



### **MCPS RADON TESTING - EXECUTIVE SUMMARY**

Site Name	Burning tree Elementary School
Date of Report	2/21/2020
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	52
# Rooms $\geq 4.0$ pCi/L	0
Lowest Value	<0.3 pCi/L
Highest Value	1.8 pCi/L

### **Project Status**

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



ENGINEERS • PLANNERS • SCIENTISTS • CONSTRUCTION MANAGERS

936 RIDGEBROOK ROAD • SPARKS, MD 21152 • 410-316-7800 • (FAX) 410-316-7935

2/21/2020

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: Burning tree Elementary School**

7900 Beech Tree Road  
Bethesda, Maryland 20817

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 Burning tree Elementary School, located at 7900 Beech Tree Road in Bethesda, Maryland 20817 (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 [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 1/6/2020 and deployed sixty-seven 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 1/9/2020 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 upper-20s and high temperatures were in the mid-50s. Maximum sustained winds ranged from 10-23 miles per hour. Average humidity was around 64%. 0.32 inches of precipitation (rain) 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>
$\geq 4.0$ pCi/L	None	N/A
$\leq 4.0$ 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		
Burning Tree Elementary School		
Test Period: 1/6/2020-1/9/2020		
Kit Number	Room / Area	Result
9339501	11	< 0.3
9339502	MEDIA CENTER OFFICE	< 0.3
9339503	17	0.7
9339504		< 0.3
9339505		0.6
9339506	SPEECH	< 0.3
9339507	11	0.6
9339508	11	0.6
9339509	MRS. CRUM	1.6
9339510	12	< 0.3
9339511	COPY ROOM	0.8
9339512	UNKNOWN OFFICE IN MAIN OFFICE SPACE	< 0.3
9339513	16	0.7
9339514	STAFF LOUNGE	0.6
9339515	13	< 0.3
9339516	15	1.2
9339517	8	0.6
9339518	KITCHEN OFFICE	0.6
9339519	10	< 0.3
9339520	MEDIA CENTER	0.9
9339521	9	< 0.3
9339522	7	< 0.3
9339523	GYM	0.7
9339524	GYM	0.6
9339525	MEDIA CENTER	0.5
9339526	BLDG SERVICE OFFICE	1
9339527	ASSISTANT PRINCIPAL	< 0.3
9339528	ESOL	1
9339529	HEALTH ROOM	0.8
9339530	CONFERENCE ROOM	1
9339531	PRINCIPAL	< 0.3
9339532	MAIN OFFICE	< 0.3
9339533	17	1
9339534	GYM OFFICE	1
9339535	2	0.9
9339536	1	0.7
9339537	5	< 0.3
9339538	14	0.9
9339539	HEALTH ROOM OFFICE	< 0.3
9339540	COMPUTER LAB	0.9
9339541	4	0.7
9339542	6	0.6



9339543	GYM	0.6
9339544	GYM	< 0.3
9339545	GYM	0.6
9339546	3	0.6
9339547	GYM	< 0.3
9339548	6	0.5
9339549		1
9339709	OFFICE BLANK	< 0.3
9347601		1.4
9347602	BAND	1.3
9347603		1
9347604	TESTING	0.7
9347605	17A	0.8
9347606	QUIET ROOM	1.2
9347607	ALL PURPOSE ROOM	0.7
9347608	ALL PURPOSE ROOM	< 0.3
9347609		1
9347610	QUIET ROOM	0.6
9347611	QUIET ROOM	< 0.3
9347612	STAFF DEVELOPMENT	< 0.3
9347613	ART	1.5
9347617	ALL PURPOSE ROOM	0.5
9347618	21	1.1
9347621	19	0.8
9347622	20	1.8
9347623	18	0.6

Table 2- Radon Testing Results			
Burning Tree Elementary School			
Test Period: 1/6/2020-1/9/2020			
Kit Number	QC Type	Room / Area	Result
9339542	D	6	0.6
9339544	D	GYM	<0.3
9339547	FB	GYM	<0.3
9339520	D	MEDIA CENTER	0.9
9339507	D	11	0.6
9339501	FB	11	<0.3
9339533	D	17	1
9347610	D	QUIET ROOM	0.6
9347611	FB	QUIET ROOM	<0.3
9348319	TRANSIT BLANK	NA	<0.3
9348320	TRANSIT BLANK	NA	<0.3
9348313	TRANSIT BLANK	NA	<0.3



# ATTACHMENT C

## Laboratory Analytical Results

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:

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

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

January 3, 2020

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

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
9340052	N/A	2019-12-21 @ 8:00 am	2019-12-23 @ 8:00 am	27.4 $\pm$ 2.6 D	2020-01-03
9340057	N/A	2019-12-21 @ 8:00 am	2019-12-23 @ 8:00 am	27.3 $\pm$ 2.5 D	2020-01-03
9340025	N/A	2019-12-21 @ 8:00 am	2019-12-23 @ 8:00 am	25.1 $\pm$ 2.4 D	2020-01-03
9341711	N/A	2019-12-21 @ 9:00 am	2019-12-23 @ 9:00 am	22.5 $\pm$ 2.2 D	2020-01-03
9340079	N/A	2019-12-21 @ 9:00 am	2019-12-23 @ 9:00 am	26.9 $\pm$ 2.5 D	2020-01-03
9340062	N/A	2019-12-21 @ 9:00 am	2019-12-23 @ 9:00 am	25.6 $\pm$ 2.5 D	2020-01-03
9340030	N/A	2019-12-21 @ 8:00 am	2019-12-23 @ 8:00 am	25.0 $\pm$ 2.4 D	2020-01-03
9341716	N/A	2019-12-21 @ 9:00 am	2019-12-23 @ 9:00 am	25.1 $\pm$ 2.4 D	2020-01-03
9340084	N/A	2019-12-21 @ 9:00 am	2019-12-23 @ 9:00 am	24.5 $\pm$ 2.3 D	2020-01-03

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



# EXPOSURE IN BOWSER-MORNER RADON CHAMBER

CLIENT KCI Technologies Inc. Job Number 193598

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

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

Time Start: 0830 Time Stop: 0830

(Group 4)  
Device No.'s: (20) Char. Bags -

9340061 thru 9340080

Temp of 70.0  
RH % 50.1  
Avg pCi/L 25.5

52

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

Time Start: 0835 Time Stop: 0835

(Group 5)  
Device No.'s: (20) Char. Bags -

9340081 thru 9340100

Temp of 70.0  
RH % 50.1  
Avg pCi/L 25.5

25

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

Time Start: 0840 Time Stop: 0840

(Group 6)  
Device No.'s: (20) Char. Bags -

9341701 thru 9341720

Temp of 70.0  
RH % 50.1  
Avg pCi/L 25.5

25

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

Radon test result report for:  
**BURNING TREE ES**  
**MAIN**

Kit #	Room Id	Started	Ended	pCi/L	Analyzed
9339536	1	2020-01-06 @ 8:00 am	2020-01-09 @ 8:00 am	0.7 ± 0.4	2020-01-14
9339519	10	2020-01-06 @ 9:00 am	2020-01-09 @ 9:00 am	< 0.3	2020-01-14
9339508	11	2020-01-06 @ 9:00 am	2020-01-09 @ 9:00 am	0.6 ± 0.4	2020-01-14
9339501	11	2020-01-06 @ 9:00 am	2020-01-09 @ 9:00 am	< 0.3	2020-01-14
9339507	11	2020-01-06 @ 9:00 am	2020-01-09 @ 9:00 am	0.6 ± 0.4	2020-01-14
9339510	12	2020-01-06 @ 9:00 am	2020-01-09 @ 9:00 am	< 0.3	2020-01-14
9339515	13	2020-01-06 @ 9:00 am	2020-01-09 @ 9:00 am	< 0.3	2020-01-14
9339538	14	2020-01-06 @ 9:00 am	2020-01-09 @ 9:00 am	0.9 ± 0.4	2020-01-14
9339516	15	2020-01-06 @ 9:00 am	2020-01-09 @ 9:00 am	1.2 ± 0.4	2020-01-14
9339513	16	2020-01-06 @ 9:00 am	2020-01-09 @ 9:00 am	0.7 ± 0.4	2020-01-14
9339503	17	2020-01-06 @ 9:00 am	2020-01-09 @ 9:00 am	0.7 ± 0.4	2020-01-14
9339533	17	2020-01-06 @ 9:00 am	2020-01-09 @ 9:00 am	1.0 ± 0.4	2020-01-14
9347605	17A	2020-01-06 @ 10:00 am	2020-01-09 @ 9:00 am	0.8 ± 0.4	2020-01-14
9347623	18	2020-01-06 @ 10:00 am	2020-01-09 @ 9:00 am	0.6 ± 0.4	2020-01-14
9347621	19	2020-01-06 @ 10:00 am	2020-01-09 @ 9:00 am	0.8 ± 0.4	2020-01-14
9339535	2	2020-01-06 @ 8:00 am	2020-01-09 @ 8:00 am	0.9 ± 0.4	2020-01-14
9347622	20	2020-01-06 @ 10:00 am	2020-01-09 @ 11:00 am	1.8 ± 0.5	2020-01-14
9347618	21	2020-01-06 @ 10:00 am	2020-01-09 @ 9:00 am	1.1 ± 0.5	2020-01-14
9339546	3	2020-01-06 @ 8:00 am	2020-01-09 @ 8:00 am	0.6 ± 0.4	2020-01-14
9339541	4	2020-01-06 @ 8:00 am	2020-01-09 @ 8:00 am	0.7 ± 0.4	2020-01-14
9339537	5	2020-01-06 @ 8:00 am	2020-01-09 @ 8:00 am	< 0.3	2020-01-14
9339542	6	2020-01-06 @ 8:00 am	2020-01-09 @ 8:00 am	0.6 ± 0.4	2020-01-14
9339548	6	2020-01-06 @ 8:00 am	2020-01-09 @ 8:00 am	0.5 ± 0.4	2020-01-14
9339522	7	2020-01-06 @ 8:00 am	2020-01-09 @ 8:00 am	< 0.3	2020-01-14
9339517	8	2020-01-06 @ 8:00 am	2020-01-09 @ 8:00 am	0.6 ± 0.4	2020-01-14
9339521	9	2020-01-06 @ 9:00 am	2020-01-09 @ 9:00 am	< 0.3	2020-01-14
9347608	ALL PURPOSE ROOM	2020-01-06 @ 10:00 am	2020-01-09 @ 8:00 am	< 0.3	2020-01-14
9347617	ALL PURPOSE ROOM	2020-01-06 @ 10:00 am	2020-01-09 @ 8:00 am	0.5 ± 0.4	2020-01-14
9347607	ALL PURPOSE ROOM	2020-01-06 @ 10:00 am	2020-01-09 @ 8:00 am	0.7 ± 0.4	2020-01-14
9347613	ART	2020-01-06 @ 10:00 am	2020-01-09 @ 9:00 am	1.5 ± 0.4	2020-01-14
9339527	ASSISTANT PRINCIPLE	2020-01-06 @ 9:00 am	2020-01-09 @ 9:00 am	< 0.3	2020-01-14
9347602	BAND	2020-01-06 @ 10:00 am	2020-01-09 @ 9:00 am	1.3 ± 0.5	2020-01-14
9339526	BLDG SERVICE OFFICE	2020-01-06 @ 8:00 am	2020-01-09 @ 8:00 am	1.0 ± 0.5	2020-01-14
9339540	COMPUTER LAB	2020-01-06 @ 9:00 am	2020-01-09 @ 9:00 am	0.9 ± 0.4	2020-01-14
9339530	CONFERENCE ROOM	2020-01-06 @ 7:00 am	2020-01-09 @ 8:00 am	1.0 ± 0.4	2020-01-14
9339511	COPY ROOM	2020-01-06 @ 7:00 am	2020-01-09 @ 8:00 am	0.8 ± 0.4	2020-01-14
9339528	ESOL	2020-01-06 @ 9:00 am	2020-01-09 @ 11:00 am	1.0 ± 0.4	2020-01-14

January 14, 2020

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

Radon test result report for:  
**BURNING TREE ES**  
**MAIN**

Kit #	Room Id	Started	Ended	pCi/L	Analyzed
9339547	GYM	2020-01-06 @ 10:00 am	2020-01-09 @ 8:00 am	< 0.3	2020-01-14
9339545	GYM	2020-01-06 @ 8:00 am	2020-01-09 @ 8:00 am	0.6 ± 0.4	2020-01-14
9339523	GYM	2020-01-06 @ 8:00 am	2020-01-09 @ 8:00 am	0.7 ± 0.4	2020-01-14
9339543	GYM	2020-01-06 @ 8:00 am	2020-01-09 @ 8:00 am	0.6 ± 0.4	2020-01-14
9339524	GYM	2020-01-06 @ 8:00 am	2020-01-09 @ 8:00 am	0.6 ± 0.4	2020-01-14
9339544	GYM	2020-01-06 @ 8:00 am	2020-01-09 @ 8:00 am	< 0.3	2020-01-14
9339534	GYM OFFICE	2020-01-06 @ 8:00 am	2020-01-09 @ 11:00 am	1.0 ± 0.4	2020-01-14
9339529	HEALTH ROOM	2020-01-06 @ 7:00 am	2020-01-09 @ 8:00 am	0.8 ± 0.4	2020-01-14
9339539	HEALTH ROOM OFFICE	2020-01-06 @ 7:00 am	2020-01-09 @ 8:00 am	< 0.3	2020-01-14
9339518	KITCHEN OFFICE	2020-01-06 @ 8:00 am	2020-01-09 @ 8:00 am	0.6 ± 0.4	2020-01-14
9339532	MAIN OFFICE	2020-01-06 @ 7:00 am	2020-01-09 @ 8:00 am	< 0.3	2020-01-14
9339505	MEDIA CENTER	2020-01-06 @ 9:00 am	2020-01-09 @ 8:00 am	0.6 ± 0.4	2020-01-14
9339520	MEDIA CENTER	2020-01-06 @ 9:00 am	2020-01-09 @ 8:00 am	0.9 ± 0.4	2020-01-14
9339525	MEDIA CENTER	2020-01-06 @ 9:00 am	2020-01-09 @ 8:00 am	0.5 ± 0.4	2020-01-14
9339502	MEDIA CENTER OFFICE	2020-01-06 @ 9:00 am	2020-01-09 @ 8:00 am	< 0.3	2020-01-14
9339509	MRS. CRUM	2020-01-06 @ 9:00 am	2020-01-09 @ 8:00 am	1.6 ± 0.5	2020-01-14
9339504	MRS. FLEMING	2020-01-06 @ 9:00 am	2020-01-09 @ 9:00 am	< 0.3	2020-01-14
9347603	MRS. KAHN	2020-01-06 @ 10:00 am	2020-01-09 @ 9:00 am	1.0 ± 0.4	2020-01-14
9339549	MRS. LIPOWSKY	2020-01-06 @ 9:00 am	2020-01-09 @ 9:00 am	1.0 ± 0.5	2020-01-14
9347601	MRS. RAUE	2020-01-06 @ 9:00 am	2020-01-09 @ 9:00 am	1.4 ± 0.4	2020-01-14
9347609	MS. GORDON	2020-01-06 @ 10:00 am	2020-01-09 @ 9:00 am	1.0 ± 0.5	2020-01-14
9339531	PRINCIPAL	2020-01-06 @ 7:00 am	2020-01-09 @ 8:00 am	< 0.3	2020-01-14
9347606	QUIET ROOM	2020-01-06 @ 10:00 am	2020-01-09 @ 9:00 am	1.2 ± 0.4	2020-01-14
9347611	QUIET ROOM	2020-01-06 @ 10:00 am	2020-01-09 @ 9:00 am	< 0.3	2020-01-14
9347610	QUIET ROOM	2020-01-06 @ 10:00 am	2020-01-09 @ 9:00 am	0.6 ± 0.4	2020-01-14
9339506	SPEECH	2020-01-06 @ 9:00 am	2020-01-09 @ 9:00 am	< 0.3	2020-01-14
9347612	STAFF DEVELOPMENT	2020-01-06 @ 10:00 am	2020-01-09 @ 9:00 am	< 0.3	2020-01-14
9339514	STAFF LOUNGE	2020-01-06 @ 8:00 am	2020-01-09 @ 8:00 am	0.6 ± 0.4	2020-01-14
9347604	TESTING	2020-01-06 @ 10:00 am	2020-01-09 @ 9:00 am	0.7 ± 0.4	2020-01-14
9339512	UNKNOWN OFFICE IN MAIN OFFICE SPACE	2020-01-06 @ 7:00 am	2020-01-09 @ 8:00 am	< 0.3	2020-01-14



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Corporate Office: 936 Ridgebrook road • Sparks , Maryland 21152 • 410-316-7800 • (Fax) 410-316-7935

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## Radon Test Kit Chain of Custody

Project Name: MCPS Radon 2019 Week 3

Name of Schools:

- |                              |                            |
|------------------------------|----------------------------|
| 1. Bannockburn E.S.          | 12. Montgomery Knolls E.S. |
| 2. Bethesda E.S.             | 13. Newport Mills M.S.     |
| 3. Bethesda-Chevy Chase H.S. | 14. Oak View E.S.          |
| 4. Bradley Hill E.S.         | 15. Rock View E.S.         |
| 5. Burning Tree E.S.         | 16. Roscoe Nix E.S.        |
| 6. Burnt Mills E.S.          | 17. Sligo M.S.             |
| 7. East Silver Springs E.S.  | 18. Spring Mill Center     |
| 8. Einstein H.S.             | 19. Springbrook H.S.       |
| 9. Flora Singer E.S.         | 20. Westland M.S.          |
| 10. Key M.S.                 | 21. Woodlin M.S.           |
| 11. Montgomery Blair H.S.    |                            |

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	Date	Initials
Radon Test Kits Deployed	1/6/20 to 1/7/20	JM
Radon Test Kits Collected	1/9/20 to 1/10/20	JM
Radon Test Kits Shipped to Lab*	1/10/20	JM
Radon Test Kits Received by Lab*	1/13/202	JM

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



## MCPS RADON TESTING

### Executive Summary: Burning Tree Elementary School

Date of Test Report:	10/18/2016
Round of Testing:	Initial Follow-up Post Remediation
# Rooms Tested:	35
# Rooms $\geq$ 4.0 pCi/L:	0
Low Value:	< 0.3
High Value:	1.6

### Project Status:

Follow-up testing after HVAC update completed; retest needed for gym (doors open / fans on).  
Inaccessible rooms require testing (rooms 2, 9, staff development, and conference room)



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October 18, 2016

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

Re: **Radon Testing Services**  
KCI Job # 12146341.54

Location: Burning Tree Elementary School  
7900 Beech Tree Road  
Bethesda, MD 20817

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 Burning Tree Elementary School, located at 7900 Beech Tree Road in Bethesda, Maryland 20817 (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 September 26, 2016 and deployed forty-three (43) 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 September 29, 2016 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 sampling of a school that had HVAC modifications over the summer.

To expedite the testing, tests were conducted in September as soon as students and staff returned to:

- Determine if the HVAC project changed previously detected radon levels.

Future periodic testing should be conducted during the heating season in ideal conditions as described below. 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 cooling mode; therefore, KCI concludes that this test was not 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 50s and high temperatures in the mid-60s to mid-70s. Maximum sustained winds ranged from 3-15 miles per hour. Average humidity ranged from 71 to 89 percent. Rain (1.83 inches in Gaithersburg, MD) was recorded on 9/29/16. The weather conditions during the testing period may have resulted in atypical radon test results for this facility.

### **Results:**

The results of the radon test analysis indicated the following:

<b>Radon Concentration</b>	<b>Room</b>	<b>Result</b>
<b>≥4.0 pCi/L</b>	none	n/a
<b>&lt;4.0 pCi/L</b>	See Attachment B	

Notes:

D- Duplicate sample

The field blank, office blanks, 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. Moulds  
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

<b>Radon Testing Results</b>		
<b>Burning Tree Elementary School</b>		
<b>Test Period: 12/30/99-09/29/16</b>		
<b>Kit Number</b>	<b>Room / Area</b>	<b>Result</b>
7801972	1	0.6
7801978	3	< 0.3
7801904	5	< 0.3
7801989	7	< 0.3
7801991	11	< 0.3
7801990	13	0.6
7801801	15	0.8
7801983	16	< 0.3
7802251	17	0.5
7801889	18	0.9
7801890	19	0.9
7801819	20	1.2
7801811	21	1.3
7801807	17A	0.8
-	* 2 (Inaccessible/Locked Room)	-
-	* 9 (Inaccessible/Locked Room)	-
7801905	APR	0.7
7801910	APR	< 0.3
7801891	ART	1.2
7801988	ASSIST PRINCIPAL	0.7
7801979	BAND	1.6
7801906	BLDG SERVICES	0.7
7801802	COMM LAB	< 0.3
7801806	COMPUTER LAB	0.7
-	* CONFERENCE ROOM (Inaccessible/Locked Room)	-
7801911	COPY	0.8
7801902	COUNSELOR	0.6
7801996	ESOL	0.7
7801984	* GYM (Open Door/Fan on)	< 0.3
7801995	* GYM (Open Door/Fan on)	0.5
7801966	GYM OFFICE	0.6
7801908	HEALTH	0.6
7801892	IDA	1.0
7801808	LCC	0.9
7801907	MAIN OFFICE	1.1
7801903	MEDIA	0.5
7801992	MEDIA	< 0.3
7801909	PRINCIPAL	0.8
7801901	READING	0.6
7801814	SGC	0.9
7801985	SPEECH	< 0.3
-	* STAFF DEVELOPMENT (Inaccessible/Locked Room)	-

Table Note:

\* Missing or Compromised Sample

Radon Testing Results		
Burning Tree Elementary School		
Test Period: 09/26/16-09/29/16		
Kit Number	QC Type	Result
7802252	D (16)	0.5
7801994	D (APR)	0.5
7801820	D (IDA)	1.3
7801915	D (PRINCIPAL)	0.6
7801815	FB (IDA)	< 0.3

Table Note:

\* Missing or Compromised Sample

## ATTACHMENT C

### Laboratory Analytical Results

Radon test result report for:**BURNING TREE ELEMENTARY SCHOOL  
MAIN**

<b>Kit #</b>	<b>Room Id</b>	<b>Started</b>	<b>Ended</b>	<b>pCi/L</b>	<b>Analyzed</b>
7801972	1	2016-09-26 @ 11:00 am	2016-09-29 @ 10:00 am	0.6 ± 0.3	2016-10-03
7801991	11	2016-09-26 @ 11:00 am	2016-09-29 @ 10:00 am	< 0.3	2016-10-03
7801990	13	2016-09-26 @ 11:00 am	2016-09-29 @ 10:00 am	0.6 ± 0.3	2016-10-03
7801801	15	2016-09-26 @ 11:00 am	2016-09-29 @ 10:00 am	0.8 ± 0.3	2016-10-03
7802252	16	2016-09-26 @ 11:00 am	2016-09-29 @ 10:00 am	0.5 ± 0.2	2016-10-03
7801983	16	2016-09-26 @ 11:00 am	2016-09-29 @ 10:00 am	< 0.3	2016-10-03
7802251	17	2016-09-26 @ 10:00 am	2016-09-29 @ 10:00 am	0.5 ± 0.3	2016-10-03
7801807	17A	2016-09-26 @ 10:00 am	2016-09-29 @ 10:00 am	0.8 ± 0.3	2016-10-03
7801889	18	2016-09-26 @ 10:00 am	2016-09-29 @ 10:00 am	0.9 ± 0.3	2016-10-03
7801890	19	2016-09-26 @ 10:00 am	2016-09-29 @ 10:00 am	0.9 ± 0.3	2016-10-03
7801819	20	2016-09-26 @ 10:00 am	2016-09-29 @ 10:00 am	1.2 ± 0.3	2016-10-03
7801811	21	2016-09-26 @ 10:00 am	2016-09-29 @ 10:00 am	1.3 ± 0.3	2016-10-03
7801978	3	2016-09-26 @ 11:00 am	2016-09-29 @ 10:00 am	< 0.3	2016-10-03
7801904	5	2016-09-26 @ 11:00 am	2016-09-29 @ 10:00 am	< 0.3	2016-10-03
7801989	7	2016-09-26 @ 11:00 am	2016-09-29 @ 10:00 am	< 0.3	2016-10-03
7801994	APR	2016-09-26 @ 11:00 am	2016-09-29 @ 10:00 am	0.5 ± 0.3	2016-10-03
7801910	APR	2016-09-26 @ 11:00 am	2016-09-29 @ 10:00 am	< 0.3	2016-10-03
7801905	APR	2016-09-26 @ 11:00 am	2016-09-29 @ 10:00 am	0.7 ± 0.3	2016-10-03
7801891	ART	2016-09-26 @ 10:00 am	2016-09-29 @ 10:00 am	1.2 ± 0.3	2016-10-03
7801988	ASSIST PRINCIPAL	2016-09-26 @ 12:00 pm	2016-09-29 @ 10:00 am	0.7 ± 0.3	2016-10-03
7801979	BAND	2016-09-26 @ 11:00 am	2016-09-29 @ 11:00 am	1.6 ± 0.3	2016-10-03
7801906	BLDG SERVICES	2016-09-26 @ 12:00 pm	2016-09-29 @ 11:00 am	0.7 ± 0.3	2016-10-03
7801802	COMM LAB	2016-09-26 @ 11:00 am	2016-09-29 @ 10:00 am	< 0.3	2016-10-03
7801806	COMPUTER LAB	2016-09-26 @ 11:00 am	2016-09-29 @ 10:00 am	0.7 ± 0.3	2016-10-03
7801911	COPY	2016-09-26 @ 12:00 pm	2016-09-29 @ 10:00 am	0.8 ± 0.3	2016-10-03
7801902	COUNSELOR	2016-09-26 @ 11:00 am	2016-09-29 @ 10:00 am	0.6 ± 0.3	2016-10-03
7801996	ESOL	2016-09-26 @ 11:00 am	2016-09-29 @ 10:00 am	0.7 ± 0.3	2016-10-03
7801995	GYM	2016-09-26 @ 11:00 am	2016-09-29 @ 10:00 am	0.5 ± 0.3	2016-10-03
7801984	GYM	2016-09-26 @ 11:00 am	2016-09-29 @ 10:00 am	< 0.3	2016-10-03
7801966	GYM OFFICE	2016-09-26 @ 11:00 am	2016-09-29 @ 10:00 am	0.6 ± 0.3	2016-10-03
7801908	HEALTH	2016-09-26 @ 12:00 pm	2016-09-29 @ 11:00 am	0.6 ± 0.3	2016-10-03
7801815	IDA	2016-09-26 @ 10:00 am	2016-09-29 @ 10:00 am	< 0.3	2016-10-03
7801892	IDA	2016-09-26 @ 10:00 am	2016-09-29 @ 10:00 am	1.0 ± 0.3	2016-10-03
7801820	IDA	2016-09-26 @ 10:00 am	2016-09-29 @ 10:00 am	1.3 ± 0.3	2016-10-03
7801808	LCC	2016-09-26 @ 10:00 am	2016-09-29 @ 10:00 am	0.9 ± 0.3	2016-10-03
7801907	MAIN OFFICE	2016-09-26 @ 12:00 pm	2016-09-29 @ 10:00 am	1.1 ± 0.3	2016-10-03
7801992	MEDIA	2016-09-26 @ 11:00 am	2016-09-29 @ 10:00 am	< 0.3	2016-10-03

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October 7, 2016

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

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Radon test result report for:

**BURNING TREE ELEMENTARY SCHOOL  
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>
7801903	MEDIA	2016-09-26 @ 11:00 am	2016-09-29 @ 10:00 am	0.5 ± 0.3	2016-10-03
7801909	PRINCIPAL	2016-09-26 @ 12:00 pm	2016-09-29 @ 10:00 am	0.8 ± 0.3	2016-10-03
7801915	PRINCIPAL	2016-09-26 @ 12:00 pm	2016-09-29 @ 10:00 am	0.6 ± 0.3	2016-10-03
7801901	READING	2016-09-26 @ 11:00 am	2016-09-29 @ 10:00 am	0.6 ± 0.3	2016-10-03
7801814	SGC	2016-09-26 @ 10:00 am	2016-09-29 @ 10:00 am	0.9 ± 0.3	2016-10-03
7801985	SPEECH	2016-09-26 @ 11:00 am	2016-09-29 @ 10:00 am	< 0.3	2016-10-03

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

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October 7, 2016

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

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Radon test result report for:

**MCPS Radon**

**Phase 18 Office Blanks**

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<b>Kit #</b>	<b>Room Id</b>	<b>Started</b>	<b>Ended</b>	<b>pCi/L</b>	<b>Analyzed</b>
7802697	1	2016-09-26 @ 11:00 am	2016-09-29 @ 11:00 am	< 0.3	2016-10-03
7801899	10	2016-09-26 @ 11:00 am	2016-09-29 @ 11:00 am	< 0.3	2016-10-03
7802932	11	2016-09-26 @ 11:00 am	2016-09-29 @ 11:00 am	< 0.3	2016-10-03
7802935	12	2016-09-26 @ 11:00 am	2016-09-29 @ 11:00 am	< 0.3	2016-10-03
7802915	13	2016-09-26 @ 11:00 am	2016-09-29 @ 11:00 am	< 0.3	2016-10-03
7802941	2	2016-09-26 @ 11:00 am	2016-09-29 @ 11:00 am	< 0.3	2016-10-03
7802942	3	2016-09-26 @ 11:00 am	2016-09-29 @ 11:00 am	< 0.3	2016-10-03
7802919	4	2016-09-26 @ 11:00 am	2016-09-29 @ 11:00 am	< 0.3	2016-10-03
7802918	5	2016-09-26 @ 11:00 am	2016-09-29 @ 11:00 am	< 0.3	2016-10-03
7802917	6	2016-09-26 @ 11:00 am	2016-09-29 @ 11:00 am	< 0.3	2016-10-03
7802916	7	2016-09-26 @ 11:00 am	2016-09-29 @ 11:00 am	< 0.3	2016-10-03
7802952	8	2016-09-26 @ 11:00 am	2016-09-29 @ 11:00 am	< 0.3	2016-10-03
7802928	9	2016-09-26 @ 11:00 am	2016-09-29 @ 11:00 am	< 0.3	2016-10-03

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



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October 7, 2016

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

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Radon test result report for:

**MCPS Radon**

**Phase 18 Transit Blanks**

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<b>Kit #</b>	<b>Room Id</b>	<b>Started</b>	<b>Ended</b>	<b>pCi/L</b>	<b>Analyzed</b>
7714274	1	2016-09-26 @ 10:00 am	2016-09-29 @ 10:00 am	< 0.3	2016-10-03
7802962	10	2016-09-26 @ 10:00 am	2016-09-29 @ 10:00 am	< 0.3	2016-10-03
7714295	11	2016-09-26 @ 10:00 am	2016-09-29 @ 10:00 am	< 0.3	2016-10-03
7714299	12	2016-09-26 @ 10:00 am	2016-09-29 @ 10:00 am	< 0.3	2016-10-03
7714273	13	2016-09-26 @ 10:00 am	2016-09-29 @ 10:00 am	< 0.3	2016-10-03
7714270	14	2016-09-26 @ 10:00 am	2016-09-29 @ 10:00 am	< 0.3	2016-10-03
7802965	2	2016-09-26 @ 10:00 am	2016-09-29 @ 10:00 am	< 0.3	2016-10-03
7802696	3	2016-09-26 @ 10:00 am	2016-09-29 @ 10:00 am	< 0.3	2016-10-03
7802690	4	2016-09-26 @ 10:00 am	2016-09-29 @ 10:00 am	< 0.3	2016-10-03
7714275	5	2016-09-26 @ 10:00 am	2016-09-29 @ 10:00 am	< 0.3	2016-10-03
7714298	6	2016-09-26 @ 10:00 am	2016-09-29 @ 10:00 am	< 0.3	2016-10-03
7802990	7	2016-09-26 @ 10:00 am	2016-09-29 @ 10:00 am	< 0.3	2016-10-03
7802974	8	2016-09-26 @ 10:00 am	2016-09-29 @ 10:00 am	< 0.3	2016-10-03
7802694	9	2016-09-26 @ 10:00 am	2016-09-29 @ 10:00 am	< 0.3	2016-10-03

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

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October 12, 2016

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

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Radon test result report for:  
**MCPS Radon**  
**Spike Sample Results**

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<b>Kit #</b>	<b>Room Id</b>	<b>Started</b>	<b>Ended</b>	<b>pCi/L</b>	<b>Analyzed</b>
7769880	101	2016-09-24 @ 8:00 am	2016-09-26 @ 8:00 am	22.9 ± 1.0	2016-09-28
7769884	102	2016-09-24 @ 8:00 am	2016-09-26 @ 8:00 am	22.4 ± 1.0	2016-09-28
7769885	103	2016-09-24 @ 8:00 am	2016-09-26 @ 8:00 am	23.0 ± 1.0	2016-09-28
7769890	104	2016-09-24 @ 8:00 am	2016-09-26 @ 8:00 am	22.3 ± 1.0	2016-09-28
7769891	105	2016-09-24 @ 8:00 am	2016-09-26 @ 8:00 am	26.8 ± 1.2	2016-09-28
7769899	106	2016-09-24 @ 8:00 am	2016-09-26 @ 8:00 am	24.1 ± 1.1	2016-09-28

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

**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 176788

NOMINAL Conditions: Radon Conc 26.1 pCi/L Rel. Hum 49.6 % Temp. 70.0 F

Date Start: 9/24/16 Date Stop: 9/26/16 Date Start: \_\_\_\_\_ Date Stop: \_\_\_\_\_

Time Start: 0758 Time Stop: 0758 Time Start: \_\_\_\_\_ Time Stop: \_\_\_\_\_

Device No.'s: (6) Char. Bags - Device No.'s: \_\_\_\_\_

7769899, 7769884, 7769885, \_\_\_\_\_

7769889, 7769890, 7769891 \_\_\_\_\_

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



## Radon Test Kit Chain of Custody

Project Name: MCPS Radon Phase 18

Name of Schools:

- |                                     |  |
|-------------------------------------|--|
| 1. Wood Acres Elementary School     | 14. Lourie Center                        |
| 2. Walt Whitman High School         | 15. Shriver Elementary School            |
| 3. Burning Tree Elementary School   | 16. Viers Mill Elementary School         |
| 4. Ashburton Elementary School      | 17. Highland Elementary School           |
| 5. Bethesda Maintenance             | 18. Newport Middle School                |
| 6. Bethesda Transportation          | 19. Albert Einstein High School          |
| 7. Herbert Hoover Middle School     | 20. Sligo Middle School                  |
| 8. Cold Spring Elementary School    | 21. East Silver Spring Elementary School |
| 9. Garret Park Elementary School    | 22. Oak View Elementary School           |
| 10. Rock View Elementary School     | 23. Roscoe Nix Elementary School         |
| 11. Francis Scott Key Middle School | 24. Northwood High School                |
| 12. Montgomery Blair High School    | 25. Springbrook High School              |
| 13. Stephen Knolls School           | 26. John F. Kennedy High School          |

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	Date	Initials
Radon Test Kits Deployed	9/26/16	JM
Radon Test Kits Collected	9/29/16	JM
Radon Test Kits Shipped to Lab*	9/30/16	JM
Radon Test Kits Received by Lab*	10/03/16	JM

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



## Radon Test Kit Chain of Custody

Project Name: MCPS Radon Phase 18

Name of Schools:

- |  |                                   |
|--|-----------------------------------|
| 1. Damascus High School                  | 17. Watkins Mills High School     |
| 2. Cedar Grove Elementary School         | 18. Forest Oak Middle School      |
| 3. Hallie Wells Middle School            | 19. Gaithersburg Middle School    |
| 4. Clarksburg Elementary School          | 20. Emory Grove                   |
| 5. Clarksburg High School                | 21. Fields Road Elementary School |
| 6. Woodlin Elementary School             | 22. Beall Elementary School       |
| 7. Flora Singer Elementary School        | 23. Julius West Middle School     |
| 8. Spring Mill Center                    | 24. Thomas Wootton High School    |
| 9. Dr. Charles Drew Elementary School    | 25. Robert Frost High School      |
| 10. William Farquah Middle School        | 26. Travilah Elementary School    |
| 11. Rosa Parks Middle School             | 27. Jones Lane Elementary School  |
| 12. Blair Ewing Center                   | 28. Longview School               |
| 13. Lathrop Smith Environmental Center   | 29. Rock Terrace High School      |
| 14. Sequoyah Elementary School           | 30. Germantown Elementary School  |
| 15. Shady Grove Middle School            | 31. Lake Seneca Elementary School |
| 16. Captain James Daly Elementary School |                                   |

---

	Date	Initials
Radon Test Kits Deployed	9/27/16	JM
Radon Test Kits Collected	9/30/16	JM
Radon Test Kits Shipped to Lab*	9/30/16	JM
Radon Test Kits Received by Lab*	10/03/16	JM

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

# RADON SCREENING SURVEY – FOLLOW-UP BURNING TREE ELEMENTARY SCHOOL

7900 Beech Tree Road, Bethesda, Maryland 20817

## EXECUTIVE SUMMARY

Date of Test Report:	4/12/16 Follow-Up
Round of Testing:	Initial Follow-up Post Remediation
# Rooms Tested	3
# Rooms $\geq$ 4.0 pCi/L:	0
Low Value:	0.5
High Value:	0.8
Confirmed Rooms $\geq$ 4.0 pCi/L US EPA Action Level	0

## Summary of Sampling Events $\geq$ 4.0 pCi/L

Room	Result (pCi/L) 2/8/16 Initial	Result (pCi/L) 4/12/16 Follow-Up	Average Result (pCi/L)
9	<0.3 Tampered	0.5	0.4
Main Office	<0.3 Tampered	0.8	0.6
Media Center	--- Missing	0.6	0.6
Media Center Office	--- Missing	Not Sampled	n/a



## MCPS RADON TESTING

### Executive Summary: Burning Tree Elementary School

Date of Test Report:	4/12/2016
Round of Testing:	Initial Follow-up Post Remediation
# Rooms Tested:	3
# Rooms $\geq$ 4.0 pCi/L:	0
Low Value:	0.5
High Value:	0.8

#### Project Status:

Retesting completed; no further action at this time.



ENGINEERS • PLANNERS • SCIENTISTS • CONSTRUCTION MANAGERS

936 RIDGEBROOK ROAD • SPARKS, MD 21152 • 410-316-7800 • (FAX) 410-316-7935

April 12, 2016

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

Re: **Radon Testing Services**  
KCI Job # 12146341.31

Location: Burning Tree Elementary School  
7900 Beech Tree Road  
Bethesda, MD 20817

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 Burning Tree Elementary School, located at 7900 Beech Tree Road in Bethesda, Maryland 20817 (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 March 8, 2016 and deployed three (3) 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 March 11, 2016 to retrieve the radon sampling test kits. KCI 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 (certification # ARL0007) located at 929 Mount



tion Road, Lebanon, Pennsylvania.

### **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  $\leq 65^{\circ}\text{F}$ .

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>
<b><math>\geq 4.0</math> pCi/L</b>	none	n/a
<b>□□□□ pCi/L</b>	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. 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. Moulds  
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

\*Office blanks were submitted at a rate of 1% for all samples deployed in Phase 11 testing. Office blanks were not submitted under each school individually.

Radon Testing Results		
Burning Tree ES		
Test Period: 03/08/16-03/11/16		
Kit Number	Room / Area	Result
3029119	9	0.5
3029120	Main Office	0.8
3028996	Media Center	0.6

Table Note:

\* Missing or Compromised Sample

## ATTACHMENT C

### Laboratory Analytical Results

NRPP 10511AL  
NRSB ARL0007

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

Laboratory Report for:

Property Tested: Project # 12146341

KCI Technologies  
936 Ridgebrook Rd  
Sparks MD 21152

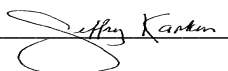
Burning Tree ES  
7900 Beech Tree Rd  
Bethesda MD 20817

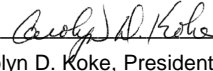
Log Number	Device Number	Test Exposure Duration:		Area Tested	Result (pCi/L)
3016756	3029120	03/08/2016	03/10/2016	Main Office First Flr	0.8
3016757	3028996	03/08/2016 11:14 am	03/11/2016 10:09 am	Media Center First Flr	0.6
3016758	3029119	03/08/2016	03/11/2016	Unit 9 Basement	0.5

**Comment:** A copy of this report was emailed to tehsin@kci.com.

Distributed by: KCI Technologies, Inc.

Date Received: 03/15/2016    Date Logged: 03/15/2016    Date Analyzed: 03/16/2016    Date Reported: 03/16/2016

Report Reviewed By: 

Report Approved By: 

Carolyn D. Koke, President, AccuStar Labs

**Disclaimer:**

The uncertainty of this radon measurement is  $\pm 10\%$ . 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.

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.



**Send Written Report To:**

Name	KCI Technologies, Inc		
Address	936 Ridgebrook Road		
Address			
City / Town	Sparks		
State/Province	Postal Code	MD	21152
Report Country	Baltimore County		
Email Address	tehsin@kci.com		

**Site Tested:**

Site Name	Burning Tree ES
Address	
Address	7900 Beech Tree Rd
City / Town	Bethesda
State/Province Postal Code	MD 20817
Test Country	Montgomery County
Project Number	12146341

**Contact Information:**

Contact	Tehsin Aurangabadwala
Technician	
Cert. Number	
Signature	
Telephone	410-891-1726

[illegible]

NRPP 10511AL  
NRSB ARL0007

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

Laboratory Report for:

Property Tested: Project # 12146341

KCI Technologies  
936 Ridgebrook Rd  
Sparks MD 21152

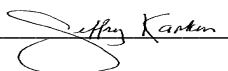
MCPS Radon Phase 11 Office Blank

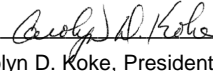
Log Number	Device Number	Test Exposure Duration:	Area Tested	Result (pCi/L)
3016739	3029191	03/08/2016 10:00 am 03/11/2016 10:00 am	Office Blank	<0.4

**Comment:** A copy of this report was emailed to tehsin@kci.com.

Distributed by: KCI Technologies, Inc.

Date Received: 03/15/2016 Date Logged: 03/15/2016 Date Analyzed: 03/15/2016 Date Reported: 03/16/2016

Report Reviewed By: 

Report Approved By:   
Carolyn D. Koke, President, AccuStar Labs

**Disclaimer:**

The uncertainty of this radon measurement is  $\pm 10\%$ . 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.

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.



NRPP 10511AL  
NRSB ARL0007

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

Laboratory Report for:

Property Tested:

KCI Technologies  
936 Ridgebrook Rd  
Sparks MD 21152

MCPS  
Transit Blanks

Log Number	Device Number	Test Exposure Duration:		Area Tested	Result (pCi/L)
3010588	3028953	01/19/2016 1:00 pm	01/22/2016 9:30 am	1	< 0.4
3010589	3028955	01/19/2016 1:00 pm	01/22/2016 9:30 am	2	< 0.4
3010590	3028954	01/19/2016 1:00 pm	01/22/2016 9:30 am	3	< 0.4
3010591	3028997	01/19/2016 1:00 pm	01/22/2016 9:30 am	4	< 0.4

**Comment:** AMENDED REPORT for 3028953-8955, 3028997 on 2/22/16 to add all missing information from the blank datasheet. A copy of this report was emailed to james.moulds@kci.com.

Distributed by: KCI Technologies, Inc.

Date Received: 01/27/2016    Date Logged: 01/27/2016    Date Analyzed: 01/28/2016    Date Reported: 01/28/2016

Report Reviewed By: Christie Bates

Report Approved By: Carolyn D. Koke

**Disclaimer:**

Carolyn D. Koke, President, AccuStar Labs

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

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



Return canisters for analysis to:  
AccuStar Labs  
929 Mt. Zion Rd., Lebanon, PA 17046  
800-523-4964

AccuStar Labs - Lebanon, PA  
INFORMATION FORM - Large Buildings -  
Projects - Apartments

Instructions on back of form  
Read instructions carefully  
Discrepancies will invalidate tests

### Test Site Info

Name of Building/Project or Owner: Transit  
Site Address: Transit  
City: \_\_\_\_\_ State: \_\_\_\_\_ Zip: \_\_\_\_\_ County: \_\_\_\_\_

Projects Contact Name: Don Coale Phone: \_\_\_\_\_ Email: \_\_\_\_\_

Do not use this form in  
New Jersey or Florida  
Call for correct forms.

Multi-Page Report Y-N

LAB USE ONLY	
Wgt. Gain	pCi/L
	204
	204
	204
	204

Detector Serial#	ROOM NAME & NUMBER - LOCATION OF DETECTOR IN ROOM (indicate duplicates and blanks)	Floor	Start Date	Start Time Include AM/PM	Stop Date	Stop Time Include AM/PM
3028953	Transit	1	1/19/16	9:30am	1/22/16	9:30am
8955	Transit	1	1/19/16			
8954	Transit	1	1/19/16			
8997	Transit	1	1/19/16			

1/27/2016

KCI Technologies, Inc.

3010588 3028953 ACPC275B EXP12/31/2018

Both Placed by and Retrieved by signatures are required

Canisters placed by \_\_\_\_\_ # \_\_\_\_\_

Canisters retrieved by \_\_\_\_\_ # \_\_\_\_\_

Owner waives confidentiality by signing here \_\_\_\_\_ Date 1/22/16

Send Results To:

Company Name: KCI Tech

Address: 936 Ridgebrook

City: Sparks

Phone: 410-599-3826

EMAIL Results to: James.Mouldale@kci.com

Attention: James Mouldale

State: MD Zip: 21152

Fax: \_\_\_\_\_

Were general operating conditions maintained?  
Yes - No explain if NO

Were closed building conditions maintained?  
Yes - No explain if NO

Normal Temp. Yes - No

Normal Humidity Yes - No

Windy Y-N Rainy Y-N

Make sure information is complete and correct.  
If a recalculation is requested there is a \$10.00 recalc fee PER Canister.

Mailing: PO Box 990 Jonestown, PA 17038  
Shipping: 929 Mt Zion Road, Lebanon, PA 17046  
800-523-4964 fax 717-274-5662

NEHA 10511AL NRSB ARL 0007

Revision 5  
4/2015

# TCS INDUSTRIES, INC.

(717) 657-7032

RADON GAS DETECTION

www.radondetek.com

4326 Crestview Road, Harrisburg, PA 17112

James Mouldsdale  
KCI  
936 Ridgebrook Rd.  
Sparks, MD 21152

April 04, 2016

Dear Mr. Mouldsdale:

The spike exposure data were:

Start 04/04/16 @ 1110 hrs EDT  
End 04/06/16 @ 1113 hrs EDT

AC 3029218, 3029219, 3029220, 3029217, 3029214, 3029217, and 3029166

Average radon concentration was 10.6 pCi/L +/- 5%

Avg. Temp. was 71F  
Avg. RH was 51%  
Elevation was 490 feet above sea level

Sincerely,



Carl H. Distenfeld, CHP

\*\*\*\*\*  
TCS Radon Chamber NRSB CHM 0002  
\*\*\*\*\*

NRPP 10511AL  
NRSB ARL0007

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

Laboratory Report for:

Property Tested:

KCI Technologies  
936 Ridgebrook Rd  
Sparks MD 21152

MCPS  
Radon Spike Sample Laboratory Results

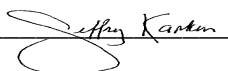
Log Number	Device Number	Test Exposure Duration:		Area Tested	Result (pCi/L)
3020102	3029166	04/04/2016 11:10 am	04/06/2016 11:13 am	Not Indicated	11.9
3020103	3029214	04/04/2016 11:10 am	04/06/2016 11:13 am	Not Indicated	11.5
3020104	3029217	04/04/2016 11:10 am	04/06/2016 11:13 am	Not Indicated	10.7
3020105	3029218	04/04/2016 11:10 am	04/06/2016 11:13 am	Not Indicated	11.3
3020106	3029219	04/04/2016 11:10 am	04/06/2016 11:13 am	Not Indicated	11.0
3020107	3029220	04/04/2016 11:10 am	04/06/2016 11:13 am	Not Indicated	10.5

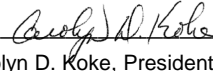
**Comment:** A copy of this report was emailed to james.mouldsdale@kci.com.

Distributed by: KCI Technologies, Inc.

Date Received: 04/07/2016    Date Logged: 04/07/2016    Date Analyzed: 04/07/2016    Date Reported: 04/08/2016

**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.

Report Reviewed By: 

Report Approved By:   
Carolyn D. Koke, President, AccuStar Labs

**Disclaimer:**

The uncertainty of this radon measurement is  $\pm 10\%$ . 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.

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.



## Radon Device Type Open Face Canister


**Send Written Report To:**

Name	KCI Technologies, Inc	
Address	936 Ridgebrook Road	
Address		
City / Town	Sparks	
State/Province	Postal Code	21152
Report Country	Baltimore County	
Email Address	tehsin@kci.com	

**Site Tested:**

Site Name	MCPS	
Address	850 Hagerford Dr	
Address		
City / Town	Rockville	
State/Province	Postal Code	20850
Test Country	Montgomery County	
Project Number	12146341	

**Contact Information:**

Contact	Tehsin Aurangabadwala
Telephone	410-891-1726
Technician	
Cert. Number	
Signature	

[illegible]





## MCPS RADON TESTING

### Executive Summary: Burning Tree Elementary School

Date of Test Report:	2/08/2016
Round of Testing:	Initial Follow-up Post Remediation
# Rooms Tested:	52
# Rooms $\geq$ 4.0 pCi/L:	0
Low Value:	< 0.3
High Value:	2.4

### Project Status:

Initial testing completed; missing or compromised samples need re-test.



February 8, 2016

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

Re: **Radon Testing Services**  
KCI Job # 12146341.24

Location: Burning Tree Elementary School  
7900 Beech Tree Road  
Bethesda, MD 20817

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 Burning Tree Elementary School, located at 7900 Beech Tree Road in Bethesda, Maryland 20817 (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 January 11, 2016 and deployed sixty-one (61) 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 January 14, 2016 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>
<b><math>\geq 4.0</math> pCi/L</b>	none	n/a
<b><math>&lt; 4.0</math> pCi/L</b>	See Attachment B	

Notes:

D- Duplicate sample

All 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,



H. Allen Bennett  
Certified Industrial Hygienist  
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

Radon Testing Results		
Burning Tree Elementary School		
Test Period: 01/11/16-01/14/16		
Kit Number	Room / Area	Result
7716570	1	< 0.3
7716572	2	< 0.3
7716571	3	< 0.3
7716573	4	0.7
7716577	5	0.7
7716579	6	0.7
7716578	7	< 0.3
7716580	8	0.9
7716587	10	0.7
7716586	11	1
7716588	12	< 0.3
7716903	13	1
7716905	15	0.7
7716593	17	< 0.3
7716598	18	1
7716901	19	0.6
7716599	20	1.7
7716600	21	2.4
7716585	* 9 (Tampered)	< 0.3
7716596	ART	0.8
7716562	ASSISTANT PRINCI	< 0.3
7716906	BAND ROOM	0.7
7716576	BUILDING SERVICE	< 0.3
7716560	COMMUNICATION CE	1
7716591	COMPUTER ROOM	0.9
7716561	CONFERENCE ROOM	0.8
7716583	E.S.O.L	1.4
7716566	G4	0.6
7716565	G4	0.6
7716567	G4A	< 0.3
7716555	HEALTH ROOM	< 0.3
7716556	HEALTH ROOM OFFI	0.7
7716553	* MAIN OFFICE (Tampered)	< 0.3
7716557	* MEDIA CENTER (Missing)	0
7716559	* MEDIA CENTER OFF (Missing)	0
7716581	MRS.WHALEN	< 0.3
7716568	MULTI PURPOSE	< 0.3
7716569	MULTI PURPOSE	0.9
7716592	MUSIC	< 0.3
7716597	OFFICE	< 0.3
7716908	* PORTABLE 1 (Tampered)	0.6
7716909	* PORTABLE 268/2 (Missing)	< 0.3
7716910	PORTABLE 3	< 0.3
7716912	PORTABLE ML958/4	< 0.3
7716554	PRINCIPLE OFFICE	0.8
7716584	READING INIATIVE	0.8

Table Note:

\* Missing or Compromised Sample

Radon Testing Results		
Burning Tree Elementary School		
Test Period: 01/11/16-01/14/16		
Kit Number	Room / Area	Result
7716589	READING LANGUAGE	< 0.3
7716907	RESOURCES	1.1
7716595	SPECIALIST	< 0.3
7716590	SPEECH	0.7
7716902	STAFF DEVELOPMEN	0.9
7716574	STAFF LOUNGE	< 0.3
7716594	TESTING	< 0.3
7716563	WORK ROOM	0.9

Table Note:

\* Missing or Compromised Sample



Radon Testing Results		
Burning Tree Elementary School		
Test Period: 01/11/16-01/14/16		
Kit Number	QC Type	Result
7716904	D (13)	0.7
7716558	* D (MEDIA CENTER:Missing)	0
7716575	D (STAFF LOUNGE)	< 0.3
7716911	FB (3)	< 0.3
7716582	FB (MRS.WHALEN)	< 0.3
7716564	FB (WORK ROOM)	< 0.3
7716540	OB (0)	< 0.3

Table Note:

\* Missing or Compromised Sample

**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

Radon Testing Results		
Burning Tree Elementary School		
Test Period: 01/11/16-01/14/16		
Kit Number	Room / Area	Result
7716570	1	< 0.3
7716572	2	< 0.3
7716571	3	< 0.3
7716573	4	0.7
7716577	5	0.7
7716579	6	0.7
7716578	7	< 0.3
7716580	8	0.9
7716587	10	0.7
7716586	11	1
7716588	12	< 0.3
7716903	13	1
7716905	15	0.7
7716593	17	< 0.3
7716598	18	1
7716901	19	0.6
7716599	20	1.7
7716600	21	2.4
7716585	* 9 (Tampered)	< 0.3
7716596	ART	0.8
7716562	ASSISTANT PRINCI	< 0.3
7716906	BAND ROOM	0.7
7716576	BUILDING SERVICE	< 0.3
7716560	COMMUNICATION CE	1
7716591	COMPUTER ROOM	0.9
7716561	CONFERENCE ROOM	0.8
7716583	E.S.O.L	1.4
7716566	G4	0.6
7716565	G4	0.6
7716567	G4A	< 0.3
7716555	HEALTH ROOM	< 0.3
7716556	HEALTH ROOM OFFI	0.7
7716553	* MAIN OFFICE (Tampered)	< 0.3
7716557	* MEDIA CENTER (Missing)	0
7716559	* MEDIA CENTER OFF (Missing)	0
7716581	MRS.WHALEN	< 0.3
7716568	MULTI PURPOSE	< 0.3
7716569	MULTI PURPOSE	0.9
7716592	MUSIC	< 0.3
7716597	OFFICE	< 0.3
7716908	* PORTABLE 1 (Tampered)	0.6
7716909	* PORTABLE 268/2 (Missing)	< 0.3
7716910	PORTABLE 3	< 0.3
7716912	PORTABLE ML958/4	< 0.3
7716554	PRINCIPLE OFFICE	0.8
7716584	READING INIATIVE	0.8

Table Note:

\* Missing or Compromised Sample

Radon Testing Results		
Burning Tree Elementary School		
Test Period: 01/11/16-01/14/16		
Kit Number	Room / Area	Result
7716589	READING LANGUAGE	< 0.3
7716907	RESOURCES	1.1
7716595	SPECIALIST	< 0.3
7716590	SPEECH	0.7
7716902	STAFF DEVELOPMEN	0.9
7716574	STAFF LOUNGE	< 0.3
7716594	TESTING	< 0.3
7716563	WORK ROOM	0.9

Table Note:

\* Missing or Compromised Sample

Radon Testing Results		
Burning Tree Elementary School		
Test Period: 01/11/16-01/14/16		
Kit Number	QC Type	Result
7716904	D (13)	0.7
7716558	* D (MEDIA CENTER:Missing)	0
7716575	D (STAFF LOUNGE)	< 0.3
7716911	FB (3)	< 0.3
7716582	FB (MRS.WHALEN)	< 0.3
7716564	FB (WORK ROOM)	< 0.3
7716540	OB (0)	< 0.3

Table Note:

\* Missing or Compromised Sample

## ATTACHMENT C

### Laboratory Analytical Results

February 4, 2016

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

Radon test result report for:

**BURNING TREE ELEMENTARY SCHOOL  
MAIN**

Kit #	Room Id	Started	Ended	pCi/L	Analyzed
7716540	0	2016-01-11 @ 1:00 pm	2016-01-14 @ 3:00 pm	< 0.3	2016-01-19
7716570	1	2016-01-11 @ 12:00 pm	2016-01-14 @ 12:00 pm	< 0.3	2016-01-19
7716587	10	2016-01-11 @ 12:00 pm	2016-01-14 @ 12:00 pm	0.7 ± 0.4	2016-01-19
7716586	11	2016-01-11 @ 12:00 pm	2016-01-14 @ 1:00 pm	1.0 ± 0.4	2016-01-19
7716588	12	2016-01-11 @ 12:00 pm	2016-01-14 @ 1:00 pm	< 0.3	2016-01-19
7716903	13	2016-01-11 @ 12:00 pm	2016-01-14 @ 1:00 pm	1.0 ± 0.4	2016-01-19
7716904	13	2016-01-11 @ 12:00 pm	2016-01-14 @ 1:00 pm	0.7 ± 0.4	2016-01-19
7716905	15	2016-01-11 @ 12:00 pm	2016-01-14 @ 1:00 pm	0.7 ± 0.4	2016-01-19
7716593	17	2016-01-11 @ 12:00 pm	2016-01-14 @ 1:00 pm	< 0.3	2016-01-19
7716598	18	2016-01-11 @ 12:00 pm	2016-01-14 @ 2:00 pm	1.0 ± 0.3	2016-01-19
7716901	19	2016-01-11 @ 12:00 pm	2016-01-14 @ 2:00 pm	0.6 ± 0.4	2016-01-19
7716572	2	2016-01-11 @ 12:00 pm	2016-01-14 @ 12:00 pm	< 0.3	2016-01-19
7716599	20	2016-01-11 @ 12:00 pm	2016-01-14 @ 2:00 pm	1.7 ± 0.4	2016-01-19
7716600	21	2016-01-11 @ 12:00 pm	2016-01-14 @ 3:00 pm	2.4 ± 0.5	2016-01-19
7716571	3	2016-01-11 @ 12:00 pm	2016-01-14 @ 12:00 pm	< 0.3	2016-01-19
7716573	4	2016-01-11 @ 12:00 pm	2016-01-14 @ 12:00 pm	0.7 ± 0.4	2016-01-19
7716577	5	2016-01-11 @ 12:00 pm	2016-01-14 @ 12:00 pm	0.7 ± 0.4	2016-01-19
7716579	6	2016-01-11 @ 12:00 pm	2016-01-14 @ 12:00 pm	0.7 ± 0.4	2016-01-19
7716578	7	2016-01-11 @ 12:00 pm	2016-01-14 @ 12:00 pm	< 0.3	2016-01-19
7716580	8	2016-01-11 @ 12:00 pm	2016-01-14 @ 12:00 pm	0.9 ± 0.4	2016-01-19
7716585	9	2016-01-11 @ 12:00 pm	2016-01-14 @ 1:00 pm	< 0.3	2016-01-19
7716596	ART	2016-01-11 @ 12:00 pm	2016-01-14 @ 2:00 pm	0.8 ± 0.4	2016-01-19
7716562	ASSISTANT PRINCIPAL	2016-01-11 @ 11:00 am	2016-01-14 @ 11:00 am	< 0.3	2016-01-19
7716906	BAND ROOM	2016-01-11 @ 12:00 pm	2016-01-14 @ 1:00 pm	0.7 ± 0.4	2016-01-19
7716576	BUILDING SERVICE	2016-01-11 @ 12:00 pm	2016-01-14 @ 1:00 pm	< 0.3	2016-01-19
7716560	COMMUNICATION CENTER	2016-01-11 @ 11:00 am	2016-01-14 @ 1:00 pm	1.0 ± 0.4	2016-01-19
7716591	COMPUTER ROOM	2016-01-11 @ 12:00 pm	2016-01-14 @ 1:00 pm	0.9 ± 0.4	2016-01-19
7716561	CONFERENCE ROOM	2016-01-11 @ 11:00 am	2016-01-14 @ 12:00 pm	0.8 ± 0.4	2016-01-19
7716583	E.S.O.L.	2016-01-11 @ 12:00 pm	2016-01-14 @ 12:00 pm	1.4 ± 0.5	2016-01-19
7716565	G4	2016-01-11 @ 11:00 am	2016-01-14 @ 12:00 pm	0.6 ± 0.3	2016-01-19
7716566	G4	2016-01-11 @ 11:00 am	2016-01-14 @ 12:00 pm	0.6 ± 0.4	2016-01-19
7716567	G4A	2016-01-11 @ 11:00 am	2016-01-14 @ 12:00 pm	< 0.3	2016-01-19
7716555	HEALTH ROOM	2016-01-11 @ 11:00 am	2016-01-14 @ 11:00 am	< 0.3	2016-01-19
7716556	HEALTH ROOM OFFICE	2016-01-11 @ 11:00 am	2016-01-14 @ 11:00 am	0.7 ± 0.4	2016-01-19
7716553	MAIN OFFICE	2016-01-11 @ 11:00 am	2016-01-14 @ 11:00 am	< 0.3	2016-01-19
7716557	MEDIA CENTER	@	@		
7716558	MEDIA CENTER	@	@		

February 4, 2016  
**\*\*LABORATORY ANALYSIS  
REPORT \*\***

Radon test result report for:  
**BURNING TREE ELEMENTARY SCHOOL  
MAIN**

Kit #	Room Id	Started	Ended	pCi/L	Analyzed
7716559	MEDIA CENTER OFF	@	@		
7716581	MRS.WHALEN	2016-01-11 @ 12:00 pm	2016-01-14 @ 12:00 pm	< 0.3	2016-01-19
7716582	MRS.WHALEN	2016-01-11 @ 12:00 pm	2016-01-14 @ 12:00 pm	< 0.3	2016-01-19
7716568	MULTI PURPOSE	2016-01-11 @ 11:00 am	2016-01-14 @ 12:00 pm	< 0.3	2016-01-19
7716569	MULTI PURPOSE	2016-01-11 @ 11:00 am	2016-01-14 @ 12:00 pm	0.9 ± 0.4	2016-01-19
7716592	MUSIC	2016-01-11 @ 12:00 pm	2016-01-14 @ 1:00 pm	< 0.3	2016-01-19
7716597	OFFICE	2016-01-11 @ 12:00 pm	2016-01-14 @ 2:00 pm	< 0.3	2016-01-19
7716554	PRINCIPLE OFFICE	2016-01-11 @ 11:00 am	2016-01-14 @ 11:00 am	0.8 ± 0.4	2016-01-19
7716584	READING INIATIVE	2016-01-11 @ 12:00 pm	2016-01-14 @ 12:00 pm	0.8 ± 0.4	2016-01-19
7716589	READING LANGUAGE	2016-01-11 @ 12:00 pm	2016-01-14 @ 1:00 pm	< 0.3	2016-01-19
7716907	RESOURCES	2016-01-11 @ 12:00 pm	2016-01-14 @ 2:00 pm	1.1 ± 0.4	2016-01-19
7716595	SPECIALIST	2016-01-11 @ 12:00 pm	2016-01-14 @ 1:00 pm	< 0.3	2016-01-19
7716590	SPEECH	2016-01-11 @ 12:00 pm	2016-01-14 @ 1:00 pm	0.7 ± 0.4	2016-01-19
7716902	STAFF DEVELOPMEN	2016-01-11 @ 12:00 pm	2016-01-14 @ 2:00 pm	0.9 ± 0.4	2016-01-19
7716574	STAFF LOUNGE	2016-01-11 @ 12:00 pm	2016-01-14 @ 1:00 pm	< 0.3	2016-01-19
7716575	STAFF LOUNGE	2016-01-11 @ 12:00 pm	2016-01-14 @ 1:00 pm	< 0.3	2016-01-19
7716594	TESTING	2016-01-11 @ 12:00 pm	2016-01-14 @ 1:00 pm	< 0.3	2016-01-19
7716563	WORK ROOM	2016-01-11 @ 11:00 am	2016-01-14 @ 11:00 am	0.9 ± 0.4	2016-01-19
7716564	WORK ROOM	2016-01-11 @ 11:00 am	2016-01-14 @ 11:00 am	< 0.3	2016-01-19



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February 4, 2016

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

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Radon test result report for:  
**BURNING TREE ELEMENTARY SCHOOL**  
**PORTABLE**

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Kit #	Room Id	Started	Ended	pCi/L	Analyzed
7716908	1	2016-01-11 @ 3:00 pm	2016-01-14 @ 3:00 pm	0.6 ± 0.3	2016-01-19
7716909	268/2	2016-01-11 @ 1:00 pm	2016-01-14 @ 3:00 pm	< 0.3	2016-01-19
7716910	3	2016-01-11 @ 1:00 pm	2016-01-14 @ 2:00 pm	< 0.3	2016-01-19
7716911	3	2016-01-11 @ 1:00 pm	2016-01-14 @ 2:00 pm	< 0.3	2016-01-19
7716912	ML958/4	2016-01-11 @ 1:00 pm	2016-01-14 @ 2:00 pm	< 0.3	2016-01-19

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

Radon test result report for:  
**MCPS PHASE 5 & 6  
TRANSIT BLANKS**

Kit #	Room Id	Started	Ended	pCi/L	Analyzed
7722194	1	2016-01-19 @ 12:00 pm	2016-01-22 @ 12:00 pm	< 0.3	2016-01-27
7718494	10	2016-01-19 @ 12:00 pm	2016-01-22 @ 12:00 pm	< 0.3	2016-01-27
7718475	11	2016-01-19 @ 12:00 pm	2016-01-22 @ 12:00 pm	< 0.3	2016-01-27
7718495	12	2016-01-19 @ 12:00 pm	2016-01-22 @ 12:00 pm	< 0.3	2016-01-27
7718496	13	2016-01-19 @ 12:00 pm	2016-01-22 @ 12:00 pm	< 0.3	2016-01-27
7718497	14	2016-01-19 @ 12:00 pm	2016-01-22 @ 12:00 pm	< 0.3	2016-01-27
7718498	15	2016-01-19 @ 12:00 pm	2016-01-22 @ 12:00 pm	< 0.3	2016-01-27
7718499	16	2016-01-19 @ 12:00 pm	2016-01-22 @ 12:00 pm	< 0.3	2016-01-27
7718500	17	2016-01-19 @ 12:00 pm	2016-01-22 @ 12:00 pm	< 0.3	2016-01-27
7718296	18	2016-01-19 @ 12:00 pm	2016-01-22 @ 12:00 pm	< 0.3	2016-01-27
7718295	19	2016-01-19 @ 12:00 pm	2016-01-22 @ 12:00 pm	< 0.3	2016-01-27
7722195	2	2016-01-19 @ 12:00 pm	2016-01-22 @ 12:00 pm	< 0.3	2016-01-27
7716789	20	2016-01-19 @ 12:00 pm	2016-01-22 @ 12:00 pm	< 0.3	2016-01-27
7716785	21	2016-01-19 @ 12:00 pm	2016-01-22 @ 12:00 pm	< 0.3	2016-01-26
7716791	22	2016-01-19 @ 12:00 pm	2016-01-22 @ 12:00 pm	< 0.3	2016-01-27
7716786	23	2016-01-19 @ 12:00 pm	2016-01-22 @ 12:00 pm	< 0.3	2016-01-27
7716793	24	2016-01-19 @ 12:00 pm	2016-01-22 @ 12:00 pm	< 0.3	2016-01-27
7718274	25	2016-01-19 @ 12:00 pm	2016-01-22 @ 12:00 pm	< 0.3	2016-01-27
7716792	26	2016-01-19 @ 12:00 pm	2016-01-22 @ 12:00 pm	< 0.3	2016-01-27
7718294	27	2016-01-19 @ 12:00 pm	2016-01-22 @ 12:00 pm	< 0.3	2016-01-27
7718293	28	2016-01-19 @ 12:00 pm	2016-01-22 @ 12:00 pm	< 0.3	2016-01-27
7718292	29	2016-01-19 @ 12:00 pm	2016-01-22 @ 12:00 pm	< 0.3	2016-01-27
7722197	3	2016-01-19 @ 12:00 pm	2016-01-22 @ 12:00 pm	< 0.3	2016-01-27
7718290	30	2016-01-19 @ 12:00 pm	2016-01-22 @ 12:00 pm	< 0.3	2016-01-27
7722198	4	2016-01-19 @ 12:00 pm	2016-01-22 @ 12:00 pm	< 0.3	2016-01-27
7722199	5	2016-01-19 @ 12:00 pm	2016-01-22 @ 12:00 pm	< 0.3	2016-01-27
7722211	6	2016-01-19 @ 12:00 pm	2016-01-22 @ 12:00 pm	< 0.3	2016-01-27
7718491	7	2016-01-19 @ 12:00 pm	2016-01-22 @ 12:00 pm	< 0.3	2016-01-27
7718476	8	2016-01-19 @ 12:00 pm	2016-01-22 @ 12:00 pm	< 0.3	2016-01-26
7718479	9	2016-01-19 @ 12:00 pm	2016-01-22 @ 12:00 pm	< 0.3	2016-01-27

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



ENGINEERS • PLANNERS • SCIENTISTS • CONSTRUCTION MANAGERS

Corporate Office: 936 Ridgebrook road • Sparks, Maryland 21152 • 410-316-7800 • (Fax) 410-316-7935

## Chain of Custody

Project Name: MCPS Radon Phase V

Name of Schools:

- |                         |                           |                         |
|-------------------------|---------------------------|-------------------------|
| 1. Arcola ES            | 11. Clopper Mill ES       | 21. Parkland Magnet MS  |
| 2. Argyle ES            | 12. College Gardens ES    | 22. Rachel Carson ES    |
| 3. Bells Mill ES        | 13. Eastern MS            | 23. Roberto Clemente MS |
| 4. Bethesda ES          | 14. Fallsmead ES          | 24. Rock Creek ES       |
| 5. Brookhaven ES        | 15. Fields Road ES        | 25. Rockview ES         |
| 6. Burning Tree ES      | 16. Flower Hill ES        | 26. Rockville HS        |
| 7. Capt. James Daly ES  | 17. Flower Valley ES      | 27. Rocky Hill MS       |
| 8. Carderock Springs ES | 18. Fox Chapel ES         | 28. Seneca Valley HS    |
| 9. Cashell ES           | 19. Glen Haven ES         | 29. Westover ES         |
| 10. Clearspring ES      | 20. James Hubert Blake HS | 30. William Farquar MS  |

	Date	Initials
Radon Test Kits Deployed	1/11/16	JM
Radon Test Kits Sampled	1/14/16	JM
Radon Test Kits Shipped to Lab*	1/15/16	JM
Radon Test Kits Received by Lab*	1/18/16	JM

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