



**MCPS RADON TESTING – EXECUTIVE SUMMARY**

Site Name	Olney Elementary School
Date of Test Report	1/04/2023
Round of Testing	Initial Follow-up Post Remediation 2 Year Testing 5 Year Testing HVAC Upgrade Window Replacement New Addition New Facility
# Rooms Tested	63
# Rooms $\geq$ 4.0 pCi/L	0
Lowest Value	<0.3 pCi/L
Highest Value	3.0 pCi/L

Project Status:

1. 5-Year retesting completed



January 4, 2023

Mr. Brian Croyle  
Environmental Specialist  
Montgomery County Public Schools  
Gaithersburg, MD 20879

Re: **Radon Testing Services**  
KCI Job # 122210551

Location: Olney Elementary School  
3401 Queen Mary Dr.  
Olney, MD 20832

Dear Mr. Croyle:

KCI Technologies, Inc. (KCI) is pleased to submit the following report to Montgomery County Public Schools (MCPS) pursuant to completing a “short-term” 3 day radon test for the Beall Elementary School, located at 451 Beall Avenue in Rockville, Maryland 20850 (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 Specialist (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> or [www.epa.gov/radon](http://www.epa.gov/radon).

KCI visited the site on December 6, 2022 and deployed seventy-three (73) activated charcoal (AC) radon test kits. KCI deployed radon test kits in all 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 Attachment A of this report.

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

KCI returned to the site on December 9, 2022 to retrieve the radon sampling test kits. KCI shipped all radon tests via overnight delivery to Airchek, Inc. for analysis by gamma-ray spectroscopy. Airchek, Inc.

is a NRSB 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 concentration levels 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 during 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 20s°F and high temperatures ranged to the mid-50s°F. Maximum sustained winds ranged from 0-12 miles per hour. Average humidity was around 75% with .04 inches of precipitation (rain) was recorded during testing period.

**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	

Quality Control Samples	
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) 891-1769.

Sincerely,



Tyler P. McCleaf  
Radon Measurement Provider  
#111004 RT  
KCI Technologies, Inc.

Attachments:     A- Floor Plan with Test Locations  
                      B- Table 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 Check, Inc.

D- Duplicate

FB- Field Blank

KCI- KCI Technologies, Inc.

OB- Office Blank

PM- Project Manager

OC- Quality Control

Table 1- Radon Testing Results		
Olney ES		
Test Period: 12/06/2022 - 12/09/2022		
Kit Number	Room / Area	Result
11287910	1	1.4
11287911	1	1.2
11287909	2	0.9
11287924	3	< 0.3
11287928	4	0.9
11287914	5	0.9
11287905	6	1.1
11287906	7	0.8
11287913	8	1.1
11287925	9	< 0.3
11287933	9	1.0
11287939	9	0.9
11287940	10	0.7
11287941	11	1.1
11287934	12	1.4
11287942	13	2.7
11287902	14	0.9
11287946	15	1.8
11287958	16	1.8
11287959	16	1.9
11287938	17	1.3
11287945	18	0.9
11287931	19	1.3
11287932	19	1.2
11287949	19	< 0.3
11287952	20	1.3
11287950	21	0.9
11287951	22	0.7
11287944	23	0.9
11287903	24	1.0
11287943	25	1.3
11287922	26	1.2
11287917	5A	< 0.3
11287912	ADCOCK	0.8
11287937	ART	1.8
11287915	ASSISTANT PRINCIPAL	0.8
11287960	BERG	0.7
11287956	BUILDING SERVICES	0.6
11287964	COM	1.2
11287935	COMMUNICATION CENTER	< 0.3
11287918	CONFERENCE	0.6
11287966	CRAWFORD	1.2



Table 1- Radon Testing Results		
Olney ES		
Test Period: 12/06/2022 - 12/09/2022		
Kit Number	Room / Area	Result
11287975	DPR	< 0.3
11287976	DPR	0.9
11287923	ESOL-HERITAGE	1.0
11287916	ESOL-RASO	0.9
11140131	GYM	< 0.3
11287967	GYM	1.2
11287927	HEALTH	< 0.3
11287961	IMU	1.8
11287901	JOHNSON	0.7
11287971	KITCHEN	0.6
11287907	MC	1.0
11287908	MC	0.8
11287921	MC	0.8
11287904	MC WORK ROOM	0.5
11287953	MPR	0.9
11287954	MPR	1.0
11287973	MU	0.7
11287920	OFFICE	< 0.3
11287965	OT	1.1
11287974	PE OFFICE	1.8
11287919	PRINCIPAL	0.8
11287947	READING	1.0
11287948	READING	< 0.3
11287955	READING	1.1
11287936	ROARTY	< 0.3
11287963	SMITH	0.5
11287962	SPT	0.8
11287930	STAFF LOUNGE	0.9
11287929	STAFF PHONE ROOM	1.1
11287957	TINNEY	3.0
11287926	WORK ROOM	1.0

Table 2- Radon Testing Results			
Olney ES			
Test Period: 12/06/22 - 12/09/22			
Kit Number	QC Type	Room / Area	Result
11287911	D	1	1.2
11287939	D	9	0.9
11287925	FB	9	< 0.3
11287959	D	16	1.9
11287932	D	19	1.2
11287949	FB	19	< 0.3
11287975	D	DPR	< 0.3
11287908	D	MC	0.8
11287947	D	Reading	1.0
11287948	FB	Reading	< 0.3
11287676	OB	OFFICE BLANK	< 0.3
11287288	TB	TRAVEL BLANK	< 0.3

Summary of Missed Locations		
Olney ES		
Test Period: 12/06/22 - 12/09/22		
Kit Number	Room/Area	Result
	N/A	

Summary of Missing, Compromised and $\geq 4$ piC/L Tests		
Olney ES		
Test Period: 12/06/22 - 12/09/22		
Kit Number	Room/Area	Result
	N/A	

Table Note:  
 \* Missing or Compromised Sample

# ATTACHMENT C

## Laboratory Analytical Results

Radon test result report for:**OLNEY ES****1**

Kit #	Room Id	Started	Ended	pCi/L	Analyzed
11287911	1	2022-12-06 @ 8:00 am	2022-12-09 @ 8:00 am	1.2 ± 0.4	2022-12-13
11287910	1	2022-12-06 @ 8:00 am	2022-12-09 @ 8:00 am	1.4 ± 0.3	2022-12-13
11287940	10	2022-12-06 @ 8:00 am	2022-12-09 @ 8:00 am	0.7 ± 0.3	2022-12-13
11287941	11	2022-12-06 @ 8:00 am	2022-12-09 @ 8:00 am	1.1 ± 0.4	2022-12-13
11287934	12	2022-12-06 @ 8:00 am	2022-12-09 @ 8:00 am	1.4 ± 0.4	2022-12-13
11287942	13	2022-12-06 @ 8:00 am	2022-12-09 @ 8:00 am	2.7 ± 0.4	2022-12-13
11287902	14	2022-12-06 @ 8:00 am	2022-12-09 @ 8:00 am	0.9 ± 0.4	2022-12-13
11287946	15	2022-12-06 @ 8:00 am	2022-12-09 @ 8:00 am	1.8 ± 0.4	2022-12-13
11287958	16	2022-12-06 @ 8:00 am	2022-12-09 @ 8:00 am	1.8 ± 0.4	2022-12-13
11287959	16	2022-12-06 @ 8:00 am	2022-12-09 @ 8:00 am	1.9 ± 0.3	2022-12-13
11287938	17	2022-12-06 @ 8:00 am	2022-12-09 @ 8:00 am	1.3 ± 0.3	2022-12-13
11287945	18	2022-12-06 @ 8:00 am	2022-12-09 @ 8:00 am	0.9 ± 0.3	2022-12-13
11287932	19	2022-12-06 @ 8:00 am	2022-12-09 @ 8:00 am	1.2 ± 0.4	2022-12-13
11287949	19	2022-12-06 @ 8:00 am	2022-12-09 @ 8:00 am	< 0.3	2022-12-13
11287931	19	2022-12-06 @ 8:00 am	2022-12-09 @ 8:00 am	1.3 ± 0.3	2022-12-13
11287909	2	2022-12-06 @ 8:00 am	2022-12-09 @ 8:00 am	0.9 ± 0.3	2022-12-13
11287952	20	2022-12-06 @ 8:00 am	2022-12-09 @ 8:00 am	1.3 ± 0.3	2022-12-13
11287950	21	2022-12-06 @ 8:00 am	2022-12-09 @ 8:00 am	0.9 ± 0.3	2022-12-13
11287951	22	2022-12-06 @ 8:00 am	2022-12-09 @ 8:00 am	0.7 ± 0.3	2022-12-13
11287944	23	2022-12-06 @ 8:00 am	2022-12-09 @ 8:00 am	0.9 ± 0.4	2022-12-13
11287903	24	2022-12-06 @ 8:00 am	2022-12-09 @ 8:00 am	1.0 ± 0.3	2022-12-13
11287943	25	2022-12-06 @ 8:00 am	2022-12-09 @ 8:00 am	1.3 ± 0.4	2022-12-13
11287922	26	2022-12-06 @ 8:00 am	2022-12-09 @ 8:00 am	1.2 ± 0.4	2022-12-13
11287924	3	2022-12-06 @ 8:00 am	2022-12-09 @ 8:00 am	< 0.3	2022-12-13
11287928	4	2022-12-06 @ 8:00 am	2022-12-09 @ 8:00 am	0.9 ± 0.3	2022-12-13
11287914	5	2022-12-06 @ 8:00 am	2022-12-09 @ 8:00 am	0.9 ± 0.3	2022-12-13
11287917	5A	2022-12-06 @ 8:00 am	2022-12-09 @ 8:00 am	< 0.3	2022-12-13
11287905	6	2022-12-06 @ 8:00 am	2022-12-09 @ 8:00 am	1.1 ± 0.3	2022-12-13
11287906	7	2022-12-06 @ 8:00 am	2022-12-09 @ 8:00 am	0.8 ± 0.3	2022-12-13
11287913	8	2022-12-06 @ 8:00 am	2022-12-09 @ 8:00 am	1.1 ± 0.4	2022-12-13
11287933	9	2022-12-06 @ 8:00 am	2022-12-09 @ 8:00 am	1.0 ± 0.4	2022-12-13
11287939	9	2022-12-06 @ 8:00 am	2022-12-09 @ 8:00 am	0.9 ± 0.3	2022-12-13
11287925	9	2022-12-06 @ 8:00 am	2022-12-09 @ 8:00 am	< 0.3	2022-12-13
11287912	ADCOCK	2022-12-06 @ 8:00 am	2022-12-09 @ 8:00 am	0.8 ± 0.3	2022-12-13
11287937	ART	2022-12-06 @ 8:00 am	2022-12-09 @ 8:00 am	1.8 ± 0.3	2022-12-13
11287915	ASSISTANT PRINCIPAL	2022-12-06 @ 8:00 am	2022-12-09 @ 8:00 am	0.8 ± 0.3	2022-12-13
11287960	BERG	2022-12-06 @ 8:00 am	2022-12-09 @ 8:00 am	0.7 ± 0.3	2022-12-13

Radon test result report for:**OLNEY ES****1**

Kit #	Room Id	Started	Ended	pCi/L	Analyzed
11287956	BUILDING SERVICES	2022-12-06 @ 8:00 am	2022-12-09 @ 8:00 am	0.6 ± 0.3	2022-12-13
11287964	COM	2022-12-06 @ 8:00 am	2022-12-09 @ 8:00 am	1.2 ± 0.4	2022-12-13
11287935	COMMUNICATION CENTER	2022-12-06 @ 8:00 am	2022-12-09 @ 8:00 am	< 0.3	2022-12-13
11287918	CONFERENCE	2022-12-06 @ 8:00 am	2022-12-09 @ 8:00 am	0.6 ± 0.3	2022-12-13
11287966	CRAWFORD	2022-12-06 @ 8:00 am	2022-12-09 @ 8:00 am	1.2 ± 0.3	2022-12-13
11287976	DPR	2022-12-06 @ 8:00 am	2022-12-09 @ 8:00 am	0.9 ± 0.4	2022-12-13
11287975	DPR	2022-12-06 @ 8:00 am	2022-12-09 @ 8:00 am	< 0.3	2022-12-13
11287923	ESOL-HERITAGE	2022-12-06 @ 8:00 am	2022-12-09 @ 8:00 am	1.0 ± 0.4	2022-12-13
11287916	ESOL-RASO	2022-12-06 @ 8:00 am	2022-12-09 @ 8:00 am	0.9 ± 0.4	2022-12-13
11140131	GYM	2022-12-06 @ 8:00 am	2022-12-09 @ 8:00 am	< 0.3	2022-12-13
11287967	GYM	2022-12-06 @ 8:00 am	2022-12-09 @ 8:00 am	1.2 ± 0.4	2022-12-13
11287927	HEALTH	2022-12-06 @ 8:00 am	2022-12-09 @ 8:00 am	< 0.3	2022-12-13
11287961	IMU	2022-12-06 @ 8:00 am	2022-12-09 @ 8:00 am	1.8 ± 0.4	2022-12-13
11287901	JOHNSON	2022-12-06 @ 8:00 am	2022-12-09 @ 8:00 am	0.7 ± 0.3	2022-12-13
11287971	KITCHEN	2022-12-06 @ 8:00 am	2022-12-09 @ 8:00 am	0.6 ± 0.3	2022-12-13
11287921	MC	2022-12-06 @ 8:00 am	2022-12-09 @ 8:00 am	0.8 ± 0.3	2022-12-13
11287908	MC	2022-12-06 @ 8:00 am	2022-12-09 @ 8:00 am	0.8 ± 0.3	2022-12-13
11287907	MC	2022-12-06 @ 8:00 am	2022-12-09 @ 8:00 am	1.0 ± 0.3	2022-12-13
11287904	MC WORK ROOM	2022-12-06 @ 8:00 am	2022-12-09 @ 8:00 am	0.5 ± 0.3	2022-12-13
11287954	MPR	2022-12-06 @ 8:00 am	2022-12-09 @ 8:00 am	1.0 ± 0.3	2022-12-13
11287953	MPR	2022-12-06 @ 8:00 am	2022-12-09 @ 8:00 am	0.9 ± 0.3	2022-12-13
11287973	MU	2022-12-06 @ 8:00 am	2022-12-09 @ 8:00 am	0.7 ± 0.3	2022-12-13
11287920	OFFICE	2022-12-06 @ 8:00 am	2022-12-09 @ 8:00 am	< 0.3	2022-12-13
11287965	OT	2022-12-06 @ 8:00 am	2022-12-09 @ 8:00 am	1.1 ± 0.3	2022-12-13
11287974	PE OFFICE	2022-12-06 @ 8:00 am	2022-12-09 @ 8:00 am	1.8 ± 0.4	2022-12-13
11287919	PRINCIPAL	2022-12-06 @ 8:00 am	2022-12-09 @ 8:00 am	0.8 ± 0.4	2022-12-13
11287948	READING	2022-12-06 @ 8:00 am	2022-12-09 @ 8:00 am	< 0.3	2022-12-13
11287947	READING	2022-12-06 @ 8:00 am	2022-12-09 @ 8:00 am	1.0 ± 0.4	2022-12-13
11287955	READING	2022-12-06 @ 8:00 am	2022-12-09 @ 8:00 am	1.1 ± 0.3	2022-12-13
11287936	ROARTY	2022-12-06 @ 8:00 am	2022-12-09 @ 8:00 am	< 0.3	2022-12-13
11287963	SMITH	2022-12-06 @ 8:00 am	2022-12-09 @ 8:00 am	0.5 ± 0.3	2022-12-13
11287962	SPT	2022-12-06 @ 8:00 am	2022-12-09 @ 8:00 am	0.8 ± 0.3	2022-12-13
11287930	STAFF LOUNGE	2022-12-06 @ 8:00 am	2022-12-09 @ 8:00 am	0.9 ± 0.3	2022-12-13
11287929	STAFF PHONE ROOM	2022-12-06 @ 8:00 am	2022-12-09 @ 8:00 am	1.1 ± 0.4	2022-12-13
11287957	TINNEY	2022-12-06 @ 8:00 am	2022-12-09 @ 8:00 am	3.0 ± 0.4	2022-12-13
11287926	WORK ROOM	2022-12-06 @ 8:00 am	2022-12-09 @ 8:00 am	1.0 ± 0.4	2022-12-13

# EXPOSURE IN BOWSER-MORNER RADON CHAMBER

CLIENT KC1 TECHNOLOGIES, INC Job Number 208343

NOMINAL Conditions: Radon Conc 34.7 pCi/L Rel. Hum 49.4 % Temp. 69.6 F

Date Start: 12/24/22 Date Stop: 12/27/22 Date Start: \_\_\_\_\_ Date Stop: \_\_\_\_\_

Time Start: 0810 Time Stop: 0810 Time Start: \_\_\_\_\_ Time Stop: \_\_\_\_\_

Device No.'s: (5) CHAR BAGS - Device No.'s: \_\_\_\_\_

11285109, 11285110, 11285101

THRU 11285103

BY LEFT

Date Start: \_\_\_\_\_ Date Stop: \_\_\_\_\_ Date Start: \_\_\_\_\_ Date Stop: \_\_\_\_\_

Time Start: \_\_\_\_\_ Time Stop: \_\_\_\_\_ Time Start: \_\_\_\_\_ Time Stop: \_\_\_\_\_

Device No.'s: \_\_\_\_\_ Device No.'s: \_\_\_\_\_

Date Start: \_\_\_\_\_ Date Stop: \_\_\_\_\_ Date Start: \_\_\_\_\_ Date Stop: \_\_\_\_\_

Time Start: \_\_\_\_\_ Time Stop: \_\_\_\_\_ Time Start: \_\_\_\_\_ Time Stop: \_\_\_\_\_

Device No.'s: \_\_\_\_\_ Device No.'s: \_\_\_\_\_

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

December 29, 2022

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

Radon test result report for:

**OFFICE**

**MA** MCPS - Spike Sample Lab Results. Measured values are satisfactory, i.e., within  $\pm 25\%$  of the chamber's reference value (34.7 pCi/L).

Kit #	Room Id	Started	Ended	pCi/L	Analyzed
11285110	SK1	2022-12-24 @ 8:00 am	2022-12-27 @ 8:00 am	31.7 $\pm$ 2.5	2022-12-29
11285101	SK2	2022-12-24 @ 8:00 am	2022-12-27 @ 8:00 am	30.1 $\pm$ 2.4	2022-12-29
11285103	SK3	2022-12-24 @ 8:00 am	2022-12-27 @ 8:00 am	34.0 $\pm$ 2.7	2022-12-29
11285102	SK4	2022-12-24 @ 8:00 am	2022-12-27 @ 8:00 am	30.9 $\pm$ 2.5	2022-12-29
11285109	SK5	2022-12-24 @ 8:00 am	2022-12-27 @ 8:00 am	32.0 $\pm$ 2.6	2022-12-29

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 – April 2022 Schools – Retesting

Name of Schools:

1. Olney ES
2. Greenwood ES
3. John Poole MS
4. Monocacy ES
5. Beall ES
6. Fallsmead ES
7. Lakewood ES

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	Date	Initials
Radon Test Kits Deployed	12/06/2022	BMM
Radon Test Kits Collected	12/09/2022	BMM
Radon Test Kits Shipped to Lab*	12/09/2022	BMM
Radon Test Kits Received by Lab*	12/13/2022	BMM

\*All samples sent to Air Check, Inc., 2 Saber Way, Ward Hill, MA 01835



## MONTGOMERY COUNTY PUBLIC SCHOOLS RADON TESTING

**Executive Summary:**  
**Olney Elementary School**  
3401 Queen Mary Drive,  
Olney, MD 20832

Date of Test Report:	3/28/2019
Round of Testing:	Initial <b>Follow-up</b> Post Remediation 2 Year Testing 5 Year Testing HVAC Upgrade Window Replacement New Addition New Facility
# of Rooms Tested:	2
# of Rooms $\geq$ 4.0 pCi/L:	0
Low Value:	0.4
High Value:	1.2

### Project Status

**Retesting completed:** No further action at this time.



March 28, 2019

Mr. Richard Cox  
Indoor Air Quality Team Leader  
Montgomery County Public Schools  
850 Hungerford Drive  
Rockville, MD 20850

Re: Radon Testing Services

Location: Olney Elementary School  
3401 Queen Mary Drive,  
Olney, MD 20832

Dear Mr. Cox:

Intertek-PSI (PSI) is pleased to submit the following report to the Montgomery County Public Schools (MCPS) for completion of a "short-term" 3-day radon test for Olney Elementary School, located at 3401 Queen Mary Drive, Olney, MD 20832 (subject site).

### **Scope of Services:**

PSI 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. PSI 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 Safety Board (NRSB) Radon Measurement Specialist (certification #14SS007) supervised the testing. Additional information on radon management and the health effects of radon exposure is available from [www.montgomerycountymd.gov/dep/air/radon](http://www.montgomerycountymd.gov/dep/air/radon) or [www.epa.gov/radon](http://www.epa.gov/radon).

PSI visited the site on February 26, 2019 and deployed two (2) activated charcoal (AC) radon test kit. PSI deployed radon test kits in frequently-occupied ground contact rooms, and other areas, (if applicable) in accordance with AARST guidance. PSI returned to the site on March 01, 2019 to retrieve the radon sampling test kit. A floor plan map of the building with the test location is included as Attachment A of this report.

PSI shipped all radon tests via overnight delivery to AccuStar Labs for analysis by gamma-ray spectroscopy. Accustar Labs is a NRSB certified analytical laboratory for radon analysis located at 929 Mount Zion Road, Lebanon, Pennsylvania (certification # ARLO007).

### **Evaluation of Testing Conditions:**

The operating condition that represents the greatest amount of significantly occupied time for this building is; heating active, with outdoor temperature averages  $\leq 65^{\circ}\text{F}$ .

PSI concludes that the test period reasonably represents normal conditions when the building is significantly occupied. Clear characterization of the radon hazard is most likely to be observed under this normal operating condition. Based on the evaluation of test conditions, this test should reasonably characterize radon hazards.



PSI also conducted observations of field conditions which could affect the results of the test and compiled weather data for the testing period. PSI 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.

**Results:**

The results of the radon test analysis indicated the following:

Radon Concentration	Room	Result
≥ 4.0 pCi/L	None	NA
≤ 4.0 pCi/L	See Attachment B	

Notes:  
D -Duplicate Sample

The office blank and lab transit blanks had test results of less than the laboratory detection limit of 0.4 pCi/L. Review of the duplicate sample analysis indicates that adequate laboratory measurement precision was achieved. The Spike sample analysis results indicate the laboratory is operating within statistical control limits.

The sampling locations, field observations, and analytical results are listed on Table 1 (Attachment B). The laboratory analytical results are also attached (Attachment C).

Laboratory results and exposure data for the spike samples are also included in Attachment C. 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 (703) 698-9300.



# **ATTACHMENT B**

Radon Test Summary Spreadsheet

<b>Radon Testing Results</b>		
<b>Olney Elementary School</b>		
<b>Testing period: 2/26/19 - 3/01/19</b>		
<b>Kit Number</b>	<b>Room / Area</b>	<b>Result (pCi/L)</b>
3923505	12	1.2
3923504	23	0.4

**Table Notes:**

D – Duplicate

FB – Field Blank

OB – Office Blank

TB – Transit Blank

QC – Quality Control



# **ATTACHMENT C**

Laboratory Analytical Results

NRPP 105011 AL  
NRSB ARL0007

EPA Method #402-R-92-004  
Charcoal Canister  
NRPP Device Code 6048  
NRSB Device Code 10317

Laboratory Report for:

Property Tested: Project # 04481387-1

Intertek-PSI (VA)  
2930 Eskridge Road  
Fairfax VA 22031

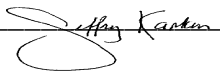
MCPS Radon Survey Olney ES  
3401 Queen Mary Dr  
Olney MD 20832

Log Number	Device Number	Test Exposure Duration:	Area Tested	Result pCi/L
3220625	3923504	02/26/2019 10:18 am 03/01/2019 8:21 am	First Floor Room 23	0.4
3220626	3923505	02/26/2019 10:21 am 03/01/2019 8:24 am	First Floor Room 12	1.2

**Comment:** A copy of this report was e-mailed to Intertek-PSI (VA)

Distributed by: Intertek-PSI (VA)

Date Received: 03/04/2019 Date Logged: 03/04/2019 Date Analyzed: 03/05/2019 Date Reported: 03/05/2019

Report Reviewed By: 

Report Approved By: 

**Disclaimer:**

The uncertainty of this radon measurement is  $\sim\pm 10\%$ . Factors contributing to uncertainty include statistical variations, daily and seasonal variations in radon concentrations, sample collection techniques and operation of the dwelling. Interference with test conditions may influence the test results.

Shawn Price, Director of Laboratory Operations, AccuStar Labs

This report may only be transferred to a third party in its entirety. Analytical results relate to the samples AS RECEIVED BY THE LABORATORY. Results shown on this report represent levels of radon gas measured between the dates shown in the room or area of the site identified above as "Property Tested". Incorrect information will affect results. The results may not be construed as either predictive or supportive of measurements conducted in any area of this structure at any other time. AccuStar Labs, its employees and agents are not responsible for the consequences of any action taken or not taken based upon the results reported or any verbal or written interpretation of the results.



**MONTGOMERY COUNTY PUBLIC SCHOOLS  
RADON TESTING**

**Executive Summary:**  
**Olney Elementary School**  
3401 Queen Mary Drive,  
Olney, MD 20832

Date of Test Report:	1/8/2019
Round of Testing:	Initial Follow-up Post Remediation 2 Year Testing 5 Year Testing <b>HVAC Upgrade</b> Window Replacement New Addition New Facility
# of Rooms Tested:	59
# of Rooms $\geq$ 4.0 pCi/L:	0
Low Value:	< 0.4
High Value:	1.7

**Project Status**

**Initial testing complete:** Missing or compromised samples need re-test.



January 8, 2019

Mr. Richard Cox  
Indoor Air Quality Team Leader  
Montgomery County Public Schools  
850 Hungerford Drive  
Rockville, MD 20850

Re: Radon Testing Services

Location: Olney Elementary School  
3401 Queen Mary Drive,  
Olney, MD 20832

Dear Mr. Cox:

Intertek-PSI (PSI) is pleased to submit the following report to the Montgomery County Public Schools (MCPS) for completion of a “short-term” 3-day radon test for Olney Elementary School, located at 3401 Queen Mary Drive, Olney, MD 20832 (subject site).

**Scope of Services:**

PSI 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. PSI 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 Safety Board (NRSB) Radon Measurement Specialist (certification #14SS007) supervised the testing. Additional information on radon management and the health effects of radon exposure is available from [www.montgomerycountymd.gov/dep/air/radon](http://www.montgomerycountymd.gov/dep/air/radon) or [www.epa.gov/radon](http://www.epa.gov/radon).

PSI visited the site on December 3, 2018 and deployed seventy-five (75) activated charcoal (AC) radon test kits. PSI 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 Attachment A of this report.

As a quality control measure, PSI included duplicate samples, field blanks, lab transit blanks, and office blanks in accordance with AARST recommendations. In addition, PSI submitted ten (10) 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.

PSI returned to the site on December 6, 2018 to retrieve the radon sampling test kits. PSI shipped all radon tests via overnight delivery to AccuStar Labs for analysis by gamma-ray spectroscopy. Accustar Labs is a NRSB certified analytical laboratory for radon analysis located at 929 Mount Zion Road, Lebanon, Pennsylvania (certification # ARL0007) and 2 Saber Way, Haverhill, Massachusetts (certification # ARL0017).



### **Evaluation of Testing Conditions:**

The operating condition that represents the greatest amount of significantly occupied time for this building is; heating active, with outdoor temperature averages  $\leq 65^{\circ}\text{F}$ .

PSI concludes that the test period reasonably represents normal conditions when the building is significantly occupied. Clear characterization of the radon hazard is most likely to be observed under this normal operating condition. Based on the evaluation of test conditions, this test should reasonably characterize radon hazards.

PSI also conducted observations of field conditions which could affect the results of the test and compiled weather data for the testing period. PSI 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.

### **Results:**

The results of the radon test analysis indicated the following:

<b>Radon Concentration</b>	<b>Room</b>	<b>Result</b>
$\geq 4.0$ pCi/L	None	NA
$\leq 4.0$ pCi/L	See Attachment B	

Notes:

D -Duplicate Sample

The office blank and lab transit blanks had test results of less than the laboratory detection limit of 0.4 pCi/L. Review of the duplicate sample analysis indicates that adequate laboratory measurement precision was achieved. The Spike sample analysis results indicate the laboratory is operating within statistical control limits.

The sampling locations, field observations, and analytical results are listed on Table 1 (Attachment B). The laboratory analytical results are also attached (Attachment C).

Laboratory results and exposure data for the spike samples are also included in Attachment C. 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 (703) 698-9300.



Respectfully Submitted,

**INTERTEK-PSI**

A handwritten signature in black ink that reads "Nand Kaushik". The signature is written in a cursive, flowing style.

Nand Kaushik, P.E.  
Department Manager, Environmental Services  
[Nand.Kaushik@intertek.com](mailto:Nand.Kaushik@intertek.com)

Attachments:           A – Floor Plan with Test Locations  
                              B – Table 1 – Radon Test Summary Spreadsheet  
                              C – Laboratory Analytical Results

# **ATTACHMENT B**

Radon Test Summary Spreadsheet

<b>Radon Testing Results</b>		
<b>Olney Elementary School</b>		
<b>Testing period: 12/3/18 - 12/6/18</b>		
<b>Kit Number</b>	<b>Room / Area</b>	<b>Result (pCi/L)</b>
3928036	5	<0.4
3928039	6	1.3
3928040	7	<0.4
3927860	7	<0.4
3927858	8	0.7
3927859	9	<0.4
3927857	10	<0.4
3927856	11	0.6
3927854	12	Unable to Report
3927855	13	1
3928090	14	0.9
3928072	15	0.5
3928073	16	<0.4
3928080	17	<0.4
3928075	18	<0.4
3928095	19	0.7
3928093	20	1.1
3928098	21	0.6
3928099	22	<0.4
3928092	23	Unable to Report
3928091	24	<0.4
3927989	25	<0.4
3927988	26	1.1
3928097	Art	0.6
3927846	Assistant Principal	<0.4
3928071	Building Services	0.7
3927847	Communication Center	0.7
3928081	Computer Center	0.4
3927845	Conference	0.4
3927981	Counselor	<0.4
3927990	Dual Purpose Room	<0.4
3927848	ESOL	0.6
3927983	Gym	0.4
3927984	Gym	0.7
3927982	Gym Office	0.4
3928037	Health	0.5
3927843	Health Office	0.5
3927852	IMC	0.6
3927853	IMC	<0.4
3927986	Instrument	1.5
3928034	K1	0.9
3927850	K2	0.6
3928033	K3	<0.4



<b>Radon Testing Results</b>		
<b>Olney Elementary School</b>		
<b>Testing period: 12/3/18 - 12/6/18</b>		
<b>Kit Number</b>	<b>Room / Area</b>	<b>Result (pCi/L)</b>
3927849	K4	0.5
3928078	Kitchen	<0.4
3927841	Main Office	<0.4
3928083	Math Lab	<0.4
3928079	MPR	0.5
3928076	MPR	0.5
3927851	MR Work Rm	<0.4
3927985	Music	<0.4
3927844	Principal	0.5
3928087	Reading Room	<0.4
3928084	Resource Room	<0.4
3928035	SDT	<0.4
3928089	SPT	<0.4
3928094	Staff Lounge	0.7
3928077	Support State Room	<0.4
3928031	Team Room 1	0.7
3928088	Team Room 2	<0.4
3928096	Team Room 3	1.7
3928082	Testing Conference Room	0.8
3928038	Work Room	<0.4

<b>Radon Testing Results</b>		
<b>Olney Elementary School</b>		
<b>Testing period: 12/3/18 - 12/6/18</b>		
<b>Kit Number</b>	<b>QC Type</b>	<b>Result (pCi/L)</b>
3928086	14 (D)	0.4
3928074	18 (D)	<0.4
3927987	26 (D)	0.9
3928100	Building Services (D)	0.7
3928032	K4 (D)	0.4
3927842	Main Office (D)	<0.4
3928085	Resource Room (D)	<0.4
3927821	Field Blank	<0.4
3927822	Field Blank	<0.4
3927823	Field Blank	<0.4
3927836	Office Blank	<0.4
3927839	Transit Blank	<0.4

**Table Notes:**

D – Duplicate

FB – Field Blank

OB – Office Blank

TB – Transit Blank

QC – Quality Control

# **ATTACHMENT C**

Laboratory Analytical Results

NELAC NY 11769  
NRPP 103216 AL  
NRSB ARL0017

Laboratory Report for:

Intertek-PSI (VA)  
2930 Eskridge Road  
Fairfax VA 22031

Property Tested: Project # 04481387-1


MCPS Radon Survey  
Olney ES  
3401 Queen Mary Drive  
Olney MD 20832 USA


Log Number	Device Number	Test Exposure Duration:	Area Tested	Result pCi/L
2404627	3927841	12/03/2018 2:50 pm 12/06/2018 11:33 am	Bldg Olney ES Flr 1 Room Main	< 0.4
2404628	3927842	12/03/2018 2:50 pm 12/06/2018 11:33 am	Bldg Olney ES Flr 1 Room Main	< 0.4
2404629	3928037	12/03/2018 2:51 pm 12/06/2018 11:34 am	Bldg Olney ES Flr 1 Room Health Rm	0.5
2404631	3927843	12/03/2018 2:52 pm 12/06/2018 11:34 am	Bldg Olney ES Flr 1 Room Nurses Off	0.5
2404632	3928038	12/03/2018 2:52 pm 12/06/2018 11:35 am	Bldg Olney ES Flr 1 Room Work Rm	< 0.4
2404633	3927844	12/03/2018 2:53 pm 12/06/2018 11:36 am	Bldg Olney ES Flr 1 Room Principal Off	0.5
2404634	3927845	12/03/2018 2:53 pm 12/06/2018 11:37 am	Bldg Olney ES Flr 1 Room Conf Rm	0.4
2404635	3927846	12/03/2018 2:54 pm 12/06/2018 11:38 am	Bldg Olney ES Flr 1 Rm Asst Pirncipal Off	< 0.4
2404636	3927847	12/03/2018 2:54 pm 12/06/2018 11:39 am	Bldg Olney ES Flr 1 Room Comm Center Rm	0.7
2404637	3928031	12/03/2018 2:55 pm 12/06/2018 11:40 am	Bldg Olney ES Flr 1 Room Team Room	0.7
2404638	3927848	12/03/2018 2:56 pm 12/06/2018 11:41 am	Bldg Olney ES Flr 1 Room ESOL	0.6

**Comment:** Unable to report results for 3927854. Counts were below blank counts. Unable to report results for 3928092 due to technical error. A copy of this report was emailed to Intertek-PSI (VA).

Distributed by: Intertek-PSI (VA)

Date Received: 12/08/2018 Date Logged: Date Analyzed: 12/10/2018 Date Reported: 12/21/2018

Report Reviewed By: 

Report Approved By: 

Shawn Price, Director of Laboratory Operations, AccuStar Labs

**Disclaimer:**

The uncertainty of this radon measurement is ~+/- 10 %. Factors contributing to uncertainty include statistical variations, daily and seasonal variations in radon concentrations, sample collection techniques and operation of the dwelling. Interference with test conditions may influence the test results.

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NELAC NY 11769  
NRPP 103216 AL  
NRSB ARL0017

Laboratory Report for:

Intertek-PSI (VA)  
2930 Eskridge Road  
Fairfax VA 22031

Property Tested: Project # 04481387-1


MCPS Radon Survey  
Olney ES  
3401 Queen Mary Drive  
Olney MD 20832 USA


Log Number	Device Number	Test Exposure Duration:	Area Tested	Result pCi/L
2404639	3927849	12/03/2018 2:56 pm 12/06/2018 11:42 am	Bldg Olney ES Flr 1 Room K4	0.5
2404640	3928032	12/03/2018 2:56 pm 12/06/2018 11:42 am	Bldg Olney ES Flr 1 Room K4	0.4
2404641	3928033	12/03/2018 2:57 pm 12/06/2018 11:43 am	Bldg Olney ES Flr 1 Room K3	< 0.4
2404642	3927850	12/03/2018 2:58 pm 12/06/2018 11:45 am	Bldg Olney ES Flr 1 Room K2	0.6
2404643	3928034	12/03/2018 2:59 pm 12/06/2018 11:47 am	Bldg Olney ES Flr 1 Room K1	0.9
2404644	3928035	12/03/2018 3:00 pm 12/06/2018 11:49 am	Bldg Olney ES Flr 1 Room SDT	< 0.4
2404645	3928036	12/03/2018 3:02 pm 12/06/2018 11:50 am	Bldg Olney ES Flr 1 Room 5	< 0.4
2404646	3928039	12/03/2018 3:04 pm 12/06/2018 11:50 am	Bldg Olney ES Flr 1 Room 6	1.3
2404647	3928040	12/03/2018 3:05 pm 12/06/2018 11:51 am	Bldg Olney ES Flr 1 Room 7	< 0.4
2404648	3927860	12/03/2018 3:06 pm 12/06/2018 11:51 am	Bldg Olney ES Flr 1 Room 7	< 0.4
2404649	3927858	12/03/2018 3:08 pm 12/06/2018 11:52 am	Bldg Olney ES Flr 1 Room 8	0.7

**Comment:** Unable to report results for 3927854. Counts were below blank counts. Unable to report results for 3928092 due to technical error. A copy of this report was emailed to Intertek-PSI (VA).

Distributed by: Intertek-PSI (VA)

Date Received: 12/08/2018 Date Logged: Date Analyzed: 12/10/2018 Date Reported: 12/21/2018

Report Reviewed By: 

Report Approved By: 

Shawn Price, Director of Laboratory Operations, AccuStar Labs

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NELAC NY 11769  
NRPP 103216 AL  
NRSB ARL0017

Laboratory Report for:

Intertek-PSI (VA)  
2930 Eskridge Road  
Fairfax VA 22031

Property Tested: Project # 04481387-1


MCPS Radon Survey  
Olney ES  
3401 Queen Mary Drive  
Olney MD 20832 USA


Log Number	Device Number	Test Exposure Duration:	Area Tested	Result pCi/L
2404650	3927859	12/03/2018 3:12 pm 12/06/2018 11:53 am	Bldg Olney ES Flr 1 Room 9	< 0.4
2404651	3927857	12/03/2018 3:13 pm 12/06/2018 11:54 am	Bldg Olney ES Flr 1 Room 10	< 0.4
2404652	3927856	12/03/2018 3:14 pm 12/06/2018 11:55 am	Bldg Olney ES Flr 1 Room 11	0.6
2404653	3927854	12/03/2018 3:15 pm 12/06/2018 11:56 am	Bldg Olney ES Flr 1 Room 12	
2404654	3927855	12/03/2018 3:16 pm 12/06/2018 11:57 am	Bldg Olney ES Flr 1 Room 13	1.0
2404655	3927853	12/03/2018 3:18 pm 12/06/2018 11:58 am	Bldg Olney ES Floor First Room Media Rm	< 0.4
2404656	3927852	12/03/2018 6:19 pm 12/06/2018 11:58 am	Bldg Olney ES Floor First Room Media Rm	0.6
2404657	3927851	12/03/2018 3:20 pm 12/06/2018 11:59 am	Bldg Olney ES Floor First Room MR Work Rm	< 0.4
2404658	3928081	12/03/2018 3:21 pm 12/06/2018 12:00 pm	Bldg Olney ES Floor First Room Computer Center	0.4
2404659	3928087	12/03/2018 3:22 pm 12/06/2018 12:01 pm	Bldg Olney ES Floor First Room Reading Rm	< 0.4
2404660	3928088	12/03/2018 3:22 pm 12/06/2018 12:02 pm	Bldg Olney ES Floor First Room Team Rm2	< 0.4

**Comment:** Unable to report results for 3927854. Counts were below blank counts. Unable to report results for 3928092 due to technical error. A copy of this report was emailed to Intertek-PSI (VA).

Distributed by: Intertek-PSI (VA)

Date Received: 12/08/2018 Date Logged: Date Analyzed: 12/10/2018 Date Reported: 12/21/2018

Report Reviewed By: 

Report Approved By: 

Shawn Price, Director of Laboratory Operations, AccuStar Labs

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NELAC NY 11769  
NRPP 103216 AL  
NRSB ARL0017

Laboratory Report for:

Intertek-PSI (VA)  
2930 Eskridge Road  
Fairfax VA 22031

Property Tested: Project # 04481387-1


MCPS Radon Survey  
Olney ES  
3401 Queen Mary Drive  
Olney MD 20832 USA


Log Number	Device Number	Test Exposure Duration:	Area Tested	Result pCi/L
2404661	3928084	12/03/2018 3:23 pm 12/06/2018 12:04 pm	Bldg Olney ES Floor First Room Resource Rm	< 0.4
2404662	3928085	12/03/2018 3:23 pm 12/06/2018 12:04 pm	Bldg Olney ES Floor First Room Resource Rm	< 0.4
2404663	3928089	12/03/2018 3:24 pm 12/06/2018 12:05 pm	Bldg Olney ES Floor First Room SPT	< 0.4
2404664	3928090	12/03/2018 3:25 pm 12/06/2018 12:07 pm	Bldg Olney ES Floor First Room 14	0.9
2404665	3928086	12/03/2018 3:25 pm 12/06/2018 12:07 pm	Bldg Olney ES Floor First Room 14	0.4
2404666	3928082	12/03/2018 3:26 pm 12/06/2018 12:08 pm	Bldg Olney ES Floor First Room Testing Conf Rm	0.8
2404667	3928083	12/03/2018 3:27 pm 12/06/2018 12:09 pm	Bldg Olney ES Floor First Room math Lab	< 0.4
2404668	3928073	12/03/2018 3:28 pm 12/06/2018 12:10 pm	Bldg Olney ES Floor First Room 16	< 0.4
2404669	3928072	12/03/2018 3:29 pm 12/06/2018 12:12 pm	Bldg Olney ES Floor First Room 15	0.5
2404670	3928075	12/03/2018 3:30 pm 12/06/2018 12:22 pm	Bldg Olney ES Floor First Room 18	< 0.4
2404671	3928074	12/03/2018 3:30 pm 12/06/2018 12:22 pm	Bldg Olney ES Floor First Room 18	< 0.4

**Comment:** Unable to report results for 3927854. Counts were below blank counts. Unable to report results for 3928092 due to technical error. A copy of this report was emailed to Intertek-PSI (VA).

Distributed by: Intertek-PSI (VA)

Date Received: 12/08/2018 Date Logged: Date Analyzed: 12/10/2018 Date Reported: 12/21/2018

Report Reviewed By: 

Report Approved By: 

Shawn Price, Director of Laboratory Operations, AccuStar Labs

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NELAC NY 11769  
NRPP 103216 AL  
NRSB ARL0017

Laboratory Report for:

Intertek-PSI (VA)  
2930 Eskridge Road  
Fairfax VA 22031

Property Tested: Project # 04481387-1


MCPS Radon Survey  
Olney ES  
3401 Queen Mary Drive  
Olney MD 20832 USA


Log Number	Device Number	Test Exposure	Duration:	Area Tested	Result pCi/L
2404672	3928080	12/03/2018 3:31 pm	12/06/2018 12:23 pm	Bldg Olney ES Floor First Room 17	< 0.4
2404673	3928077	12/03/2018 3:32 pm	12/06/2018 12:23 pm	Bldg Olney ES Floor First Room Support State R	< 0.4
2404674	3928078	12/03/2018 3:33 pm	12/06/2018 12:24 pm	Bldg Olney ES Floor First Room Kitchen	< 0.4
2404675	3928079	12/03/2018 3:34 pm	12/06/2018 12:25 pm	Bldg Olney ES Floor First Room MPR	0.5
2404676	3928076	12/03/2018 3:34 pm	12/06/2018 12:25 pm	Bldg Olney ES Floor First Room MPR	0.5
2404677	3928071	12/03/2018 3:35 pm	12/06/2018 12:15 pm	Bldg Olney ES Floor First Room Building Svcs	0.7
2404678	3928100	12/03/2018 3:35 pm	12/06/2018 12:15 pm	Bldg Olney ES Floor First Room Building Svcs	0.7
2404679	3928096	12/03/2018 3:36 pm	12/06/2018 12:26 pm	Bldg Olney ES Floor First Room Team Rm3	1.7
2404680	3928094	12/03/2018 3:37 pm	12/06/2018 12:26 pm	Bldg Olney ES Floor First Room Staff Lounge	0.7
2404681	3928097	12/03/2018 3:38 pm	12/06/2018 12:27 pm	Bldg Olney ES Floor First Room Art	0.6
2404682	3928095	12/03/2018 3:39 pm	12/06/2018 12:27 pm	Bldg Olney ES Floor First Room 19	0.7

**Comment:** Unable to report results for 3927854. Counts were below blank counts. Unable to report results for 3928092 due to technical error. A copy of this report was emailed to Intertek-PSI (VA).

Distributed by: Intertek-PSI (VA)

Date Received: 12/08/2018    Date Logged:    Date Analyzed: 12/10/2018    Date Reported: 12/21/2018

Report Reviewed By: 

Report Approved By: 

Shawn Price, Director of Laboratory Operations, AccuStar Labs

**Disclaimer:**

The uncertainty of this radon measurement is ~+/- 10 %. Factors contributing to uncertainty include statistical variations, daily and seasonal variations in radon concentrations, sample collection techniques and operation of the dwelling. Interference with test conditions may influence the test results.

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NELAC NY 11769  
NRPP 103216 AL  
NRSB ARL0017

Laboratory Report for:

Intertek-PSI (VA)  
2930 Eskridge Road  
Fairfax VA 22031

Property Tested: Project # 04481387-1


MCPS Radon Survey  
Olney ES  
3401 Queen Mary Drive  
Olney MD 20832 USA


Log Number	Device Number	Test Exposure	Duration:	Area Tested	Result pCi/L
2404683	3928093	12/03/2018 2:40 pm	12/06/2018 12:28 pm	Bldg Olney ES Floor First Room 20	1.1
2404684	3928098	12/03/2018 3:41 pm	12/06/2018 12:28 pm	Bldg Olney ES Floor First Room 21	0.6
2404685	3928099	12/03/2018 3:42 pm	12/06/2018 12:29 pm	Bldg Olney ES Flr1 Room 22	< 0.4
2404686	3928092	12/03/2018 3:44 pm	12/06/2018 12:30 pm	Bldg Olney ES Flr1 Room 23	
2404687	3928091	12/03/2018 3:47 pm	12/06/2018 12:30 pm	Bldg Olney ES Flr1 Room 24	< 0.4
2404688	3927989	12/03/2018 3:48 pm	12/06/2018 12:32 pm	Bldg Olney ES Floor First Room 25	< 0.4
2404689	3927988	12/03/2018 3:49 pm	12/06/2018 12:33 pm	Bldg Olney ES Floor First Room 26	1.1
2404690	3927987	12/03/2018 3:49 pm	12/06/2018 12:33 pm	Bldg Olney ES Floor First Room 26	0.9
2404691	3927990	12/03/2018 3:50 pm	12/06/2018 12:34 pm	Bldg Olney ES Floor First Room Dual Purpose R	< 0.4
2404692	3927985	12/03/2018 3:51 pm	12/06/2018 12:17 pm	Bldg Olney ES Floor First Room Music	< 0.4
2404693	3927986	12/03/2018 3:52 pm	12/06/2018 12:35 pm	Bldg Olney ES Floor First Room Instr Mus Rm	1.5

**Comment:** Unable to report results for 3927854. Counts were below blank counts. Unable to report results for 3928092 due to technical error. A copy of this report was emailed to Intertek-PSI (VA).

Distributed by: Intertek-PSI (VA)

Date Received: 12/08/2018    Date Logged:    Date Analyzed: 12/10/2018    Date Reported: 12/21/2018

Report Reviewed By: 

Report Approved By: 

Shawn Price, Director of Laboratory Operations, AccuStar Labs

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NELAC NY 11769  
NRPP 103216 AL  
NRSB ARL0017

Laboratory Report for:

Intertek-PSI (VA)  
2930 Eskridge Road  
Fairfax VA 22031

Property Tested: Project # 04481387-1


MCPS Radon Survey  
Olney ES  
3401 Queen Mary Drive  
Olney MD 20832 USA


Log Number	Device Number	Test Exposure	Duration:	Area Tested	Result pCi/L
2404694	3927982	12/03/2018 3:53 pm	12/06/2018 12:35 pm	Bldg Olney ES Floor First Room PE Off	0.4
2404695	3927983	12/03/2018 3:54 pm	12/06/2018 12:20 pm	Bldg Olney ES Floor First Room Gym	0.4
2404696	3927984	12/03/2018 3:54 pm	12/06/2018 12:21 pm	Bldg Olney ES Floor First Room Gym	0.7
2404697	3927981	12/03/2018 3:56 pm	12/06/2018 11:58 am	Bldg Olney ES Floor First Room Counsellor	< 0.4
2404698	3927821	12/03/2018 2:50 pm	12/06/2018 12:35 pm	Bldg Olney ES Floor NA Room Field Blank	< 0.4
2404699	3927822	12/03/2018 2:50 pm	12/06/2018 2:35 pm	Bldg Olney ES Floor NA Room Field Blank	< 0.4
2404700	3927823	12/03/2018 2:50 pm	12/06/2018 2:35 pm	Bldg Olney ES Floor NA Room Field Blank	< 0.4
2404701	3927839	12/03/2018 2:00 pm	12/06/2018 2:35 pm	Bldg Olney ES Floor NA Room Transit Blank	< 0.4
2404702	3927836	12/03/2018 6:00 am	12/06/2018 6:00 pm	Bldg Olney ES Floor NA Room Office Blank	< 0.4

**Comment:** Unable to report results for 3927854. Counts were below blank counts. Unable to report results for 3928092 due to technical error. A copy of this report was emailed to Intertek-PSI (VA).

Distributed by: Intertek-PSI (VA)

Date Received: 12/08/2018 Date Logged: Date Analyzed: 12/10/2018 Date Reported: 12/21/2018

Report Reviewed By: 

Report Approved By: 

Shawn Price, Director of Laboratory Operations, AccuStar Labs

**Disclaimer:**

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NRPP 105011 AL  
NRSB ARL0007  
Ohio RL41

EPA Method #402-R-92-004  
Charcoal Canister  
NRPP Device Code 6048  
NRSB Device Code 10317

Laboratory Report for:

Property Tested:

Intertek-PSI (VA)  
2930 Eskridge Road  
Fairfax VA 22031

MCPS Radon Survey  
4514 Taylorsville Road  
Dayton OH 45424

Log Number	Device Number	Test Exposure Duration:	Area Tested	Result pCi/L
3204125	3926831	12/07/2018 9:47 am - 12/10/2018 9:47 am	Spike	36.1
3204126	3926832	12/07/2018 9:47 am - 12/10/2018 9:47 am	Spike	34.8
3204127	3926833	12/07/2018 9:47 am - 12/10/2018 9:47 am	Spike	33.7
3204128	3926834	12/07/2018 9:47 am - 12/10/2018 9:47 am	Spike	35.8
3204129	3926835	12/07/2018 9:47 am - 12/10/2018 9:47 am	Spike	35.0
3204130	3926836	12/07/2018 9:47 am - 12/10/2018 9:47 am	Spike	34.5
3204131	3926837	12/07/2018 9:47 am - 12/10/2018 9:47 am	Spike	34.6
3204132	3926838	12/07/2018 9:47 am - 12/10/2018 9:47 am	Spike	34.3
3204133	3926839	12/07/2018 9:47 am - 12/10/2018 9:47 am	Spike	33.2
3204134	3926840	12/07/2018 9:47 am - 12/10/2018 9:47 am	Spike	34.0

**Comment:** A copy of this report was e-mailed to Intertek-PSI (VA)

Test Performed By: Unknown

Distributed by: Intertek-PSI (VA)

Date Received: 12/12/2018    Date Logged: 12/12/2018    Date Analyzed: 12/12/2018    Date Reported: 12/13/2018

Report Reviewed By: 

Report Approved By: 

**Disclaimer:**

The uncertainty of this radon measurement is +/- 10 %. Factors contributing to uncertainty include statistical variations, daily and seasonal variations in radon concentrations, sample collection techniques and operation of the dwelling. Interference with test conditions may influence the test results.

Shawn Price, Director of Laboratory Operations, AccuStar Labs

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# EXPOSURE IN BOWSER-MORNER RADON CHAMBER

CLIENT Intertek - PSI

Job Number 187732

NOMINAL Conditions: Radon Conc 32.6 pCi/L Rel. Hum 49.1 % Temp. 70.1 F

Date Start: 12/7/18 Date Stop: 12/10/18

Date Start: \_\_\_\_\_ Date Stop: \_\_\_\_\_

Time Start: 0947 Time Stop: 0947

Time Start: \_\_\_\_\_ Time Stop: \_\_\_\_\_

Device No.'s: (10) Char. Cans-

Device No.'s: \_\_\_\_\_

3926831 thru 3926840

G2 left

Date Start: \_\_\_\_\_ Date Stop: \_\_\_\_\_

Date Start: \_\_\_\_\_ Date Stop: \_\_\_\_\_

Time Start: \_\_\_\_\_ Time Stop: \_\_\_\_\_

Time Start: \_\_\_\_\_ Time Stop: \_\_\_\_\_

Device No.'s: \_\_\_\_\_

Device No.'s: \_\_\_\_\_

Date Start: \_\_\_\_\_ Date Stop: \_\_\_\_\_

Date Start: \_\_\_\_\_ Date Stop: \_\_\_\_\_

Time Start: \_\_\_\_\_ Time Stop: \_\_\_\_\_

Time Start: \_\_\_\_\_ Time Stop: \_\_\_\_\_

Device No.'s: \_\_\_\_\_

Device No.'s: \_\_\_\_\_

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



## Chain of Custody

Project Name: MCPS Radon Survey 2018

Name of Schools:

- |  |                                |
|--|--------------------------------|
| 1. Ewing Center                            | 13. Garrett Park ES Annex      |
| 2. Department of Food & Nutrition Services | 14. Goshen ES                  |
| 3. Damascus HS                             | 15. Kingsley Wilderness Center |
| 4. Edison HS                               | 16. Kensington Parkwood ES     |
| 5. Emory Grove Center                      | 17. Monocacy ES                |
| 6. John Poole MS                           | 18. Lakewood ES                |
| 7. Lakelands Park MS                       | 19. Little Bennett ES          |
| 8. Laytonsville ES                         | 20. Lois P. Rockwell ES        |
| 9. Gaithersburg HS                         | 21. Olney ES                   |
| 10. Neelsville MS                          | 22. North Chevy Chase ES       |
| 11. Sequoyah ES                            | 23. Woodfield ES               |
| 12. Clarksburg ES Annex                    | 24. Wootton HS                 |

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	Date	Initials
Radon Test Kits Deployed	12/03/2018	ML
Radon Test Kits Sampled	12/06/2018	ML
Radon Test Kits Shipped to Lab*	12/06/2018	ML
Radon Test Kits Received by Lab*	12/07/2018; 12/08/2018	ML

\*All samples sent to AccuStar Laboratories, 929 Mount Zion Road, Lebanon, PA 17046 and 2 Saber Way, Haverhill, MA 01835



## MCPS RADON TESTING

### Executive Summary: Olney Elementary School

Date of Test Report:	3/14/2016 (Rev 1)
Round of Testing:	Initial Follow-up Post Remediation
# Rooms Tested:	57
# Rooms $\geq$ 4.0 pCi/L:	0
Low Value:	< 0.3
High Value:	3.4

### Project Status:

Initial testing completed; no further action at this time.



March 14, 2016 (Rev 1)

Mr. Richard Cox  
Indoor Air Quality Team Leader  
Montgomery County Public Schools  
850 Hungerford Drive  
Rockville, MD 20850

Re: **Radon Testing Services**  
KCI Job # 12146341.22

Location: Olney Elementary School  
3401 Queen Mary Drive  
Olney, MD 20832

Dear Mr. Cox:

KCI Technologies, Inc. (KCI) is pleased to submit the following report to the Montgomery County Public Schools (MCPS) pursuant to completing a “short-term” 3 day radon test for the Olney Elementary School, located at 3401 Queen Mary Drive in Olney, Maryland 20832 (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 Safety Board (NRSB) Radon Measurement Specialist (certification #14SS056) supervised the testing. Additional information on radon management and the health effects of radon exposure is available from [www.montgomerycountymd.gov/dep/air/radon](http://www.montgomerycountymd.gov/dep/air/radon) or [www.epa.gov/radon](http://www.epa.gov/radon).

KCI visited the site on December 28, 2015 and deployed seventy-six (76) 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 Attachment A of this report.

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 six (6) test kits to Bowser-Morner, Inc. as spike samples. The spiked tests were exposed to a known radon concentration by Bowser-Morner prior to being returned to the laboratory for analysis.

KCI returned to the site on December 31, 2015 to retrieve the radon sampling test kits. KCI shipped all radon tests via overnight delivery to Airchek, Inc. for analysis by gamma-ray spectroscopy. Airchek, Inc. is a NRSB certified analytical laboratory for radon analysis (certification # ARL1402) located at 1936



Butler Bridge Road, Mills River, North Carolina.

**Evaluation of Testing Conditions:**

The operating condition that represents the greatest amount of significantly occupied time for this building is; heating active, with outdoor temperature averages  $\leq 65^{\circ}$  F.

KCI concludes that the test period reasonably represents normal conditions when the building is significantly occupied. Clear characterization of the radon hazard is most likely to be observed under this normal operating condition. Based on the evaluation of test conditions, this test should reasonably characterize radon hazards.

KCI also conducted observations of field conditions which could affect the results of the test and compiled weather data for the testing period. 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.

**Results:**

The results of the radon test analysis indicated the following:

<b>Radon Concentration</b>	<b>Room</b>	<b>Result</b>
$\geq 4.0$ pCi/L	none	n/a
$< 4.0$ pCi/L	See Attachment B	

Notes:  
D- Duplicate sample

The field blanks, office blank, and lab transit blanks had test results of less than the laboratory detection limit of 0.3 pCi/L. Review of the duplicate sample analysis indicates that adequate laboratory measurement precision was achieved. The Spike sample analysis results indicate the laboratory is operating within statistical control limits.

The sampling locations, field observations, and analytical results are listed on Table 1 (Attachment B). The laboratory analytical results are also attached (Attachment C). Laboratory results and exposure data for the spike samples are also included in Attachment C.

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,



James M. Mouldale  
Radon Measurement Specialist  
KCI Technologies, Inc.

Attachments:      A- Floor Plan with Test Locations  
                          B- Table 1-Radon Test Summary Spreadsheet  
                          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

<b>Radon Testing Results</b>		
<b>Olney ES</b>		
<b>Test Period: 12/28/15-12/31/15</b>		
<b>Kit Number</b>	<b>Room / Area</b>	<b>Result</b>
7714717	5	< 0.3
7714707	6	1.2
7714716	7	< 0.3
7714708	8	< 0.3
7714715	9	1.1
7714709	10	1.4
7714714	11	< 0.3
7714711	12	2.5
7714713	13	< 0.3
7714734	14	< 0.3
7714729	15	2.2
7714733	16	1.7
7714731	17	0.7
7714732	18	< 0.3
7714742	19	0.7
7714743	20	1.0
7714750	21	0.5
7714744	22	1.4
7714749	23	0.8
7714746	24	0.9
7714748	25	0.6
7714747	26	1.2
7714753	1E	0.6
7714741	ART	3.4
7714769	AS PRN	1.1
7714763	BUILDING SERVICE	0.6
7714760	CAFE	0.6
7714761	CAFE	0.5
7714762	CAFE	0.6
7714737	COM	2.1
7714719	COMP	0.7
7714771	CONF	0.8
7714764	CONS	0.8
7714756	GYM	1.1
7714757	GYM	1.0
7714775	HEALTH SUITE	1.4
7714720	IMC	0.6
7714721	IMC	1.0
7714755	IMU	1.8
7714701	K1	1.0
7714702	K2	1.7
7714703	K3	< 0.3
7714704	K4	< 0.3
7714774	MAIN	0.8
7714728	MATH LAB	< 0.3
7714754	MU	1.4

Table Note:

\* Missing or Compromised Sample

<b>Radon Testing Results</b>		
<b>Olney ES</b>		
<b>Test Period: 12/28/15-12/31/15</b>		
<b>Kit Number</b>	<b>Room / Area</b>	<b>Result</b>
7714705	OCCUP. THERAPY	0.7
7714758	PE OFFICE	1.4
7714772	PRN	1.5
7714723	RDG	< 0.3
7714706	READING RM	1.5
7714768	RECORDS	< 0.3
7714725	RES	< 0.3
7714726	SPT	0.6
7714740	STAFF LOUNGE	0.7
7714752	SUPPORT STAFF	< 0.3
7714736	TEAM RM 2	0.8
7714739	TEAM RM 3	2.4
7714727	TESTING CONF. RM	1.3
7714766	WORK RM	1.1
7714722	WORK RM WEST	< 0.3

Table Note:

\* Missing or Compromised Sample

<b>Radon Testing Results</b>		
<b>Olney ES</b>		
<b>Test Period: 12/28/15-12/31/15</b>		
<b>Kit Number</b>	<b>QC Type</b>	<b>Result</b>
7714710	D (10)	0.9
7714735	D (14)	< 0.3
7714730	D (15)	1.6
7714745	D (22)	1.5
7714718	D (5)	0.8
7714770	D (AS PRN)	0.7
7714765	D (CONS)	< 0.3
7714759	D (GYM)	0.6
7714712	FB (12)	< 0.3
7714751	FB (21)	< 0.3
7714738	FB (COM)	< 0.3
7714773	FB (MAIN)	< 0.3
7714724	FB (RES)	< 0.3
7714767	FB (WORK RM)	< 0.3
7714795	OB (0)	< 0.3

Table Note:

\* Missing or Compromised Sample



# ATTACHMENT C

## Laboratory Analytical Results

January 16, 2016  
**LABORATORY ANALYSIS REPORT \*\***

Radon test result report for:

**OLNEY ES  
 MAIN**

Kit #	Room Id	Started	Ended	pCi/L	Analyzed
7714795	0	2015-12-28 @ 4:00 pm	2015-12-31 @ 12:00 pm	< 0.3	2016-01-04
7714709	10	2015-12-28 @ 9:00 am	2015-12-31 @ 8:00 am	1.4 ± 0.4	2016-01-04
7714710	10	2015-12-28 @ 9:00 am	2015-12-31 @ 8:00 am	0.9 ± 0.4	2016-01-05
7714714	11	2015-12-28 @ 9:00 am	2015-12-31 @ 8:00 am	< 0.3	2016-01-04
7714711	12	2015-12-28 @ 9:00 am	2015-12-31 @ 8:00 am	2.5 ± 0.5	2016-01-05
7714712	12	2015-12-28 @ 9:00 am	2015-12-31 @ 8:00 am	< 0.3	2016-01-05
7714713	13	2015-12-28 @ 9:00 am	2015-12-31 @ 8:00 am	< 0.3	2016-01-05
7714734	14	2015-12-28 @ 10:00 am	2015-12-31 @ 8:00 am	< 0.3	2016-01-04
7714735	14	2015-12-28 @ 10:00 am	2015-12-31 @ 8:00 am	< 0.3	2016-01-04
7714729	15	2015-12-28 @ 10:00 am	2015-12-31 @ 8:00 am	2.2 ± 0.4	2016-01-04
7714730	15	2015-12-28 @ 10:00 am	2015-12-31 @ 8:00 am	1.6 ± 0.5	2016-01-05
7714733	16	2015-12-28 @ 10:00 am	2015-12-31 @ 8:00 am	1.7 ± 0.5	2016-01-05
7714731	17	2015-12-28 @ 10:00 am	2015-12-31 @ 8:00 am	0.7 ± 0.4	2016-01-04
7714732	18	2015-12-28 @ 10:00 am	2015-12-31 @ 8:00 am	< 0.3	2016-01-04
7714742	19	2015-12-28 @ 11:00 am	2015-12-31 @ 9:00 am	0.7 ± 0.3	2016-01-04
7714753	1E	2015-12-28 @ 11:00 am	2015-12-31 @ 9:00 am	0.6 ± 0.3	2016-01-04
7714743	20	2015-12-28 @ 11:00 am	2015-12-31 @ 9:00 am	1.0 ± 0.4	2016-01-04
7714750	21	2015-12-28 @ 11:00 am	2015-12-31 @ 9:00 am	0.5 ± 0.3	2016-01-04
7714751	21	2015-12-28 @ 11:00 am	2015-12-31 @ 9:00 am	< 0.3	2016-01-04
7714744	22	2015-12-28 @ 11:00 am	2015-12-31 @ 9:00 am	1.4 ± 0.4	2016-01-04
7714745	22	2015-12-28 @ 11:00 am	2015-12-31 @ 9:00 am	1.5 ± 0.4	2016-01-04
7714749	23	2015-12-28 @ 11:00 am	2015-12-31 @ 9:00 am	0.8 ± 0.4	2016-01-05
7714746	24	2015-12-28 @ 11:00 am	2015-12-31 @ 9:00 am	0.9 ± 0.3	2016-01-04
7714748	25	2015-12-28 @ 11:00 am	2015-12-31 @ 9:00 am	0.6 ± 0.4	2016-01-05
7714747	26	2015-12-28 @ 11:00 am	2015-12-31 @ 9:00 am	1.2 ± 0.4	2016-01-04
7714717	5	2015-12-28 @ 9:00 am	2015-12-31 @ 8:00 am	< 0.3	2016-01-04
7714718	5	2015-12-28 @ 9:00 am	2015-12-31 @ 8:00 am	0.8 ± 0.4	2016-01-04
7714707	6	2015-12-28 @ 9:00 am	2015-12-31 @ 8:00 am	1.2 ± 0.4	2016-01-04
7714716	7	2015-12-28 @ 9:00 am	2015-12-31 @ 8:00 am	< 0.3	2016-01-04
7714708	8	2015-12-28 @ 9:00 am	2015-12-31 @ 8:00 am	< 0.3	2016-01-05
7714715	9	2015-12-28 @ 9:00 am	2015-12-31 @ 8:00 am	1.1 ± 0.4	2016-01-04
7714741	ART	2015-12-28 @ 10:00 am	2015-12-31 @ 9:00 am	3.4 ± 0.5	2016-01-04
7714770	AS PRN	2015-12-28 @ 12:00 pm	2015-12-31 @ 9:00 am	0.7 ± 0.4	2016-01-04
7714769	AS PRN	2015-12-28 @ 12:00 pm	2015-12-31 @ 9:00 am	1.1 ± 0.5	2016-01-05
7714763	BUILDING SERVICE	2015-12-28 @ 11:00 am	2015-12-31 @ 9:00 am	0.6 ± 0.4	2016-01-05
7714760	CAFE	2015-12-28 @ 11:00 am	2015-12-31 @ 9:00 am	0.6 ± 0.4	2016-01-04
7714761	CAFE	2015-12-28 @ 11:00 am	2015-12-31 @ 9:00 am	0.5 ± 0.3	2016-01-04

January 16, 2016  
**LABORATORY ANALYSIS REPORT \*\***

Radon test result report for:

**OLNEY ES  
 MAIN**

Kit #	Room Id	Started	Ended	pCi/L	Analyzed
7714762	CAFE	2015-12-28 @ 11:00 am	2015-12-31 @ 9:00 am	0.6 ± 0.3	2016-01-04
7714737	COM	2015-12-28 @ 10:00 am	2015-12-31 @ 8:00 am	2.1 ± 0.4	2016-01-04
7714738	COM	2015-12-28 @ 10:00 am	2015-12-31 @ 8:00 am	< 0.3	2016-01-04
7714719	COMP	2015-12-28 @ 9:00 am	2015-12-31 @ 8:00 am	0.7 ± 0.4	2016-01-05
7714771	CONF	2015-12-28 @ 12:00 pm	2015-12-31 @ 9:00 am	0.8 ± 0.4	2016-01-05
7714764	CONS	2015-12-28 @ 12:00 pm	2015-12-31 @ 9:00 am	0.8 ± 0.4	2016-01-04
7714765	CONS	2015-12-28 @ 12:00 pm	2015-12-31 @ 9:00 am	< 0.3	2016-01-04
7714756	GYM	2015-12-28 @ 11:00 am	2015-12-31 @ 9:00 am	1.1 ± 0.4	2016-01-04
7714757	GYM	2015-12-28 @ 11:00 am	2015-12-31 @ 9:00 am	1.0 ± 0.4	2016-01-05
7714759	GYM	2015-12-28 @ 11:00 am	2015-12-31 @ 9:00 am	0.6 ± 0.4	2016-01-05
7714775	HEALTH SUITE	2015-12-28 @ 12:00 pm	2015-12-31 @ 9:00 am	1.4 ± 0.4	2016-01-04
7714720	IMC	2015-12-28 @ 10:00 am	2015-12-31 @ 8:00 am	0.6 ± 0.4	2016-01-04
7714721	IMC	2015-12-28 @ 10:00 am	2015-12-31 @ 8:00 am	1.0 ± 0.4	2016-01-05
7714755	IMU	2015-12-28 @ 11:00 am	2015-12-31 @ 9:00 am	1.8 ± 0.5	2016-01-05
7714701	K1	2015-12-28 @ 9:00 am	2015-12-31 @ 8:00 am	1.0 ± 0.4	2016-01-05
7714702	K2	2015-12-28 @ 9:00 am	2015-12-31 @ 8:00 am	1.7 ± 0.4	2016-01-04
7714703	K3	2015-12-28 @ 9:00 am	2015-12-31 @ 8:00 am	< 0.3	2016-01-05
7714704	K4	2015-12-28 @ 9:00 am	2015-12-31 @ 8:00 am	< 0.3	2016-01-05
7714773	MAIN	2015-12-28 @ 12:00 pm	2015-12-31 @ 9:00 am	< 0.3	2016-01-04
7714774	MAIN	2015-12-28 @ 12:00 pm	2015-12-31 @ 9:00 am	0.8 ± 0.4	2016-01-04
7714728	MATH LAB	2015-12-28 @ 10:00 am	2015-12-31 @ 8:00 am	< 0.3	2016-01-04
7714754	MU	2015-12-28 @ 11:00 am	2015-12-31 @ 9:00 am	1.4 ± 0.4	2016-01-04
7714705	OCCUP. THERAPY	2015-12-28 @ 9:00 am	2015-12-31 @ 8:00 am	0.7 ± 0.4	2016-01-05
7714758	PE OFFICE	2015-12-28 @ 11:00 am	2015-12-31 @ 9:00 am	1.4 ± 0.5	2016-01-05
7714772	PRN	2015-12-28 @ 12:00 pm	2015-12-31 @ 9:00 am	1.5 ± 0.4	2016-01-04
7714723	RDG	2015-12-28 @ 10:00 am	2015-12-31 @ 8:00 am	< 0.3	2016-01-05
7714706	READING RM	2015-12-28 @ 9:00 am	2015-12-31 @ 8:00 am	1.5 ± 0.5	2016-01-05
7714768	RECORDS	2015-12-28 @ 12:00 pm	2015-12-31 @ 9:00 am	< 0.3	2016-01-05
7714725	RES	2015-12-28 @ 10:00 am	2015-12-31 @ 8:00 am	< 0.3	2016-01-04
7714724	RES	2015-12-28 @ 10:00 am	2015-12-31 @ 8:00 am	< 0.3	2016-01-05
7714726	SPT	2015-12-28 @ 10:00 am	2015-12-31 @ 8:00 am	0.6 ± 0.4	2016-01-04
7714740	STAFF LOUNGE	2015-12-28 @ 10:00 am	2015-12-31 @ 9:00 am	0.7 ± 0.3	2016-01-04
7714752	SUPPORT STAFF	2015-12-28 @ 11:00 am	2015-12-31 @ 9:00 am	< 0.3	2016-01-05
7714736	TEAM RM 2	2015-12-28 @ 10:00 am	2015-12-31 @ 8:00 am	0.8 ± 0.4	2016-01-04
7714739	TEAM RM 3	2015-12-28 @ 10:00 am	2015-12-31 @ 9:00 am	2.4 ± 0.5	2016-01-04
7714727	TESTING CONF. RM	2015-12-28 @ 10:00 am	2015-12-31 @ 8:00 am	1.3 ± 0.4	2016-01-04
7714766	WORK RM	2015-12-28 @ 12:00 pm	2015-12-31 @ 9:00 am	1.1 ± 0.3	2016-01-04

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January 16, 2016  
**\* LABORATORY ANALYSIS REPORT \*\***

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Radon test result report for:

**OLNEY ES  
MAIN**

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<b>Kit #</b>	<b>Room Id</b>	<b>Started</b>	<b>Ended</b>	<b>pCi/L</b>	<b>Analyzed</b>
7714767	WORK RM	2015-12-28 @ 12:00 pm	2015-12-31 @ 9:00 am	< 0.3	2016-01-05
7714722	WORK RM WEST	2015-12-28 @ 10:00 am	2015-12-31 @ 8:00 am	< 0.3	2016-01-05

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

January 15, 2016  
\*\* LABORATORY ANALYSIS REPORT \*\*

Radon test result report for:  
**MCPS PHASE 3 & 4  
TRANSIT BLANKS**

Kit #	Room Id	Started	Ended	pCi/L	Analyzed
7708218	TRANSIT 4	2015-12-18 @ 12:00 pm	2015-12-21 @ 12:00 pm	< 0.3	2015-12-23
7708200	TRANSIT 1	2015-12-18 @ 12:00 pm	2015-12-21 @ 12:00 pm	< 0.3	2015-12-23
7708190	TRANSIT 10	2015-12-18 @ 12:00 pm	2015-12-21 @ 12:00 pm	< 0.3	2015-12-23
7708189	TRANSIT 11	2015-12-18 @ 12:00 pm	2015-12-21 @ 12:00 pm	< 0.3	2015-12-23
7708191	TRANSIT 12	2015-12-18 @ 12:00 pm	2015-12-21 @ 12:00 pm	< 0.3	2015-12-23
7708188	TRANSIT 13	2015-12-18 @ 12:00 pm	2015-12-21 @ 12:00 pm	< 0.3	2015-12-23
7708197	TRANSIT 14	2015-12-18 @ 12:00 pm	2015-12-21 @ 12:00 pm	< 0.3	2015-12-23
7708186	TRANSIT 15	2015-12-18 @ 12:00 pm	2015-12-21 @ 12:00 pm	< 0.3	2015-12-23
7708185	TRANSIT 16	2015-12-18 @ 12:00 pm	2015-12-21 @ 12:00 pm	< 0.3	2015-12-23
7708184	TRANSIT 17	2015-12-18 @ 12:00 pm	2015-12-21 @ 12:00 pm	< 0.3	2015-12-23
7708182	TRANSIT 18	2015-12-18 @ 12:00 pm	2015-12-21 @ 12:00 pm	< 0.3	2015-12-23
7708187	TRANSIT 18	2015-12-18 @ 12:00 pm	2015-12-21 @ 12:00 pm	< 0.3	2015-12-23
7708199	TRANSIT 2	2015-12-18 @ 12:00 pm	2015-12-21 @ 12:00 pm	< 0.3	2015-12-23
7708181	TRANSIT 20	2015-12-18 @ 12:00 pm	2015-12-21 @ 12:00 pm	< 0.3	2015-12-23
7708180	TRANSIT 21	2015-12-18 @ 12:00 pm	2015-12-21 @ 12:00 pm	< 0.3	2015-12-23
7708183	TRANSIT 22	2015-12-18 @ 12:00 pm	2015-12-21 @ 12:00 pm	< 0.3	2015-12-23
7708178	TRANSIT 23	2015-12-18 @ 12:00 pm	2015-12-21 @ 12:00 pm	< 0.3	2015-12-23
7708179	TRANSIT 24	2015-12-18 @ 12:00 pm	2015-12-21 @ 12:00 pm	< 0.3	2015-12-23
7708177	TRANSIT 25	2015-12-18 @ 12:00 pm	2015-12-21 @ 12:00 pm	< 0.3	2015-12-23
7708176	TRANSIT 26	2015-12-18 @ 12:00 pm	2015-12-21 @ 12:00 pm	< 0.3	2015-12-23
7708174	TRANSIT 27	2015-12-18 @ 12:00 pm	2015-12-21 @ 12:00 pm	< 0.3	2015-12-23
7708173	TRANSIT 28	2015-12-18 @ 12:00 pm	2015-12-21 @ 12:00 pm	< 0.3	2015-12-23
7708175	TRANSIT 29	2015-12-18 @ 12:00 pm	2015-12-21 @ 12:00 pm	< 0.3	2015-12-23
7708198	TRANSIT 3	2015-12-18 @ 12:00 pm	2015-12-21 @ 12:00 pm	< 0.3	2015-12-23
7708172	TRANSIT 30	2015-12-18 @ 12:00 pm	2015-12-21 @ 12:00 pm	< 0.3	2015-12-23
7708194	TRANSIT 5	2015-12-18 @ 12:00 pm	2015-12-21 @ 12:00 pm	< 0.3	2015-12-23
7708196	TRANSIT 6	2015-12-18 @ 12:00 pm	2015-12-21 @ 12:00 pm	< 0.3	2015-12-23
7708193	TRANSIT 7	2015-12-18 @ 12:00 pm	2015-12-21 @ 12:00 pm	< 0.3	2015-12-23
7708192	TRANSIT 8	2015-12-18 @ 12:00 pm	2015-12-21 @ 12:00 pm	< 0.3	2015-12-23
7708195	TRANSIT 9	2015-12-18 @ 12:00 pm	2015-12-21 @ 12:00 pm	< 0.3	2015-12-23

December  
23,  
2015

**LABORATORY ANALYSIS  
REPORT \*\***

Spike Sample Laboratory Results

Radon test result report for:  
**MCPS**

Kit #	Room Id	Started	Ended	pCi/L	Analyzed
7706380	101	2015-12-18 @ 9:00 am	2015-12-21 @ 9:00 am	25.2	2015-12-23
7706381	102	2015-12-18 @ 9:00 am	2015-12-21 @ 9:00 am	26.5	2015-12-23
7706208	103	2015-12-18 @ 9:00 am	2015-12-21 @ 9:00 am	27.7	2015-12-23
7705132	104	2015-12-18 @ 9:00 am	2015-12-21 @ 9:00 am	28.6	2015-12-23
7706366	105	2015-12-18 @ 9:00 am	2015-12-21 @ 9:00 am	26.5	2015-12-23
7706211	106	2015-12-18 @ 9:00 am	2015-12-21 @ 9:00 am	26.1	2015-12-23

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**Note:** Spike samples are test canisters that are deliberately exposed to a controlled high level of radon in a laboratory. They provide a quality control measure in the testing process and do NOT reflect radon levels in the building being tested.

**EXPOSURE IN BOWSER-MORNER RADON CHAMBER**

CLIENT KCI Technologies Inc. Job Number 173224

NOMINAL Conditions: Radon Conc 26.9 pCi/L Rel. Hum 49.6 % Temp. 69.9 F

Date Start: 12/18/15 Date Stop: 12/21/15 Date Start: \_\_\_\_\_ Date Stop: \_\_\_\_\_

Time Start: 0929 Time Stop: 0929 Time Start: \_\_\_\_\_ Time Stop: \_\_\_\_\_

Device No.'s: 7705132, 7706208, Device No.'s: \_\_\_\_\_

7706211, 7706366, \_\_\_\_\_

7706380, 7706381 \_\_\_\_\_

F3 Left

Date Start: \_\_\_\_\_ Date Stop: \_\_\_\_\_ Date Start: \_\_\_\_\_ Date Stop: \_\_\_\_\_

Time Start: \_\_\_\_\_ Time Stop: \_\_\_\_\_ Time Start: \_\_\_\_\_ Time Stop: \_\_\_\_\_

Device No.'s: \_\_\_\_\_ Device No.'s: \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

Date Start: \_\_\_\_\_ Date Stop: \_\_\_\_\_ Date Start: \_\_\_\_\_ Date Stop: \_\_\_\_\_

Time Start: \_\_\_\_\_ Time Stop: \_\_\_\_\_ Time Start: \_\_\_\_\_ Time Stop: \_\_\_\_\_

Device No.'s: \_\_\_\_\_ Device No.'s: \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

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



## Chain of Custody

Project Name: MCPS Radon Phase III

Name of Schools:

- |                       |                       |                       |
|-----------------------|-----------------------|-----------------------|
| 1. Burnt Mills ES     | 13. Georgian Frost ES | 25. Northlake Center  |
| 2. Burtonsville ES    | 14. Germantown ES     | 26. Olney ES          |
| 3. Cedar Grove ES     | 15. Goshen ES         | 27. Rosa Parks MS     |
| 4. Cloverly ES        | 16. Greencastle ES    | 28. Poolesville ES    |
| 5. Cold Spring ES     | 17. Greenwood ES      | 29. Poolesville HS    |
| 6. Damascus HS        | 18. Lake Seneca ES    | 30. Potomac ES        |
| 7. Darnestown ES      | 19. Laytonsville ES   | 31. Rock Terrace HS   |
| 8. Diamond ES         | 20. Col. E. Brooke MS | 32. Rosemary Hills ES |
| 9. Charles R. Drew ES | 21. Luxmanor ES       | 33. Carl Sandburg     |
| 10. DuFief ES         | 22. Magruder HS       | 34. Sequoyah ES       |
| 11. Thomas Edison HS  | 23. Thur. Marshall ES | 35. Stedwick ES       |
| 12. Robert Frost MS   | 24. Monocacy ES       | 36. Whetstone ES      |

	Date	Initials
Radon Test Kits Deployed	12/28/15	JM
Radon Test Kits Sampled	12/31/15	JM
Radon Test Kits Shipped to Lab*	12/31/15	JM
Radon Test Kits Received by Lab*	1/4/16	JM

\*All samples sent to Air Check, Inc., 1936 Butler Bridge Road, Mills River, NC 28758