130 North, Cinnaminson, NJ 08077  
 Phone/Fax: (800) 220-3675 / (856) 786-0327  
<http://www.EMSL.com> [cinnaminsonradonlab@emsl.com](mailto:cinnaminsonradonlab@emsl.com)

EMSL Order: 381600108  
 CustomerID: LEID42  
 CustomerPO:  
 ProjectID:

Attn: **John Whelpley**  
**Leidos Engineering, LLC**  
**11951 Freedom Dr.**  
**Reston, VA 20190**

Phone: (571) 268-0697  
 Fax:  
 Received: 01/05/16 4:29 PM  
 Analysis Date: 1/6/2016  
 Collected: 12/28/2015

Project: **7210 Osprey Drive**

Test Site: **Candlewood ES**  
**7210 Osprey Drive**  
**Hyattstown, MD 20871**

**Test Report: Radon in Air Test Results****Samples for EMSL Kit 136292**

Liquid Scintillation ID	Location	Radon Activity pCi/L	Start	Stop	Temperature F	Humidity %	Sample Type
231842 381600108-0001	Classroom 239 E side, 6' shelf	0.2	12/28/2015 1:04:00 PM	12/31/2015 9:24:00 AM	70	40	Customer

**Sample Notes:**

231746 381600108-0002	Classroom 239 E side, 6' shelf	0.4	12/28/2015 1:04:00 PM	12/31/2015 9:24:00 AM	70	40	Customer
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**Sample Notes:**

**Summary for EMSL Kit 136292** **Average Radon Result: 0.3 pCi/L**

**Samples for EMSL Kit 136281**

Liquid Scintillation ID	Location	Radon Activity pCi/L	Start	Stop	Temperature F	Humidity %	Sample Type
230388 381600108-0003	D	0.4	12/28/2015 1:05:00 PM	12/31/2015 9:25:00 AM	70	40	Customer

**Sample Notes:**

230158 381600108-0004	D	0.3	12/28/2015 1:05:00 PM	12/31/2015 9:25:00 AM	70	40	Customer
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**Sample Notes:**

**Summary for EMSL Kit 136281** **Average Radon Result: 0.4 pCi/L**

**Samples for EMSL Kit 136283**

Liquid Scintillation ID	Location	Radon Activity pCi/L	Start	Stop	Temperature F	Humidity %	Sample Type
230105 381600108-0005	Classroom 225 W side, 6' shelf	0.2	12/28/2015 1:09:00 PM	12/31/2015 9:29:00 AM	68	50	Customer

**Sample Notes:**

230130 381600108-0006	Classroom 225 W side, 6' shelf	0.2	12/28/2015 1:09:00 PM	12/31/2015 9:29:00 AM	68	50	Customer
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**Sample Notes:**

**Summary for EMSL Kit 136283** **Average Radon Result: 0.2 pCi/L**

**EMSL Analytical, Inc.**

200 Route 130 North, Cinnaminson, NJ 08077  
 Phone/Fax: (800) 220-3675 / (856) 786-0327  
<http://www.EMSL.com> [cinnaminsonradonlab@emsl.com](mailto:cinnaminsonradonlab@emsl.com)

EMSL Order: 381600108  
 CustomerID: LEID42  
 CustomerPO:  
 ProjectID:

Attn: **John Whelpley**  
**Leidos Engineering, LLC**  
**11951 Freedom Dr.**  
**Reston, VA 20190**

Phone: (571) 268-0697  
 Fax:  
 Received: 01/05/16 4:29 PM  
 Analysis Date: 1/6/2016  
 Collected: 12/28/2015

Project: **7210 Osprey Drive**

Test Site: **Candlewood ES**  
**7210 Osprey Drive**  
**Hyattstown, MD 20871**

**Test Report: Radon in Air Test Results****Samples for EMSL Kit 136282**

Liquid Scintillation ID	Location	Radon Activity pCi/L	Start	Stop	Temperature F	Humidity %	Sample Type
230144 381600108-0007	B	0.1	12/28/2015 1:11:00 PM	12/31/2015 9:35:00 AM	72	60	Customer

**Sample Notes:**

230145 381600108-0008	B	0.1	12/28/2015 1:11:00 PM	12/31/2015 9:35:00 AM	72	60	Customer
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**Sample Notes:**

**Summary for EMSL Kit 136282** **Average Radon Result: 0.1 pCi/L**

The radon test was performed using a liquid scintillation radon detector/s and counted on a liquid scintillation counter using approved EPA testing protocols for Radon in Air testing. The EPA recommends fixing your home if the average of two short-term tests taken in the lowest lived-in level of the home show radon levels that are equal to or greater than 4.0pCi/L. The EPA recommends retesting your home every two years.

Please contact EMSL Analytical, Inc. or your State Health Department for further information. All procedures used for generating this report are in complete accordance with the current EPA protocols for the analysis of Radon in Air.

**Report Note**

Analyst(s)

Kathryn Lickfield (8)

*Laura Freeman* *Subash Rashat*

Laura Freeman, Interim Laboratory Manager &  
 Subash Rashat, New Jersey Radiation Specialist NJ MES 10152  
 or other approved signatory

In no event shall EMSL be liable for indirect, special, consequential, or incidental damages, including, but not limited to, damages for loss of profit or goodwill regardless of the negligence (either sole or concurrent) of EMSL and whether EMSL has been informed of the possibility of such damages, arising out of or in connection with EMSL's services thereunder or the delivery, use, reliance upon or interpretation of test results by client or any third party. We accept no legal responsibility for the purposes for which the client uses the test results. In no event shall EMSL be liable to a client or any third party, whether based upon theories of tort, contract or any other legal or equitable theory, in excess of the amount paid to EMSL by client thereunder. The test results meets all NELAC requirements unless otherwise specified. Accreditations: NRSB ARL6006, NJ DEP 03036, MEB 92525, PA 2573, IN 00455, IA L00032, RI RAS-024, ME 20200C, NE RMB-1083, NY ELAP 10872, NM 885-10L, FL RB2034, OH RL-39, NRPP #106178AL, KS-LB-0005

Samples analyzed by EMSL Analytical, Inc. Cinnaminson, NJ Accreditations: NRSB ARL6006, NJ DEP 03036, MEB 92525, PA 2573, IN 00455, IA L00032, RI RAS-024, ME 20200C, NE RMB-1083, NY ELAP 10872, NM 885-10L, FL RB2034, OH RL-39, NRPP #106178AL, KS-LB-0005. Subash Rashat certification #MES10152

Initial report from 01/08/2016 09:06:57

Please visit [www.radontestinglab.com](http://www.radontestinglab.com)



**RADON SURVEY SCREENING REPORT – DRAFT**  
**CANDLEWOOD ELEMENTARY SCHOOL**  
**7210 Osprey Drive, Rockville, Maryland 20871**  
**7 January 2016**



**EXECUTIVE SUMMARY**

Name of Facility:	Candlewood Elementary School, Rockville, MD
Date of Test Report:	7 January 2016
Round of Testing:	<b>Initial</b> Follow-up Post Remediation
# rooms tested:	35
# rooms $\geq$ 4.0 pCi/L:	None
Low Value:	0.2 pCi/L
High Value:	1.6 pCi/L

At the request of Montgomery County Public Schools (MCPS), Leidos conducted a radon gas screening survey at Candlewood Elementary School (ES) in accordance with the protocols in the United States Environmental Protection Agency (USEPA) *Radon Measurement in Schools* (July 1993). On 10 December 2015, John Whelpley, P.E. (Leidos) installed sampling kits in 35 occupied classrooms and offices on the first floor of Candlewood ES. The locations of the 35 occupied classrooms and offices are shown in Figure 1. The elementary school was constructed in 2014.

The radon sampling survey followed the USEPA protocols including placing a sampling device in each room selected as a sampling location. Each device or kit contains two activated charcoal adsorption devices, set at a distance of 4 inches apart. A photograph of the radon sampling kit is shown in Figure 2. Each radon sampling kit was placed at least 20 inches above the ground surface, and was usually placed on top of a surface such as a 5-foot file cabinet or 6-foot shelf to avoid contact by students during the 4-day sampling period. The radon sampling kits were also placed away from exterior walls and windows, out of direct sunlight, and away from HVAC vents as much as possible. A photograph of the radon sampling kit on a 6-foot cabinet is shown in Figure 3.

The radon test kits were installed on late Thursday morning and were then picked up on early Monday morning (i.e., approximately 94 hours later). According to the Building Services personnel, the HVAC system was functioning in the school prior to the testing period but was mostly off over the weekend and no exterior windows were open during the testing period. The average outdoor temperature (55 degrees F), humidity (78%), wind (3 mph) and the total precipitation (0.06 inches) during the December 10-14 testing period were obtained from Weather Underground ([www.weatherunderground.com](http://www.weatherunderground.com)).

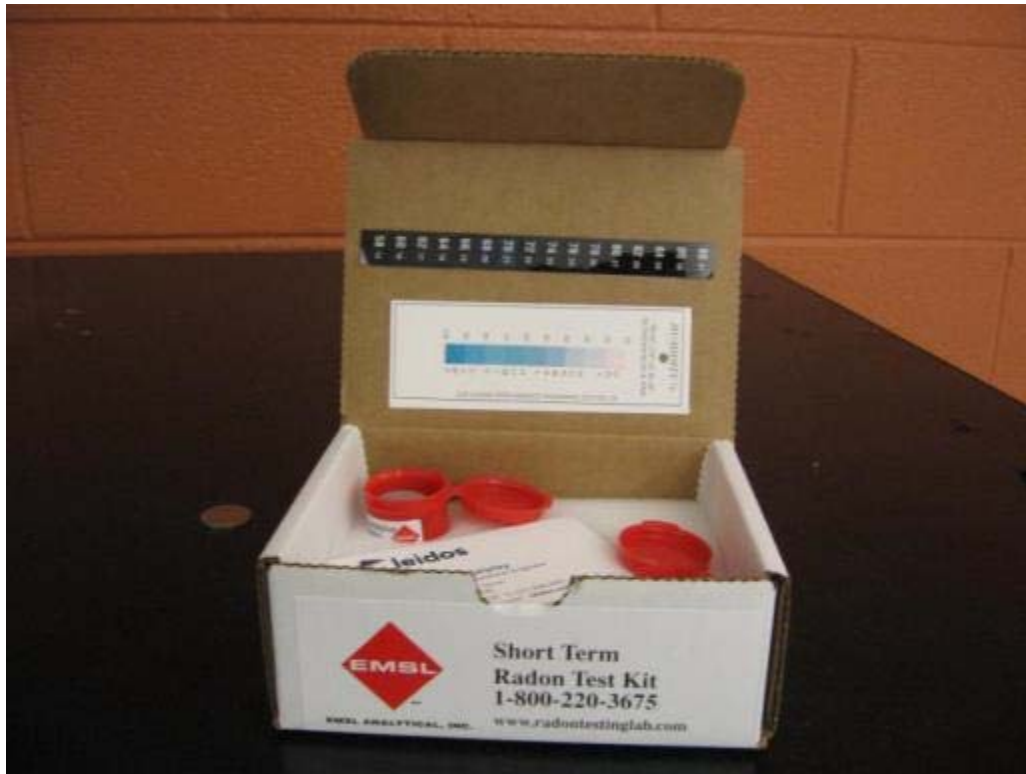
In accordance with the USEPA protocols, all First Floor occupied classrooms and offices in contact with the ground were sampled. These included 35 rooms on the First Floor. In addition, because the Gym (112) and Library (101) were over 2,000 square feet, a second set of samples were collected within these rooms in accordance with the USEPA protocols.

The radon test kits were shipped to EMSL Analytical, Inc. in Cinnaminson, NJ, on 14 December 2015 for analysis by liquid scintillation counter using the USEPA testing protocols for testing Radon in Air. EMSL is accredited by the National Radon Safety Board (NRBP) under

ARL6006 for radon analysis and the radon test kits are approved devices by the NRCW under #12199. A total of 42 paired devices were submitted for analysis, including the screening samples for 37 sampling locations (i.e., the 35 rooms included extra samples in the Gym and Library), three duplicate samples, and two field blanks. The Chain of Custody for the shipment of the radon test kits is shown in Appendix B. The laboratory analysis results are shown in Appendix C and are summarized in the table in Appendix A.

As shown in the table in Appendix A, none of the rooms had radon results above the USEPA Action Level of 4 Picocuries per Liter (pCi/L). The highest detected radon concentrations were in the Gym (112) which had an average radon result of 1.5 pCi/L. As a result, in accordance with the USEPA procedures, none of the first floor rooms require retesting in the short term.

As part of the USEPA Quality Assurance (QA) procedures, Leidos collected three duplicates (covering 8% of rooms) and two field blanks (representing 5% of the rooms). The three duplicates all had average relative percent differences (ARPDs) within the QA limit of 25% including: CW 4 (0%), CW 13 (0%), and CW 25 (22%). The field blanks were less than the QA limit of 1.0 pCi/L with 0.1 pCi/L detected at CW 18 and CW 42.



**Figure 2. Photograph of Typical Radon Test Kit With Dual Devices**



**Figure 3. Typical Placement of Radon Test Kit**

## **Appendix A. Radon Survey Results**

Unique Sample Identifier	Sample Location Description (Room Number, Area)	Sample Result
225141	CW 1 - Classroom 133, South side, 6 ft Shelf	0.6
225173	CW 1 - Classroom 133, South side, 6 ft Shelf	0.7
225090	CW 2 - Classroom 136, North side, 6 ft Shelf	0.4
225176	CW 2 - Classroom 136, North side, 6 ft Shelf	0.4
225626	CW 3 - Classroom 137, South side, 6 ft Shelf	0.6
225263	CW 3 - Classroom 137, South side, 6 ft Shelf	0.8
225113	CW 4 - Classroom 137, South Side, 6 ft Shelf	0.8
225079	CW 4 - Classroom 137, South Side, 6 ft Shelf	0.6
225165	CW 5 - Office 100, West side, 5 ft Shelf	0.6
225145	CW 5 - Office 100, West side, 5 ft Shelf	0.8
225178	CW 6 - Office 102, South side, 5 ft Shelf	0.9
225066	CW 6 - Office 102, South side, 5 ft Shelf	0.8
225061	CW 7 - Office 100C, West Side, 5 ft Shelf	1.2
225216	CW 7 - Office 100C, West Side, 5 ft Shelf	0.8
225121	CW 8 - Office 100D, East Side, 5 ft Shelf	0.8
225076	CW 8 - Office 100D, East Side, 5 ft Shelf	0.9
225083	CW 9 - Office 169, East Side, 6 ft Shelf	0.5
225174	CW 9 - Office 169, East Side, 6 ft Shelf	0.6
225082	CW 10 - Multipurpose Room 168, NW Side, 5 ft Electrical Panel	0.8
225129	CW 10 - Multipurpose Room 168, NW Side, 5 ft Electrical Panel	0.9
225156	CW 11 - Kitchen Office 168H, East Side, 4 ft File Cabinet	0.7
225170	CW 11 - Kitchen Office 168H, East Side, 4 ft File Cabinet	0.7
225548	CW 12 - Classroom 157, East Side, 6 ft Shelf	0.9
225564	CW 12 - Classroom 157, East Side, 6 ft Shelf	0.8
225594	CW 13 - Classroom 157, East Side, 6 ft Shelf	0.8
225752	CW 13 - Classroom 157, East Side, 6 ft Shelf	0.9
225171	CW 14 - Classroom 121, 6 ft Shelf	0.6
225190	CW 14 - Classroom 121, 6 ft Shelf	0.7

Unique Sample Identifier	Sample Location Description (Room Number, Area)	Sample Result
225740	CW 15 - Classroom 115, 6 ft Shelf	0.6
225546	CW 15 - Classroom 115, 6 ft Shelf	0.7
225235	CW 16 - Gymnasium 112, SE Side, 5 ft Fire Detector	1.1
225142	CW 16 - Gymnasium 112, SE Side, 5 ft Fire Detector	1.3
225186	CW 17 - Gymnasium 112, SW Side, 5 ft Fire Detector	1.6
225151	CW 17 - Gymnasium 112, SW Side, 5 ft Fire Detector	1.5
225074	CW 18 - Field Blank	0.1
225181	CW 18 - Field Blank	0.1
225139	CW 19 - Music Room 165, East Side, 6 ft Shelf	0.4
225077	CW 19 - Music Room 165, East Side, 6 ft Shelf	0.6
225162	CW 20 - Office 158, 5 ft Fridge	0.5
225071	CW 20 - Office 158, 5 ft Fridge	0.4
225091	CW 21 - Music Room 161, 6 ft Shelf	0.4
225087	CW 21 - Music Room 161, 6 ft Shelf	0.3
225780	CW 22 - Classroom 149, East Side, 6 ft Shelf	0.6
225765	CW 22 - Classroom 149, East Side, 6 ft Shelf	0.7
225899	CW 23 - Therapy Room 152, 6 ft Shelf	0.9
225778	CW 23 - Therapy Room 152, 6 ft Shelf	0.7
225827	CW 24 - Classroom 150, South Side, 6 ft Bookshelf	0.8
225588	CW 24 - Classroom 150, South Side, 6 ft Bookshelf	0.6
225907	CW 25 - Classroom 150, South Side, 6 ft Bookshelf	0.7
225900	CW 25 - Classroom 150, South Side, 6 ft Bookshelf	0.4
225227	CW 26 - Classroom 145, East Side, 6 ft Shelf	0.7
225189	CW 26 - Classroom 145, East Side, 6 ft Shelf	0.9
225169	CW 27 - Classroom 146, North Side, 6 ft Shelf	0.3
225271	CW 27 - Classroom 146, North Side, 6 ft Shelf	0.6
225756	CW 28 - Classroom 142, North Side, 6 ft Shelf	0.5
225862	CW 28 - Classroom 142, North Side, 6 ft Shelf	0.6
225835	CW 29 - Classroom 138, North Side, 6 ft Shelf	0.5

Unique Sample Identifier	Sample Location Description (Room Number, Area)	Sample Result
225585	CW 29 - Classroom 138, North Side, 6 ft Shelf	0.4
225561	CW 30 - Classroom 132, North Side, 6 ft Shelf	0.3
225526	CW 30 - Classroom 132, North Side, 6 ft Shelf	0.4
225723	CW 31 - Classroom 130, South Side, 6 ft Shelf	0.4
225871	CW 31 - Classroom 130, South Side, 6 ft Shelf	0.3
225775	CW 32 - Classroom 128, South Side, 6 ft Shelf	0.3
225554	CW 32 - Classroom 128, South Side, 6 ft Shelf	0.4
225782	CW 33 - Classroom 124, South Side, 6 ft Shelf	0.4
225582	CW 33 - Classroom 124, South Side, 6 ft Shelf	0.6
225808	CW 34 - Classroom 122, South Side, 6 ft Shelf	0.1
225919	CW 34 - Classroom 122, South Side, 6 ft Shelf	0.3
225570	CW 35 - Classroom 118, 6 ft Shelf	0.5
225732	CW 35 - Classroom 118, 6 ft Shelf	0.4
225551	CW 36 - Classroom 114, East Side, 6 ft Shelf	0.3
225744	CW 36 - Classroom 114, East Side, 6 ft Shelf	0.4
225709	CW 37 - Office 111, 6 ft Shelf	0.7
225706	CW 37 - Office 111, 6 ft Shelf	0.7
225702	CW 38 - Gym Office 110, North Side, 6 ft Shelf	0.4
225581	CW 38 - Gym Office 110, North Side, 6 ft Shelf	0.6
225739	CW 39 - Classroom 125, North Side, 6 ft Shelf	0.3
225598	CW 39 - Classroom 125, North Side, 6 ft Shelf	0.3
225762	CW 40 - Library 101, West Side, 6 ft Bookshelf	0.9
225785	CW 40 - Library 101, West Side, 6 ft Bookshelf	0.9
225691	CW 41 - Library 101, North Side, 6 ft Bookshelf	0.7
225781	CW 41 - Library 101, North Side, 6 ft Bookshelf	0.9
225148	CW 42 - Field Blank	0.0
225155	CW 42 - Field Blank	0.1



## **Appendix B. Chain of Custody**

UPS 12 764 49F01 9458 9436

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EMSL ANALYTICAL, INC.

CHAIN OF CUSTODY  
RADON LABORATORY SERVICES CINNAMINSON, NJ  
(COMMERCIAL USE)

RECEIVED EMSL ANALYTICAL, INC.  
200 ROUTE 130 NORTH  
CINNAMINSON, NJ 08077

EMSL Job #: 381509982 2015 DEC 15 P 12:33  
PHONE: 800-220-3675  
FAX: 856-786-0327

Company Information

Company Name: LEIDOS JCH  
EMSL Account #: 86184869 LEID42  
Contact: JOHN WHIPLEY 3clay  
Address: 11951 Freedom Dr  
City: Reston  
State: VA Zip Code: 20190  
Phone: 571-268-0697  
Fax: NA  
Email: whupleys@leidos.com

Project / Property Information:

Name: Candlewood ES  
Address: 7210 Osprey Drive  
City: Rockville  
Municipality: - County: Montgomery  
State: MD Zip Code: 20871  
PO#/Project#: 86184869  
 Please check box if this is a Post Mitigation Test  
Technician Name: John Whopley, P.E.  
Technician Certification #: NA  
Technician Signature: [Signature]

Disclaimer

In no event shall EMSL be liable for indirect, special, consequential, or incidental damages for loss of profit or goodwill regardless of the negligence (either sole or concurrent) of EMSL and whether EMSL has been informed of the possibility of such damages arising out of or in connection with EMSL's services there under or the delivery, use, reliance upon or interpretation of test results by client or third party. We accept no legal responsibility for the purposes for which the client uses the test results. In no event shall EMSL be liable to a client or any third party, whether based upon theories of tort, contract or any other legal or equitable theory, in excess of the amount paid to EMSL by client thereafter.

Box Number	Device Number	Location	Exposure Period Beginning Date and Time	Exposure Period Ending Date and Time	Temperature, °F	Humidity, %
CW1	133497	Class 133 S Side, Shelf 6'	12/10/15 0844	12/14/15 0658	74°	60%
	225173	" " " "	" "	" "	"	"
CW2	133494	Class 136 N Side, Shelf 6'	12/10/15 0847	12/14/15 0657	72°	40%
	225176	" " " "	" "	" "	"	"
CW3	133481	Class 137 S Side, Shelf 6'	12/10/15 0850	12/14/15 0734	72°	60%
	225263	" " " "	" "	" "	"	"
CW4	133492	D	12/10/15 0852	12/14/15 0735	72°	60%
	225079	D	" "	" "	"	"
CW5	133498	Office 100 N Side, Shelf 5'	12/10/15 0858	12/14/15 0632	70°	60%
	225145	" " " "	" "	" "	"	"
CW6	133493	Office 102 S Side, Shelf 5'	12/10/15 0903	12/14/15 0635	70°	60%
	225066	" " " "	" "	" "	"	"

Relinquished By: [Signature] 12/14/15 1300 to UPS  
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CHAIN OF CUSTODY  
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EMSL ANALYTICAL, INC.  
200 ROUTE 130 NORTH  
CINNAMINSON, NJ 08077  
PHONE: 800-220-3675  
FAX: 856-786-0327

2015 DEC 15 P 12:33 EMSL Job #: 381509982

Box Number	Device Number	Location	Exposure Period Beginning Date and Time	Exposure Period Ending Date and Time	Temperature, °F	Humidity, %
CW7	133519	Office 100C N/Side, Staff	12/10/15 0905	12/14/15 0633	68°	60%
"	225216	" "	" "	" "	"	"
CW8	133517	Office 100D E/Side, Staff	12/10/15 0908	12/14/15 0634	68°	50%
"	225076	" "	" "	" "	"	"
CW9	133491	Office 169 E/Side, Staff	12/10/15 0913	12/14/15 0719	72°	60%
"	225174	" "	" "	" "	"	"
CW10	133518	Multi-Purpose Rm N/Side, Electrical Panel	12/10/15 0918	12/14/15 0717	68°	60%
"	225129	" "	" "	" "	"	"
CW11	133500	Office 168H E/Side, Fk Cell 4'	12/10/15 0924	12/14/15 0718	70°	60%
"	225170	" "	" "	" "	"	"
CW12	133217	Class 157 E/Side, Staff	12/10/15 0928	12/14/15 0710	78°	30%
"	225564	" "	" "	" "	"	"
CW13	133220	D	12/10/15 0930	12/14/15 0711	78°	30%
"	225757	D	" "	" "	"	"
CW14	133495	Core 121 Staff	12/10/15 0933	12/14/15 0645	72°	60%
"	225190	" "	" "	" "	"	"
CW15	133200	Class 115 Staff	12/10/15 0935	12/14/15 0644	70°	60%
"	225546	" "	" "	" "	"	"
CW16	133515	Gym Fire SE, Detector	12/10/15 0938	12/14/15 0641	68°	40%
"	225142	" " " "	" "	" "	"	"
CW17	133516	Gym Fire SW, Detector	12/10/15 0941	12/14/15 0639	68°	40%
"	225151	" " " "	" "	" "	"	"
CW18	133512	B	12/10/15 0945	12/14/15 0642	72°	60%
"	225181	B	" "	" "	"	"
CW19	133499	March 165 E/Side, Staff	12/10/15 0952	12/14/15 0715	72°	60%
"	225077	" "	" "	" "	"	"
CW20	133513	Office 158	12/10/15 0955	12/14/15 0714	74°	60%

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133513 225071

Approved Fridge 5'

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CHAIN OF CUSTODY RECEIVED  
 RADON LABORATORY SERVICES  
 (COMMERCIAL USE) CINNAMINSON, N.J.

EMSL ANALYTICAL, INC.  
 200 ROUTE 130 NORTH  
 CINNAMINSON, NJ 08077

EMSL ANALYTICAL, INC.

EMSL Job #: 09982  
 2015 DEC 15 P 12:33

PHONE: 800-220-3675  
 FAX: 856-786-0327

Company Information

Project / Property Information:

Company Name: LEIDOS  
 EMSL Account #: <SAME>  
 Contact: "  
 Address: "  
 City: "  
 State: " Zip Code: "  
 Phone: "  
 Fax: "  
 Email: "

Name: CANDLEWOOD ES  
 Address: <SAME>  
 City: "  
 Municipality: " County: "  
 State: " Zip Code: "  
 PO#/Project#: "  
 Please check box if this is a Post Mitigation Test  
 Technician Name: "  
 Technician Certification #: "  
 Technician Signature: "

Disclaimer

In no event shall EMSL be liable for indirect, special, consequential, or incidental damages for loss of profit or goodwill regardless of the negligence (either sole or concurrent) of EMSL and whether EMSL has been informed of the possibility of such damages arising out of or in connection with EMSL's services there under or the delivery, use, reliance upon or interpretation of test results by client or third party. We accept no legal responsibility for the purposes for which the client uses the test results. In no event shall EMSL be liable to a client or any third party, whether based upon theories of tort, contract or any other legal or equitable theory, in excess of the amount paid to EMSL by client thereafter.

Box Number	Device Number	Location	Exposure Period Beginning Date and Time	Exposure Period Ending Date and Time	Temperature, °F	Humidity, %
CW21 133480	225091	Room 161 Shelf 6	12/10/15 0958	12/14/15 0712	72°	60%
	225087	"	"	"	"	"
CW22 133215	225780	Class E Side 149 Shelf 6	12/10/15 1000	12/14/15 0708	76°	40%
	225765	"	"	"	"	"
CW23 133218	225899	Therapy 152 Shelf on side 6	12/10/15 1003	12/14/15 0709	74°	60%
	225778	"	"	"	"	"
CW24 133192	225827	Class S Side 150 Shelf 6	12/10/15 1006	12/14/15 0705	70°	60%
	225588	"	"	"	"	"
CW25 133203	225907	D	12/10/15 1008	12/14/15 0706	70°	60%
	225900	D	"	"	"	"
CW26 133514	225227	Classroom 145 E Side Shelf 6	12/10/15 1010	12/14/15 0707	70°	60%
	225189	"	"	"	"	"

Relinquished By: [Signature]  
 Received By: [Signature]

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12/15



**CHAIN OF CUSTODY  
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200 ROUTE 130 NORTH  
CINNAMINSON, NJ 08077  
PHONE: 800-220-3675  
FAX: 856-786-0327

EMSL Job #: 381509982

EMSL ANALYTICAL, INC.

Box Number	Device Number	Location	Exposure Period Beginning Date and Time	Exposure Period Ending Date and Time	Temperature, °F	Humidity, %
CW27	133479	Class 146 NSite, Shelf	12/10/15 1013	12/14/15 0704	78°	60%
	225 169	" " 6'	" "	" "	"	"
	225 271	" " 6'	" "	" "	"	"
CW28	133208	Class 142 NSite, Shelf	12/10/15 1015	12/14/15 0703	70°	60%
	225 756	" " 6'	" "	" "	"	"
	225 862	" " 6'	" "	" "	"	"
CW29	133202	Class 138 NSite, Shelf	12/10/15 1017	12/14/15 0702	70°	60%
	225 835	" " 6'	" "	" "	"	"
	225 585	" " 6'	" "	" "	"	"
CW30	133201	Class 132 NSite, Shelf	12/10/15 1020	12/14/15 0655	70°	60%
	225 561	" " 6'	" "	" "	"	"
	225 526	" " 6'	" "	" "	"	"
CW31	133211	Class 130 NSite, Shelf	12/10/15 1026	12/14/15 0653	72°	60%
	225 723	" " 6'	" "	" "	"	"
	225 871	" " 6'	" "	" "	"	"
CW32	133216	Class 128 NSite, Shelf	12/10/15 1028	12/14/15 0652	72°	60%
	225 775	" " 6'	" "	" "	"	"
	225 554	" " 6'	" "	" "	"	"
CW33	133190	Class 124 NSite, Shelf	12/10/15 1030	12/14/15 0651	70°	60%
	225 782	" " 6'	" "	" "	"	"
	225 582	" " 6'	" "	" "	"	"
CW34	133212	Class 122 NSite, Shelf	12/10/15 1033	12/14/15 0650	76°	40%
	225 808	" " 6'	" "	" "	"	"
	225 919	" " 6'	" "	" "	"	"
CW35	133199	Class 118 NSite, Shelf	12/10/15 1036	12/14/15 0647	70°	70%
	225 570	" " 6'	" "	" "	"	"
	225 732	" " 6'	" "	" "	"	"
CW36	133210	Class 114 NSite, Shelf	12/10/15 1039	12/14/15 0643	70°	60%
	225 551	" " 6'	" "	" "	"	"
	225 744	" " 6'	" "	" "	"	"
CW37	133219	Class 111 NSite, Shelf	12/10/15 1043	12/14/15 0725	72°	50%
	225 709	" " 6'	" "	" "	"	"
	225 706	" " 6'	" "	" "	"	"
CW38	133209	Class 110 NSite, Shelf	12/10/15 1049	12/14/15 0637	70°	40%
	225 702	" " 6'	" "	" "	"	"
	225 581	" " 6'	" "	" "	"	"
CW39	133195	Class 125 NSite, Shelf	12/10/15 1053	12/14/15 0649	70°	60%
	225 739	" " 6'	" "	" "	"	"
	225 598	" " 6'	" "	" "	"	"

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EMSL ANALYTICAL, INC.  
200 ROUTE 130 NORTH  
CINNAMINSON, NJ 08077

PHONE: 800-220-3675  
FAX: 856-786-0327

EMSL ANALYTICAL, INC.

EMSL Job #: 381509982

**Company Information**

Company Name: LEIDOS  
 EMSL Account #: <SAME>  
 Contact: "  
 Address: "  
 City: "  
 State: " Zip Code: "  
 Phone: "  
 Fax: "  
 Email: "

**Project / Property Information:**

CANDLEWOOD ES  
 Name: [Signature]  
 Address: <SAME>  
 City: "  
 Municipality: " County: "  
 State: " Zip Code: "  
 PO#/Project#: "  
 Please check box if this is a Post Mitigation Test  
 Technician Name: "  
 Technician Certification #: "  
 Technician Signature: "

**Disclaimer**

In no event shall EMSL be liable for indirect, special, consequential, or incidental damages for loss of profit or goodwill regardless of the negligence (either sole or concurrent) of EMSL and whether EMSL has been informed of the possibility of such damages arising out of or in connection with EMSL's services there under or the delivery, use, reliance upon or interpretation of test results by client or third party. We accept no legal responsibility for the purposes for which the client uses the test results. In no event shall EMSL be liable to a client or any third party, whether based upon theories of tort, contract or any other legal or equitable theory, in excess of the amount paid to EMSL by client thereafter.

Box Number	Device Number	Location	Exposure Period Beginning Date and Time	Exposure Period Ending Date and Time	Temperature °F	Humidity %
CW40	133194	Library 101	12/10/15 1058	12/14/15 0722	68°	60%
	225762	Library 101	"	"	"	"
	225785	"	"	"	"	"
CW41	133193	Library 101	12/10/15 1100	12/14/15 0723	68°	60%
	225691	Library 101	"	"	"	"
	225781	"	"	"	"	"
CW42	133501	B	12/10/15 1102	12/14/15 0724	70°	40%
	225148	B	"	"	"	"
	225155	B	"	"	"	"

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## Appendix C. Laboratory Results

**EMSL Analytical, Inc.**

200 Route 130 North, Cinnaminson, NJ 08077  
 Phone/Fax: (800) 220-3675 / (856) 786-0327  
<http://www.EMSL.com> [cinnaminsonradonlab@emsl.com](mailto:cinnaminsonradonlab@emsl.com)

EMSL Order: 381509982  
 CustomerID: LEID42  
 CustomerPO:  
 ProjectID:

Attn: **John Whelpley**  
**Leidos Engineering, LLC**  
**11951 Freedom Dr.**  
**Reston, VA 20190**

Phone: (571) 268-0697  
 Fax:  
 Received: 12/15/15 12:30 PM  
 Analysis Date: 12/17/2015  
 Collected: 12/10/2015

Project: **7210 Osprey Drive**

Test Site: **Candlewood ES**  
**7210 Osprey Drive**  
**Hyattstown, MD 20871**

**Test Report: Radon in Air Test Results****Samples for EMSL Kit 133497**

Liquid Scintillation ID	Location	Radon Activity pCi/L	Start	Stop	Temperature F	Humidity %	Sample Type
225141 381509982-0001	Classroom 133 S side, Shelf 6'	0.6	12/10/2015 8:44:00 AM	12/14/2015 6:58:00 AM	74	60	Customer

**Sample Notes:**

225173 381509982-0002	Classroom 133 S side, Shelf 6'	0.7	12/10/2015 8:44:00 AM	12/14/2015 6:58:00 AM	74	60	Customer
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**Sample Notes:**

**Summary for EMSL Kit 133497** **Average Radon Result: 0.6 pCi/L**

**Samples for EMSL Kit 133494**

Liquid Scintillation ID	Location	Radon Activity pCi/L	Start	Stop	Temperature F	Humidity %	Sample Type
225090 381509982-0003	Class 136 N side, shelf 6'	0.4	12/10/2015 8:47:00 AM	12/14/2015 6:57:00 AM	72	40	Customer

**Sample Notes:**

225176 381509982-0004	Class 136 N side, shelf 6'	0.4	12/10/2015 8:47:00 AM	12/14/2015 6:57:00 AM	72	40	Customer
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**Sample Notes:**

**Summary for EMSL Kit 133494** **Average Radon Result: 0.4 pCi/L**

**Samples for EMSL Kit 133481**

Liquid Scintillation ID	Location	Radon Activity pCi/L	Start	Stop	Temperature F	Humidity %	Sample Type
225626 381509982-0005	Classroom 137 S side, shelf 6'	0.6	12/10/2015 8:50:00 AM	12/14/2015 7:34:00 AM	72	60	Customer

**Sample Notes:**

225263 381509982-0006	Classroom 137 S side, shelf 6'	0.8	12/10/2015 8:50:00 AM	12/14/2015 7:34:00 AM	72	60	Customer
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**Sample Notes:**

**Summary for EMSL Kit 133481** **Average Radon Result: 0.7 pCi/L**



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**Test Report: Radon in Air Test Results****Samples for EMSL Kit 133492**

Liquid Scintillation ID	Location	Radon Activity pCi/L	Start	Stop	Temperature F	Humidity %	Sample Type
225113 381509982-0007	D	0.8	12/10/2015 8:52:00 AM	12/14/2015 7:35:00 AM	72	60	Customer

**Sample Notes:**

225079 381509982-0008	D	0.6	12/10/2015 8:52:00 AM	12/14/2015 7:35:00 AM	72	60	Customer
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**Sample Notes:**

**Summary for EMSL Kit 133492 Average Radon Result: 0.7 pCi/L**

**Samples for EMSL Kit 133498**

Liquid Scintillation ID	Location	Radon Activity pCi/L	Start	Stop	Temperature F	Humidity %	Sample Type
225165 381509982-0009	Office 100 W site, shelf 5'	0.6	12/10/2015 8:58:00 AM	12/14/2015 6:32:00 AM	70	60	Customer

**Sample Notes:**

225145 381509982-0010	Office 100 W site, shelf 5'	0.8	12/10/2015 8:58:00 AM	12/14/2015 6:32:00 AM	70	60	Customer
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**Sample Notes:**

**Summary for EMSL Kit 133498 Average Radon Result: 0.7 pCi/L**

**Samples for EMSL Kit 133493**

Liquid Scintillation ID	Location	Radon Activity pCi/L	Start	Stop	Temperature F	Humidity %	Sample Type
225178 381509982-0011	Office 102 S side, shelf 5'	0.9	12/10/2015 9:03:00 AM	12/14/2015 6:35:00 AM	70	60	Customer

**Sample Notes:**

225066 381509982-0012	Office 102 S side, shelf 5'	0.8	12/10/2015 9:03:00 AM	12/14/2015 6:35:00 AM	70	60	Customer
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**Sample Notes:**

**Summary for EMSL Kit 133493 Average Radon Result: 0.9 pCi/L**

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**Test Report: Radon in Air Test Results****Samples for EMSL Kit 133519**

Liquid Scintillation ID	Location	Radon Activity pCi/L	Start	Stop	Temperature F	Humidity %	Sample Type
225061 381509982-0013	Office 100C W side, shelf 5'	1.2	12/10/2015 9:05:00 AM	12/14/2015 6:33:00 AM	68	60	Customer

**Sample Notes:**

225216 381509982-0014	Office 100C W side, shelf 5'	0.8	12/10/2015 9:05:00 AM	12/14/2015 6:33:00 AM	68	59	Customer
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**Sample Notes:**

**Summary for EMSL Kit 133519 Average Radon Result: 1.0 pCi/L**

**Samples for EMSL Kit 133517**

Liquid Scintillation ID	Location	Radon Activity pCi/L	Start	Stop	Temperature F	Humidity %	Sample Type
225121 381509982-0015	Office 100D E side, shelf 5'	0.8	12/10/2015 9:08:00 AM	12/14/2015 6:34:00 AM	68	50	Customer

**Sample Notes:**

225076 381509982-0016	Office 100D E side, shelf 5'	0.9	12/10/2015 9:08:00 AM	12/14/2015 6:34:00 AM	68	50	Customer
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**Sample Notes:**

**Summary for EMSL Kit 133517 Average Radon Result: 0.9 pCi/L**

**Samples for EMSL Kit 133491**

Liquid Scintillation ID	Location	Radon Activity pCi/L	Start	Stop	Temperature F	Humidity %	Sample Type
225083 381509982-0017	Office 169 E side, shelf 6'	0.5	12/10/2015 9:13:00 AM	12/14/2015 7:19:00 AM	72	60	Customer

**Sample Notes:**

225174 381509982-0018	Office 169 E side, shelf 6'	0.6	12/10/2015 9:13:00 AM	12/14/2015 7:19:00 AM	72	60	Customer
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**Sample Notes:**

**Summary for EMSL Kit 133491 Average Radon Result: 0.6 pCi/L**

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**Test Report: Radon in Air Test Results****Samples for EMSL Kit 133518**

Liquid Scintillation ID	Location	Radon Activity pCi/L	Start	Stop	Temperature F	Humidity %	Sample Type
225082 381509982-0019	Multipurpose rm NW side, electrical panel 5'	0.8	12/10/2015 9:18:00 AM	12/14/2015 7:17:00 AM	68	60	Customer

**Sample Notes:**

225129 381509982-0020	Multipurpose rm NW side, electrical panel 5'	0.9	12/10/2015 9:18:00 AM	12/14/2015 7:17:00 AM	68	60	Customer
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**Sample Notes:****Summary for EMSL Kit 133518 Average Radon Result: 0.9 pCi/L****Samples for EMSL Kit 133500**

Liquid Scintillation ID	Location	Radon Activity pCi/L	Start	Stop	Temperature F	Humidity %	Sample Type
225156 381509982-0021	Office 168 11	0.7	12/10/2015 9:24:00 AM	12/14/2015 7:18:00 AM	70	60	Customer

**Sample Notes:**

225170 381509982-0022	Office 4'	0.7	12/10/2015 9:24:00 AM	12/14/2015 7:18:00 AM	70	60	Customer
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**Sample Notes:****Summary for EMSL Kit 133500 Average Radon Result: 0.7 pCi/L****Samples for EMSL Kit 133217**

Liquid Scintillation ID	Location	Radon Activity pCi/L	Start	Stop	Temperature F	Humidity %	Sample Type
225548 381509982-0023	Class 157 ES	0.9	12/10/2015 9:28:00 AM	12/14/2015 7:10:00 AM	78	30	Customer

**Sample Notes:**

225564 381509982-0024	Class 157 ES	0.8	12/10/2015 9:28:00 AM	12/14/2015 7:10:00 AM	78	30	Customer
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**Sample Notes:****Summary for EMSL Kit 133217 Average Radon Result: 0.9 pCi/L**

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**Test Report: Radon in Air Test Results****Samples for EMSL Kit 133220**

Liquid Scintillation ID	Location	Radon Activity pCi/L	Start	Stop	Temperature F	Humidity %	Sample Type
225594	D	0.8	12/10/2015	12/14/2015	78	30	Customer
381509982-0025			9:30:00 AM	7:11:00 AM			

**Sample Notes:**

225752	D	0.9	12/10/2015	12/14/2015	78	30	Customer
381509982-0026			9:30:00 AM	7:11:00 AM			

**Sample Notes:**

**Summary for EMSL Kit 133220** **Average Radon Result: 0.9 pCi/L**

**Samples for EMSL Kit 133495**

Liquid Scintillation ID	Location	Radon Activity pCi/L	Start	Stop	Temperature F	Humidity %	Sample Type
225171	Class 121 shelf 6'	0.6	12/10/2015	12/14/2015	72	60	Customer
381509982-0027			9:33:00 AM	6:45:00 AM			

**Sample Notes:**

225190	Class 121 shelf 6'	0.7	12/10/2015	12/14/2015	72	59	Customer
381509982-0028			9:33:00 AM	6:45:00 AM			

**Sample Notes:**

**Summary for EMSL Kit 133495** **Average Radon Result: 0.6 pCi/L**

**Samples for EMSL Kit 133200**

Liquid Scintillation ID	Location	Radon Activity pCi/L	Start	Stop	Temperature F	Humidity %	Sample Type
225740	Class 115 shelf 6'	0.6	12/10/2015	12/14/2015	70	59	Customer
381509982-0029			9:35:00 AM	6:44:00 AM			

**Sample Notes:**

225546	Class 115 shelf 6'	0.7	12/10/2015	12/14/2015	70	60	Customer
381509982-0030			9:35:00 AM	6:44:00 AM			

**Sample Notes:**

**Summary for EMSL Kit 133200** **Average Radon Result: 0.6 pCi/L**

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**Test Report: Radon in Air Test Results****Samples for EMSL Kit 133515**

Liquid Scintillation ID	Location	Radon Activity pCi/L	Start	Stop	Temperature F	Humidity %	Sample Type
225235 381509982-0031	Gym SE, fire detector 5'	1.1	12/10/2015 9:38:00 AM	12/14/2015 6:41:00 AM	68	40	Customer

**Sample Notes:**

225142 381509982-0032	Gym SE, fire detector 5'	1.3	12/10/2015 9:38:00 AM	12/14/2015 6:41:00 AM	68	40	Customer
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**Sample Notes:**

**Summary for EMSL Kit 133515** **Average Radon Result: 1.2 pCi/L**

**Samples for EMSL Kit 133516**

Liquid Scintillation ID	Location	Radon Activity pCi/L	Start	Stop	Temperature F	Humidity %	Sample Type
225186 381509982-0033	Gym SW fire detector	1.6	12/10/2015 9:41:00 AM	12/14/2015 6:39:00 AM	68	40	Customer

**Sample Notes:**

225151 381509982-0034	Gym SW fire detector	1.5	12/10/2015 9:41:00 AM	12/14/2015 6:39:00 AM	68	40	Customer
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**Sample Notes:**

**Summary for EMSL Kit 133516** **Average Radon Result: 1.5 pCi/L**

**Samples for EMSL Kit 133512**

Liquid Scintillation ID	Location	Radon Activity pCi/L	Start	Stop	Temperature F	Humidity %	Sample Type
225074 381509982-0035	B	0.1	12/10/2015 9:45:00 AM	12/14/2015 6:42:00 AM	72	60	Customer

**Sample Notes:**

225181 381509982-0036	B	0.1	12/10/2015 9:45:00 AM	12/14/2015 6:42:00 AM	72	60	Customer
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**Sample Notes:**

**Summary for EMSL Kit 133512** **Average Radon Result: 0.1 pCi/L**

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**Test Report: Radon in Air Test Results****Samples for EMSL Kit 133499**

Liquid Scintillation ID	Location	Radon Activity pCi/L	Start	Stop	Temperature F	Humidity %	Sample Type
225139	Mech rm 165, shelf 6'	0.4	12/10/2015	12/14/2015	72	60	Customer
381509982-0037			9:52:00 AM	7:15:00 AM			

**Sample Notes:**

225077	Mech rm 165, shelf 6'	0.6	12/10/2015	12/14/2015	72	60	Customer
381509982-0038			9:52:00 AM	7:15:00 AM			

**Sample Notes:**

**Summary for EMSL Kit 133499** **Average Radon Result: 0.5 pCi/L**

**Samples for EMSL Kit 133513**

Liquid Scintillation ID	Location	Radon Activity pCi/L	Start	Stop	Temperature F	Humidity %	Sample Type
225162	Office 158	0.5	12/10/2015	12/14/2015	74	60	Customer
381509982-0039			9:53:00 AM	7:14:00 AM			

**Sample Notes:**

225071	Office 158	0.4	12/10/2015	12/14/2015	74	60	Customer
381509982-0040			9:53:00 AM	7:14:00 AM			

**Sample Notes:**

**Summary for EMSL Kit 133513** **Average Radon Result: 0.4 pCi/L**

**Samples for EMSL Kit 133480**

Liquid Scintillation ID	Location	Radon Activity pCi/L	Start	Stop	Temperature F	Humidity %	Sample Type
225091	Room 161 shelf 6'	0.4	12/10/2015	12/14/2015	72	60	Customer
381509982-0041			9:58:00 AM	7:12:00 AM			

**Sample Notes:**

225087	Room 161 shelf 6'	0.3	12/10/2015	12/14/2015	72	60	Customer
381509982-0042			9:58:00 AM	7:12:00 AM			

**Sample Notes:**

**Summary for EMSL Kit 133480** **Average Radon Result: 0.4 pCi/L**

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**Test Report: Radon in Air Test Results****Samples for EMSL Kit 133215**

Liquid Scintillation ID	Location	Radon Activity pCi/L	Start	Stop	Temperature F	Humidity %	Sample Type
225780 381509982-0043	Class 149 E side, shelf 6'	0.6	12/10/2015 10:00:00 AM	12/14/2015 7:08:00 AM	76	40	Customer

**Sample Notes:**

225765 381509982-0044	Class 149 E side, shelf 6'	0.7	12/10/2015 10:00:00 AM	12/14/2015 7:08:00 AM	76	40	Customer
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**Sample Notes:**

**Summary for EMSL Kit 133215** **Average Radon Result: 0.6 pCi/L**

**Samples for EMSL Kit 133218**

Liquid Scintillation ID	Location	Radon Activity pCi/L	Start	Stop	Temperature F	Humidity %	Sample Type
225899 381509982-0045	Therapy, 152 shelf on 6'	0.9	12/10/2015 10:03:00 AM	12/14/2015 7:09:00 AM	74	60	Customer

**Sample Notes:**

225778 381509982-0046	Therapy, 152 shelf on 6'	0.7	12/10/2015 10:03:00 AM	12/14/2015 7:09:00 AM	74	60	Customer
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**Sample Notes:**

**Summary for EMSL Kit 133218** **Average Radon Result: 0.8 pCi/L**

**Samples for EMSL Kit 133192**

Liquid Scintillation ID	Location	Radon Activity pCi/L	Start	Stop	Temperature F	Humidity %	Sample Type
225827 381509982-0047	Class 150 S side	0.8	12/10/2015 10:06:00 AM	12/14/2015 7:05:00 AM	70	60	Customer

**Sample Notes:**

225588 381509982-0048	Class 150 S side	0.6	12/10/2015 10:06:00 AM	12/14/2015 7:05:00 AM	70	60	Customer
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**Sample Notes:**

**Summary for EMSL Kit 133192** **Average Radon Result: 0.7 pCi/L**

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**Test Report: Radon in Air Test Results****Samples for EMSL Kit 133203**

Liquid Scintillation ID	Location	Radon Activity pCi/L	Start	Stop	Temperature F	Humidity %	Sample Type
225907	D	0.7	12/10/2015	12/14/2015	70	60	Customer
381509982-0049			10:08:00 AM	7:06:00 AM			

**Sample Notes:**

225900	D	0.4	12/10/2015	12/14/2015	70	60	Customer
381509982-0050			10:08:00 AM	7:06:00 AM			

**Sample Notes:**

**Summary for EMSL Kit 133203** **Average Radon Result: 0.6 pCi/L**

**Samples for EMSL Kit 133514**

Liquid Scintillation ID	Location	Radon Activity pCi/L	Start	Stop	Temperature F	Humidity %	Sample Type
225227	Classroom 145 E side, shelf 6'	0.7	12/10/2015	12/14/2015	70	60	Customer
381509982-0051			10:10:00 AM	7:07:00 AM			

**Sample Notes:**

225189	Classroom 145 E side, shelf 6'	0.9	12/10/2015	12/14/2015	70	60	Customer
381509982-0052			10:10:00 AM	7:07:00 AM			

**Sample Notes:**

**Summary for EMSL Kit 133514** **Average Radon Result: 0.8 pCi/L**

**Samples for EMSL Kit 133479**

Liquid Scintillation ID	Location	Radon Activity pCi/L	Start	Stop	Temperature F	Humidity %	Sample Type
225169	Classroom 146 N side, shelf 6'	0.3	12/10/2015	12/14/2015	78	60	Customer
381509982-0053			10:13:00 AM	7:04:00 AM			

**Sample Notes:**

225271	Classroom 146 N side, shelf 6'	0.6	12/10/2015	12/14/2015	78	60	Customer
381509982-0054			10:13:00 AM	7:04:00 AM			

**Sample Notes:**

**Summary for EMSL Kit 133479** **Average Radon Result: 0.5 pCi/L**



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**Test Report: Radon in Air Test Results****Samples for EMSL Kit 133208**

Liquid Scintillation ID	Location	Radon Activity pCi/L	Start	Stop	Temperature F	Humidity %	Sample Type
225756 381509982-0055	Class 142, N side, shelf 6'	0.5	12/10/2015 10:15:00 AM	12/14/2015 7:03:00 AM	70	60	Customer

**Sample Notes:**

225862 381509982-0056	Class 142, N side, shelf 6'	0.6	12/10/2015 10:15:00 AM	12/14/2015 7:03:00 AM	70	60	Customer
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**Sample Notes:****Summary for EMSL Kit 133208 Average Radon Result: 0.6 pCi/L****Samples for EMSL Kit 133202**

Liquid Scintillation ID	Location	Radon Activity pCi/L	Start	Stop	Temperature F	Humidity %	Sample Type
225835 381509982-0057	Class 138 N side shelf 6'	0.5	12/10/2015 10:17:00 AM	12/14/2015 7:02:00 AM	70	60	Customer

**Sample Notes:**

225585 381509982-0058	Class 138 N side shelf 6'	0.4	12/10/2015 10:17:00 AM	12/14/2015 7:02:00 AM	70	60	Customer
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**Sample Notes:****Summary for EMSL Kit 133202 Average Radon Result: 0.4 pCi/L****Samples for EMSL Kit 133201**

Liquid Scintillation ID	Location	Radon Activity pCi/L	Start	Stop	Temperature F	Humidity %	Sample Type
225561 381509982-0059	Class 132 N side, shelf 6'	0.3	12/10/2015 10:20:00 AM	12/14/2015 6:55:00 AM	70	60	Customer

**Sample Notes:**

225526 381509982-0060	Class 132 N side, shelf 6'	0.4	12/10/2015 10:20:00 AM	12/14/2015 6:55:00 AM	70	60	Customer
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**Sample Notes:****Summary for EMSL Kit 133201 Average Radon Result: 0.4 pCi/L**

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EMSL Order: 381509982

CustomerID: LEID42

CustomerPO:

ProjectID:

Attn: **John Whelpley**  
**Leidos Engineering, LLC**  
**11951 Freedom Dr.**  
**Reston, VA 20190**

Phone: (571) 268-0697  
 Fax:  
 Received: 12/15/15 12:30 PM  
 Analysis Date: 12/17/2015  
 Collected: 12/10/2015

Project: 7210 Osprey Drive

Test Site: **Candlewood ES**  
**7210 Osprey Drive**  
**Hyattstown, MD 20871**

**Test Report: Radon in Air Test Results****Samples for EMSL Kit 133211**

Liquid Scintillation ID	Location	Radon Activity pCi/L	Start	Stop	Temperature F	Humidity %	Sample Type
225723 381509982-0061	Class 130 S side shelf 6'	0.4	12/10/2015 10:26:00 AM	12/14/2015 6:53:00 AM	72	60	Customer

**Sample Notes:**

225871 381509982-0062	Class 130 S side shelf 6'	0.3	12/10/2015 10:26:00 AM	12/14/2015 6:53:00 AM	72	60	Customer
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**Sample Notes:****Summary for EMSL Kit 133211 Average Radon Result: 0.4 pCi/L****Samples for EMSL Kit 133216**

Liquid Scintillation ID	Location	Radon Activity pCi/L	Start	Stop	Temperature F	Humidity %	Sample Type
225775 381509982-0063	Class 128 S side, shelf 6'	0.3	12/10/2015 10:28:00 AM	12/14/2015 6:52:00 AM	72	60	Customer

**Sample Notes:**

225554 381509982-0064	Class 128 S side, shelf 6'	0.4	12/10/2015 10:28:00 AM	12/14/2015 6:52:00 AM	72	60	Customer
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**Sample Notes:****Summary for EMSL Kit 133216 Average Radon Result: 0.4 pCi/L****Samples for EMSL Kit 133190**

Liquid Scintillation ID	Location	Radon Activity pCi/L	Start	Stop	Temperature F	Humidity %	Sample Type
225782 381509982-0065	Class 124 S side, shelf 6'	0.4	12/10/2015 10:30:00 AM	12/14/2015 6:51:00 AM	70	60	Customer

**Sample Notes:**

225582 381509982-0066	Class 124 S side, shelf 6'	0.6	12/10/2015 10:30:00 AM	12/14/2015 6:51:00 AM	70	60	Customer
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**Sample Notes:****Summary for EMSL Kit 133190 Average Radon Result: 0.5 pCi/L**

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EMSL Order: 381509982

CustomerID: LEID42

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Project: **7210 Osprey Drive**

Test Site: **Candlewood ES**  
**7210 Osprey Drive**  
**Hyattstown, MD 20871**

**Test Report: Radon in Air Test Results****Samples for EMSL Kit 133212**

Liquid Scintillation ID	Location	Radon Activity pCi/L	Start	Stop	Temperature F	Humidity %	Sample Type
225808 381509982-0067	Class 122 S side, shelf 6'	0.1	12/10/2015 10:33:00 AM	12/14/2015 6:50:00 AM	76	40	Customer

**Sample Notes:**

225919 381509982-0068	Class 122 S side, shelf 6'	0.3	12/10/2015 10:33:00 AM	12/14/2015 6:50:00 AM	76	40	Customer
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**Sample Notes:****Summary for EMSL Kit 133212 Average Radon Result: 0.2 pCi/L****Samples for EMSL Kit 133199**

Liquid Scintillation ID	Location	Radon Activity pCi/L	Start	Stop	Temperature F	Humidity %	Sample Type
225570 381509982-0069	Class 118 kitchen shelf 6'	0.5	12/10/2015 10:36:00 AM	12/14/2015 6:47:00 AM	70	70	Customer

**Sample Notes:**

225732 381509982-0070	Class 118 kitchen shelf 6'	0.4	12/10/2015 10:36:00 AM	12/14/2015 6:47:00 AM	70	70	Customer
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**Sample Notes:****Summary for EMSL Kit 133199 Average Radon Result: 0.4 pCi/L****Samples for EMSL Kit 133210**

Liquid Scintillation ID	Location	Radon Activity pCi/L	Start	Stop	Temperature F	Humidity %	Sample Type
225551 381509982-0071	Class 114 E side, kitchen shelf 6'	0.3	12/10/2015 10:39:00 AM	12/14/2015 6:43:00 AM	70	60	Customer

**Sample Notes:**

225744 381509982-0072	Class 114 E side, kitchen shelf 6'	0.4	12/10/2015 10:39:00 AM	12/14/2015 6:43:00 AM	70	60	Customer
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**Sample Notes:****Summary for EMSL Kit 133210 Average Radon Result: 0.4 pCi/L**

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EMSL Order: 381509982  
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Project: **7210 Osprey Drive**

Test Site: **Candlewood ES**  
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**Test Report: Radon in Air Test Results****Samples for EMSL Kit 133219**

Liquid Scintillation ID	Location	Radon Activity pCi/L	Start	Stop	Temperature F	Humidity %	Sample Type
225709	S side 11, shelf 6'	0.7	12/10/2015	12/14/2015	72	50	Customer
381509982-0073			10:43:00 AM	7:25:00 AM			

**Sample Notes:**

225706	S side 11, shelf 6'	0.7	12/10/2015	12/14/2015	72	50	Customer
381509982-0074			10:43:00 AM	7:25:00 AM			

**Sample Notes:**

**Summary for EMSL Kit 133219** **Average Radon Result: 0.7 pCi/L**

**Samples for EMSL Kit 133209**

Liquid Scintillation ID	Location	Radon Activity pCi/L	Start	Stop	Temperature F	Humidity %	Sample Type
225702	Gym office 110 shelf 6'	0.4	12/10/2015	12/14/2015	70	40	Customer
381509982-0075			10:49:00 AM	6:37:00 AM			

**Sample Notes:**

225581	Gym office 110 shelf 6'	0.6	12/10/2015	12/14/2015	70	40	Customer
381509982-0076			10:49:00 AM	6:37:00 AM			

**Sample Notes:**

**Summary for EMSL Kit 133209** **Average Radon Result: 0.5 pCi/L**

**Samples for EMSL Kit 133195**

Liquid Scintillation ID	Location	Radon Activity pCi/L	Start	Stop	Temperature F	Humidity %	Sample Type
225739	Class 125, N side shelf 6'	0.3	12/10/2015	12/14/2015	70	60	Customer
381509982-0077			10:53:00 AM	6:49:00 AM			

**Sample Notes:**

225598	Class 125, N side shelf 6'	0.3	12/10/2015	12/14/2015	70	60	Customer
381509982-0078			10:53:00 AM	6:49:00 AM			

**Sample Notes:**

**Summary for EMSL Kit 133195** **Average Radon Result: 0.3 pCi/L**

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**Test Report: Radon in Air Test Results****Samples for EMSL Kit 133194**

Liquid Scintillation ID	Location	Radon Activity pCi/L	Start	Stop	Temperature F	Humidity %	Sample Type
225762 381509982-0079	Library 101 W side, bookshelf 6'	0.9	12/10/2015 10:58:00 AM	12/14/2015 7:22:00 AM	68	60	Customer

**Sample Notes:**

225785 381509982-0080	Library 101 W side, bookshelf 6'	0.9	12/10/2015 10:58:00 AM	12/14/2015 7:22:00 AM	68	60	Customer
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**Sample Notes:**

**Summary for EMSL Kit 133194** **Average Radon Result: 0.9 pCi/L**

**Samples for EMSL Kit 133193**

Liquid Scintillation ID	Location	Radon Activity pCi/L	Start	Stop	Temperature F	Humidity %	Sample Type
225691 381509982-0081	Library 101 N side	0.7	12/10/2015 11:00:00 AM	12/14/2015 7:23:00 AM	68	60	Customer

**Sample Notes:**

225781 381509982-0082	Library 101 N side	0.9	12/10/2015 11:00:00 AM	12/14/2015 7:23:00 AM	68	60	Customer
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**Sample Notes:**

**Summary for EMSL Kit 133193** **Average Radon Result: 0.8 pCi/L**

**Samples for EMSL Kit 133501**

Liquid Scintillation ID	Location	Radon Activity pCi/L	Start	Stop	Temperature F	Humidity %	Sample Type
225148 381509982-0083	B	0	12/10/2015 11:02:00 AM	12/14/2015 7:24:00 AM	70	40	Customer

**Sample Notes:**

225155 381509982-0084	B	-0.1	12/10/2015 11:02:00 AM	12/14/2015 7:24:00 AM	70	40	Customer
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**Sample Notes:**

**Summary for EMSL Kit 133501** **Average Radon Result: 0.0 pCi/L**

The radon test was performed using a liquid scintillation radon detector/s and counted on a liquid scintillation counter using approved EPA testing protocols for Radon in Air testing. The EPA recommends fixing your home if the average of two short-term tests taken in the lowest lived-in level of the home show radon levels that are equal to or greater than 4.0pCi/L.

The EPA recommends retesting your home every two years.

Please contact EMSL Analytical, Inc. or your State Health Department for further information.

All procedures used for generating this report are in complete accordance with the current EPA protocols for the analysis of Radon in Air.

**Report Note**



**EMSL Analytical, Inc.**

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Project: **7210 Osprey Drive**

Test Site: **Candlewood ES**  
**7210 Osprey Drive**  
**Hyattstown, MD 20871**

**Test Report: Radon in Air Test Results**

Analyst(s)

Kathryn Lickfield (84)

*Laura Freeman* *Subash Rashat*

Laura Freeman, Interim Laboratory Manager &  
Subash Rashat, New Jersey Radiation Specialist NJ MES 10152  
or other approved signatory

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Samples analyzed by EMSL Analytical, Inc. Cinnaminson, NJ Accreditations: NRSB ARL6006, NJ DEP 03036, MEB 92525, PA 2573, IN 00455, IA L00032, RI RAS-024, ME 20200C, NE RMB-1083, NY ELAP 10872, NM 885-10L, FL RB2034, OH RL-39, NRPP #106178AL, KS-LB-0005. Subash Rashat certification #MES10152

Initial report from 12/18/2015 10:13:18

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