

## School / Facility Radon Testing Report Form

School Year: **24-25**

Facility:	Bethesda Maintenance Facility		
Address:	10901 Westlake Dr.		
	Rockville, MD 20852		
Reason for Testing:	Scheduled Re-Testing - <input checked="" type="checkbox"/> 2-year or <input type="checkbox"/> 5-year schedule <input type="checkbox"/> Clearance Testing (Post-Mitigation) <input type="checkbox"/> Building Envelope or HVAC Upgrades <input type="checkbox"/> New Construction – Addition or Facility		
Current Radon Status:	<input checked="" type="checkbox"/> Active Mitigation (2-year regular schedule) <input type="checkbox"/> No Active Mitigation (5-year regular schedule) <input type="checkbox"/> Not Previously Tested (New Facility)		
Round of Testing:	<input checked="" type="checkbox"/> Initial Testing -or- <input type="checkbox"/> Follow-up Testing		
Testing Status:	<input checked="" type="checkbox"/> No Further Testing Needed -or- <input type="checkbox"/> Follow-Up Testing Required		

### Conclusion (When Testing Status is - No Further Testing Needed)

Mitigation -	Facility Radon Status:		
<input checked="" type="checkbox"/> Not Required <input type="checkbox"/> Required ( $\geq 4.0$ -pCi/L) Rooms:	<input checked="" type="checkbox"/> No Change in Status <input checked="" type="checkbox"/> Active Mitigation (2-year regular schedule) <input type="checkbox"/> No Active Mitigation (5-year regular schedule)		
Number of Rooms Tested	19	Lowest Value (pCi/L)	<0.3
Number of Rooms ( $\geq 4.0$ -pCi/L)	0	Highest Value (pCi/L)	2.0

**Instructions:** Submit one testing report form per-facility. Include the following as attachments:

Attachment 1- Summary Data Tables – containing the following: (see attached samples tables)

- Testing Results – lab/detector Identification, by room number/name (alpha-numeric order) as depicted on facility map/floor plan provided by the facility/school at the time of test device deployment;
- Summary Results – list of rooms by test result  $\geq 2.0$ -pCi/L;  $\geq 2.7$ -pCi/L;  $\geq 4.0$ -pCi/L; and  $\geq 8.0$ -pCi/L;
- QA/QC Results - (field blanks and duplicates) indicating location collected; trip and office blanks; and spike sample results;
- Invalid Measurement Locations – missed locations, missing and or damaged/compromised testing devices.

Attachment 2 – Laboratory Report(s)

Attachment 3 – Sampling Location Map(s) – indicating approximate location of samples, duplicates and blanks.

### Detector and Deployment

Detector/Device Type:	<input checked="" type="checkbox"/> Passive	<input checked="" type="checkbox"/> Charcoal Absorption (CAD) <input type="checkbox"/> Alpha Track (ATD) <input type="checkbox"/> Other
	<input type="checkbox"/> Continuous	<input type="checkbox"/> Electret ion Chamber (EIC) <input type="checkbox"/> Electronic Integration (EID)
Other—Specify here:		
Detector/Device Name:	Air Check – Radon Test Kits	
Manufacturer:	Radon Labs	
Person(s) Deploying or Retrieving Test Devices and certification number		Organization/Company
Brittany Maas		KCI Technologies, Inc.
If noncertified individuals, the qualified measurement professional providing oversight -		
Tyler McCleaf, CSP Cert. # 111004-RMP		KCI Technologies, Inc.

### Testing

<input checked="" type="checkbox"/> Short-Term <input type="checkbox"/> Long-Term	Length of Test (days):	3	Date of Deployment and Retrieval (mm/dd/yy):	1/14/2025
				1/17/2025
Does the test period include weekends, school breaks or holidays?				<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
If “Yes” please explain/detail in the space below:				
Was HVAC operating under occupied conditions?				<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
If “No” please explain/detail in the space below:				

**Testing** (continued)

Round of Testing	Detectors Deployed				
	Ground-Contact		Upper-Level(s)		Total
	Initial	Follow-Up	Initial	Follow-Up	
Test Locations <sup>1</sup>	19	0	0	0	19
Duplicates <sup>2</sup>	2	0	0	0	2
Field Blanks <sup>3</sup>	2	0	0	0	2
Grand Total					23

1 – include all detectors deployed (duplicates, field blanks); 1 detector per occupied (or intended to be occupied) ground-contact space ≤ 2,000-square feet; large spaces ≥ 2,000-square feet - 1 detector per 2,000-square feet or part thereof); and upper floors - 10% of all occupied or intended to be occupied rooms per floor (these are in addition to ground contact locations)

2 - 10% of all locations tested, per floor

3 – 5% of all locations tested, per floor

**Quality Assurance / Quality Control (QA/QC)**

A Quality Assurance plan that is consistent with ANSI/AARST MS-QA (Radon Measurement Systems Quality Assurance) was submitted under separate cover, and is available to review at the MCPS Radon Testing and Mitigation Program website. The following number of QA/QC samples are associated this facility.

Round of Testing	QA/QC Samples		Total
	Initial	Follow-Up	
Spikes <sup>1</sup>	Not applicable		10
Trip Blanks <sup>2</sup>	1	0	1
Office Blanks <sup>3, 4</sup>	1	0	1
			12

1 - 3% of EIC detectors; and 3% from each LOT of CAD and ATD detectors; a maximum of 6-spiked measurements per month for both EIC detectors and each LOT of CAD and ATD detectors.

2 – One per shipping container from start of detector deployment

3 – One per facility tested as devices are removed/allocated from the storage location for deployment;

4 - One additional blank, analyzed prior to deployment, for storage locations that have not been evaluated or monitored, for detectors that have been stored for more than 30-day durations.

**Quality Assurance / Quality Control** (continued)

Spike Sample Lab Results. Measured values are satisfactory, i.e., within $\pm 25\%$ of the chamber's reference value?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
Quality Control measurements comply with QA/QC requirements in the submitted testing organization's/company's QA plan?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
<b>Round of Testing</b>	<b>Initial</b> <b>Follow-Up</b>
All Field, Trip and Office Blanks are $\leq$ (less than or equal to) to the Method Detection Limit?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> No <input checked="" type="checkbox"/> No
For all Duplicate Samples <sup>1</sup> , the higher value is $\leq 2x$ the lower value?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> No <input checked="" type="checkbox"/> No
For all Duplicate Samples <sup>1</sup> , Relative Percent Difference(s) (RPD) <sup>2</sup> are less than the Warning Level <sup>3</sup> ?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> No <input checked="" type="checkbox"/> No
For all Duplicate Samples <sup>1</sup> , Relative Percent Difference(s) (RPD) <sup>2</sup> are less than the Control Level <sup>3</sup> ?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> No <input checked="" type="checkbox"/> No

1 – Duplicate Control – a “NO” response constitute a control failure and the space/location represented by the duplicate sample becomes an invalid measurement location and should be listed in the “Invalid Measurement Locations” Table attached to this report.

2 - The objective of duplicate tests is to assess the precision error of the measurement method or, how well two side-by-side measurements agree or disagree. Precision involving duplicates is calculated by using Relative Percent Difference (RPD). RPD is equal to the difference between the higher test result minus the lower value test result divided by the average of the two duplicate test results, multiplied by 100. The RPD result is then compared to the warning and control limits.

3 - The Warning Level is set at the deviation from ideal performance that would be expected to occur by chance only 5% of the time, and Control Limits are set at that deviation from ideal performance that would be expected to occur by chance only 1% of the time. The Warning Level indicates a potential problem, which should be investigated. The Control Level indicates that the measurement system should be subject to corrective action.

The control and warning levels for duplicates, based on the averaged duplicate test result, are -

Average concentration of the two duplicate test results	Warning Level	Control Level
< 2.0-pCi/L	1-pCi/L	Not applicable
Between 2.0 and 3.9-pCi/L	50% RPD	67% RPD
$\geq 4.0$ -pCi/L	28% RPD	36% RPD

## Summary of Test Results<sup>1</sup> and Determination of Valid Measurements<sup>2</sup>

Round of Testing	Ground-Contact		Upper-Level(s)		Total
	Initial	Follow-Up	Initial	Follow-Up	
Number of test locations:	19	0	0	0	19
Number of locations $\geq 8.0$ -pCi/L:	0	0	0	0	0
Number of locations $\geq 4.0$ and $\leq 8$ -pCi/L:	0	0	0	0	0
Number of locations $\geq 2.7$ and $< 4$ -pCi/L:	0	0	0	0	0
Number of locations $\geq 2.0$ and $< 2.7$ -pCi/L:	1	0	0	0	1
Number of missing required test locations <sup>3</sup> :	0	0	0	0	0
Number of failed duplicate control locations:	0	0	0	0	0
Percentage of missing test locations for the facility <sup>4,5</sup> :	0	0	0	0	0

1 – for locations with multiple test results, report consistent with Section 7.2(When Two Test Results Disagree) and 8.1.2 (Averaging) of ANSI/AARST MA-MFLB 2023 – Conducting Measurements of Radon in Multifamily, School, Commercial and Mix-Use Buildings;

2 - the allowance is to be calculated individually for Ground-Contact and Upper-Level(s) Test Locations;

3 – includes missed or inaccessible locations upon deployment or retrieval, damaged (not able to analyze) and missing detectors upon retrieval;

4 – if all valid measurements are  $< 4.0$ -pCi/L and the total number of test locations are  $\geq 18$ , there is an allowance of  $\leq 33\%$ . If less than 18 test locations please review section 6.2 of the ANSI/AARST MA-MFLB 2023;

5 – if any valid measurements are  $\geq 4.0$ -pCi/L and the total number of test locations are  $\geq 20$ , there is an allowance of  $\leq 25\%$  of the total locations tested. If less than 20 test locations please review section 6.2 of the ANSI/AARST MA-MFLB 2023.

## Summary of Test Results<sup>1</sup> and Determination of Valid Measurements<sup>2</sup> (continued)

Round of Testing	Initial	Follow-Up
Were test devices deployed in all occupied and intended to be occupied rooms in contact with the ground, and, if applicable, 10% of upper floor rooms?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Were valid measurements obtained in all occupied and intended to be occupied rooms in contact with the ground, and, if applicable, 10% of upper floor rooms?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
<i>If Yes to both above – then Testing Status – ‘No Further Testing Needed’ mark ‘NA’ below and complete Conclusions section</i>		
<b>If No to either above, were all results obtained under 4.0-pCi/L and were sufficient valid measurements obtained?<sup>1,2</sup></b> <b><i>If Yes, then - ‘No Further Testing Needed’ complete Conclusion section on first page.</i></b> <b><i>If No, then - ‘Follow-up Testing Required’ continue below.</i></b>	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> NA	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> NA

1 – if all valid measurements are <4.0-pCi/L and the total number of test locations are ≥18, there is an allowance of ≤33%. If less than 18 test locations please review section 6.2 of the ANSI/AARST MA-MFLB 2023 – Conducting Measurements of Radon in Multifamily, School, Commercial and Mix-Use Buildings to determine the allowance;

2 – if any valid measurements are ≥4.0-pCi/L and the total number of test locations are ≥20, there is an allowance of ≤25% of the total locations tested. If less than 20 test locations please review section 6.2 of the ANSI/AARST MA-MFLB 2023 – Conducting Measurements of Radon in Multifamily, School, Commercial and Mix-Use Buildings to determine the number the allowance.

## Follow-Up Testing

### Required –

- If an insufficient number (greater than the allowance provided above) of valid measurements were obtained during the initial round of testing (the “missing required test locations” in the table above);
- Any location test results ≥ 4.0-pCi/L;
- Any location where duplicates fail QC checks; and or
- At the discretion of MCPS IAQ Staff

Reason for Follow-Up Testing	Testing Procedure	Follow-up Result	Conclusion
Insufficient Number of Measurements	Follow same procedures as Initial Testing	Not Applicable	Follow Initial Testing procedures
Results ≥ 4.0-pCi/L	Deploy two Short-term follow-up tests and required blanks and duplicates; Average the results of the two tests	≥4.0	Mitigation Required
Failed QC checks		≥2.0 and <4.0	Consider Mitigation
		<2.0	Mitigation Not Required

- ***If follow-up testing identifies additional spaces requiring additional testing it will be performed as part of the ongoing follow-testing round.***

# **Attachment 1:**

## **Summary Data Tables**

Table 1- Radon Testing Results		
Bethesda Maintenance Facility		
Test Period: 1/13/2025 - 1/17/2025		
Kit Number	Room / Area	Result
11926579	4	< 0.3
11926571	5	0.6
11903999	BREAK ROOM	2.0
11903990	CARPENTRY SHOP	< 0.3
11926578	CARPENTRY SHOP	< 0.3
11904000	DEPOT COPY ROOM	< 0.3
11903987	DEPOT OFFICE	< 0.3
11903983	DEPOT OFFICE 1	< 0.3
11903982	DEPOT OFFICE 2	< 0.3
11926585	DISPATCH	< 0.3
11926586	DISPATCH 2	< 0.3
11926587	DISPATCH 3	< 0.3
11903988	LUNCH ROOM	< 0.3
11926589	LUNCH ROOM	< 0.3
11903989	MST OFFICE	< 0.3
11926588	STAFF LOUNGE	< 0.3
11926592	STAFF LOUNGE	< 0.3
11926593	STAFF LOUNGE	< 0.3
11903998	TCM BRS	< 0.3
11926580	TCM BRS OFFICE	< 0.3
11926597	TCM BRS OFFICE 2	< 0.3
11903991	TRANSPORTATION OFFICE	1.8
11903984	YAKUBU OFFICE	0.7

[illegible]

Table 3 - QC Radon Testing Results			
Bethesda Maintenance Facility			
Test Period: 1/13/2025 - 1/17/2025			
Kit Number	QC Type	Room / Area	Result
11926578	D	Carpentry shop	< 0.3
11926589	FB	Lunch room	< 0.3
11926593	D	Staff lounge	< 0.3
11926588	FB	Staff lounge	< 0.3
11906876	OB	OFFICE BLANK	< 0.3
11906878	TB	TRAVEL BLANK	< 0.3

Table 3a - Duplicate Worksheet / Data Validation										
Bethesda Maintenance Facility										
Test Period: 1/13/2025 - 1/17/2025										
Sample ID			Duplicate Concentrations (pCi/L) and OC Checks							
Kit Numbers		Room / Area	Higher	Lower	Check #1 (Pass/Fail)	2x the Lower	Check #2 (Pass/Fail)	Average	Relative Percent Difference (RPD)	Check #3
11903990	11926578	Carpentry shop	0.3	0.3	✓	0.6	PASS	0.3	<1-pCi/L	✓
11926592	11926593	Staff lounge	0.3	0.3	✓	0.6	PASS	0.3	<1-pCi/L	✓
<b>NOTES:</b> QC Check #1 - Data Entry QC Check #2 - Higher duplicate concentration is < or = to 2x the Lower QC Check #3 - Meets RPD Limits, by average duplicate concentration - enter 2 if RPD is BELOW warning and control levels, AND passes QC Check 1 and 2 - enter 1 if RPD is ABOVE warning and BELOW control levels, AND passes QC Check 1 and 2 - enter 0 if RPD is ABOVE control level, or 'FAILS' QC Check 1 or 2							Average (pCi/L)		Warning Level	Control Level
							< 2.0		1-pCi/L	NA
							Between 2.0 and 3.9		50% RPD	67% RPD
							≥ 4.0		28% RPD	36% RPD

[illegible]

# **Attachment 2:**

## **Laboratory Reports**

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January 20, 2025

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

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Radon test result report for:

**BETHESDA MAINTENACE  
MAIN**

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Kit #	Room Id	Started	Ended	pCi/L	Analyzed
11903999	BREAK ROOM	2025-01-14 @ 11:00 am	2025-01-17 @ 9:00 am	2.0 ± 0.3	2025-01-20
11926578	CARPENTRY SHOP	2025-01-14 @ 12:00 pm	2025-01-17 @ 9:00 am	< 0.3	2025-01-20
11903990	CARPENTRY SHOP	2025-01-14 @ 12:00 pm	2025-01-17 @ 9:00 am	< 0.3	2025-01-20
11904000	DEPOT COPY ROOM	2025-01-14 @ 11:00 am	2025-01-17 @ 9:00 am	< 0.3	2025-01-20
11903987	DEPOT OFFICE	2025-01-14 @ 11:00 am	2025-01-17 @ 9:00 am	< 0.3	2025-01-20
11903983	DEPOT OFFICE 1	2025-01-14 @ 11:00 am	2025-01-17 @ 9:00 am	< 0.3	2025-01-20
11903982	DEPOT OFFICE 2	2025-01-14 @ 11:00 am	2025-01-17 @ 9:00 am	< 0.3	2025-01-20
11903988	LUNCH ROOM	2025-01-14 @ 11:00 am	2025-01-17 @ 9:00 am	< 0.3	2025-01-20
11903989	MST OFFICE	2025-01-14 @ 12:00 pm	2025-01-17 @ 9:00 am	< 0.3	2025-01-20
11903991	TRANSPORTATION OFFICE	2025-01-14 @ 11:00 am	2025-01-17 @ 9:00 am	1.8 ± 0.3	2025-01-20
11903984	YAKUBU OFFICE	2025-01-14 @ 11:00 am	2025-01-17 @ 9:00 am	0.7 ± 0.3	2025-01-20

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January 20, 2025

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

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Radon test result report for:

**BETHESDA MAINTENANCE  
ANNEX**

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<b>Kit #</b>	<b>Room Id</b>	<b>Started</b>	<b>Ended</b>	<b>pCi/L</b>	<b>Analyzed</b>
11926585	DISPATCH	2025-01-14 @ 12:00 pm	2025-01-17 @ 9:00 am	< 0.3	2025-01-20
11926586	DISPATCH 2	2025-01-14 @ 12:00 pm	2025-01-17 @ 9:00 am	< 0.3	2025-01-20
11926587	DISPATCH 3	2025-01-14 @ 12:00 pm	2025-01-17 @ 9:00 am	< 0.3	2025-01-20
11926589	LUNCH ROOM	2025-01-14 @ 12:00 pm	2025-01-17 @ 9:00 am	< 0.3	2025-01-20
11926593	STAFF LOUNGE	2025-01-14 @ 12:00 pm	2025-01-17 @ 9:00 am	< 0.3	2025-01-20
11926588	STAFF LOUNGE	2025-01-14 @ 12:00 pm	2025-01-17 @ 9:00 am	< 0.3	2025-01-20
11926592	STAFF LOUNGE	2025-01-14 @ 12:00 pm	2025-01-17 @ 9:00 am	< 0.3	2025-01-20
11903998	TCM BRS	2025-01-14 @ 12:00 pm	2025-01-17 @ 9:00 am	< 0.3	2025-01-20
11926580	TCM BRS OFFICE	2025-01-14 @ 12:00 pm	2025-01-17 @ 9:00 am	< 0.3	2025-01-20
11926597	TCM BRS OFFICE 2	2025-01-14 @ 12:00 pm	2025-01-17 @ 9:00 am	< 0.3	2025-01-20

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January 20, 2025

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

Radon test result report for:  
**BETHESDA MAINTENANCE  
MAIN**

Kit #	Room Id	Started	Ended	pCi/L	Analyzed
11926579	4	2025-01-14 @ 12:00 pm	2025-01-17 @ 9:00 am	< 0.3	2025-01-20
11926571	5	2025-01-14 @ 12:00 pm	2025-01-17 @ 9:00 am	0.6 ± 0.3	2025-01-20

January 20, 2025

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

Radon test result report for:

**OFFICE  
MAIN**

Kit #	Room Id	Started	Ended	pCi/L	Analyzed
11906876	O	2025-01-14 @ 11:00 am	2025-01-17 @ 11:00 am	< 0.3	2025-01-20
11906877	O	2025-01-13 @ 11:00 am	2025-01-16 @ 11:00 am	< 0.3	2025-01-20

January 20, 2025

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

Radon test result report for:

**TRAVEL  
MAIN**

Kit #	Room Id	Started	Ended	pCi/L	Analyzed
11903993	T	2025-01-13 @ 11:00 am	2025-01-16 @ 11:00 am	< 0.3	2025-01-20
11906878	T	2025-01-14 @ 11:00 am	2025-01-17 @ 11:00 am	< 0.3	2025-01-20

# EXPOSURE IN BOWSER-MORNER RADON CHAMBER

CLIENT KCI TECHNOLOGIES, INC Job Number 20001560

NOMINAL Conditions: Radon Conc 50.6 pCi/L Rel. Hum 50.6 % Temp. 70.8 F

Date Start: 12/14/24 Date Stop: 12/17/24 Date Start: \_\_\_\_\_ Date Stop: \_\_\_\_\_

Time Start: 0815 Time Stop: 0815 Time Start: \_\_\_\_\_ Time Stop: \_\_\_\_\_

Device No.'s: (3) CHAR BAGS Device No.'s: \_\_\_\_\_

11477880, 11477883, 11477896 \_\_\_\_\_

B4 Right

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 23, 2024

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

Radon test result report for:

**SK  
MAIN**

Kit #	Room Id	Started	Ended	pCi/L	Analyzed
11477880	SK1	2024-12-14 @ 8:00 am	2024-12-17 @ 8:00 am	52.0 ± 4.2	2024-12-23
11477883	SK2	2024-12-14 @ 8:00 am	2024-12-17 @ 8:00 am	54.6 ± 4.4	2024-12-23
11477896	SK3	2024-12-14 @ 8:00 am	2024-12-17 @ 8:00 am	45.5 ± 3.6	2024-12-23

# EXPOSURE IN BOWSER-MORNER RADON CHAMBER

CLIENT KCI TECHNOLOGIES, INC Job Number 20002919

NOMINAL Conditions: Radon Conc 7.0 pCi/L Rel. Hum 51.4 % Temp. 70.7 F

Date Start: 3/7/25 Date Stop: 3/10/25 Date Start: \_\_\_\_\_ Date Stop: \_\_\_\_\_

Time Start: 0832 Time Stop: 0832 Time Start: \_\_\_\_\_ Time Stop: \_\_\_\_\_

Device No.'s: (7) CHAR BAGS Device No.'s: \_\_\_\_\_

11886401 thru 11886406,

11886410

G3 Right

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

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March 19, 2025

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

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Radon test result report for:

**QC**  
**MAIN**

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Kit #	Room Id	Started	Ended	pCi/L	Analyzed
11886401	SK1	2025-03-07 @ 9:00 am	2025-03-10 @ 9:00 am	7.8 ± 1.1	2025-03-19
11886405	SK2	2025-03-07 @ 9:00 am	2025-03-10 @ 9:00 am	7.1 ± 1.1	2025-03-19
11886406	SK3	2025-03-07 @ 9:00 am	2025-03-10 @ 9:00 am	7.7 ± 1.1	2025-03-19
11886403	SK4	2025-03-07 @ 9:00 am	2025-03-10 @ 9:00 am	7.9 ± 1.2	2025-03-19
11886404	SK5	2025-03-07 @ 9:00 am	2025-03-10 @ 9:00 am	7.6 ± 1.2	2025-03-19
11886410	SK6	2025-03-07 @ 9:00 am	2025-03-10 @ 9:00 am	7.0 ± 1.1	2025-03-19
11886402	SK7	2025-03-07 @ 9:00 am	2025-03-10 @ 9:00 am	8.6 ± 1.2	2025-03-19

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ENGINEERS • PLANNERS • SCIENTISTS • CONSTRUCTION MANAGERS  
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 – Testing January 14<sup>th</sup> – January 17<sup>th</sup>, 2024

Name of Schools:

1. Bethesda Chevy Chase HS
2. Bethesda Maintenance Facility
3. Beverly Farms ES
4. Bradley Hills ES
5. Brookhaven ES
6. Burning Tree ES
7. Cabin John MS

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	Date	Initials
Radon Test Kits Deployed	01/14/2025	
Radon Test Kits Collected	01/17/2025	
Radon Test Kits Shipped to Lab*	01/17/2025	
Radon Test Kits Received by Lab*	01/21/2025	

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

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

Site Name	Bethesda Maintenance & Transportation
Date of Report	03/13/2020
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	1
# Rooms $\geq 4.0$ pCi/L	0
Lowest Value	<0.3 pCi/L
Highest Value	<0.3 pCi/L

### **Project Status**

Current Project Status at this time: Retesting completed; no further action.



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03/13/2020

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

Re: Radon Testing Services

KCI Job #12146341.126

**Location: Bethesda Maintenance & Transportation**

10901 Westlake Dr.  
Rockville, Maryland 20852

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 Bethesda Maintenance & Transportation, located at 10901 Westlake Dr. in Rockville, Maryland 20852 (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 #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 03/02/2020 and deployed 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.

KCI sampled the following locations during this follow-up test:

1. Rooms with missing test kits from the December 2019 testing period (i.e. test kit was deployed but not recovered),

- 
2. Rooms with invalidated test kits from the December 2019 testing period (e.g. an open window in the room or disturbed test kit),
  3. Rooms which were locked/inaccessible during the December 2019 testing period,
  4. Rooms with elevated December 2019 results (i.e.  $\geq 3.5$  pCi/L),
  5. Rooms previously tested for radon but not tested in December 2019, and
  6. Additional rooms that require testing (if applicable.)

A floor plan map of the building with the test locations is included as Appendix 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 nine (9) 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 03/05/2020 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 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 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.

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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 mid-20s to the upper-40s; and high temperatures ranged from the lower-40s to the upper-50s. Maximum sustained winds ranged from 9-16 miles per hour. Average humidity was approximately 74%. A total of 1.32 inches of rain were recorded during the testing period. The weather conditions during the testing period may have resulted in atypical radon test results for this facility.

## **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). Follow-up 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	NA	NA
≤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  
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

### Floor Plan Legend

X-Sample Location (in red)

X- Previous Sample Location

1- Not Samled; No Ground Contact

2- Not Samled; Unoccupied (e.g. Storage, Mechanical)

3- Not Samled; High Humidity/Moisture

4- Not Samled; Bathroom/Hallway

## 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		
Bethesda Maintenance and Transportation		
Test Period: 03/02/2020-03/05/2020		
Kit Number	Room / Area	Result
9348581	OFFICE	< 0.3
9348582	OFFICE BLANK	< 0.3
9348573	TRANSIT BLANK	< 0.3

Table 2- Radon Testing Results			
Bethesda Maintenance & Transportation			
Test Period: 03/02/2020-03/05/2020			
Kit Number	QC Type	Room / Area	Result
9348581	FIELD BLANK	Office	<0.3
9348573	TRANSIT BLANK	NA	< 0.3
9348582	OFFICE BLANK	NA	<0.3

# ATTACHMENT C

## Laboratory Analytical Results

# EXPOSURE IN BOWSER-MORNER RADON CHAMBER

CLIENT KCI Technologies, Inc. Job Number 194523

NOMINAL Conditions: Radon Conc 25.8 pCi/L Rel. Hum 49.8 % Temp. 70.2 F

Date Start: 2/21/20 Date Stop: 2/24/20 Date Start: \_\_\_\_\_ Date Stop: \_\_\_\_\_

Time Start: 0745 Time Stop: 0745 Time Start: \_\_\_\_\_ Time Stop: \_\_\_\_\_

Device No.'s: (9) Char Bags - Device No.'s: \_\_\_\_\_

9341725 thru 9341733 \_\_\_\_\_

52 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

February 28, 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
9341725	N/A	2020-02-21 @ 8:00 am	2020-02-24 @ 8:00 am	26.9 $\pm$ 1.6	2020-02-26
9341730	N/A	2020-02-21 @ 8:00 am	2020-02-24 @ 8:00 am	26.1 $\pm$ 1.6	2020-02-26
9341728	N/A	2020-02-21 @ 8:00 am	2020-02-24 @ 8:00 am	26.9 $\pm$ 1.6	2020-02-26
9341726	N/A	2020-02-21 @ 8:00 am	2020-02-24 @ 8:00 am	25.8 $\pm$ 1.5	2020-02-26
9341731	N/A	2020-02-21 @ 8:00 am	2020-02-24 @ 8:00 am	25.1 $\pm$ 1.5	2020-02-26
9341729	N/A	2020-02-21 @ 8:00 am	2020-02-24 @ 8:00 am	26.2 $\pm$ 1.6	2020-02-26
9341727	N/A	2020-02-21 @ 8:00 am	2020-02-24 @ 8:00 am	27.2 $\pm$ 1.6	2020-02-26
9341732	N/A	2020-02-21 @ 8:00 am	2020-02-24 @ 8:00 am	27.3 $\pm$ 1.6	2020-02-26

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

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March 5, 2020

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

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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).
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Kit #	Room Id	Started	Ended	pCi/L	Analyzed
9341733		2020-02-21 @ 8:00 am	2020-02-24 @ 8:00 am	26.4 $\pm$ 1.6	2020-02-26

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March 9, 2020

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

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Radon test result report for:

**BETHESDA M&T  
MAIN**

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Kit #	Room Id	Started	Ended	pCi/L	Analyzed
9348581	OFFICE	2020-03-02 @ 9:00 am	2020-03-05 @ 10:00 am	< 0.3	2020-03-07

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

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March 9, 2020

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

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Radon test result report for:

**NA**

**NA**

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Kit #	Room Id	Started	Ended	pCi/L	Analyzed
9348582	OB	2020-03-02 @ 7:00 am	2020-03-05 @ 10:00 am	< 0.3	2020-03-07
9348573	TB	2020-03-02 @ 7:00 am	2020-03-05 @ 10:00 am	< 0.3	2020-03-07

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



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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 2

Name of Schools:

1. Bethesda Maintenance & Transportation

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	Date	Initials
Radon Test Kits Deployed	3/2/20	SM
Radon Test Kits Collected	3/5/20	SM
Radon Test Kits Shipped to Lab*	3/5/20	SM
Radon Test Kits Received by Lab*	3/6/20	SM

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

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

Site Name	Bethesda Transportation and Maintenance Depot
Date of Report	2/3/2020
Round of Testing	Initial Follow-up Post Remediation <b>2 year testing</b> 5 year testing HVAC Upgrade Window Replacement New Addition New Facility
# of Rooms Tested	17
# Rooms $\geq 4.0$ pCi/L	0
Lowest Value	<0.3 pCi/L
Highest Value	0.6 pCi/L

### **Project Status**

Current Project Status at this time: Testing Complete; missing/compromised tests to be sampled.



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2/3/2020

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

Re: Radon Testing Services

KCI Job #12146341126

**Location: Bethesda Transportation and Maintenance Depot**

10901 Westlake Drive  
Rockville, Maryland 20852

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 Bethesda Transportation and Maintenance Depot, located at 10901 Westlake Drive in Rockville, Maryland 20852 (subject site).

**SCOPE OF SERVICES**

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

KCI visited the site on 12/16/2019 and deployed eighteen activated charcoal (AC) radon test kits. KCI deployed radon test kits in frequently-occupied ground contact rooms, and other areas, (if applicable) in accordance with AARST guidance.

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

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

KCI returned to the site on 12/19/2019 to retrieve the radon sampling test kits. KCI shipped all radon tests via overnight delivery to Aircheck, Inc. for analysis by gamma-ray spectroscopy. Aircheck, Inc. is a National Radon Safety Board (NRSB) radon measurement provider and is a certified analytical laboratory for radon analysis (certification #ARL1402) located at 1936 Butler Bridge Road, Mills River, North Carolina.

### **EVALUATION OF TESTING CONDITIONS**

These tests represent:

- Follow-up to initial testing.

These tests were conducted to:

- Evaluate radon concentrations at the facility.

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

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

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

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

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## **RESULTS**

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

The results of the radon test analysis indicated the following:

<b>Radon Concentration</b>	<b>Room</b>	<b>Result</b>
$\geq 4.0$ 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		
Bethesda Maintenance and Transportation Depot		
Test Period: 12/16/2019-12/19/2019		
Kit Number	Room / Area	Result
9339807	OT3	< 0.3
9339808	OT2	< 0.3
9339813	LUNCH ROOM	< 0.3
9339814	OFFICE2	< 0.3
9339815	CARPENTRY SHOP	< 0.3
9339816	GLASS SHOP	< 0.3
9339818	BCARP OFFICE	< 0.3
9339819	BCARP	< 0.3
9339820	BELEC OFFICE	< 0.3
9339821	TRANSPORTATION SHOP BAYS	0.6
9339822	OFFICE	< 0.3
9339825	GENERAL STORAGE	< 0.3
9339836	MST OFFICE	< 0.3
9339839	BGM OFFICE	< 0.3
9339840	PARTS	< 0.3
9339841	OFFICE1	< 0.3
9339842	COPY RM	< 0.3
9339843	OFFICE3	< 0.3
9341395	OFFICE BLANK	< 0.3

Table 2- Radon Testing Results			
Bethesda Maintenance Depot			
Test Period: 12/16/2019-12/19/2019			
Kit Number	QC Type	Room / Area	Result
9339818	D	BCARP OFFICE	<0.3
9341377	TRANSIT BLANK	NA	0.5
9341379	TRANSIT BLANK	NA	< 0.3
9341380	TRANSIT BLANK	NA	< 0.3
9341398	TRANSIT BLANK	NA	< 0.3



# ATTACHMENT C

## Laboratory Analytical Results

Radon test result report for:**BETHESDA MAINTENANCE AND TRANSPORTA  
MAIN**

Kit #	Room Id	Started	Ended	pCi/L	Analyzed
9339819	BCARP	2019-12-16 @ 2:00 pm	2019-12-19 @ 9:00 am	< 0.3	2019-12-23
9339818	BCARP OFFICE	2019-12-16 @ 2:00 pm	2019-12-19 @ 9:00 am	< 0.3	2019-12-23
9339820	BELEC OFFICE	2019-12-16 @ 2:00 pm	2019-12-19 @ 9:00 am	< 0.3	2019-12-23
9339839	BGM OFFICE	2019-12-16 @ 2:00 pm	2019-12-19 @ 9:00 am	< 0.3	2019-12-23
9339815	CARPENTRY SHOP	2019-12-16 @ 2:00 pm	2019-12-19 @ 9:00 am	< 0.3	2019-12-23
9339842	COPY RM	2019-12-16 @ 1:00 pm	2019-12-19 @ 9:00 am	< 0.3	2019-12-23
9339816	GLASS SHOP	2019-12-16 @ 2:00 pm	2019-12-19 @ 9:00 am	< 0.3	2019-12-23
9339813	LUNCH ROOM	2019-12-16 @ 2:00 pm	2019-12-19 @ 9:00 am	< 0.3	2019-12-23
9339836	MST OFFICE	2019-12-16 @ 2:00 pm	2019-12-19 @ 9:00 am	< 0.3	2019-12-23
9339841	OFFICE1	2019-12-16 @ 2:00 pm	2019-12-19 @ 9:00 am	< 0.3	2019-12-23
9339814	OFFICE2	2019-12-16 @ 2:00 pm	2019-12-19 @ 9:00 am	< 0.3	2019-12-23
9339843	OFFICE3	2019-12-16 @ 2:00 pm	2019-12-19 @ 9:00 am	< 0.3	2019-12-23
9339821	TRANSPORTATION SHOP BAYS	2019-12-16 @ 2:00 pm	2019-12-19 @ 9:00 am	0.6 ± 0.3	2019-12-23

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December 23, 2019

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

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Radon test result report for:

**BETHESDA TRANSPORTATION DEPOT  
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>
9339825	GENERAL STORAGE	2019-12-16 @ 2:00 pm	2019-12-19 @ 9:00 am	< 0.3	2019-12-23
9339822	OFFICE	2019-12-16 @ 2:00 pm	2019-12-19 @ 9:00 am	< 0.3	2019-12-23
9339808	OT2	2019-12-16 @ 2:00 pm	2019-12-19 @ 9:00 am	< 0.3	2019-12-23
9339807	OT3	2019-12-16 @ 2:00 pm	2019-12-19 @ 9:00 am	< 0.3	2019-12-23
9339840	PARTS	2019-12-16 @ 2:00 pm	2019-12-19 @ 9:00 am	< 0.3	2019-12-23

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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: 0815 Time Stop: 0815

(Group 1)

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

9340001 thru 9340020

55

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

Time Start: 0829 Time Stop: 0820

(Group 2)

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

9340021 thru 9340040

54

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

Time Start: 0825 Time Stop: 0825

(Group 3)

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

9340041 thru 9340060

53

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

Radon test result report for:

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

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

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

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

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

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

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January 3, 2020

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

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Radon test result report for:

**S**

**N/A**

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

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



ENGINEERS • PLANNERS • SCIENTISTS • CONSTRUCTION MANAGERS  
Corporate Office: 936 Ridgebrook road • Sparks , Maryland 21152 • 410-316-7800 • (Fax) 410-316-7935





## Radon Test Kit Chain of Custody

Project Name: MCPS Radon 2019 Week 2

Name of Schools:

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

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

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

**MCPS RADON TESTING - EXECUTIVE SUMMARY**

Site Name	Bethesda Transportation and Maintenance Depot
Date of Report	March 9, 2018
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	6
# Rooms $\geq 4.0$ pCi/L	0
Lowest Value	<0.3 pCi/L
Highest Value	0.6 pCi/L

**Project Status**

Current Project Status at this time: Retesting completed; no further action at this time.



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March 9, 2018

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

Re: Radon Testing Services

KCI Job #1214634188

**Location: Bethesda Transportation and Maintenance Depot**

10901 Westlake Dr.  
Rockville, Maryland 20852

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 Bethesda Transportation and Maintenance Depot, located at 10901 Westlake Dr. in Rockville, Maryland 20852 (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 February 12, 2018 and deployed eight (8) 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.

KCI sampled the following locations during this follow-up test:

1. Rooms not successfully tested,
2. Rooms with elevated November 2017 results (i.e.  $\geq 3.5$  pCi/L).

---

A floor plan map of the building with the test locations is included as Appendix 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, Inc. prior to being returned to the laboratory for analysis.

KCI returned to the site on February 15, 2018 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 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 post-mitigation biennial testing.

These tests were conducted to:

- Confirm the success of the mitigation system(s).

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 ranged from the mid-20s to upper 40s and high temperatures ranged from the high-30s to the high-60s. Maximum sustained winds ranged from 10-15 miles per hour. Average humidity was around 69%. 0.05 Inches of precipitation 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). 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 field blank, 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,



Radon Measurement Specialist  
KCI Technologies, Inc.

Attachments:

B - Radon Test Summary Spreadsheets

C- Laboratory Analytical Results

## 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		
Bethesda Maintenance And Transportation		
Test Period: 02/12/18-02/15/18		
Kit Number	Room / Area	Result
7986412	AREA 1	< 0.3
7986407	COPY ROOM	0.6
7986413	GLASS OFFICE	< 0.3
7986414	GLASS SHOP	< 0.3
7986408	* MENS LOCKER ROOM (Missing)	-
7986405	OFFICE 3	< 0.3

Table Note:

\* Missing or Compromised Sample

Table 2- Radon Testing Results		
Bethesda Maintenance And Transportation		
Test Period: 02/12/18-02/15/18		
Kit Number	QC Type	Result
7986415	D (AREA 1)	< 0.3
7986406	FB (MST OFFICE)	< 0.3

Table Note:

\* Missing or Compromised Sample

# ATTACHMENT C

## Laboratory Analytical Results

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February 27, 2018

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

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Radon test result report for:

**BETHESDA MAINTENANCE AND TRANSPORTATION**

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Kit #	Room Id	Started	Ended	pCi/L	Analyzed
7986415	AREA 1	2018-02-12 @ 9:00 am	2018-02-15 @ 12:00 pm	< 0.3	2018-02-19
7986412	AREA 1	2018-02-12 @ 9:00 am	2018-02-15 @ 12:00 pm	< 0.3	2018-02-19
7986407	COPY ROOM	2018-02-12 @ 9:00 am	2018-02-15 @ 12:00 pm	0.6 ± 0.3	2018-02-19
7986413	GLASS OFFICE	2018-02-12 @ 9:00 am	2018-02-15 @ 12:00 pm	< 0.3	2018-02-19
7986414	GLASS SHOP	2018-02-12 @ 9:00 am	2018-02-15 @ 12:00 pm	< 0.3	2018-02-19
7986406	MST OFFICE	2018-02-12 @ 9:00 am	2018-02-15 @ 12:00 pm	< 0.3	2018-02-19
7986405	OFFICE 3	2018-02-12 @ 9:00 am	2018-02-15 @ 12:00 pm	< 0.3	2018-02-19
7986408	MENS LOCKER RM	@	@		

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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 Kit Chain of Custody

Project Name: MCPS Radon

Names of Schools:

- |  |                                      |
|--|--------------------------------------|
| 1. Highland Elementary School          | 20. Bethesda Trans. and Maint. Depot |
| 2. Stephen Knolls Elementary School    | 21. Sequoyah Elementary School       |
| 3. Silver Creek Middle School          | 22. Gaithersburg Middle School       |
| 4. Woodlin Elementary School           | 23. Wayside Elementary School        |
| 5. Sligo Creek Elementary School       | 24. Travilah Elementary School       |
| 6. Francis Scott Key Middle School     | 25. Damascus High School             |
| 7. John T. Baker Middle School         | 26. Jones Lane Elementary School     |
| 8. Cedar Grove Elementary School       | 27. Greencastle Elementary School    |
| 9. Clarksburg Elementary School        | 28. Spring Brook High School         |
| 10. Clarksburg Elementary School Annex | 29. Montgomery Blair High School     |
| 11. Fields Road Elementary School      | 30. Watkins Mill High School         |
| 12. Dufief Elementary School           |                                      |
| 13. Brown Station Elementary School    |                                      |
| 14. Diamond Elementary School          |                                      |
| 15. Fallsmeade Elementary School       |                                      |
| 16. Thomas Whootton High School        |                                      |
| 17. Lake Seneca Elementary School      |                                      |
| 18. Redland Middle School              |                                      |
| 19. Newport Mill Middle School         |                                      |

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	Date	Initials
Radon Test Kits Deployed	2/12/18	JM
Radon Test Kits Collected	2/15/18	JM
Radon Test Kits Shipped to Lab*	2/15/18	JM
Radon Test Kits Received by Lab*	2/19/15	JM

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

February 27, 2018

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

Radon test result report for:

**OFFICE BLANKS**

Kit #	Room Id	Started	Ended	pCi/L	Analyzed
7979482	1	2018-02-13 @ 1:00 pm	2018-02-16 @ 2:00 pm	< 0.3	2018-02-20
7986991	10	2018-02-13 @ 2:00 pm	2018-02-16 @ 2:00 pm	< 0.3	2018-02-20
7985684	11	2018-02-13 @ 2:00 pm	2018-02-16 @ 2:00 pm	< 0.3	2018-02-20
7986987	12	2018-02-13 @ 2:00 pm	2018-02-16 @ 2:00 pm	< 0.3	2018-02-20
7986993	13	2018-02-13 @ 2:00 pm	2018-02-16 @ 2:00 pm	< 0.3	2018-02-20
7986990	14	2018-02-13 @ 2:00 pm	2018-02-16 @ 2:00 pm	< 0.3	2018-02-20
7979485	2	2018-02-13 @ 1:00 pm	2018-02-16 @ 2:00 pm	< 0.3	2018-02-20
7985686	3	2018-02-13 @ 1:00 pm	2018-02-16 @ 2:00 pm	< 0.3	2018-02-20
7986995	4	2018-02-13 @ 1:00 pm	2018-02-16 @ 2:00 pm	< 0.3	2018-02-20
7986989	5	2018-02-13 @ 1:00 pm	2018-02-16 @ 2:00 pm	< 0.3	2018-02-20
7986998	6	2018-02-13 @ 2:00 pm	2018-02-16 @ 2:00 pm	< 0.3	2018-02-20
7986986	7	2018-02-13 @ 2:00 pm	2018-02-16 @ 2:00 pm	< 0.3	2018-02-20
7986985	8	2018-02-13 @ 2:00 pm	2018-02-16 @ 2:00 pm	< 0.3	2018-02-20
7986997	9	2018-02-13 @ 2:00 pm	2018-02-16 @ 2:00 pm	< 0.3	2018-02-20

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

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February 27, 2018

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

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Radon test result report for:  
**TRANSIT BLANKS**

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Kit #	Room Id	Started	Ended	pCi/L	Analyzed
7984188	1	2018-02-13 @ 2:00 pm	2018-02-16 @ 2:00 pm	< 0.3	2018-02-20
7984044	10	2018-02-13 @ 2:00 pm	2018-02-16 @ 2:00 pm	< 0.3	2018-02-20
7986582	11	2018-02-13 @ 2:00 pm	2018-02-16 @ 2:00 pm	< 0.3	2018-02-20
7986999	12	2018-02-13 @ 2:00 pm	2018-02-16 @ 2:00 pm	< 0.3	2018-02-20
7987000	13	2018-02-13 @ 2:00 pm	2018-02-16 @ 2:00 pm	< 0.3	2018-02-20
7984196	14	2018-02-13 @ 2:00 pm	2018-02-16 @ 2:00 pm	< 0.3	2018-02-20
7986996	2	2018-02-13 @ 2:00 pm	2018-02-16 @ 2:00 pm	< 0.3	2018-02-20
7986994	3	2018-02-13 @ 2:00 pm	2018-02-16 @ 2:00 pm	< 0.3	2018-02-20
7986992	4	2018-02-13 @ 2:00 pm	2018-02-16 @ 2:00 pm	< 0.3	2018-02-20
7985680	5	2018-02-13 @ 2:00 pm	2018-02-16 @ 2:00 pm	< 0.3	2018-02-20
7985698	6	2018-02-13 @ 2:00 pm	2018-02-16 @ 2:00 pm	< 0.3	2018-02-20
7985699	7	2018-02-13 @ 2:00 pm	2018-02-16 @ 2:00 pm	< 0.3	2018-02-20
7985700	8	2018-02-13 @ 2:00 pm	2018-02-16 @ 2:00 pm	< 0.3	2018-02-20
7985872	9	2018-02-13 @ 2:00 pm	2018-02-16 @ 2:00 pm	< 0.3	2018-02-20

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February 28, 2018

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

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Radon test result report for:

**MCPS - Spike Sample Laboratory Results. Measured values are satisfactory, i.e. within  $\pm 25\%$  of the chamber's reference value (20.9 pCi/L).**

---

Kit #	Room Id	Started	Ended	pCi/L	Analyzed
7984181	1	2018-02-16 @ 11:00 am	2018-02-19 @ 11:00 am	$19.7 \pm 0.8$	2018-02-21
7986621	2	2018-02-16 @ 11:00 am	2018-02-19 @ 11:00 am	$19.4 \pm 0.8$	2018-02-21
7985683	3	2018-02-16 @ 11:00 am	2018-02-19 @ 11:00 am	$19.5 \pm 0.8$	2018-02-21
7984168	4	2018-02-16 @ 11:00 am	2018-02-19 @ 11:00 am	$20.5 \pm 0.8$	2018-02-21
7986618	5	2018-02-16 @ 11:00 am	2018-02-19 @ 11:00 am	$19.9 \pm 0.8$	2018-02-21
7984169	6	2018-02-16 @ 11:00 am	2018-02-19 @ 11:00 am	$20.4 \pm 0.8$	2018-02-21

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# EXPOSURE IN BOWSER-MORNER RADON CHAMBER

CLIENT KCI Technologies Inc. Job Number 183530

NOMINAL Conditions: Radon Conc 20.9 pCi/L Rel. Hum 49.8 % Temp. 79.1 F

Date Start: 2/16/18 Date Stop: 2/19/18 Date Start: \_\_\_\_\_ Date Stop: \_\_\_\_\_

Time Start: 1052 Time Stop: 1052 Time Start: \_\_\_\_\_ Time Stop: \_\_\_\_\_

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

7984181, 7986621, 7985683 \_\_\_\_\_

7984168, 7986618, 7984169 \_\_\_\_\_

G3 Middle \_\_\_\_\_

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

**MCPS RADON TESTING - EXECUTIVE SUMMARY**

Site Name	Bethesda Transportation and Maintenance Depot
Date of Report	January 31, 2018
Round of Testing	Initial Follow-up Post Remediation <b>2 year testing</b> 5 year testing HVAC Upgrade Window Replacement New Addition New Facility
# of Rooms Tested	16
# Rooms $\geq 4.0$ pCi/L	0
Lowest Value	< 0.3 pCi/L
Highest Value	1.8 pCi/L

Current Project Status at this time: Results satisfactory to date; missed locations to be sampled.



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

January 31, 2018

Mr. Richard Cox, MS  
Team Leader  
Montgomery County Public Schools  
Division of Maintenance  
Rockville, Maryland 20855

Re: Radon Testing Services

KCI Job #1214694182

**Location: Bethesda Transportation and Maintenance Depot**

10901 Westlake Drive  
Rockville, Maryland 20852

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 Bethesda Transportation and Maintenance Depot, located at 10901 Westlake Drive in Rockville, Maryland 20852 (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 November 28, 2017 and deployed twenty four 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.

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, Inc. prior to being returned to the laboratory for analysis.

KCI returned to the site on December 1, 2017 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 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:

- Post-mitigation biennial testing.

These tests were conducted to:

- Confirm the success of the mitigation system(s).

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 30s and high temperatures ranged from the low-50s to mid-60s. Maximum sustained winds ranged from 8-15 miles per hour. Average humidity was around 65%. 0.02 Inches of precipitation was recorded during the testing period.

A magnitude 4.1 earthquake was reported on Thursday, November 30 near Dover, Delaware approximately 95 miles east of Gaithersburg, Maryland. The earthquake occurred during or just after the radon testing period for this facility. In general, enhanced radon emissions have been observed prior to earthquakes and this has been recorded all over the world, according to the research article entitled *Radon-222: A Potential Short-Term Earthquake Precursor*, published June 30, 2015 in the Journal of Earth Science and Climate

Change. The nearby earthquake, which occurred during or prior to the testing period, may have resulted in higher-than-normal radon test results for this facility.

## **RESULTS**

The sampling locations, field observations, 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). Missing/compromised tests, missed rooms, and locked rooms 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 field blanks, 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,



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

**Attachments:**

B - Tables 1-3, Radon Test Summary Spreadsheets

C- Laboratory Analytical Results

## 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

Radon Testing Results		
Bethesda Transportation & Maintenance Depot		
Test Period: 11/28/17-12/01/17		
Kit Number	Room / Area	Result
7977562	AREA 1	0.6
7977586	COPY	0.6
7977596	GAS ROOM	1.8
7977587	GLASS OFFICE	0.7
7977590	GLASS SHOP	0.5
7977583	MAINTENANCE LUNCH ROOM 1	< 0.3
7977585	MAINTENANCE OFFICE 1	< 0.3
7977582	MAINTENANCE OFFICE 2	0.5
7977581	MAINTENANCE OFFICE 3	0.5
7977572	MST OFFICE	0.7
7977599	PARTS ROOM	0.6
7977598	REPAIR SHOP BAY	1.0
7977597	REPAIR SHOP BAY	0.7
7977561	SHOP	0.5
7977589	TRANSPORTATION LUNCH ROOM	< 0.3
7977600	TRANSPORTATION OFFICE 1	< 0.3
7977592	TRANSPORTATION OFFICE 2	< 0.3

Table Note:

\* Missing or Compromised Sample

Radon Testing Results		
Bethesda Transportation & Maintenance Depot		
Test Period: 11/28/17-12/01/17		
Kit Number	QC Type	Result
7977584	D (MAINTENANCE LUNCH ROOM 1)	< 0.3
7977571	D (SHOP)	0.7
7977574	D (TRANSPORTATION LUNCH ROOM)	0.7
7977573	* FB (MST OFFICE:Tampered)	< 0.3
7977593	FB (PARTS ROOM)	< 0.3
7978583	OB (OFFICE BLANK)	< 0.3
7977595	OB (OFFICE BLANK)	< 0.3

Table Note:

\* Missing or Compromised Sample

Summary of Missed Locations		
Bethesda Transportation and Maintenance Depot		
Test Period: 11/28/17-12/02/17		
Kit Number	Room / Area	Result
-	COPY ROOM (Missed location)	-
-	OFFICE 3 (Missed location)	-
-	GLASS OFFICE (Missed location)	-
-	GLASS SHOP (Missed location)	-
-	AREA 1 (Missed location)	-

[illegible]

Table Note:

# ATTACHMENT C

## Laboratory Analytical Results

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December 19, 2017

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

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Radon test result report for:

**BETHESDA TRANSPORTATION DEPOT**  
**BETHESDA TRANSPORTATION DEPOT**

---

Kit #	Room Id	Started	Ended	pCi/L	Analyzed
7977595	OB	2017-11-28 @ 3:00 pm	2017-12-01 @ 3:00 pm	< 0.3	2017-12-04

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December 19, 2017

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

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Radon test result report for:

**BETHESDA TRANSPORTATION DEPOT**  
**BETHESDA TRANSPORTATION DEPOT**

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Kit #	Room Id	Started	Ended	pCi/L	Analyzed
7977596	GAS ROOM	2017-11-28 @ 4:00 pm	2017-12-01 @ 12:00 pm	1.8 ± 0.3	2017-12-04
7977574	LUNCH ROOM	2017-11-28 @ 3:00 pm	2017-12-01 @ 11:00 am	0.7 ± 0.3	2017-12-04
7977589	LUNCH ROOM	2017-11-28 @ 3:00 pm	2017-12-01 @ 11:00 am	< 0.3	2017-12-04
7977600	OFFICE 1	2017-11-28 @ 3:00 pm	2017-12-01 @ 11:00 am	< 0.3	2017-12-04
7977592	OFFICE 2	2017-11-28 @ 3:00 pm	2017-12-01 @ 11:00 am	< 0.3	2017-12-04
7977593	PARTS ROOM	2017-11-28 @ 3:00 pm	2017-12-01 @ 11:00 am	< 0.3	2017-12-04
7977599	PARTS ROOM	2017-11-28 @ 3:00 pm	2017-12-01 @ 11:00 am	0.6 ± 0.3	2017-12-04
7977597	REPAIR SHOP BAY	2017-11-28 @ 4:00 pm	2017-12-01 @ 12:00 pm	0.7 ± 0.2	2017-12-04
7977598	REPAIR SHOP BAY	2017-11-28 @ 3:00 pm	2017-12-01 @ 12:00 pm	1.0 ± 0.3	2017-12-04

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December 19, 2017

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

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Radon test result report for:

**BETHESDA MAINTENANCE DEPOT**  
**BETHESDA MAINTENANCE DEPOT**

---

Kit #	Room Id	Started	Ended	pCi/L	Analyzed
7978583	OB	2017-11-28 @ 3:00 pm	2017-12-01 @ 3:00 pm	< 0.3	2017-12-04

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December 19, 2017

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

Radon test result report for:

**BETHESDA MAINTENANCE DEPOT**  
**BETHESDA MAINTENANCE DEPOT**

Kit #	Room Id	Started	Ended	pCi/L	Analyzed
7977562	AREA 1	2017-11-28 @ 2:00 pm	2017-12-01 @ 11:00 am	0.6 ± 0.3	2017-12-04
7977586	COPY	2017-11-28 @ 2:00 pm	2017-12-01 @ 11:00 am	0.6 ± 0.3	2017-12-04
7977587	GLASS OFFICE	2017-11-28 @ 2:00 pm	2017-12-01 @ 11:00 am	0.7 ± 0.3	2017-12-04
7977590	GLASS SHOP	2017-11-28 @ 2:00 pm	2017-12-01 @ 11:00 am	0.5 ± 0.3	2017-12-04
7977583	LUNCH ROOM 1	2017-11-28 @ 2:00 pm	2017-12-01 @ 10:00 am	< 0.3	2017-12-05
7977584	LUNCH ROOM 2	2017-11-28 @ 2:00 pm	2017-12-01 @ 10:00 am	< 0.3	2017-12-05
7977573	MST OFFICE	2017-11-28 @ 3:00 pm	2017-12-01 @ 11:00 am	< 0.3	2017-12-04
7977572	MST OFFICE	2017-11-28 @ 3:00 pm	2017-12-01 @ 11:00 am	0.7 ± 0.3	2017-12-05
7977585	OFFICE 1	2017-11-28 @ 3:00 pm	2017-12-01 @ 11:00 am	< 0.3	2017-12-05
7977582	OFFICE 2	2017-11-28 @ 3:00 pm	2017-12-01 @ 11:00 am	0.5 ± 0.3	2017-12-05
7977581	OFFICE 3	2017-11-28 @ 3:00 pm	2017-12-01 @ 11:00 am	0.5 ± 0.3	2017-12-05
7977561	SHOP	2017-11-28 @ 2:00 pm	2017-12-01 @ 11:00 am	0.5 ± 0.3	2017-12-04
7977571	SHOP	2017-11-28 @ 2:00 pm	2017-12-01 @ 11:00 am	0.7 ± 0.3	2017-12-05

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## Radon Test Kit Chain of Custody

Project Name: MCPS Radon Phase

Names of Schools:

- |                                    |                                   |
|------------------------------------|-----------------------------------|
| 1. Chevy Chase Elementary School   | 15. Viers Mill Elementary School  |
| 2. Greencastle Elementary School   | 16. Albert Einstein High School   |
| 3. English Manor                   | 17. Wayside Elementary School     |
| 4. Rock View Elementary School     | 18. Thomas S. Wootton High School |
| 5. Wheaton Woods Elementary School | 19. Highland Elementary School    |
| 6. Sequoyah Elementary School      | 20. Bethesda Transportation Depot |
| 7. Fallsmead Elementary School     | 21. Bethesda Maintenance Depot    |
| 8. Beall Elementary School         | 22. Travilah Elementary School    |
| 9. Stephen Knolls School           | 23. Lathrop E. Smith Center       |
| 10. Maryvale Elementary School     |                                   |
| 11. Redland Middle School          |                                   |
| 12. Walt Whitman High School       |                                   |
| 13. Springbrook High School        |                                   |
| 14. Blair G. Ewing Center          |                                   |

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	Date	Initials
Radon Test Kits Deployed	11/28/17	JM
Radon Test Kits Collected	12/01/17	JM
Radon Test Kits Shipped to Lab*	12/01/17	JM
Radon Test Kits Received by Lab*	12/05/17	JM

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

Radon test result report for:**TRANSIT 1****NONE**

Kit #	Room Id	Started	Ended	pCi/L	Analyzed
7978062	TRANSIT 1	2017-11-27 @ 4:00 pm	2017-11-30 @ 4:00 pm	< 0.3	2017-12-04
7975804	TRANSIT 10	2017-11-27 @ 4:00 pm	2017-11-30 @ 4:00 pm	< 0.3	2017-12-04
7977990	TRANSIT 11	2017-11-27 @ 4:00 pm	2017-11-30 @ 4:00 pm	< 0.3	2017-12-04
7978201	TRANSIT 12	2017-11-27 @ 4:00 pm	2017-11-30 @ 4:00 pm	< 0.3	2017-12-04
7978203	TRANSIT 13	2017-11-27 @ 4:00 pm	2017-11-30 @ 4:00 pm	< 0.3	2017-12-04
7978206	TRANSIT 14	2017-11-27 @ 4:00 pm	2017-11-30 @ 4:00 pm	< 0.3	2017-12-05
7978246	TRANSIT 15	2017-11-27 @ 4:00 pm	2017-11-30 @ 4:00 pm	< 0.3	2017-12-05
7978239	TRANSIT 16	2017-11-27 @ 4:00 pm	2017-11-30 @ 4:00 pm	< 0.3	2017-12-05
7978226	TRANSIT 17	2017-11-27 @ 4:00 pm	2017-11-30 @ 4:00 pm	< 0.3	2017-12-05
7975078	TRANSIT 18	2017-11-27 @ 4:00 pm	2017-11-30 @ 4:00 pm	< 0.3	2017-12-05
7975077	TRANSIT 19	2017-11-27 @ 4:00 pm	2017-11-30 @ 4:00 pm	< 0.3	2017-12-05
7978074	TRANSIT 2	2017-11-27 @ 4:00 pm	2017-11-30 @ 4:00 pm	< 0.3	2017-12-04
7975076	TRANSIT 20	2017-11-27 @ 4:00 pm	2017-11-30 @ 4:00 pm	< 0.3	2017-12-04
7975684	TRANSIT 21	2017-11-27 @ 4:00 pm	2017-11-30 @ 4:00 pm	< 0.3	2017-12-04
7975683	TRANSIT 22	2017-11-27 @ 4:00 pm	2017-11-30 @ 4:00 pm	< 0.3	2017-12-04
7975601	TRANSIT 23	2017-11-27 @ 4:00 pm	2017-11-30 @ 4:00 pm	< 0.3	2017-12-04
7978011	TRANSIT 24	2017-11-27 @ 4:00 pm	2017-11-30 @ 4:00 pm	< 0.3	2017-12-04
7978012	TRANSIT 25	2017-11-27 @ 4:00 pm	2017-11-30 @ 4:00 pm	< 0.3	2017-12-04
7978094	TRANSIT 26	2017-11-27 @ 4:00 pm	2017-11-30 @ 4:00 pm	< 0.3	2017-12-05
7975624	TRANSIT 27	2017-11-27 @ 4:00 pm	2017-11-30 @ 4:00 pm	< 0.3	2017-12-05
7834562	TRANSIT 28	2017-11-27 @ 4:00 pm	2017-11-30 @ 4:00 pm	< 0.3	2017-12-05
7977995	TRANSIT 29	2017-11-27 @ 4:00 pm	2017-11-30 @ 4:00 pm	< 0.3	2017-12-05
7978098	TRANSIT 3	2017-11-27 @ 4:00 pm	2017-11-30 @ 4:00 pm	< 0.3	2017-12-04
7977992	TRANSIT 30	2017-11-27 @ 4:00 pm	2017-11-30 @ 4:00 pm	< 0.3	2017-12-04
7978719	TRANSIT 4	2017-11-27 @ 4:00 pm	2017-11-30 @ 4:00 pm	< 0.3	2017-12-05
7978732	TRANSIT 5	2017-11-27 @ 4:00 pm	2017-11-30 @ 4:00 pm	< 0.3	2017-12-04
7978731	TRANSIT 6	2017-11-27 @ 4:00 pm	2017-11-30 @ 4:00 pm	< 0.3	2017-12-04
7975806	TRANSIT 7	2017-11-27 @ 4:00 pm	2017-11-30 @ 4:00 pm	< 0.3	2017-12-04
7975815	TRANSIT 8	2017-11-27 @ 4:00 pm	2017-11-30 @ 4:00 pm	< 0.3	2017-12-04
7975805	TRANSIT 9	2017-11-27 @ 4:00 pm	2017-11-30 @ 4:00 pm	< 0.3	2017-12-04

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December 19, 2017

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

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Radon test result report for:

**MCPS - Spike Sample Laboratory Results. Measured values are satisfactory, i.e. within  $\pm 25\%$  of the chamber's reference value (27.7 pCi/L).**

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Kit #	Room Id	Started	Ended	pCi/L	Analyzed
7975075	S1	2017-12-01 @ 11:00 am	2017-12-04 @ 11:00 am	25.6 $\pm$ 0.7	2017-12-07
7975064	S2	2017-12-01 @ 11:00 am	2017-12-04 @ 11:00 am	27.4 $\pm$ 0.8	2017-12-07
7975063	S3	2017-12-01 @ 11:00 am	2017-12-04 @ 11:00 am	26.3 $\pm$ 0.7	2017-12-07
7975065	S4	2017-12-01 @ 11:00 am	2017-12-04 @ 11:00 am	23.0 $\pm$ 0.7	2017-12-07
7975069	S5	2017-12-01 @ 11:00 am	2017-12-04 @ 11:00 am	25.6 $\pm$ 0.7	2017-12-07
7975070	S6	2017-12-01 @ 11:00 am	2017-12-04 @ 11:00 am	23.0 $\pm$ 0.7	2017-12-07

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Air Chek, Inc. 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 182393

NOMINAL Conditions: Radon Conc 27.7 pCi/L Rel. Hum 49.1 % Temp. 70.1 F

Date Start: 12/1/17 Date Stop: 12/4/17 Date Start: \_\_\_\_\_ Date Stop: \_\_\_\_\_

Time Start: 1049 Time Stop: 1049 Time Start: \_\_\_\_\_ Time Stop: \_\_\_\_\_

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

7975075, 7975064, 7975063, \_\_\_\_\_

7975065, 7975069, 7975070 \_\_\_\_\_

F4 Right

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



## MCPS RADON TESTING

### Executive Summary: Bethesda Transportation Depot

Date of Test Report:	10/18/2016
Round of Testing:	Initial Follow-up Post Remediation
# Rooms Tested:	6
# Rooms $\geq$ 4.0 pCi/L:	0
Low Value:	< 0.3
High Value:	1.2

### Project Status:

Post remediation testing completed; no further action at this time.



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

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: Bethesda Transportation Depot  
10901 Westlake Drive Rockville  
Rockville, MD 20852

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 Bethesda Transportation Depot, located at 10901 Westlake Drive in Rockville, Maryland 20852 (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 nine (9) 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:

- Post-mitigation testing for radon mitigation systems installed recently

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

- Confirm the success of the mitigation system(s)

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 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. 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

Radon Testing Results		
Bethesda Transportation		
Test Period: 09/26/16-09/29/16		
Kit Number	Room / Area	Result
7801942	GAS ROOM	1.2
7801930	LUNCHROOM	0.6
7801943	OFFICE 1	< 0.3
7801931	OFFICE 2	< 0.3
7801933	PARTS ROOM	< 0.3
7801940	SHOP	< 0.3
7801941	SHOP	< 0.3

Table Note:

\* Missing or Compromised Sample

Radon Testing Results		
Bethesda Transportation		
Test Period: 09/26/16-09/29/16		
Kit Number	QC Type	Result
7801937	D (OFFICE 1)	0.5
7801932	FB (OFFICE 1)	< 0.3

Table Note:

\* Missing or Compromised Sample

## ATTACHMENT C

### Laboratory Analytical Results

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October 7, 2016

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

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Radon test result report for:

**BETHESDA TRANSPORTATION  
MAIN**

---

Kit #	Room Id	Started	Ended	pCi/L	Analyzed
7801942	GAS ROOM	2016-09-26 @ 2:00 pm	2016-09-29 @ 12:00 pm	1.2 ± 0.3	2016-10-03
7801930	LUNCHROOM	2016-09-26 @ 1:00 pm	2016-09-29 @ 12:00 pm	0.6 ± 0.3	2016-10-03
7801932	OFFICE 1	2016-09-26 @ 2:00 pm	2016-09-29 @ 12:00 pm	< 0.3	2016-10-03
7801943	OFFICE 1	2016-09-26 @ 2:00 pm	2016-09-29 @ 12:00 pm	< 0.3	2016-10-03
7801937	OFFICE 1	2016-09-26 @ 2:00 pm	2016-09-29 @ 12:00 pm	0.5 ± 0.3	2016-10-03
7801931	OFFICE 2	2016-09-26 @ 2:00 pm	2016-09-29 @ 12:00 pm	< 0.3	2016-10-03
7801933	PARTS ROOM	2016-09-26 @ 2:00 pm	2016-09-29 @ 12:00 pm	< 0.3	2016-10-03
7801940	SHOP	2016-09-26 @ 2:00 pm	2016-09-29 @ 12:00 pm	< 0.3	2016-10-03
7801941	SHOP	2016-09-26 @ 2:00 pm	2016-09-29 @ 12:00 pm	< 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

October 7, 2016

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

Radon test result report for:

**MCPS Radon**

**Phase 18 Office Blanks**

<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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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          |

---

	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



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

## 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 |                                   |

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	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 BETHESDA TRANSPORTATION DEPOT

10901 Westlake Drive, Rockville, Maryland 20852

## EXECUTIVE SUMMARY

Date of Test Report:	4/11/16 Follow-Up
Round of Testing:	Initial Follow-up Post Remediation
# Rooms Tested	5
# Rooms $\geq$ 4.0 pCi/L:	0
Low Value:	1.0
High Value:	3.1
Confirmed Rooms $\geq$ 4.0 pCi/L US EPA Action Level	1

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

[illegible]



## MCPS RADON TESTING

### Executive Summary: Bethesda Transportation Depot

Date of Test Report:	4/11/2016
Round of Testing:	Initial Follow-up Post Remediation
# Rooms Tested:	5
# Rooms $\geq$ 4.0 pCi/L:	0
Low Value:	1.0
High Value:	3.1

### Project Status:

Retesting completed; no further action at this time.



April 11, 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 # 12146341.32

Location: Bethesda Transportation Depot  
10901 Westlake Drive  
Rockville, Maryland 20852

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 Bethesda Transportation Depot located at 10901 Westlake Drive in Rockville, Maryland 20852 (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 14, 2016 and deployed six (6) 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 TCS Industries Inc. as spike samples. The spiked tests were exposed to a known radon concentration by TCS prior to being returned to the laboratory for analysis.

KCI returned to the site on March 17, 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

Zion 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>
$\geq 4.0\text{ pCi/L}$	None	NA
$< 4.0\text{ pCi/L}$	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 (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

**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 12 testing. Office blanks were not submitted under each school individually.

Radon Testing Results		
Bethesda Transportation Depot		
Test Period: 03/14/16-03/17/16		
Kit Number	Room / Area	Result
3029036	Lunch Room	2.7
3029048	Office 1	1.2
3029040	Office 2	1.7
3029039	Parts Room	3.1
3029032	Repair Shop Bay	1.7

Table Note:

\* Missing or Compromised Sample

Radon Testing Results		
Bethesda Transportation Depot		
Test Period: 03/14/16-03/17/16		
Kit Number	QC Type	Result
3029035	D (Repair Shop Bay)	1.0

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

Bethesda Transportation Depot  
10901 Westlake Drive  
Rockville MD 20852

Log Number	Device Number	Test Exposure Duration:		Area Tested	Result (pCi/L)
3017488	3029036	03/14/2016 1:47 pm	03/17/2016 9:18 am	Lunch Room First Floor	2.7
3017489	3029039	03/14/2016 1:45 pm	03/17/2016 9:16 am	Parts Room First Floor	3.1
3017490	3029048	03/14/2016 1:41 pm	03/17/2016 9:13 am	Office 1 First Floor	1.2
3017491	3029040	03/14/2016 1:42 pm	03/17/2016 9:15 am	Office 2 First Floor	1.7
3017492	3029032	03/14/2016 1:56 pm	03/17/2016 9:19 am	Repair Shop Bay First Floor	1.7
3017493	3029035	03/14/2016 1:57 pm	03/17/2016 9:20 am	Repair Shop Bay First Floor	1.0

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

Distributed by: KCI Technologies, Inc.

Date Received: 03/21/2016    Date Logged: 03/21/2016    Date Analyzed: 03/22/2016    Date Reported: 03/22/2016

Report Reviewed By: Carolyn D. Koke

Report Approved By: Carolyn D. Koke

**Disclaimer:**

Carolyn D. Koke, President, AccuStar Labs

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	21152
Report Country	Baltimore County	
Email Address	tehsin@kci.com	

**Site Tested:**

Site Name	Bethesda Transportation Dept.		
Address	10901 Westlake Dr.		
Address			
City / Town	Rockville		
State/Province	Postal Code	MD	
Test Country	Montgomery County		
Project Number	12146341		

**Contact Information:**

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

[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 12 Office Blank

Log Number	Device Number	Test Exposure Duration:	Area Tested	Result (pCi/L)
3017546	3029151	03/14/2016 9:30 am 03/17/2016 9:30 am	Unit # 0 Office First Floor	<0.4

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

Distributed by: KCI Technologies, Inc.

Date Received: 03/21/2016 Date Logged: 03/21/2016 Date Analyzed: 03/21/2016 Date Reported: 03/22/2016

Report Reviewed By: Grace Heubling

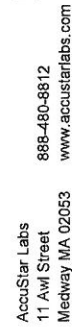
Report Approved By: Carolyn D. Koke

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Carolyn D. Koke, President, AccuStar Labs

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AccuStar Labs  
11 Awl Street  
Medway MA 02053  
888-480-8812  
[www.accustarlabs.com](http://www.accustarlabs.com)

**Contact Information:**

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

1 of 1

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 12 Office Blank

Log Number	Device Number	Test Exposure Duration:	Area Tested	Result (pCi/L)
3017545	3029152	03/15/2016 9:30 am 03/18/2016 9:30 am	Unit # 0 Office First Floor	<0.4

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

Distributed by: KCI Technologies, Inc.

Date Received: 03/21/2016 Date Logged: 03/21/2016 Date Analyzed: 03/21/2016 Date Reported: 03/22/2016

Report Reviewed By: Grace Heubling

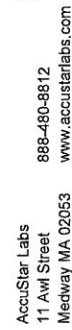
Report Approved By: Carolyn D. Koke

**Disclaimer:**

Carolyn D. Koke, President, AccuStar Labs

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AccuStar Labs  
11 Ayl Street  
Medway MA 02053  
888-480-8812  
[www.accustarlabs.com](http://www.accustarlabs.com)

**Contact Information:**

Technician	
Cert. Number	
Signature	

1 of 1

NRPP 10511AL  
NRSB ARL0007

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

Laboratory Report for:

KCI Technologies  
936 Ridgebrook Rd  
Sparks MD 21152

Property Tested:

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:**

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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# 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

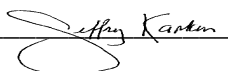
Log Number	Device Number	Test Exposure Duration:		Area Tested	Result (pCi/L)
3020102	3029166	04/04/2016 11:10 am	04/06/2016 11:13 am	Not Indicated	11.9
3020103	3029214	04/04/2016 11:10 am	04/06/2016 11:13 am	Not Indicated	11.5
3020104	3029217	04/04/2016 11:10 am	04/06/2016 11:13 am	Not Indicated	10.7
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

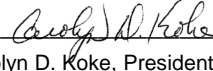
**Comment:** A copy of this report was emailed to james.moulsdale@kci.com.

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.

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## 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	MD 21152
Report Country	Baltimore County
Email Address	tehsin@kci.com

### Site Tested:

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

### Contact Information:

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

Lab Use Only	Device Number	Building Number	Unit Number	Floor	Name of Room	Temp	Start Date mm/dd/yyyy	Start Time hh:mm am / pm	Stop Date mm/dd/yyyy	Stop Time hh:mm am / pm	Lab Use Only
	3029166	1		1	1		4/4/16	11:10am	4/6/16	11:15am	
	3029214	1		1	2						
	3029217	1		1	3						
	3029218	1		1	4						
	3029219	1		1	5						
	3029220	1		1	6						



## MCPS RADON TESTING

### Executive Summary: Bethesda Transportation Depot

Date of Test Report:	2/24/2016
Round of Testing:	Initial Follow-up Post Remediation
# Rooms Tested:	6
# Rooms $\geq$ 4.0 pCi/L:	4
Low Value:	2.4
High Value:	5.3

Rooms with results  $\geq$  4.0 pCi/L:

Lunchroom (5.3 pCi/L), Parts Room (4.7 pCi/L), Office 2 (4.3 pCi/L), Office 1 (4.1 pCi/L),

Project Status:

Initial testing completed; re-test needed for results  $\geq$  4.0 pCi/L.



ENGINEERS • PLANNERS • SCIENTISTS • CONSTRUCTION MANAGERS

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

February 24, 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 # 12146341.26

Location: Bethesda Transportation Depot  
10901 Westlake Drive Rockville  
Rockville, MD 20852

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 Bethesda Transportation Depot, located at 10901 Westlake Drive in Rockville, Maryland 20852 (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 February 1, 2016 and deployed ten (10) 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 February 4, 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  $\leq 65^{\circ}\text{F}$ .

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:

Radon Concentration	Room	Result
$\geq 4.0\text{ pCi/L}$	Lunchroom	4.6, 5.3(D)
	Parts Room	4.7
	Office 2	4.3
	Office 1	4.1
$< 4.0\text{ pCi/L}$	See Attachment B	

Notes:

D- Duplicate sample

The field blank, office blank, and lab transit blanks had test results of less than the laboratory detection limit of  $0.3\text{ pCi/L}$ . 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

**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		
Bethesda Trans Depot		
Test Period: 02/01/16-02/04/16		
Kit Number	Room / Area	Result
7727111	GAS ROOM	2.4
7722176	LUNCHROOM	4.6
7727105	OFFICE 1	4.1
7727103	OFFICE 2	4.3
7722184	PARTS ROOM	4.7
7727107	REPAIR SHOP BAY	3.4
7727106	REPAIR SHOP BAY	3.2

Table Note:

\* Missing or Compromised Sample

Radon Testing Results		
Bethesda Trans Depot		
Test Period: 02/01/16-02/04/16		
Kit Number	QC Type	Result
7727102	D (LUNCHROOM)	5.3
7727101	FB (PARTS ROOM)	< 0.3
7719162	OB (0)	< 0.3

Table Note:

\* Missing or Compromised Sample

## ATTACHMENT C

### Laboratory Analytical Results

---

February 23, 2016

**LABORATORY ANALYSIS  
REPORT \*\***

---

Radon test result report for:  
**BETHESDA TRANS DEPOT**  
**1**

---

Kit #	Room Id	Started	Ended	pCi/L	Analyzed
7719162		2016-02-01 @ 3:00 pm	2016-02-04 @ 12:00 pm	< 0.3	2016-02-08
7727111	GAS ROOM	2016-02-01 @ 10:00 am	2016-02-04 @ 9:00 am	2.4 ± 0.4	2016-02-08
7722176	LUNCHROOM	2016-02-01 @ 10:00 am	2016-02-04 @ 9:00 am	4.6 ± 0.6	2016-02-08
7727102	LUNCHROOM	2016-02-01 @ 10:00 am	2016-02-04 @ 9:00 am	5.3 ± 0.6	2016-02-08
7727105	OFFICE 1	2016-02-01 @ 10:00 am	2016-02-04 @ 9:00 am	4.1 ± 0.5	2016-02-08
7727103	OFFICE 2	2016-02-01 @ 10:00 am	2016-02-04 @ 9:00 am	4.3 ± 0.5	2016-02-08
7722184	PARTS ROOM	2016-02-01 @ 10:00 am	2016-02-04 @ 9:00 am	4.7 ± 0.6	2016-02-08
7727101	PARTS ROOM	2016-02-01 @ 10:00 am	2016-02-04 @ 9:00 am	< 0.3	2016-02-08
7727106	REPAIR SHOP BAY	2016-02-01 @ 10:00 am	2016-02-04 @ 9:00 am	3.2 ± 0.5	2016-02-08
7727107	REPAIR SHOP BAY	2016-02-01 @ 10:00 am	2016-02-04 @ 9:00 am	3.4 ± 0.5	2016-02-08

---

Radon test result report for:  
**TRANSIT- PHASE 7, 8, 9**  
**NONE**

Kit #	Room Id	Started	Ended	pCi/L	Analyzed
7734937	1	2016-02-19 @ 3:00 pm	2016-02-22 @ 11:00 am	< 0.3	2016-02-23
7734946	10	2016-02-19 @ 4:00 pm	2016-02-22 @ 11:00 am	< 0.3	2016-02-23
7734955	11	2016-02-19 @ 4:00 pm	2016-02-22 @ 11:00 am	< 0.3	2016-02-23
7734956	12	2016-02-19 @ 4:00 pm	2016-02-22 @ 11:00 am	< 0.3	2016-02-23
7734959	13	2016-02-19 @ 4:00 pm	2016-02-22 @ 11:00 am	< 0.3	2016-02-23
7734930	14	2016-02-19 @ 4:00 pm	2016-02-22 @ 11:00 am	< 0.3	2016-02-23
7734953	15	2016-02-19 @ 4:00 pm	2016-02-22 @ 11:00 am	< 0.3	2016-02-23
7734954	16	2016-02-19 @ 4:00 pm	2016-02-22 @ 11:00 am	< 0.3	2016-02-23
7734940	17	2016-02-19 @ 4:00 pm	2016-02-22 @ 11:00 am	< 0.3	2016-02-23
7734949	18	2016-02-19 @ 4:00 pm	2016-02-22 @ 11:00 am	< 0.3	2016-02-23
7734948	19	2016-02-19 @ 4:00 pm	2016-02-22 @ 11:00 am	< 0.3	2016-02-23
7734939	2	2016-02-19 @ 3:00 pm	2016-02-22 @ 11:00 am	< 0.3	2016-02-23
7734942	20	2016-02-19 @ 4:00 pm	2016-02-22 @ 11:00 am	< 0.3	2016-02-23
7734929	21	2016-02-19 @ 4:00 pm	2016-02-22 @ 11:00 am	< 0.3	2016-02-23
7734933	22	2016-02-19 @ 4:00 pm	2016-02-22 @ 11:00 am	< 0.3	2016-02-23
7734934	23	2016-02-19 @ 4:00 pm	2016-02-22 @ 11:00 am	< 0.3	2016-02-23
7734936	24	2016-02-19 @ 4:00 pm	2016-02-22 @ 11:00 am	< 0.3	2016-02-23
7734943	25	2016-02-19 @ 4:00 pm	2016-02-22 @ 11:00 am	< 0.3	2016-02-23
7734944	26	2016-02-19 @ 4:00 pm	2016-02-22 @ 11:00 am	< 0.3	2016-02-23
7734935	27	2016-02-19 @ 4:00 pm	2016-02-22 @ 11:00 am	< 0.3	2016-02-23
7734928	28	2016-02-19 @ 4:00 pm	2016-02-22 @ 11:00 am	< 0.3	2016-02-23
7734952	29	2016-02-19 @ 4:00 pm	2016-02-22 @ 11:00 am	< 0.3	2016-02-23
7734947	3	2016-02-19 @ 3:00 pm	2016-02-22 @ 11:00 am	< 0.3	2016-02-23
7734931	30	2016-02-19 @ 4:00 pm	2016-02-22 @ 11:00 am	< 0.3	2016-02-23
7734932	31	2016-02-19 @ 4:00 pm	2016-02-22 @ 11:00 am	< 0.3	2016-02-23
7718520	32	2016-02-19 @ 4:00 pm	2016-02-22 @ 11:00 am	< 0.3	2016-02-23
7718523	33	2016-02-19 @ 4:00 pm	2016-02-22 @ 11:00 am	< 0.3	2016-02-23
7718522	34	2016-02-19 @ 4:00 pm	2016-02-22 @ 11:00 am	< 0.3	2016-02-23
7718521	35	2016-02-19 @ 4:00 pm	2016-02-22 @ 11:00 am	< 0.3	2016-02-23
7734945	4	2016-02-19 @ 3:00 pm	2016-02-22 @ 11:00 am	< 0.3	2016-02-23
7734960	5	2016-02-19 @ 4:00 pm	2016-02-22 @ 11:00 am	< 0.3	2016-02-23
7734958	6	2016-02-19 @ 4:00 pm	2016-02-22 @ 11:00 am	< 0.3	2016-02-23
7734951	7	2016-02-19 @ 4:00 pm	2016-02-22 @ 11:00 am	< 0.3	2016-02-23
7734957	8	2016-02-19 @ 4:00 pm	2016-02-22 @ 11:00 am	< 0.3	2016-02-23
7734938	9	2016-02-19 @ 4:00 pm	2016-02-22 @ 11:00 am	< 0.3	2016-02-23

February  
15,  
2016

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

Spike Sample Laboratory Results

Radon test result report for:  
**MCPS**

Kit #	Room Id	Started	Ended	pCi/L	Analyzed
7718273	101A	2016-01-30 @ 9:00 am	2016-02-01 @ 9:00 am	6.5 ± 0.6	2016-02-04
7718281	102B	2016-01-30 @ 9:00 am	2016-02-01 @ 9:00 am	6.4 ± 0.6	2016-02-04
7718282	103C	2016-01-30 @ 9:00 am	2016-02-01 @ 9:00 am	6.3 ± 0.6	2016-02-04
7718288	104D	2016-01-30 @ 9:00 am	2016-02-01 @ 9:00 am	6.7 ± 0.6	2016-02-04
7718289	105E	2016-01-30 @ 9:00 am	2016-02-01 @ 9:00 am	6.6 ± 0.6	2016-02-04
7718291	106F	2016-01-30 @ 9:00 am	2016-02-01 @ 9:00 am	6.5 ± 0.6	2016-02-04

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 KCF Technologies Inc. Job Number 173704

NOMINAL Conditions: Radon Conc 5.9 pCi/L Rel. Hum 45.9 % Temp. 79.0 F

Date Start: 11/30/16 Date Stop: 2/1/16

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

Time Start: 0926 Time Stop: 0926

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

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

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

7718281, 7718282, 7718291,

7718288, 7718289, 7718273

3 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 7 (2-1-2016)

Name of School/Facility:

- |                            |                             |                            |
|----------------------------|-----------------------------|----------------------------|
| 1. Wyngate E.S.            | 10. Bethesda Depot          | 18. Stone Mill E.S.        |
| 2. Seven Locks E.S.        | 11. Bethesda Trans Depot    | 19. Strawberry Knoll E.S.  |
| 3. Takoma Park M.S.        | 12. Sligo M.S.              | 20. Shady Grove M.S.       |
| 4. Somerset E.S.           | 13. Stonegate E.S.          | 21. Washington Grove E.S.  |
| 5. Silver Spring Int. M.S. | 14. Randolph Transportation | 22. Sherwood E.S.          |
| 6. Sligo Creek E.S.        | 15. Earl B. Wood M.S.       | 23. Woodfield E.S.         |
| 7. Tilden M.S.             | 16. Sargent Shriver E.S.    | 24. Taylor Learning Center |
| 8. Tilden Center           | 17. Thomas Wooten H.S.      | 25. Kingsley Wilderness    |
| 9. Bethesda Annex          |                             |                            |

---

	Date	Initials
Radon Test Kits Deployed	2/1/16	JM
Radon Test Kits Collected	2/4/16	JM
Radon Test Kits Shipped to Lab*	2/4/16	JM
Radon Test Kits Received by Lab*	2/8/16	JM

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



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

## Radon Test Kit Chain of Custody

Project Name: MCPS Radon Phase 7 (2-2-2016)

Name of School/Facility:

- |                                |                                |
|--------------------------------|--------------------------------|
| 1. Concord Center              | 8. Food & Nutritional Services |
| 2. Lynnbrook Center            | 9. Fairland Center             |
| 3. Carver (CESC)               | 10. Redland M.S. (retest)      |
| 4. Spring Mill (area 1 Office) | 11. Clarksburg Trans Depot     |
| 5. Wheaton H.S                 | 12. Clarksburg Main Depot      |
| 6. Montrose Center             | 13. Clarksburg E.S.            |
| 7. West Farm Trans Depot       |                                |

---

	Date	Initials
Radon Test Kits Deployed	2/2/16	JM
Radon Test Kits Collected	2/5/16	JM
Radon Test Kits Shipped to Lab*	2/5/16	JM
Radon Test Kits Received by Lab*	2/9/16	JM

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



## MCPS RADON TESTING

### Executive Summary: Bethesda Maintenance Depot

Date of Test Report:	10/18/2016
Round of Testing:	Initial Follow-up Post Remediation
# Rooms Tested:	10
# Rooms $\geq$ 4.0 pCi/L:	0
Low Value:	< 0.3
High Value:	0.6

### Project Status:

Post remediation testing completed; no further action at this time.



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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: Bethesda Maintenance Depot  
10901 Westlake Drive  
Rockville, Maryland 20852

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 Bethesda Maintenance Depot, located at 10901 Westlake Drive in Rockville, Maryland 20852 (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 thirteen (13) 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:

- Post-mitigation testing for radon mitigation systems installed recently

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

- Confirm the success of the mitigation system(s)

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

Radon Testing Results		
Bethesda Maintenance		
Test Period: 09/26/16-09/29/16		
Kit Number	Room / Area	Result
7801928	AREA 1	0.6
7801923	COPY	0.6
7801936	GLASS OFFICE	< 0.3
7801925	GLASS SHOP	< 0.3
7801934	LUNCHROOM	< 0.3
7801935	LUNCHROOM	0.5
7801926	MST OFFICE	< 0.3
7801924	OFFICE 1	0.6
7801998	OFFICE 2	< 0.3
7801927	OFFICE 3	< 0.3
7801929	SHOP	< 0.3

Table Note:

\* Missing or Compromised Sample

Radon Testing Results		
Bethesda Maintenance		
Test Period: 09/26/16-09/29/16		
Kit Number	QC Type	Result
7801918	D (COPY)	< 0.3
7801920	FB (COPY)	< 0.3

Table Note:

\* Missing or Compromised Sample

## ATTACHMENT C

### Laboratory Analytical Results

October 7, 2016

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

Radon test result report for:

**BETHESDA MAINTENANCE  
MAIN**

Kit #	Room Id	Started	Ended	pCi/L	Analyzed
7801928	AREA 1	2016-09-26 @ 1:00 pm	2016-09-29 @ 11:00 am	0.6 ± 0.3	2016-10-03
7801920	COPY	2016-09-26 @ 1:00 pm	2016-09-29 @ 11:00 am	< 0.3	2016-10-03
7801923	COPY	2016-09-26 @ 1:00 pm	2016-09-29 @ 11:00 am	0.6 ± 0.3	2016-10-03
7801918	COPY	2016-09-26 @ 1:00 pm	2016-09-29 @ 11:00 am	< 0.3	2016-10-03
7801936	GLASS OFFICE	2016-09-26 @ 1:00 pm	2016-09-29 @ 11:00 am	< 0.3	2016-10-03
7801925	GLASS SHOP	2016-09-26 @ 1:00 pm	2016-09-29 @ 11:00 am	< 0.3	2016-10-03
7801934	LUNCHROOM	2016-09-26 @ 1:00 pm	2016-09-29 @ 11:00 am	< 0.3	2016-10-03
7801935	LUNCHROOM	2016-09-26 @ 1:00 pm	2016-09-29 @ 11:00 am	0.5 ± 0.3	2016-10-03
7801926	MST OFFICE	2016-09-26 @ 1:00 pm	2016-09-29 @ 11:00 am	< 0.3	2016-10-03
7801924	OFFICE 1	2016-09-26 @ 1:00 pm	2016-09-29 @ 11:00 am	0.6 ± 0.3	2016-10-03
7801998	OFFICE 2	2016-09-26 @ 1:00 pm	2016-09-29 @ 11:00 am	< 0.3	2016-10-03
7801927	OFFICE 3	2016-09-26 @ 1:00 pm	2016-09-29 @ 11:00 am	< 0.3	2016-10-03
7801929	SHOP	2016-09-26 @ 1:00 pm	2016-09-29 @ 11:00 am	< 0.3	2016-10-03

October 7, 2016

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

Radon test result report for:

**MCPS Radon**

**Phase 18 Office Blanks**

<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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October 7, 2016

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

Radon test result report for:

**MCPS Radon**

**Phase 18 Transit Blanks**

<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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October 12, 2016

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

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Radon test result report for:

**MCPS Radon**

**Spike Sample Results**

---

<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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**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          |

---

	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 |                                   |

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	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 BETHESDA MAINTENANCE DEPOT

10901 Westlake Drive, Rockville, Maryland 20852

## EXECUTIVE SUMMARY

Date of Test Report:	4/11/16 Follow-Up
Round of Testing:	Initial Follow-up Post Remediation
# Rooms Tested	10
# Rooms $\geq$ 4.0 pCi/L:	7
Low Value:	3.1
High Value:	5.4
Confirmed Rooms $\geq$ 4.0 pCi/L US EPA Action Level	10

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

[illegible]



## MCPS RADON TESTING

### Executive Summary: Bethesda Maintenance Depot

Date of Test Report:	4/11/2016
Round of Testing:	Initial Follow-up Post Remediation
# Rooms Tested:	10
# Rooms $\geq$ 4.0 pCi/L:	7
Low Value:	3.1
High Value:	5.4

#### Project Status:

Rooms with results  $\geq$  4.0 pCi/L:

Office 3 (5.4 pCi/L), Glass Shop (5.3 pCi/L), Copy Room (5.0 pCi/L), Office 2 (4.7 pCi/L),  
Lunch Room (4.6 pCi/L), Glass Office (4.3 pCi/L), and Area 1 (4.2 pCi/L).

#### Project Status:

Retesting completed; use the average of the initial and re-test results in a room to determine if  
remediation is necessary.



April 11, 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 # 12146341.32

Location: Bethesda Maintenance Depot  
10901 Westlake Drive  
Rockville, Maryland 20852

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 Bethesda Maintenance Depot, located at 10901 Westlake Drive in Rockville, Maryland 20852 (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 14, 2016 and deployed eleven (11) 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 TCS Industries Inc. as spike samples. The spiked tests were exposed to a known radon concentration by TCS prior to being returned to the laboratory for analysis.

KCI returned to the site on March 17, 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

Zion 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>	Office 3	5.4
	Glass Shop	5.3
	Copy Room	5.0
	Office 2	4.7
	Lunch Room	4.6
	Glass Office	4.3
	Area 1	4.2
<b><math>&lt; 4.0</math> 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. 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

**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 12 testing. Office blanks were not submitted under each school individually.

Radon Testing Results		
Bethesda Maintenance Depot		
Test Period: 03/14/16-03/17/16		
Kit Number	Room / Area	Result
3029031	Area 1	4.2
3029009	Copy Room	5.0
3029047	Glass Office	4.3
3029034	Glass Shop	5.3
3028801	Lunch Room	4.6
3029008	Mst Office	3.4
3029037	Office 1	3.1
3029042	Office 2	4.7
3029050	Office 3	5.4
3028802	Shop	3.3

Table Note:

\* Missing or Compromised Sample

Radon Testing Results		
Bethesda Maintenance Depot		
Test Period: 03/14/16-03/17/16		
Kit Number	QC Type	Result
3029049	D (Area 1)	3.8

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

Bethesda Maintenance Depot  
10901 Westlake Drive  
Rockville MD 20852

Log Number	Device Number	Test Exposure Duration:		Area Tested	Result (pCi/L)
3017534	3029009	03/14/2016 2:19 pm	03/17/2016 9:23 am	Copy Room First Floor	5.0
3017535	3028801	03/14/2016 2:31 pm	03/17/2016 9:24 am	Lunch Room First Floor	4.6
3017536	3028802	03/14/2016 2:33 pm	03/17/2016 9:25 am	Shop First Floor	3.3
3017537	3029050	03/14/2016 2:23 pm	03/17/2016 9:32 am	Office 3 First Floor	5.4
3017538	3029042	03/14/2016 2:25 pm	03/17/2016 9:31 am	Office 2 First Floor	4.7
3017539	3029037	03/14/2016 2:27 pm	03/17/2016 9:29 am	Office 1 First Floor	3.1
3017540	3029047	03/14/2016 2:17 pm	03/17/2016 9:28 am	Glass Office First Floor	4.3
3017541	3029034	03/14/2016 2:16 pm	03/17/2016 9:27 am	Glass Shop First Floor	5.3
3017542	3029008	03/14/2016 2:36 pm	03/17/2016 9:33 am	Mst Office Second Floor	3.4
3017543	3029031	03/14/2016 2:29 pm	03/17/2016 9:35 am	Area 1 First Floor	4.2

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

Distributed by: KCI Technologies, Inc.

Date Received: 03/21/2016    Date Logged: 03/21/2016    Date Analyzed: 03/22/2016    Date Reported: 03/22/2016

Report Reviewed By: Carolyn D. Koke

Report Approved By: Carolyn D. Koke

**Disclaimer:**

Carolyn D. Koke, President, AccuStar Labs

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: Project # 12146341

KCI Technologies  
936 Ridgebrook Rd  
Sparks MD 21152

Bethesda Maintenance Depot  
10901 Westlake Drive  
Rockville MD 20852

Log Number	Device Number	Test Exposure Duration:	Area Tested	Result (pCi/L)
3017544	3029049	03/14/2016 2:29 pm 03/17/2016 9:36 am	Area 1 First Floor	3.8

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

Distributed by: KCI Technologies, Inc.

Date Received: 03/21/2016 Date Logged: 03/21/2016 Date Analyzed: 03/22/2016 Date Reported: 03/22/2016

Report Reviewed By: Carolyn D. Koke

Report Approved By: Carolyn D. Koke

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Carolyn D. Koke, President, AccuStar Labs

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# 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 MD 21152  
Report Country Baltimore County  
Email Address tehsin@kci.com

## Site Tested:

Site Name Bethesda Maintenance Depot  
Address 10901 Westlake Dr.  
Address   
City / Town Rockville  
State/Province Postal Code MD 20852  
Test Country Montgomery County  
Project Number 12146341

## Contact Information:

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

Lab Use Only	Device Number	Building Number	Unit Number	Floor	Name of Room	Temp	Start Date mm/dd/yyyy	Start Time hh:mm am / pm	Stop Date mm/dd/yyyy	Stop Time hh:mm am / pm	Lab Use Only
	9009	✓		1	Copy room	55°	3/14/16	14:19	3/17/16	09:23	
	8801	✓		1	Lunch room			14:31		09:24	
	8802	✓		1	Shop			14:33		09:25	
	9050	✓		1	Office 3			14:23		09:32	
	9042	✓		1	Office 2			14:25		09:31	
	9037	✓		1	Office 1			14:27		09:29	
	9047	✓		1	Glass Office			14:17		09:28	
	9034	✓		1	Glass Shop			14:16		09:27	
	9008	✓		2	MST Office			14:36		09:33	
	9031	✓		1	Area 1			14:29		09:35	
	9049	✓		1	Area 1	↓	↓	14:29	↓	09:36	

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 12 Office Blank

Log Number	Device Number	Test Exposure Duration:	Area Tested	Result (pCi/L)
3017546	3029151	03/14/2016 9:30 am 03/17/2016 9:30 am	Unit # 0 Office First Floor	<0.4

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

Distributed by: KCI Technologies, Inc.

Date Received: 03/21/2016 Date Logged: 03/21/2016 Date Analyzed: 03/21/2016 Date Reported: 03/22/2016

Report Reviewed By: Grace Heubling

Report Approved By: Carolyn D. Koke

**Disclaimer:**

Carolyn D. Koke, President, AccuStar Labs

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.

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### 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	MD 21152
Report Country	Baltimore County	
Email Address	tehsin@kci.com	

**Site Tested:**

Site Name	KCI OFFICE
Address	936 RIDGEBROOK RD
Address	
City / Town	SPARKS
State/Province	MD
Postal Code	21152
Test Country	Montgomery County
Project Number	12146341

**Contact Information:**

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

[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 12 Office Blank

Log Number	Device Number	Test Exposure Duration:	Area Tested	Result (pCi/L)
3017545	3029152	03/15/2016 9:30 am 03/18/2016 9:30 am	Unit # 0 Office First Floor	<0.4

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

Distributed by: KCI Technologies, Inc.

Date Received: 03/21/2016 Date Logged: 03/21/2016 Date Analyzed: 03/21/2016 Date Reported: 03/22/2016

Report Reviewed By: Grace Heubling

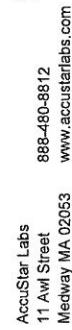
Report Approved By: Carolyn D. Koke

**Disclaimer:**

Carolyn D. Koke, President, AccuStar Labs

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AccuStar Labs  
11 Awl Street  
Medway MA 02053  
888-480-8812  
[www.accustarlabs.com](http://www.accustarlabs.com)

**Contact Information:**

Technician	
Cert. Number	
Signature	

1 of 1

NRPP 10511AL  
NRSB ARL0007

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

Laboratory Report for:

KCI Technologies  
936 Ridgebrook Rd  
Sparks MD 21152

Property Tested:

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.mouldsdales@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:**

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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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			
Detector Serial#	ROOM NAME & NUMBER - LOCATION OF DETECTOR IN ROOM (indicate duplicates and blanks)	Floor	Wgt. Gain
3028953	Transit	1	204
8955	Transit	1	204
8954	Transit	1	204
8997	Transit	1	204

Start Time Include AM/PM	Stop Time Include AM/PM	Start Date	Stop Date
9:30am	9:30am	1/19/16	1/22/16
		1/19/16	
		1/19/16	
		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

Attention: James Mouldale

Company Name: KCI Tech  
Address: 936 Ridgebrook  
City: Sparks State: MD Zip: 21152  
Phone: 410-599-3826  
EMAIL Results to: James.Mouldale@kci.com

Send Results To:

Company Name:

Address:

City:

Phone:

EMAIL Results to:

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 Mouldsdaie  
KCI  
936 Ridgebrook Rd.  
Sparks, MD 21152

April 04, 2016

Dear Mr. Mouldsdaie:

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

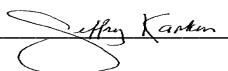
Log Number	Device Number	Test Exposure Duration:		Area Tested	Result (pCi/L)
3020102	3029166	04/04/2016 11:10 am	04/06/2016 11:13 am	Not Indicated	11.9
3020103	3029214	04/04/2016 11:10 am	04/06/2016 11:13 am	Not Indicated	11.5
3020104	3029217	04/04/2016 11:10 am	04/06/2016 11:13 am	Not Indicated	10.7
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

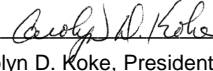
**Comment:** A copy of this report was emailed to james.mouldsdale@kci.com.

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:**

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## 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	MD 21152
Report Country	Baltimore County
Email Address	tehsin@kci.com

### Site Tested:

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

### Contact Information:

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

Lab Use Only	Device Number	Building Number	Unit Number	Floor	Name of Room	Temp	Start Date mm/dd/yyyy	Start Time hh:mm am / pm	Stop Date mm/dd/yyyy	Stop Time hh:mm am / pm	Lab Use Only
	3029166	1		1	1		4/4/16	11:10am	4/6/16	11:15am	
	3029214	1		1	2						
	3029217	1		1	3						
	3029218	1		1	4						
	3029219	1		1	5						
	3029220	1		1	6						



## MCPS RADON TESTING

### Executive Summary: Bethesda Maintenance Depot

Date of Test Report:	2/24/2016
Round of Testing:	Initial Follow-up Post Remediation
# Rooms Tested:	10
# Rooms $\geq$ 4.0 pCi/L:	10
Low Value:	4.9
High Value:	6.8

Rooms with results  $\geq$  4.0 pCi/L:

Copy Room (6.8 pCi/L), Lunchroom (6.7 pCi/L), Shop (6.5 pCi/L), Office 3 (6.4 pCi/L), Office 1 (6.3 pCi/L), Glass Office (6.2 pCi/L), Glass Shop (5.9 pCi/L), Office 2 (5.8 pCi/L), MST Office (5.1 pCi/L), Area 1 (4.9 pCi/L),

Project Status:

Initial testing completed; re-test needed for results  $\geq$  4.0 pCi/L.



ENGINEERS • PLANNERS • SCIENTISTS • CONSTRUCTION MANAGERS

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

February 24, 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 # 12146341.26

Location: Bethesda Maintenance Depot  
10901 Westlake Drive Rockville  
Rockville, MD 20852

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 Bethesda Maintenance Depot, located at 10901 Westlake Drive in Rockville, Maryland 20852 (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 February 1, 2016 and deployed fourteen (14) 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 February 4, 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  $\leq 65^{\circ}\text{F}$ .

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>	Copy	6.8
	Lunchroom	6.3, 6.7(D)
	Shop	5.5, 6.5(D)
	Office 3	6.4
	Office 1	6.3
	Glass Office	6.2
	Glass Shop	5.9
	Office 2	5.8
	MST Office	5.1
	Area 1	4.9
<b><math>&lt; 4.0</math> pCi/L</b>	See Attachment B	

Notes:

D- Duplicate sample

The field blank, 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. 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

Radon Testing Results		
Bethesda Maintenance Depot		
Test Period: 02/01/16-02/04/16		
Kit Number	Room / Area	Result
7722172	AREA 1	4.9
7722167	COPY	6.8
7722169	GLASS OFFICE	6.2
7722183	GLASS SHOP	5.9
7722182	LUNCHROOM	6.3
7722177	MST OFFICE	5.1
7722166	OFFICE 1	6.3
7722168	OFFICE 2	5.8
7722171	OFFICE 3	6.4
7722165	SHOP	5.5

Table Note:

\* Missing or Compromised Sample

Radon Testing Results		
Bethesda Maintenance Depot		
Test Period: 02/01/16-02/04/16		
Kit Number	QC Type	Result
7722185	D (LUNCHROOM)	6.7
7722178	D (SHOP)	6.5
7722173	FB (MST OFFICE)	< 0.3
7717384	OB (0)	< 0.3

Table Note:

\* Missing or Compromised Sample

## ATTACHMENT C

### Laboratory Analytical Results

February 23, 2016

**LABORATORY ANALYSIS  
REPORT \*\***

Radon test result report for:  
**BETHESDA MAINTENANCE DEPOT  
1**

Kit #	Room Id	Started	Ended	pCi/L	Analyzed
7717384		2016-02-01 @ 3:00 pm	2016-02-04 @ 12:00 pm	< 0.3	2016-02-08
7722172	AREA 1	2016-02-01 @ 9:00 am	2016-02-04 @ 8:00 am	4.9 ± 0.6	2016-02-08
7722167	COPY	2016-02-01 @ 9:00 am	2016-02-04 @ 8:00 am	6.8 ± 0.7	2016-02-08
7722169	GLASS OFFICE	2016-02-01 @ 9:00 am	2016-02-04 @ 8:00 am	6.2 ± 0.6	2016-02-08
7722183	GLASS SHOP	2016-02-01 @ 9:00 am	2016-02-04 @ 8:00 am	5.9 ± 0.6	2016-02-08
7722182	LUNCHROOM	2016-02-01 @ 9:00 am	2016-02-04 @ 8:00 am	6.3 ± 0.7	2016-02-08
7722185	LUNCHROOM	2016-02-01 @ 9:00 am	2016-02-04 @ 8:00 am	6.7 ± 0.7	2016-02-08
7722173	MST OFFICE	2016-02-01 @ 9:00 am	2016-02-04 @ 8:00 am	< 0.3	2016-02-08
7722177	MST OFFICE	2016-02-01 @ 9:00 am	2016-02-04 @ 8:00 am	5.1 ± 0.6	2016-02-08
7722166	OFFICE 1	2016-02-01 @ 9:00 am	2016-02-04 @ 8:00 am	6.3 ± 0.7	2016-02-08
7722168	OFFICE 2	2016-02-01 @ 9:00 am	2016-02-04 @ 8:00 am	5.8 ± 0.6	2016-02-08
7722171	OFFICE 3	2016-02-01 @ 9:00 am	2016-02-04 @ 8:00 am	6.4 ± 0.6	2016-02-08
7722178	SHOP	2016-02-01 @ 9:00 am	2016-02-04 @ 8:00 am	6.5 ± 0.7	2016-02-08
7722165	SHOP	2016-02-01 @ 9:00 am	2016-02-04 @ 8:00 am	5.5 ± 0.7	2016-02-09

Radon test result report for:  
**TRANSIT- PHASE 7, 8, 9**  
**NONE**

Kit #	Room Id	Started	Ended	pCi/L	Analyzed
7734937	1	2016-02-19 @ 3:00 pm	2016-02-22 @ 11:00 am	< 0.3	2016-02-23
7734946	10	2016-02-19 @ 4:00 pm	2016-02-22 @ 11:00 am	< 0.3	2016-02-23
7734955	11	2016-02-19 @ 4:00 pm	2016-02-22 @ 11:00 am	< 0.3	2016-02-23
7734956	12	2016-02-19 @ 4:00 pm	2016-02-22 @ 11:00 am	< 0.3	2016-02-23
7734959	13	2016-02-19 @ 4:00 pm	2016-02-22 @ 11:00 am	< 0.3	2016-02-23
7734930	14	2016-02-19 @ 4:00 pm	2016-02-22 @ 11:00 am	< 0.3	2016-02-23
7734953	15	2016-02-19 @ 4:00 pm	2016-02-22 @ 11:00 am	< 0.3	2016-02-23
7734954	16	2016-02-19 @ 4:00 pm	2016-02-22 @ 11:00 am	< 0.3	2016-02-23
7734940	17	2016-02-19 @ 4:00 pm	2016-02-22 @ 11:00 am	< 0.3	2016-02-23
7734949	18	2016-02-19 @ 4:00 pm	2016-02-22 @ 11:00 am	< 0.3	2016-02-23
7734948	19	2016-02-19 @ 4:00 pm	2016-02-22 @ 11:00 am	< 0.3	2016-02-23
7734939	2	2016-02-19 @ 3:00 pm	2016-02-22 @ 11:00 am	< 0.3	2016-02-23
7734942	20	2016-02-19 @ 4:00 pm	2016-02-22 @ 11:00 am	< 0.3	2016-02-23
7734929	21	2016-02-19 @ 4:00 pm	2016-02-22 @ 11:00 am	< 0.3	2016-02-23
7734933	22	2016-02-19 @ 4:00 pm	2016-02-22 @ 11:00 am	< 0.3	2016-02-23
7734934	23	2016-02-19 @ 4:00 pm	2016-02-22 @ 11:00 am	< 0.3	2016-02-23
7734936	24	2016-02-19 @ 4:00 pm	2016-02-22 @ 11:00 am	< 0.3	2016-02-23
7734943	25	2016-02-19 @ 4:00 pm	2016-02-22 @ 11:00 am	< 0.3	2016-02-23
7734944	26	2016-02-19 @ 4:00 pm	2016-02-22 @ 11:00 am	< 0.3	2016-02-23
7734935	27	2016-02-19 @ 4:00 pm	2016-02-22 @ 11:00 am	< 0.3	2016-02-23
7734928	28	2016-02-19 @ 4:00 pm	2016-02-22 @ 11:00 am	< 0.3	2016-02-23
7734952	29	2016-02-19 @ 4:00 pm	2016-02-22 @ 11:00 am	< 0.3	2016-02-23
7734947	3	2016-02-19 @ 3:00 pm	2016-02-22 @ 11:00 am	< 0.3	2016-02-23
7734931	30	2016-02-19 @ 4:00 pm	2016-02-22 @ 11:00 am	< 0.3	2016-02-23
7734932	31	2016-02-19 @ 4:00 pm	2016-02-22 @ 11:00 am	< 0.3	2016-02-23
7718520	32	2016-02-19 @ 4:00 pm	2016-02-22 @ 11:00 am	< 0.3	2016-02-23
7718523	33	2016-02-19 @ 4:00 pm	2016-02-22 @ 11:00 am	< 0.3	2016-02-23
7718522	34	2016-02-19 @ 4:00 pm	2016-02-22 @ 11:00 am	< 0.3	2016-02-23
7718521	35	2016-02-19 @ 4:00 pm	2016-02-22 @ 11:00 am	< 0.3	2016-02-23
7734945	4	2016-02-19 @ 3:00 pm	2016-02-22 @ 11:00 am	< 0.3	2016-02-23
7734960	5	2016-02-19 @ 4:00 pm	2016-02-22 @ 11:00 am	< 0.3	2016-02-23
7734958	6	2016-02-19 @ 4:00 pm	2016-02-22 @ 11:00 am	< 0.3	2016-02-23
7734951	7	2016-02-19 @ 4:00 pm	2016-02-22 @ 11:00 am	< 0.3	2016-02-23
7734957	8	2016-02-19 @ 4:00 pm	2016-02-22 @ 11:00 am	< 0.3	2016-02-23
7734938	9	2016-02-19 @ 4:00 pm	2016-02-22 @ 11:00 am	< 0.3	2016-02-23

February  
15,  
2016

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

Spike Sample Laboratory Results

Radon test result report for:  
**MCPS**

Kit #	Room Id	Started	Ended	pCi/L	Analyzed
7718273	101A	2016-01-30 @ 9:00 am	2016-02-01 @ 9:00 am	6.5 ± 0.6	2016-02-04
7718281	102B	2016-01-30 @ 9:00 am	2016-02-01 @ 9:00 am	6.4 ± 0.6	2016-02-04
7718282	103C	2016-01-30 @ 9:00 am	2016-02-01 @ 9:00 am	6.3 ± 0.6	2016-02-04
7718288	104D	2016-01-30 @ 9:00 am	2016-02-01 @ 9:00 am	6.7 ± 0.6	2016-02-04
7718289	105E	2016-01-30 @ 9:00 am	2016-02-01 @ 9:00 am	6.6 ± 0.6	2016-02-04
7718291	106F	2016-01-30 @ 9:00 am	2016-02-01 @ 9:00 am	6.5 ± 0.6	2016-02-04

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 KCF Technologies Inc. Job Number 173704

NOMINAL Conditions: Radon Conc 5.9 pCi/L Rel. Hum 45.9 % Temp. 79.0 F

Date Start: 11/30/16 Date Stop: 2/1/16

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

Time Start: 0926 Time Stop: 0926

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

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

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

7718281, 7718282, 7718291,

7718288, 7718289, 7718273

3 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 7 (2-1-2016)

Name of School/Facility:

- |                            |                             |                            |
|----------------------------|-----------------------------|----------------------------|
| 1. Wyngate E.S.            | 10. Bethesda Depot          | 18. Stone Mill E.S.        |
| 2. Seven Locks E.S.        | 11. Bethesda Trans Depot    | 19. Strawberry Knoll E.S.  |
| 3. Takoma Park M.S.        | 12. Sligo M.S.              | 20. Shady Grove M.S.       |
| 4. Somerset E.S.           | 13. Stonegate E.S.          | 21. Washington Grove E.S.  |
| 5. Silver Spring Int. M.S. | 14. Randolph Transportation | 22. Sherwood E.S.          |
| 6. Sligo Creek E.S.        | 15. Earl B. Wood M.S.       | 23. Woodfield E.S.         |
| 7. Tilden M.S.             | 16. Sargent Shriver E.S.    | 24. Taylor Learning Center |
| 8. Tilden Center           | 17. Thomas Wooten H.S.      | 25. Kingsley Wilderness    |
| 9. Bethesda Annex          |                             |                            |

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	Date	Initials
Radon Test Kits Deployed	2/1/16	JM
Radon Test Kits Collected	2/4/16	JM
Radon Test Kits Shipped to Lab*	2/4/16	JM
Radon Test Kits Received by Lab*	2/8/16	JM

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



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

## Radon Test Kit Chain of Custody

Project Name: MCPS Radon Phase 7 (2-2-2016)

Name of School/Facility:

- |                                |                                |
|--------------------------------|--------------------------------|
| 1. Concord Center              | 8. Food & Nutritional Services |
| 2. Lynnbrook Center            | 9. Fairland Center             |
| 3. Carver (CESC)               | 10. Redland M.S. (retest)      |
| 4. Spring Mill (area 1 Office) | 11. Clarksburg Trans Depot     |
| 5. Wheaton H.S                 | 12. Clarksburg Main Depot      |
| 6. Montrose Center             | 13. Clarksburg E.S.            |
| 7. West Farm Trans Depot       |                                |

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	Date	Initials
Radon Test Kits Deployed	2/2/16	JM
Radon Test Kits Collected	2/5/16	JM
Radon Test Kits Shipped to Lab*	2/5/16	JM
Radon Test Kits Received by Lab*	2/9/16	JM

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