

School Year: **24-25**

| | | | |
|-----------------------|---|--|--|
| Facility: | Carderock Springs Elementary School | | |
| Address: | 7401 Persimmon Tree Ln. | | |
| | Bethesda, MD 20817 | | |
| Reason for Testing: | Scheduled Re-Testing - <input type="checkbox"/> 2-year or <input checked="" type="checkbox"/> 5-year schedule <input type="checkbox"/> Clearance Testing (Post-Mitigation) <input checked="" type="checkbox"/> Building Envelope or HVAC Upgrades <input type="checkbox"/> New Construction – Addition or Facility | | |
| Current Radon Status: | <input type="checkbox"/> Active Mitigation (2-year regular schedule) <input checked="" 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 (≥ 4.0 -pCi/L) Rooms: | <input checked="" type="checkbox"/> No Change in Status <input type="checkbox"/> Active Mitigation (2-year regular schedule) <input type="checkbox"/> No Active Mitigation (5-year regular schedule) | | |
| Number of Rooms Tested | 43 | Lowest Value (pCi/L) | <0.3 |
| Number of Rooms (≥ 4.0 -pCi/L) | 0 | Highest Value (pCi/L) | 1.3 |

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 ≥ 2.0 -pCi/L; ≥ 2.7 -pCi/L; ≥ 4.0 -pCi/L; and ≥ 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) |
| <i>Other—Specify here:</i> | | |
| Detector/Device Name: | Air Chek – Radon Test Kits | |
| Manufacturer: | Radon Labs | |
| Person(s) Deploying or Retrieving Test Devices and certification number | | Organization/Company |
| Tyler McCleaf, CSP Cert. # 111004-RMP | | KCI Technologies, Inc. |
| | | |
| | | |
| <i>If noncertified individuals, the qualified measurement professional providing oversight -</i> | | |
| | | |

Testing

| | | | | |
|---|------------------------|---|--|---|
| <input checked="" type="checkbox"/> Short-Term | Length of Test (days): | 3 | Date of Deployment and Retrieval (mm/dd/yy): | 1/28/2025 |
| <input type="checkbox"/> Long-Term | | | | 1/31/2025 |
| Does the test period include weekends, school breaks or holidays? | | | | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No |
| <i>If “Yes” please explain/detail in the space below:</i> | | | | |
| Was HVAC operating under occupied conditions? | | | | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No |
| <i>If “No” please explain/detail in the space below:</i> | | | | |

Testing (continued)

| Round of Testing | Detectors Deployed | | | | Total |
|-----------------------------|--------------------|-----------|----------------|-----------|-------|
| | Ground-Contact | | Upper-Level(s) | | |
| | Initial | Follow-Up | Initial | Follow-Up | |
| Test Locations ¹ | 40 | 0 | 3 | 0 | 43 |
| Duplicates ² | 4 | 0 | 0 | 0 | 4 |
| Field Blanks ³ | 2 | 0 | 0 | 0 | 2 |
| Grand Total | | | | | 49 |

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 ¹ | Not applicable | | 10 |
| Trip Blanks ² | 1 | 0 | 1 |
| Office Blanks ^{3, 4} | 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 |
| | Round of Testing |
| | Initial |
| | Follow-Up |
| 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"/> Yes |
| For all Duplicate Samples ¹ , 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"/> Yes |
| For all Duplicate Samples ¹ , Relative Percent Difference(s) (RPD) ² are less than the Warning Level ³ ? | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> No <input checked="" type="checkbox"/> Yes |
| For all Duplicate Samples ¹ , Relative Percent Difference(s) (RPD) ² are less than the Control Level ³ ? | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> No <input checked="" type="checkbox"/> Yes |

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 |
| ≥ 4.0 -pCi/L | 28% RPD | 36% RPD |

Summary of Test Results¹ and Determination of Valid Measurements²

| Round of Testing | Ground-Contact | | Upper-Level(s) | | Total |
|--|----------------|-----------|----------------|-----------|-------|
| | Initial | Follow-Up | Initial | Follow-Up | |
| Number of test locations: | 40 | 0 | 3 | 0 | 43 |
| Number of locations ≥ 8.0 -pCi/L: | 0 | 0 | 0 | 0 | 0 |
| Number of locations ≥ 4.0 and ≤ 8 -pCi/L: | 0 | 0 | 0 | 0 | 0 |
| Number of locations ≥ 2.7 and < 4 -pCi/L: | 0 | 0 | 0 | 0 | 0 |
| Number of locations ≥ 2.0 and < 2.7 -pCi/L: | 0 | 0 | 0 | 0 | 0 |
| Number of missing required test locations ³ : | 0 | 0 | 0 | 0 | 0 |
| Number of failed duplicate control locations: | 0 | 0 | 0 | 0 | 0 |
| Percentage of missing test locations for the facility ^{4,5} : | 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 ≥ 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 ≥ 4.0 -pCi/L and the total number of test locations are ≥ 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 Results¹ and Determination of Valid Measurements² (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> | | | |
| If No to either above, were all results obtained under 4.0-pCi/L and were sufficient valid measurements obtained?^{1,2} <i>If Yes, then - ‘No Further Testing Needed’ complete Conclusion section on first page. If No, then - ‘Follow-up Testing Required’ continue below.</i> | | <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 | | |
|--|-------------|--------------|
| Carderock Springs Elementary School | | |
| Test Period: 1/28/2025 - 1/31/2025 | | |
| Kit Number | Room / Area | Result |
| 11919773 | 3 | < 0.3 |
| 11919774 | 3 | < 0.3 |
| 11919771 | 4 | < 0.3 |
| 11919770 | 7 | < 0.3 |
| 11919772 | 9 | < 0.3 |
| 11919782 | 15 | 0.8 |
| 11919781 | 16 | 0.7 |
| 11903494 | 16 | < 0.3 |
| 11919776 | 19 | < 0.3 |
| 11919780 | 20 | < 0.3 |
| 11930999 | 20 | < 0.3 |
| 11919766 | 21 | < 0.3 |
| 11919779 | 22 | < 0.3 |
| 11919765 | 24 | < 0.3 |
| 11919764 | 25 | < 0.3 |
| 11919775 | 28 | < 0.3 |
| 11919769 | 30 | < 0.3 |
| 11893200 | 34 | < 0.3 |
| 11919762 | 36 | < 0.3 |
| 11930902 | 36 | < 0.3 |
| 11930915 | 40 | Unsealed Kit |
| 11919735 | 40 | < 0.3 |
| 11930948 | 45 | < 0.3 |
| 11904198 | 100 | 0.5 |
| 11904197 | 102 | < 0.3 |
| 11919763 | 111 | < 0.3 |
| 11919745 | 128 | < 0.3 |
| 11904189 | 132 | < 0.3 |
| 11904190 | 132 | < 0.3 |
| 11904194 | 136 | < 0.3 |
| 11919756 | 140 | < 0.3 |
| 11904199 | 206 | < 0.3 |
| 11904187 | 100A | < 0.3 |
| 11907196 | 100B | < 0.3 |
| 11930976 | 100C | < 0.3 |
| 11930901 | 100E | 0.6 |
| 11919712 | 102A | < 0.3 |

| Table 1- Radon Testing Results | | |
|--|--------------------|---------------|
| Carderock Springs Elementary School | | |
| Test Period: 1/28/2025 - 1/31/2025 | | |
| Kit Number | Room / Area | Result |
| 11919768 | 13A | < 0.3 |
| 11919767 | 13B | < 0.3 |
| 11919761 | 13C | < 0.3 |
| 11904207 | APR | < 0.3 |
| 11919758 | APR | < 0.3 |
| 11904188 | GYM | 0.7 |
| 11919755 | GYM | 0.9 |
| 11919760 | GYM OFFICE | 1.3 |
| 11904200 | KITCHEN OFFICE | < 0.3 |
| 11919746 | MEDIA | < 0.3 |
| 11919759 | MEDIA | < 0.3 |
| 11919711 | MEDIA OFFICE | 0.8 |

| Table 3 - QC Radon Testing Results | | | |
|--|----------------|--------------------|---------------|
| Carderock Springs Elementary School | | | |
| Test Period: 1/28/2025 - 1/31/2025 | | | |
| Kit Number | QC Type | Room / Area | Result |
| 11919774 | D | 3 | < 0.3 |
| 11903494 | FB | 16 | < 0.3 |
| 11919780 | D | 20 | < 0.3 |
| 11930902 | D | 36 | < 0.3 |
| 11919735 | FB | 40 | < 0.3 |
| 11904189 | D | 132 | < 0.3 |
| 11906899 | OB | OFFICE BLANK | < 0.3 |
| 11926699 | TB | TRAVEL BLANK | < 0.3 |

Table 3a - Duplicate Worksheet / Data Validation

Carderock Springs Elementary School

Test Period: 01/28/2025 - 01/31/2025

| 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 |
| 11904190 | 11904189 | 132 | 0.3 | 0.3 | ✓ | 0.6 | PASS | 0.3 | <1-pCi/L | ✓ |
| 11919762 | 11930902 | 36 | 0.3 | 0.3 | ✓ | 0.6 | PASS | 0.3 | <1-pCi/L | ✓ |
| 11919773 | 11919774 | 3 | 0.3 | 0.3 | ✓ | 0.6 | PASS | 0.3 | <1-pCi/L | ✓ |
| 11930999 | 11919780 | 20 | 0.3 | 0.3 | ✓ | 0.6 | PASS | 0.3 | <1-pCi/L | ✓ |

NOTES:

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 |

Attachment 2:
Laboratory Reports

Radon test result report for:

**CARDEROCK SPRINGS ES
MAIN**

| Kit # | Room Id | Started | Ended | pCi/L | Analyzed |
|----------|---------|-----------------------|-----------------------|-----------|------------|
| 11904198 | 100 | 2025-01-28 @ 10:00 am | 2025-01-31 @ 10:00 am | 0.5 ± 0.3 | 2025-02-04 |
| 11904187 | 100A | 2025-01-28 @ 10:00 am | 2025-01-31 @ 10:00 am | < 0.3 | 2025-02-04 |
| 11907196 | 100B | 2025-01-28 @ 10:00 am | 2025-01-31 @ 10:00 am | < 0.3 | 2025-02-04 |
| 11930976 | 100C | 2025-01-28 @ 10:00 am | 2025-01-31 @ 11:00 am | < 0.3 | 2025-02-04 |
| 11930901 | 100E | 2025-01-28 @ 10:00 am | 2025-01-31 @ 11:00 am | 0.6 ± 0.3 | 2025-02-04 |
| 11904197 | 102 | 2025-01-28 @ 10:00 am | 2025-01-31 @ 11:00 am | < 0.3 | 2025-02-04 |
| 11919712 | 102A | 2025-01-28 @ 10:00 am | 2025-01-31 @ 11:00 am | < 0.3 | 2025-02-04 |
| 11919763 | 111 | 2025-01-28 @ 10:00 am | 2025-01-31 @ 11:00 am | < 0.3 | 2025-02-04 |
| 11919745 | 128 | 2025-01-28 @ 10:00 am | 2025-01-31 @ 11:00 am | < 0.3 | 2025-02-04 |
| 11904189 | 132 | 2025-01-28 @ 10:00 am | 2025-01-31 @ 11:00 am | < 0.3 | 2025-02-04 |
| 11904190 | 132 | 2025-01-28 @ 10:00 am | 2025-01-31 @ 11:00 am | < 0.3 | 2025-02-04 |
| 11904194 | 136 | 2025-01-28 @ 10:00 am | 2025-01-31 @ 11:00 am | < 0.3 | 2025-02-04 |
| 11919768 | 13A | 2025-01-28 @ 10:00 am | 2025-01-31 @ 10:00 am | < 0.3 | 2025-02-04 |
| 11919767 | 13B | 2025-01-28 @ 10:00 am | 2025-01-31 @ 10:00 am | < 0.3 | 2025-02-04 |
| 11919761 | 13C | 2025-01-28 @ 10:00 am | 2025-01-31 @ 10:00 am | < 0.3 | 2025-02-04 |
| 11919756 | 140 | 2025-01-28 @ 10:00 am | 2025-01-31 @ 11:00 am | < 0.3 | 2025-02-04 |
| 11919782 | 15 | 2025-01-28 @ 11:00 am | 2025-01-31 @ 10:00 am | 0.8 ± 0.3 | 2025-02-04 |
| 11919781 | 16 | 2025-01-28 @ 11:00 am | 2025-01-31 @ 10:00 am | 0.7 ± 0.3 | 2025-02-04 |
| 11903494 | 16 | 2025-01-28 @ 11:00 am | 2025-01-31 @ 10:00 am | < 0.3 | 2025-02-04 |
| 11919776 | 19 | 2025-01-28 @ 11:00 am | 2025-01-31 @ 10:00 am | < 0.3 | 2025-02-04 |
| 11919780 | 20 | 2025-01-28 @ 11:00 am | 2025-01-31 @ 10:00 am | < 0.3 | 2025-02-04 |
| 11930999 | 20 | 2025-01-28 @ 11:00 am | 2025-01-31 @ 10:00 am | < 0.3 | 2025-02-04 |
| 11904199 | 206 | 2025-01-28 @ 10:00 am | 2025-01-31 @ 11:00 am | < 0.3 | 2025-02-04 |
| 11919766 | 21 | 2025-01-28 @ 11:00 am | 2025-01-31 @ 10:00 am | < 0.3 | 2025-02-04 |
| 11919779 | 22 | 2025-01-28 @ 11:00 am | 2025-01-31 @ 10:00 am | < 0.3 | 2025-02-04 |
| 11919765 | 24 | 2025-01-28 @ 11:00 am | 2025-01-31 @ 10:00 am | < 0.3 | 2025-02-04 |
| 11919764 | 25 | 2025-01-28 @ 11:00 am | 2025-01-31 @ 10:00 am | < 0.3 | 2025-02-04 |
| 11919775 | 28 | 2025-01-28 @ 11:00 am | 2025-01-31 @ 10:00 am | < 0.3 | 2025-02-04 |
| 11919774 | 3 | 2025-01-28 @ 10:00 am | 2025-01-31 @ 11:00 am | < 0.3 | 2025-02-04 |
| 11919773 | 3 | 2025-01-28 @ 10:00 am | 2025-01-31 @ 11:00 am | < 0.3 | 2025-02-04 |
| 11919769 | 30 | 2025-01-28 @ 10:00 am | 2025-01-31 @ 11:00 am | < 0.3 | 2025-02-04 |
| 11893200 | 34 | 2025-01-28 @ 10:00 am | 2025-01-31 @ 11:00 am | < 0.3 | 2025-02-04 |
| 11919762 | 36 | 2025-01-28 @ 10:00 am | 2025-01-31 @ 11:00 am | < 0.3 | 2025-02-04 |
| 11930902 | 36 | 2025-01-28 @ 10:00 am | 2025-01-31 @ 11:00 am | < 0.3 | 2025-02-04 |
| 11919771 | 4 | 2025-01-28 @ 10:00 am | 2025-01-31 @ 11:00 am | < 0.3 | 2025-02-04 |
| 11919735 | 40 | 2025-01-28 @ 10:00 am | 2025-01-31 @ 11:00 am | < 0.3 | 2025-02-04 |
| 11930915 | 40 | 2025-01-28 @ 10:00 am | 2025-01-31 @ 11:00 am | ???? UI | 2025-02-04 |

February 4, 2025

**** LABORATORY ANALYSIS REPORT ****

Radon test result report for:
**CARDEROCK SPRINGS ES
MAIN**

| Kit # | Room Id | Started | Ended | pCi/L | Analyzed |
|--------------|----------------|-----------------------|-----------------------|--------------|-----------------|
| 11930948 | 45 | 2025-01-28 @ 10:00 am | 2025-01-31 @ 11:00 am | < 0.3 | 2025-02-04 |
| 11919770 | 7 | 2025-01-28 @ 10:00 am | 2025-01-31 @ 11:00 am | < 0.3 | 2025-02-04 |
| 11919772 | 9 | 2025-01-28 @ 10:00 am | 2025-01-31 @ 11:00 am | < 0.3 | 2025-02-04 |
| 11919758 | APR | 2025-01-28 @ 10:00 am | 2025-01-31 @ 11:00 am | < 0.3 | 2025-02-04 |
| 11904207 | APR | 2025-01-28 @ 10:00 am | 2025-01-31 @ 11:00 am | < 0.3 | 2025-02-04 |
| 11919755 | GYM | 2025-01-28 @ 10:00 am | 2025-01-31 @ 11:00 am | 0.9 ± 0.4 | 2025-02-04 |
| 11904188 | GYM | 2025-01-28 @ 10:00 am | 2025-01-31 @ 11:00 am | 0.7 ± 0.4 | 2025-02-04 |
| 11919760 | GYM OFFICE | 2025-01-28 @ 10:00 am | 2025-01-31 @ 11:00 am | 1.3 ± 0.4 | 2025-02-04 |
| 11904200 | KITCHEN OFFICE | 2025-01-28 @ 10:00 am | 2025-01-31 @ 11:00 am | < 0.3 | 2025-02-04 |
| 11919759 | MEDIA | 2025-01-28 @ 10:00 am | 2025-01-31 @ 11:00 am | < 0.3 | 2025-02-04 |
| 11919746 | MEDIA | 2025-01-28 @ 10:00 am | 2025-01-31 @ 11:00 am | < 0.3 | 2025-02-04 |
| 11919711 | MEDIA OFFICE | 2025-01-28 @ 10:00 am | 2025-01-31 @ 11:00 am | 0.8 ± 0.3 | 2025-02-04 |

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

February 4, 2025

**** LABORATORY ANALYSIS REPORT ****

Radon test result report for:

**OFFICE
MAIN**

| Kit # | Room Id | Started | Ended | pCi/L | Analyzed |
|--------------|----------------|-----------------------|-----------------------|--------------|-----------------|
| 11906885 | O | 2025-01-27 @ 11:00 am | 2025-01-30 @ 11:00 am | < 0.3 | 2025-02-04 |
| 11906899 | O | 2025-01-28 @ 11:00 am | 2025-01-31 @ 11:00 am | < 0.3 | 2025-02-04 |

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

February 4, 2025

**** LABORATORY ANALYSIS REPORT ****

Radon test result report for:

**TRAVEL
MAIN**

| Kit # | Room Id | Started | Ended | pCi/L | Analyzed |
|--------------|----------------|-----------------------|-----------------------|--------------|-----------------|
| 11906900 | T | 2025-01-27 @ 11:00 am | 2025-01-30 @ 11:00 am | < 0.3 | 2025-02-04 |
| 11926699 | T | 2025-01-28 @ 11:00 am | 2025-01-31 @ 11:00 am | < 0.3 | 2025-02-04 |

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 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 μ 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 |

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 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 μ R/h Elevation = 820 ft**

March 19, 2025

**** LABORATORY ANALYSIS REPORT ****

Radon test result report for:

**QC
MAIN**

| 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 |

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



Radon Test Kit Chain of Custody

Project Name: MCPS Radon – Testing January 28th – January 31st, 2024

Name of Schools:

1. Carderock Springs ES
2. Cold Springs ES
3. Concord Center
4. DuFief ES
5. Thomas Edison HS
6. Fallsmead ES
7. Farmland ES

| | Date | Initials |
|----------------------------------|------------|----------|
| Radon Test Kits Deployed | 01/28/2025 | DM |
| Radon Test Kits Collected | 01/31/2025 | DM |
| Radon Test Kits Shipped to Lab* | 01/31/2025 | DM |
| Radon Test Kits Received by Lab* | 02/03/2025 | DM |

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



MCPS RADON TESTING – EXECUTIVE SUMMARY

| | |
|--------------------------|--|
| Site Name | Carderock Springs Elementary School |
| Date of Test Report | 1/04/2023 |
| Round of Testing | Initial Follow-up Post Remediation 2 Year Testing 5 Year Testing HVAC Upgrade Window Replacement New Addition New Facility |
| # Rooms Tested | 45 |
| # Rooms \geq 4.0 pCi/L | 0 |
| Lowest Value | <0.3 pCi/L |
| Highest Value | 1.9 pCi/L |

Project Status:

1. 5-Year retesting completed.



January 4, 2023

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

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

Location: Carderock Springs Elementary School
7401 Persimmon Tree Lane
Bethesda, MD 20817

Dear Mr. Croyle:

KCI Technologies, Inc. (KCI) is pleased to submit the following report to Montgomery County Public Schools (MCPS) pursuant to completing a “short-term” 3 day radon test for the Carderock Springs Elementary School, located at 7401 Persimmon Tree Ln. Bethesda, MD 20817 (subject site).

Scope of Services:

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

KCI visited the site on December 5, 2022 and deployed forty-five (45) activated charcoal (AC) radon test kits. KCI deployed radon test kits in all frequently-occupied ground contact rooms, and other areas, (if applicable) in accordance with AARST guidance.

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

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

KCI returned to the site on December 8, 2022 to retrieve the radon sampling test kits. KCI shipped all radon tests via overnight delivery to Airchek, Inc. for analysis by gamma-ray spectroscopy. Airchek, Inc.

is a NRSB certified analytical laboratory for radon analysis (certification # ARL1402) located at 1936 Butler Bridge Road, Mills River, North Carolina.

Evaluation of Testing Conditions:

These tests represent:

- Follow up to initial testing.

These tests were conducted to:

- Evaluate radon 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 during the time of deployment and collection of the radon test kits:

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

KCI also compiled weather data for the testing period and conducted observations of relevant field conditions. During the test period, weather records indicate low temperatures were in the 20s°F and high temperatures ranged to the mid-50s°F. Maximum sustained winds ranged from 0-12 miles per hour. Average humidity was around 75% with .04 inches of precipitation (rain) was recorded during testing period.

Results:

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

The results of the radon test analysis indicated the following:

| Radon Concentration | Room | Result |
|----------------------------|------------------|---------------|
| ≥4.0 pCi/L | None | N/A |
| <4.0 pCi/L | See Attachment B | |

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

Our professional services have been performed in accordance with customary principles and practices in the field of industrial hygiene and engineering. If you have any questions or comments regarding this report, please feel free to contact me at (410) 891-1769.

Sincerely,



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

Attachments: A- Floor Plan with Test Locations
 B- Table 1-3, Radon Test Summary Spreadsheets
 C- Laboratory Analytical Results

ATTACHMENT A

Floor Plan With Test Locations

ATTACHMENT B

Radon Test Summary Spreadsheet

Table Notes:

AC- Activated Charcoal

ACI- Air Check, Inc.

D- Duplicate

FB- Field Blank

KCI- KCI Technologies, Inc.

OB- Office Blank

PM- Project Manager

OC- Quality Control

| Table 1- Radon Testing Results | | |
|--------------------------------------|-------------|--------|
| Carderock ES | | |
| Test Period: 12/05/2022 - 12/08/2022 | | |
| Kit Number | Room / Area | Result |
| 11140103 | 3 | < 0.3 |
| 11140115 | 4 | 0.8 |
| 11140124 | 7 | < 0.3 |
| 11140125 | 7 | < 0.3 |
| 11140109 | 9 | 1.0 |
| 11140110 | 15 | 0.9 |
| 11140108 | 16 | 1.8 |
| 11140116 | 16 | < 0.3 |
| 11140119 | 16 | 1.3 |
| 11140118 | 19 | 0.9 |
| 11140104 | 20 | 1.1 |
| 11140107 | 21 | < 0.3 |
| 11140117 | 22 | 1.0 |
| 11133701 | 24 | 0.7 |
| 11114400 | 25 | < 0.3 |
| 11133703 | 28 | < 0.3 |
| 11140128 | 29 | < 0.3 |
| 11140132 | 29 | < 0.3 |
| 11140135 | 29 | < 0.3 |
| 11140142 | 29 | 0.9 |
| 11140123 | 34 | < 0.3 |
| 11140126 | 34 | < 0.3 |
| 11140127 | 36 | 0.9 |
| 11140141 | 40 | < 0.3 |
| 11140133 | 42 | 1.4 |
| 11140134 | 42 | 1.2 |
| 11140102 | 45 | 0.7 |
| 11133707 | 100 | 0.8 |
| 11133702 | 102 | < 0.3 |
| 11133706 | 105 | < 0.3 |
| 11133711 | 116 | < 0.3 |
| 11133712 | 116 | 0.9 |
| 11106212 | 129 | < 0.3 |
| 11140136 | 202 | < 0.3 |
| 11133713 | 100A | < 0.3 |
| 11133708 | 100B | < 0.3 |
| 11133705 | 100C | < 0.3 |
| 11133714 | 100E | 0.9 |
| 11133715 | 100H | < 0.3 |
| 11133704 | 102A | < 0.3 |
| 11140106 | 13A | 1.0 |
| 11140112 | 13B | 1.0 |

| Table 1- Radon Testing Results | | |
|--------------------------------------|-------------|--------|
| Carderock ES | | |
| Test Period: 12/05/2022 - 12/08/2022 | | |
| | | |
| Kit Number | Room / Area | Result |
| 11140111 | 13C | 1.3 |
| 11140120 | 33C | 0.8 |
| 11140105 | 42A | 1.9 |

| Table 2- Radon Testing Results | | | |
|----------------------------------|---------|--------------|--------|
| Carderock Springs ES | | | |
| Test Period: 12/05/22 - 12/08/22 | | | |
| Kit Number | QC Type | Room / Area | Result |
| 11140125 | D | 7 | < 0.3 |
| 11140119 | D | 16 | 1.3 |
| 11140116 | FB | 16 | < 0.3 |
| 11140132 | D | 29 | < 0.3 |
| 11140135 | FB | 29 | < 0.3 |
| 11133711 | D | 116 | < 0.3 |
| 11133716 | OB | OFFICE BLANK | < 0.3 |
| 11140129 | TB | TRAVEL BLANK | < 0.3 |

ATTACHMENT C

Laboratory Analytical Results

Radon test result report for:
CARDEROCK SPRINGS

1

| Kit # | Room Id | Started | Ended | pCi/L | Analyzed |
|----------|---------|-----------------------|----------------------|-----------|------------|
| 11133707 | 100 | 2022-12-05 @ 12:00 pm | 2022-12-08 @ 8:00 am | 0.8 ± 0.5 | 2022-12-14 |
| 11133713 | 100A | 2022-12-05 @ 12:00 pm | 2022-12-08 @ 8:00 am | < 0.3 | 2022-12-14 |
| 11133708 | 100B | 2022-12-05 @ 12:00 pm | 2022-12-08 @ 8:00 am | < 0.3 | 2022-12-14 |
| 11133705 | 100C | 2022-12-05 @ 12:00 pm | 2022-12-08 @ 8:00 am | < 0.3 | 2022-12-14 |
| 11133714 | 100E | 2022-12-05 @ 12:00 pm | 2022-12-08 @ 8:00 am | 0.9 ± 0.5 | 2022-12-14 |
| 11133715 | 100H | 2022-12-05 @ 12:00 pm | 2022-12-08 @ 8:00 am | < 0.3 | 2022-12-14 |
| 11133702 | 102 | 2022-12-05 @ 12:00 pm | 2022-12-08 @ 8:00 am | < 0.3 | 2022-12-14 |
| 11133704 | 102A | 2022-12-05 @ 12:00 pm | 2022-12-08 @ 8:00 am | < 0.3 | 2022-12-14 |
| 11133706 | 105 | 2022-12-05 @ 12:00 pm | 2022-12-08 @ 8:00 am | < 0.3 | 2022-12-14 |
| 11133711 | 116 | 2022-12-05 @ 12:00 pm | 2022-12-08 @ 8:00 am | < 0.3 | 2022-12-14 |
| 11133712 | 116 | 2022-12-05 @ 12:00 pm | 2022-12-08 @ 8:00 am | 0.9 ± 0.5 | 2022-12-14 |
| 11106212 | 129 | 2022-12-05 @ 12:00 pm | 2022-12-08 @ 8:00 am | < 0.3 | 2022-12-14 |
| 11140106 | 13A | 2022-12-05 @ 12:00 pm | 2022-12-08 @ 8:00 am | 1.0 ± 0.5 | 2022-12-14 |
| 11140112 | 13B | 2022-12-05 @ 12:00 pm | 2022-12-08 @ 8:00 am | 1.0 ± 0.5 | 2022-12-14 |
| 11140111 | 13C | 2022-12-05 @ 12:00 pm | 2022-12-08 @ 8:00 am | 1.3 ± 0.5 | 2022-12-14 |
| 11140110 | 15 | 2022-12-05 @ 12:00 pm | 2022-12-08 @ 8:00 am | 0.9 ± 0.5 | 2022-12-14 |
| 11140116 | 16 | 2022-12-05 @ 12:00 pm | 2022-12-08 @ 8:00 am | < 0.3 | 2022-12-14 |
| 11140108 | 16 | 2022-12-05 @ 12:00 pm | 2022-12-08 @ 8:00 am | 1.8 ± 0.6 | 2022-12-14 |
| 11140119 | 16 | 2022-12-05 @ 12:00 pm | 2022-12-08 @ 8:00 am | 1.3 ± 0.5 | 2022-12-14 |
| 11140118 | 19 | 2022-12-05 @ 12:00 pm | 2022-12-08 @ 8:00 am | 0.9 ± 0.4 | 2022-12-14 |
| 11140104 | 20 | 2022-12-05 @ 12:00 pm | 2022-12-08 @ 8:00 am | 1.1 ± 0.5 | 2022-12-14 |
| 11140136 | 202 | 2022-12-05 @ 12:00 pm | 2022-12-08 @ 8:00 am | < 0.3 | 2022-12-14 |
| 11140107 | 21 | 2022-12-05 @ 12:00 pm | 2022-12-08 @ 8:00 am | < 0.3 | 2022-12-14 |
| 11140117 | 22 | 2022-12-05 @ 12:00 pm | 2022-12-08 @ 8:00 am | 1.0 ± 0.5 | 2022-12-14 |
| 11133701 | 24 | 2022-12-05 @ 12:00 pm | 2022-12-08 @ 8:00 am | 0.7 ± 0.4 | 2022-12-14 |
| 11114400 | 25 | 2022-12-05 @ 12:00 pm | 2022-12-08 @ 8:00 am | < 0.3 | 2022-12-14 |
| 11133703 | 28 | 2022-12-05 @ 12:00 pm | 2022-12-08 @ 8:00 am | < 0.3 | 2022-12-14 |
| 11140135 | 29 | 2022-12-05 @ 12:00 pm | 2022-12-08 @ 8:00 am | < 0.3 | 2022-12-14 |
| 11140132 | 29 | 2022-12-05 @ 12:00 pm | 2022-12-08 @ 8:00 am | < 0.3 | 2022-12-14 |
| 11140128 | 29 | 2022-12-05 @ 12:00 pm | 2022-12-08 @ 8:00 am | < 0.3 | 2022-12-14 |
| 11140142 | 29 | 2022-12-05 @ 12:00 pm | 2022-12-08 @ 8:00 am | 0.9 ± 0.5 | 2022-12-14 |
| 11140103 | 3 | 2022-12-05 @ 12:00 pm | 2022-12-08 @ 8:00 am | < 0.3 | 2022-12-14 |
| 11140120 | 33C | 2022-12-05 @ 12:00 pm | 2022-12-08 @ 8:00 am | 0.8 ± 0.5 | 2022-12-14 |
| 11140123 | 34 | 2022-12-05 @ 12:00 pm | 2022-12-08 @ 8:00 am | < 0.3 | 2022-12-14 |
| 11140126 | 34 | 2022-12-05 @ 12:00 pm | 2022-12-08 @ 8:00 am | < 0.3 | 2022-12-14 |
| 11140127 | 36 | 2022-12-05 @ 12:00 pm | 2022-12-08 @ 8:00 am | 0.9 ± 0.5 | 2022-12-14 |
| 11140115 | 4 | 2022-12-05 @ 12:00 pm | 2022-12-08 @ 8:00 am | 0.8 ± 0.5 | 2022-12-14 |

December 14, 2022

**** LABORATORY ANALYSIS REPORT ****

Radon test result report for:
CARDEROCK SPRINGS

1

| Kit # | Room Id | Started | Ended | pCi/L | Analyzed |
|--------------|----------------|-----------------------|----------------------|--------------|-----------------|
| 11140141 | 40 | 2022-12-05 @ 12:00 pm | 2022-12-08 @ 8:00 am | < 0.3 | 2022-12-14 |
| 11140133 | 42 | 2022-12-05 @ 12:00 pm | 2022-12-08 @ 8:00 am | 1.4 ± 0.5 | 2022-12-14 |
| 11140134 | 42 | 2022-12-05 @ 12:00 pm | 2022-12-08 @ 8:00 am | 1.2 ± 0.5 | 2022-12-14 |
| 11140105 | 42A | 2022-12-05 @ 12:00 pm | 2022-12-08 @ 8:00 am | 1.9 ± 0.5 | 2022-12-14 |
| 11140102 | 45 | 2022-12-05 @ 12:00 pm | 2022-12-08 @ 8:00 am | 0.7 ± 0.5 | 2022-12-14 |
| 11140124 | 7 | 2022-12-05 @ 12:00 pm | 2022-12-08 @ 8:00 am | < 0.3 | 2022-12-14 |
| 11140125 | 7 | 2022-12-05 @ 12:00 pm | 2022-12-08 @ 8:00 am | < 0.3 | 2022-12-14 |
| 11140109 | 9 | 2022-12-05 @ 12:00 pm | 2022-12-08 @ 8:00 am | 1.0 ± 0.5 | 2022-12-14 |

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 KC1 TECHNOLOGIES, INC Job Number 208343

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

Date Start: 12/24/22 Date Stop: 12/27/22 Date Start: _____ Date Stop: _____

Time Start: 0810 Time Stop: 0810 Time Start: _____ Time Stop: _____

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

11285109, 11285110, 11285101

THRU 11285103

BY LEFT

Date Start: _____ Date Stop: _____ Date Start: _____ Date Stop: _____

Time Start: _____ Time Stop: _____ Time Start: _____ Time Stop: _____

Device No.'s: _____ Device No.'s: _____

Date Start: _____ Date Stop: _____ Date Start: _____ Date Stop: _____

Time Start: _____ Time Stop: _____ Time Start: _____ Time Stop: _____

Device No.'s: _____ Device No.'s: _____

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

December 29, 2022

**** LABORATORY ANALYSIS REPORT ****

Radon test result report for:

OFFICE

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

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

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



Radon Test Kit Chain of Custody

Project Name: MCPS Radon – April 2022 Schools – Retesting

Name of Schools:

1. Lynnbrook Center
2. Chevy Chase ES
3. North Chevy Chase ES
4. Wood Acres ES
5. Ashburton ES
6. Carderock Springs ES
7. North Bethesda MS
8. Brooke Grove ES

| | Date | Initials |
|----------------------------------|------------|----------|
| Radon Test Kits Deployed | 12/05/2022 | BMLY |
| Radon Test Kits Collected | 12/08/2022 | BMLY |
| Radon Test Kits Shipped to Lab* | 12/08/2022 | BMLY |
| Radon Test Kits Received by Lab* | 12/14/2022 | BMLY |

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



**MONTGOMERY COUNTY PUBLIC SCHOOLS
RADON TESTING**

**Executive Summary:
Carderock Springs Elementary School**

7401 Persimmon Tree Lane
Bethesda, MD 20817

| | |
|------------------------------|---|
| Date of Test Report: | 12/18/2018 |
| Round of Testing: | Initial Follow-up Post Remediation 2 Year Testing 5 Year Testing HVAC Upgrade Window Replacement New Addition New Facility |
| # of Rooms Tested: | 41 |
| # of Rooms \geq 4.0 pCi/L: | 0 |
| Low Value: | < 0.4 |
| High Value: | 1.1 |

Project Status

Initial testing complete: No further action at this time



December 18, 2018

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

Re: Radon Testing Services

Location: Carderock Springs Elementary School
7401 Persimmon Tree Lane
Bethesda, MD 20817

Dear Mr. Cox:

Intertek-PSI (PSI) is pleased to submit the following report to the Montgomery County Public Schools (MCPS) for completion of a "short-term" 3-day radon test for Carderock Springs Elementary School, located at 7401 Persimmon Tree Lane, Bethesda, MD 20817 (subject site).

Scope of Services:

PSI conducted radon testing at the subject site to evaluate indoor radon levels relative to the USEPA's recommended action level of 4.0 picocuries per Liter (pCi/L) - the level at which EPA recommends that schools take action to reduce the level. PSI conducted the radon testing in accordance with American Association of Radon Scientists and Technologists (AARST) Protocol for Conducting Measurements of Radon and Radon Decay Products in Schools and Large Buildings. A National Radon Safety Board (NRSB) Radon Measurement Specialist (certification #14SS007) supervised the testing. Additional information on radon management and the health effects of radon exposure is available from www.montgomerycountymd.gov/dep/air/radon or www.epa.gov/radon.

PSI visited the site on November 27, 2018 and deployed fifty-six (56) activated charcoal (AC) radon test kits. PSI deployed radon test kits in frequently-occupied ground contact rooms, and other areas, (if applicable) in accordance with AARST guidance. PSI returned to the site on November 30, 2018 to retrieve the radon sampling test kits. A floor plan map of the building with the test locations is included as Attachment A of this report.

As a quality control measure, PSI included duplicate samples, field blanks, lab transit blanks, and office blanks in accordance with AARST recommendations. In addition, PSI submitted ten (10) test kits to Bowser-Morner Inc. as spike samples. The spiked tests were exposed to a known radon concentration by Bowser-Morner Inc. prior to being returned to the laboratory for analysis.

PSI shipped all radon tests via overnight delivery to AccuStar Labs for analysis by gamma-ray spectroscopy. AccuStar Labs is a NRSB certified analytical laboratory for radon analysis located at 929 Mount Zion Road, Lebanon, Pennsylvania (certification # ARL0007) and 2 Saber Way, Haverhill, Massachusetts (certification # ARL0017).



Evaluation of Testing Conditions:

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

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

PSI also conducted observations of field conditions which could affect the results of the test and compiled weather data for the testing period. PSI recorded observations of the following conditions in each room at the time of deployment and collection of the radon test kits:

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

Results:

The results of the radon test analysis indicated the following:

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

Notes:

D -Duplicate Sample

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

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

Laboratory results and exposure data for the spike samples are also included in Attachment C. Our professional services have been performed in accordance with customary principles and practices in the field of industrial hygiene and engineering. If you have any questions or comments regarding this report, please feel free to contact me at (703) 698-9300.



Respectfully Submitted,

INTERTEK-PSI

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

Nand Kaushik, P.E.
Department Manager, Environmental Services
Nand.Kaushik@intertek.com

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

ATTACHMENT B

Radon Test Summary Spreadsheet

| Radon Testing Results | | |
|--|--------------------|-----------------------|
| Carderock Springs Elementary School | | |
| Testing period: 11/27/18 - 11/30/18 | | |
| Kit Number | Room / Area | Result (pCi/L) |
| 3918421 | 3 | 0.4 |
| 3918424 | 4 | 0.5 |
| 3918439 | 7 | < 0.4 |
| 3918423 | 9 | < 0.4 |
| 3918428 | 15 | 0.5 |
| 3918431 | 16 | 0.8 |
| 3918430 | 19 | 0.4 |
| 3918432 | 20 | 0.5 |
| 3918436 | 21 | 0.4 |
| 3918435 | 24 | 0.6 |
| 3918438 | 25 | 0.6 |
| 3918437 | 28 | 0.7 |
| 3918419 | 30 | 0.5 |
| 3918415 | 33 | < 0.4 |
| 3918411 | 34 | 0.4 |
| 3918412 | 36 | 0.5 |
| 3918413 | 40 | 0.5 |
| 3918417 | 45 | 0.4 |
| 3918401 | 100 | 0.7 |
| 3918409 | 101 | 0.5 |
| 3918410 | 101 | 0.6 |
| 3918404 | 102 | 0.8 |
| 3917757 | 112 | 0.6 |
| 3917755 | 132 | 0.4 |
| 3917758 | 200 | < 0.4 |
| 3917759 | 206 | 0.5 |
| 3918403 | 100A | 1.0 |
| 3918406 | 100C | 1.1 |
| 3918407 | 100E | 0.8 |
| 3917753 | 101A | 0.6 |
| 3918405 | 102A | 0.8 |
| 3917756 | 135A | 0.4 |
| 3918425 | 13A | < 0.4 |
| 3918426 | 13B | 0.5 |
| 3918427 | 13C | 0.5 |
| 3918440 | 29C | 0.6 |
| 3918416 | 33C | < 0.4 |
| 3888350 | APR | < 0.4 |
| 3881170 | APR | < 0.4 |
| 3888340 | APR Stage | < 0.4 |
| 3881200 | Gym | 0.7 |
| 3888370 | Gym | 1.1 |
| 3918420 | Gym Office | 1.0 |

| Radon Testing Results | | |
|--|------------------------|-----------------------|
| Carderock Springs Elementary School | | |
| Testing period: 11/27/18 - 11/30/18 | | |
| Kit Number | Room / Area | Result (pCi/L) |
| 3918434 | Room Between 20 and 24 | 0.4 |

| Radon Testing Results | | |
|--|----------------|-----------------------|
| Carderock Springs Elementary School | | |
| Testing period: 11/27/18 - 11/30/18 | | |
| Kit Number | QC Type | Result (pCi/L) |
| 3918422 | 3 (D) | 0.4 |
| 3918429 | 15 (D) | 0.5 |
| 3918433 | 20 (D) | 0.7 |
| 3918414 | 40 (D) | < 0.4 |
| 3918418 | 45 (D) | < 0.4 |
| 3918408 | 100E (D) | 1.1 |
| 3917754 | 101A (D) | 0.7 |
| 3917760 | 206 (D) | 0.4 |
| 3917541 | Office Blank | < 0.4 |
| 3917551 | Transit Blank | < 0.4 |
| 3917558 | Field Blank | < 0.4 |
| 3917545 | Field Blank | < 0.4 |

Table Notes:

D – Duplicate

FB – Field Blank

OB – Office Blank

TB – Transit Blank

QC – Quality Control

ATTACHMENT C

Laboratory Analytical Results

NRPP 105011 AL
NRSB ARL0007

Laboratory Report for:

Property Tested: Project # 04481387-1

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

MCPS Radon Survey Carderock Springs ES
Not Indicated
Bethesda MD 20817

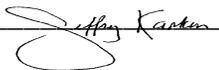
| Log Number | Device Number | Test Exposure Duration: | Area Tested | Result (pCi/L) |
|------------|---------------|--|-----------------------------|----------------|
| 3199300 | 3918421 | 11/27/2018 4:30 pm 11/30/2018 12:50 pm | Floor 1st Room 3 | 0.4 |
| 3199301 | 3918422 | 11/27/2018 4:30 pm 11/30/2018 12:50 pm | Floor 1st Room 3 Duplicate | 0.4 |
| 3199302 | 3918423 | 11/27/2018 4:34 pm 11/30/2018 12:52 pm | Floor 1st Room 9 | < 0.4 |
| 3199303 | 3918424 | 11/27/2018 4:36 pm 11/30/2018 12:53 pm | Floor 1st Room 4 | 0.5 |
| 3199304 | 3918425 | 11/27/2018 4:38 pm 11/30/2018 12:54 pm | Floor 1st Room 13A | < 0.4 |
| 3199305 | 3918426 | 11/27/2018 4:40 pm 11/30/2018 12:55 pm | Floor 1st Room 13B | 0.5 |
| 3199306 | 3918427 | 11/27/2018 4:42 pm 11/30/2018 12:56 pm | Floor 1st Room 13C | 0.5 |
| 3199307 | 3918428 | 11/27/2018 4:44 pm 11/30/2018 12:57 pm | Floor 1st Room 15 | 0.5 |
| 3199308 | 3918429 | 11/27/2018 4:44 pm 11/30/2018 12:57 pm | Floor 1st Room 15 Duplicate | 0.5 |
| 3199309 | 3918430 | 11/27/2018 4:48 pm 11/30/2018 12:59 pm | Floor 1st Room 19 | 0.4 |

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

Test Performed By: Nan Lin

Distributed by: Intertek-PSI (VA)

Date Received: 12/01/2018 Date Logged: 12/01/2018 Date Analyzed: 12/01/2018 Date Reported: 12/05/2018

Report Reviewed By: 

Report Approved By: 

Disclaimer:

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

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 105011 AL
NRSB ARL0007

Laboratory Report for:

Property Tested: Project # 04481387-1

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

MCPS Radon Survey Carderock Springs ES
Not Indicated
Bethesda MD 20817

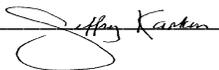
| Log Number | Device Number | Test Exposure Duration: | Area Tested | Result (pCi/L) |
|------------|---------------|---------------------------------------|---------------------------------------|----------------|
| 3199310 | 3918431 | 11/27/2018 4:50 pm 11/30/2018 1:00 pm | Floor 1st Room 16 | 0.8 |
| 3199311 | 3918432 | 11/27/2018 4:52 pm 11/30/2018 1:01 pm | Floor 1st Room 20 | 0.5 |
| 3199312 | 3918433 | 11/27/2018 4:52 pm 11/30/2018 1:01 pm | Floor 1st Room 20 Duplicate | 0.7 |
| 3199313 | 3918434 | 11/27/2018 4:56 pm 11/30/2018 1:03 pm | Floor 1st Room Room Between 20 and 24 | 0.4 |
| 3199314 | 3918435 | 11/27/2018 4:58 pm 11/30/2018 1:04 pm | Floor 1st Room 24 | 0.6 |
| 3199315 | 3918436 | 11/27/2018 5:00 pm 11/30/2018 1:05 pm | Floor 1st Room 21 | 0.4 |
| 3199316 | 3918437 | 11/27/2018 5:02 pm 11/30/2018 1:06 pm | Floor 1st Room 28 | 0.7 |
| 3199317 | 3918438 | 11/27/2018 5:04 pm 11/30/2018 1:07 pm | Floor 1st Room 25 | 0.6 |
| 3199318 | 3918439 | 11/27/2018 5:06 pm 11/30/2018 1:08 pm | Floor 1st Room 7 | < 0.4 |
| 3199319 | 3918440 | 11/27/2018 5:08 pm 11/30/2018 1:09 pm | Floor 1st Room 29C | 0.6 |

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

Test Performed By: Nan Lin

Distributed by: Intertek-PSI (VA)

Date Received: 12/01/2018 Date Logged: 12/01/2018 Date Analyzed: 12/01/2018 Date Reported: 12/05/2018

Report Reviewed By: 

Report Approved By: 

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NRPP 105011 AL
NRSB ARL0007

Laboratory Report for:

Property Tested: Project # 04481387-1

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

MCPS Radon Survey Carderock Springs ES
Not Indicated
Bethesda MD 20817

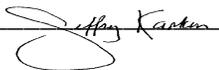
| Log Number | Device Number | Test Exposure Duration: | | Area Tested | Result (pCi/L) |
|------------|---------------|-------------------------|--------------------|-----------------------------|----------------|
| 3199320 | 3918411 | 11/27/2018 5:16 pm | 11/30/2018 1:13 pm | Floor 1st Room 34 | 0.4 |
| 3199321 | 3918412 | 11/27/2018 5:18 pm | 11/30/2018 1:14 pm | Floor 1st Room 36 | 0.5 |
| 3199322 | 3918413 | 11/27/2018 5:20 pm | 11/30/2018 1:15 pm | Floor 1st Room 40 | 0.5 |
| 3199323 | 3918414 | 11/27/2018 5:20 pm | 11/30/2018 1:15 pm | Floor 1st Room 40 Duplicate | < 0.4 |
| 3199324 | 3918415 | 11/27/2018 5:24 pm | 11/30/2018 1:17 pm | Floor 1st Room 33 | < 0.4 |
| 3199325 | 3918416 | 11/27/2018 5:26 pm | 11/30/2018 1:18 pm | Floor 1st Room 33C | < 0.4 |
| 3199326 | 3918417 | 11/27/2018 5:32 pm | 11/30/2018 1:21 pm | Floor 1st Room 45 | 0.4 |
| 3199327 | 3918418 | 11/27/2018 5:32 pm | 11/30/2018 1:21 pm | Floor 1st Room 45 Duplicate | < 0.4 |
| 3199328 | 3918420 | 11/27/2018 5:36 pm | 11/30/2018 1:23 pm | Floor 1st Room Gym Office | 1.0 |
| 3199329 | 3918419 | 11/27/2018 5:38 pm | 11/30/2018 1:24 pm | Floor 1st Room 30 | 0.5 |

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

Test Performed By: Nan Lin

Distributed by: Intertek-PSI (VA)

Date Received: 12/01/2018 Date Logged: 12/01/2018 Date Analyzed: 12/01/2018 Date Reported: 12/05/2018

Report Reviewed By: 

Report Approved By: 

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NRPP 105011 AL
NRSB ARL0007

Laboratory Report for:

Property Tested: Project # 04481387-1

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

MCPS Radon Survey Carderock Springs ES
Not Indicated
Bethesda MD 20817

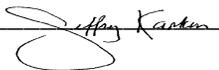
| Log Number | Device Number | Test Exposure Duration: | | Area Tested | Result (pCi/L) |
|------------|---------------|-------------------------|--------------------|-------------------------------|----------------|
| 3199330 | 3918401 | 11/27/2018 5:40 pm | 11/30/2018 1:25 pm | Floor 2nd Room 100 | 0.7 |
| 3199331 | 3918403 | 11/27/2018 5:42 pm | 11/30/2018 1:26 pm | Floor 2nd Room 100A | 1.0 |
| 3199332 | 3918404 | 11/27/2018 5:44 pm | 11/30/2018 1:27 pm | Floor 2nd Room 102 | 0.8 |
| 3199333 | 3918405 | 11/27/2018 5:46 pm | 11/30/2018 1:28 pm | Floor 2nd Room 102A | 0.8 |
| 3199334 | 3918406 | 11/27/2018 5:48 pm | 11/30/2018 1:29 pm | Floor 2nd Room 100C | 1.1 |
| 3199335 | 3918407 | 11/27/2018 5:50 pm | 11/30/2018 1:30 pm | Floor 2nd Room 100E | 0.8 |
| 3199336 | 3918408 | 11/27/2018 5:50 pm | 11/30/2018 1:30 pm | Floor 2nd Room 100E Duplicate | 1.1 |
| 3199337 | 3918409 | 11/27/2018 5:54 pm | 11/30/2018 1:32 pm | Floor 2nd Room 101 | 0.5 |
| 3199338 | 3918410 | 11/27/2018 5:56 pm | 11/30/2018 1:33 pm | Floor 2nd Room 101 | 0.6 |
| 3199339 | 3917753 | 11/27/2018 6:00 pm | 11/30/2018 1:33 pm | Floor 2nd Room 101A | 0.6 |

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

Test Performed By: Nan Lin

Distributed by: Intertek-PSI (VA)

Date Received: 12/01/2018 Date Logged: 12/01/2018 Date Analyzed: 12/01/2018 Date Reported: 12/05/2018

Report Reviewed By: 

Report Approved By: 

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NRPP 105011 AL
NRSB ARL0007

Laboratory Report for:

Property Tested: Project # 04481387-1

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

MCPS Radon Survey Carderock Springs ES
Not Indicated
Bethesda MD 20817

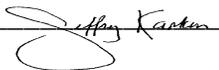
| Log Number | Device Number | Test Exposure Duration: | | Area Tested | Result (pCi/L) |
|------------|---------------|-------------------------|--------------------|-------------------------------|----------------|
| 3199340 | 3917754 | 11/27/2018 6:00 pm | 11/30/2018 1:35 pm | Floor 2nd Room 101A Duplicate | 0.7 |
| 3199341 | 3917755 | 11/27/2018 6:02 pm | 11/30/2018 1:36 pm | Floor 2nd Room 132 | 0.4 |
| 3199342 | 3917756 | 11/27/2018 6:04 pm | 11/30/2018 1:37 pm | Floor 2nd Room 135A | 0.4 |
| 3199343 | 3917757 | 11/27/2018 6:06 pm | 11/30/2018 1:38 pm | Floor 2nd Room 112 | 0.6 |
| 3199344 | 3917758 | 11/27/2018 6:08 pm | 11/30/2018 1:39 pm | Floor 3rd Room 200 | < 0.4 |
| 3199345 | 3917759 | 11/27/2018 6:12 pm | 11/30/2018 1:40 pm | Floor 3rd Room 206 | 0.5 |
| 3199346 | 3917760 | 11/27/2018 6:12 pm | 11/30/2018 1:40 pm | Floor 3rd Room 206 Duplicate | 0.4 |
| 3199347 | 3917541 | 11/27/2018 6:00 am | 11/30/2018 6:00 pm | Floor NA Room Office Blank | < 0.4 |
| 3199348 | 3917551 | 11/27/2018 6:00 am | 11/30/2018 6:00 pm | Floor NA Room Transit Blank | < 0.4 |
| 3199349 | 3917558 | 11/27/2018 4:30 pm | 11/30/2018 1:40 pm | Floor NA Room Field Blank | < 0.4 |

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

Test Performed By: Nan Lin

Distributed by: Intertek-PSI (VA)

Date Received: 12/01/2018 Date Logged: 12/01/2018 Date Analyzed: 12/01/2018 Date Reported: 12/05/2018

Report Reviewed By: 

Report Approved By: 

Disclaimer:

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NRPP 105011 AL
NRSB ARL0007

Laboratory Report for:

Property Tested: Project # 04481387-1

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

MCPS Radon Survey Carderock Springs ES
Not Indicated
Bethesda MD 20817

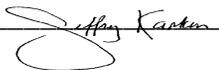
| Log Number | Device Number | Test Exposure Duration: | Area Tested | Result (pCi/L) |
|------------|---------------|---------------------------------------|---------------------------|----------------|
| 3199350 | 3917545 | 11/27/2018 4:30 pm 11/30/2018 1:40 pm | Floor NA Room Field Blank | < 0.4 |

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

Test Performed By: Nan Lin

Distributed by: Intertek-PSI (VA)

Date Received: 12/01/2018 Date Logged: 12/01/2018 Date Analyzed: 12/01/2018 Date Reported: 12/05/2018

Report Reviewed By: 

Report Approved By: 

Disclaimer:

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

Shawn Price, Director of Laboratory Operations, AccuStar Labs

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NELAC NY 11769
NRPP 103216 AL
NRSB ARL0017

EPA Method #402-R-92-004
Liquid Scintillation
NRPP Device Code 8088
NRSB Device Code 12193

Laboratory Report for:

Property Tested: Project # 04481387-1

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

MCPS Radon Survey
Carderock Springs ES
MD 20817

| Log Number | Device Number | Test Exposure Duration: | | Area Tested | Result pCi/L |
|------------|---------------|-------------------------|--------------------|--------------------------|--------------|
| 2401278 | 3888350 | 11/27/2018 5:10 pm | 11/30/2018 1:10 pm | Floor 1st Room APR | < 0.4 |
| 2401279 | 3881170 | 11/27/2018 5:12 pm | 11/30/2018 1:11 pm | Floor 1st Room APR | < 0.4 |
| 2401280 | 3888340 | 11/27/2018 5:14 pm | 11/30/2018 1:12 pm | Floor 1st Room APR Stage | < 0.4 |
| 2401281 | 3881200 | 11/27/2018 5:28 pm | 11/30/2018 1:19 pm | Floor 1st Room Gym | 0.7 |
| 2401282 | 3888370 | 11/27/2018 5:30 pm | 11/30/2018 1:20 pm | Floor 1st Room Gym | 1.1 |

Comment: A copy of this report was emailed to Intertek-PSI (VA).

Distributed by: Intertek-PSI (VA)

Date Received: 12/03/2018 Date Logged: 12/03/2018 Date Analyzed: 12/04/2018 Date Reported: 12/04/2018

Report Reviewed By: 

Report Approved By: 

Disclaimer:

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

Shawn Price, Director of Laboratory Operations, AccuStar Labs

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NRPP 105011 AL
NRSB ARL0007
Ohio RL41

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

Laboratory Report for:

Property Tested:

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

MCPS Radon Survey
4514 Taylorsville Road
Dayton OH 45424

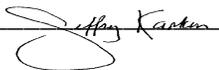
| Log Number | Device Number | Test Exposure Duration: | | Area Tested | Result pCi/L |
|------------|---------------|-------------------------|--------------------|-------------|--------------|
| 3204125 | 3926831 | 12/07/2018 9:47 am | 12/10/2018 9:47 am | Spike | 36.1 |
| 3204126 | 3926832 | 12/07/2018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

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

Test Performed By: Unknown

Distributed by: Intertek-PSI (VA)

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

Report Reviewed By: 

Report Approved By: 

Disclaimer:

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

Shawn Price, Director of Laboratory Operations, AccuStar Labs

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.

EXPOSURE IN BOWSER-MORNER RADON CHAMBER

CLIENT Intertek - PSI

Job Number 187732

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

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

Date Start: _____ Date Stop: _____

Time Start: 0947 Time Stop: 0947

Time Start: _____ Time Stop: _____

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

Device No.'s: _____

3926831 thru 3926840

G2 left

Date Start: _____ Date Stop: _____

Date Start: _____ Date Stop: _____

Time Start: _____ Time Stop: _____

Time Start: _____ Time Stop: _____

Device No.'s: _____

Device No.'s: _____

Date Start: _____ Date Stop: _____

Date Start: _____ Date Stop: _____

Time Start: _____ Time Stop: _____

Time Start: _____ Time Stop: _____

Device No.'s: _____

Device No.'s: _____

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



Chain of Custody

Project Name: MCPS Radon Survey 2018

Name of Schools:

1. Ashburton ES
2. Carderock Springs ES
3. Diamond ES
4. Fox Chapel ES
5. Baker MS
6. Damascus ES
7. Clemente MS
8. Clopper Mill ES
9. Broad Acres ES
10. Greencastle ES
11. Harmony Hills ES
12. Silver Spring International MS
13. Gaithersburg MS
14. Garrett Park ES
15. New Hampshire Estates ES
16. Georgian Forest ES

| | Date | Initials |
|----------------------------------|--|----------|
| Radon Test Kits Deployed | 11/27/2018 | NL |
| Radon Test Kits Sampled | 11/30/2018 | NL |
| Radon Test Kits Shipped to Lab* | 11/30/2018 | NL |
| Radon Test Kits Received by Lab* | 12/01/2018; 12/02/2018; 12/03/2018 | NL |

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



MCPS RADON TESTING

Executive Summary: Carderock Springs Elementary School

| | |
|---------------------------|--|
| Date of Test Report: | 2/03/2016 (Rev 1) |
| Round of Testing: | Initial Follow-up Post Remediation |
| # Rooms Tested: | 33 |
| # Rooms \geq 4.0 pCi/L: | 0 |
| Low Value: | < 0.3 |
| High Value: | 1.6 |

Project Status:

Initial testing completed; no further action at this time.



February 3, 2016 (Rev 1)

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

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

Location: Carderock Springs Elementary School
7401 Persimmon Tree Lane
Bethesda, MD 20817

Dear Mr. Cox:

KCI Technologies, Inc. (KCI) is pleased to submit the following report to the Montgomery County Public Schools (MCPS) pursuant to completing a “short-term” 3 day radon test for the Carderock Springs Elementary School, located at 7401 Persimmon Tree Lane in Bethesda, Maryland 20817 (subject site).

Scope of Services:

KCI conducted radon testing at the subject site to evaluate indoor radon levels relative to the USEPA's recommended action level of 4.0 picocuries per Liter (pCi/L) - the level at which EPA recommends that schools take action to reduce the level. KCI conducted the radon testing in accordance with American Association of Radon Scientists and Technologists (AARST) *Protocol for Conducting Measurements of Radon and Radon Decay Products in Schools and Large Buildings*. A National Radon Safety Board (NRSB) Radon Measurement Specialist (certification #14SS056) supervised the testing. Additional information on radon management and the health effects of radon exposure is available from www.montgomerycountymd.gov/dep/air/radon or www.epa.gov/radon.

KCI visited the site on January 11, 2016 and deployed forty-three (43) activated charcoal (AC) radon test kits. KCI deployed radon test kits in frequently-occupied ground contact rooms, and other areas, (if applicable) in accordance with AARST guidance. A floor plan map of the building with the test locations is included as Attachment A of this report.

As a quality control measure, KCI included duplicate samples, field blanks, lab transit blanks, and office blanks in accordance with AARST recommendations. In addition, KCI submitted six (6) test kits to Bowser-Morner, Inc. as spike samples. The spiked tests were exposed to a known radon concentration by Bowser-Morner prior to being returned to the laboratory for analysis.

KCI returned to the site on January 14, 2016 to retrieve the radon sampling test kits. KCI shipped all radon tests via overnight delivery to Airchek, Inc. for analysis by gamma-ray spectroscopy. Airchek, Inc. is a NRSB certified analytical laboratory for radon analysis (certification # ARL1402) located at 1936

Butler Bridge Road, Mills River, North Carolina.

Evaluation of Testing Conditions:

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

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

KCI also conducted observations of field conditions which could affect the results of the test and compiled weather data for the testing period. KCI recorded observations of the following conditions in each room at the time of deployment and collection of the radon test kits:

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

Results:

The results of the radon test analysis indicated the following:

| Radon Concentration | Room | Result |
|----------------------------|------------------|---------------|
| ≥ 4.0 pCi/L | none | n/a |
| < 4.0 pCi/L | See Attachment B | |

Notes:
D- Duplicate sample

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

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

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

Sincerely,



H. Allen Bennett
Certified Industrial Hygienist
KCI Technologies, Inc.

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

ATTACHMENT A

Floor Plan With Test Locations

ATTACHMENT B

Radon Test Summary Spreadsheet

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 | | |
|--|--------------------|---------------|
| Carderock Springs Elementary School | | |
| Test Period: 01/11/16-01/14/16 | | |
| Kit Number | Room / Area | Result |
| 7722085 | 3 | < 0.3 |
| 7722086 | 7 | 0.6 |
| 7722080 | 15 | 0.6 |
| 7722079 | 16 | 0.8 |
| 7722078 | 19 | < 0.3 |
| 7722077 | 20 | < 0.3 |
| 7722071 | 21 | < 0.3 |
| 7722075 | 22 | < 0.3 |
| 7722074 | 24 | < 0.3 |
| 7722070 | 25 | < 0.3 |
| 7722073 | 28 | 0.5 |
| 7722100 | 29 | 0.9 |
| 7722091 | 29 | < 0.3 |
| 7722098 | 30 | < 0.3 |
| 7722094 | 33 | < 0.3 |
| 7722099 | 34 | 0.7 |
| 7722095 | 36 | < 0.3 |
| 7722092 | 40 | 1.1 |
| 7722090 | 42 | 1.2 |
| 7722087 | 42 | 1.4 |
| 7722062 | 100 | 0.9 |
| 7722069 | 102 | < 0.3 |
| 7722065 | 112 | < 0.3 |
| 7722059 | 115 | < 0.3 |
| 7722054 | 212 | 0.6 |
| 7722072 | 100A | 0.8 |
| 7722064 | 100B | 0.5 |
| 7722068 | 100C | 0.8 |
| 7722061 | 102A | 0.6 |
| 7722063 | 135B | 0.7 |
| 7722081 | 13A | < 0.3 |
| 7722082 | 13B | < 0.3 |
| 7722083 | 13C | < 0.3 |
| 7722096 | 33C | < 0.3 |
| 7722097 | 42A | 1.6 |

Table Note:

* Missing or Compromised Sample

| Radon Testing Results | | |
|--|----------------|---------------|
| Carderock Springs Elementary School | | |
| Test Period: 01/11/16-01/14/16 | | |
| Kit Number | QC Type | Result |
| 7722067 | D (135B) | < 0.3 |
| 7722055 | D (212) | < 0.3 |
| 7722066 | D (28) | < 0.3 |
| 7722089 | D (3) | < 0.3 |
| 7722088 | D (42) | 1.3 |
| 7722084 | FB (3) | < 0.3 |
| 7722093 | FB (42) | < 0.3 |
| 7721795 | OB (0) | < 0.3 |

Table Note:

* Missing or Compromised Sample

ATTACHMENT C

Laboratory Analytical Results

February 1, 2016
LABORATORY ANALYSIS REPORT **

Radon test result report for:
**CARDEROCK SPRINGS ELEMENTARY SCHOOL
MAIN**

| Kit # | Room Id | Started | Ended | pCi/L | Analyzed |
|---------|---------|-----------------------|----------------------|-----------|------------|
| 7721795 | 0 | 2016-01-11 @ 4:00 pm | 2016-01-14 @ 1:00 pm | < 0.3 | 2016-01-18 |
| 7722062 | 100 | 2016-01-11 @ 10:00 am | 2016-01-14 @ 8:00 am | 0.9 ± 0.3 | 2016-01-18 |
| 7722072 | 100A | 2016-01-11 @ 10:00 am | 2016-01-14 @ 9:00 am | 0.8 ± 0.3 | 2016-01-18 |
| 7722064 | 100B | 2016-01-11 @ 10:00 am | 2016-01-14 @ 9:00 am | 0.5 ± 0.3 | 2016-01-18 |
| 7722068 | 100C | 2016-01-11 @ 10:00 am | 2016-01-14 @ 9:00 am | 0.8 ± 0.3 | 2016-01-18 |
| 7722069 | 102 | 2016-01-11 @ 10:00 am | 2016-01-14 @ 8:00 am | < 0.3 | 2016-01-20 |
| 7722061 | 102A | 2016-01-11 @ 10:00 am | 2016-01-14 @ 9:00 am | 0.6 ± 0.4 | 2016-01-20 |
| 7722065 | 112 | 2016-01-11 @ 10:00 am | 2016-01-14 @ 9:00 am | < 0.3 | 2016-01-20 |
| 7722059 | 115 | 2016-01-11 @ 10:00 am | 2016-01-14 @ 9:00 am | < 0.3 | 2016-01-20 |
| 7722063 | 135B | 2016-01-11 @ 10:00 am | 2016-01-14 @ 9:00 am | 0.7 ± 0.4 | 2016-01-20 |
| 7722067 | 135B | 2016-01-11 @ 10:00 am | 2016-01-14 @ 9:00 am | < 0.3 | 2016-01-20 |
| 7722081 | 13A | 2016-01-11 @ 9:00 am | 2016-01-14 @ 9:00 am | < 0.3 | 2016-01-20 |
| 7722082 | 13B | 2016-01-11 @ 9:00 am | 2016-01-14 @ 9:00 am | < 0.3 | 2016-01-18 |
| 7722083 | 13C | 2016-01-11 @ 9:00 am | 2016-01-14 @ 9:00 am | < 0.3 | 2016-01-18 |
| 7722080 | 15 | 2016-01-11 @ 9:00 am | 2016-01-14 @ 9:00 am | 0.6 ± 0.4 | 2016-01-20 |
| 7722079 | 16 | 2016-01-11 @ 9:00 am | 2016-01-14 @ 9:00 am | 0.8 ± 0.3 | 2016-01-18 |
| 7722078 | 19 | 2016-01-11 @ 9:00 am | 2016-01-14 @ 9:00 am | < 0.3 | 2016-01-18 |
| 7722077 | 20 | 2016-01-11 @ 9:00 am | 2016-01-14 @ 9:00 am | < 0.3 | 2016-01-18 |
| 7722071 | 21 | 2016-01-11 @ 9:00 am | 2016-01-14 @ 9:00 am | < 0.3 | 2016-01-18 |
| 7722054 | 212 | 2016-01-11 @ 10:00 am | 2016-01-14 @ 9:00 am | 0.6 ± 0.3 | 2016-01-18 |
| 7722055 | 212 | 2016-01-11 @ 10:00 am | 2016-01-14 @ 9:00 am | < 0.3 | 2016-01-18 |
| 7722075 | 22 | 2016-01-11 @ 9:00 am | 2016-01-14 @ 9:00 am | < 0.3 | 2016-01-18 |
| 7722074 | 24 | 2016-01-11 @ 9:00 am | 2016-01-14 @ 9:00 am | < 0.3 | 2016-01-18 |
| 7722070 | 25 | 2016-01-11 @ 10:00 am | 2016-01-14 @ 9:00 am | < 0.3 | 2016-01-20 |
| 7722066 | 28 | 2016-01-11 @ 10:00 am | 2016-01-14 @ 9:00 am | < 0.3 | 2016-01-18 |
| 7722073 | 28 | 2016-01-11 @ 10:00 am | 2016-01-14 @ 9:00 am | 0.5 ± 0.3 | 2016-01-18 |
| 7722091 | 29 | 2016-01-11 @ 9:00 am | 2016-01-14 @ 9:00 am | < 0.3 | 2016-01-18 |
| 7722100 | 29 | 2016-01-11 @ 9:00 am | 2016-01-14 @ 9:00 am | 0.9 ± 0.3 | 2016-01-18 |
| 7722089 | 3 | 2016-01-11 @ 9:00 am | 2016-01-14 @ 9:00 am | < 0.3 | 2016-01-18 |
| 7722084 | 3 | 2016-01-11 @ 9:00 am | 2016-01-14 @ 9:00 am | < 0.3 | 2016-01-18 |
| 7722085 | 3 | 2016-01-11 @ 9:00 am | 2016-01-14 @ 9:00 am | < 0.3 | 2016-01-18 |
| 7722098 | 30 | 2016-01-11 @ 9:00 am | 2016-01-14 @ 9:00 am | < 0.3 | 2016-01-18 |
| 7722094 | 33 | 2016-01-11 @ 9:00 am | 2016-01-14 @ 9:00 am | < 0.3 | 2016-01-18 |
| 7722096 | 33C | 2016-01-11 @ 9:00 am | 2016-01-14 @ 9:00 am | < 0.3 | 2016-01-20 |
| 7722099 | 34 | 2016-01-11 @ 9:00 am | 2016-01-14 @ 9:00 am | 0.7 ± 0.4 | 2016-01-20 |
| 7722095 | 36 | 2016-01-11 @ 9:00 am | 2016-01-14 @ 9:00 am | < 0.3 | 2016-01-18 |
| 7722092 | 40 | 2016-01-11 @ 9:00 am | 2016-01-14 @ 9:00 am | 1.1 ± 0.3 | 2016-01-18 |

February 1, 2016 **** LABORATORY ANALYSIS REPORT ****

Radon test result report for:
**CARDEROCK SPRINGS ELEMENTARY SCHOOL
MAIN**

| Kit # | Room Id | Started | Ended | pCi/L | Analyzed |
|--------------|----------------|----------------------|----------------------|--------------|-----------------|
| 7722090 | 42 | 2016-01-11 @ 9:00 am | 2016-01-14 @ 9:00 am | 1.2 ± 0.3 | 2016-01-18 |
| 7722093 | 42 | 2016-01-11 @ 9:00 am | 2016-01-14 @ 9:00 am | < 0.3 | 2016-01-18 |
| 7722087 | 42 | 2016-01-11 @ 9:00 am | 2016-01-14 @ 9:00 am | 1.4 ± 0.3 | 2016-01-18 |
| 7722088 | 42 | 2016-01-11 @ 9:00 am | 2016-01-14 @ 9:00 am | 1.3 ± 0.3 | 2016-01-18 |
| 7722097 | 42A | 2016-01-11 @ 9:00 am | 2016-01-14 @ 9:00 am | 1.6 ± 0.3 | 2016-01-18 |
| 7722086 | 7 | 2016-01-11 @ 9:00 am | 2016-01-14 @ 9:00 am | 0.6 ± 0.3 | 2016-01-18 |

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

February 2, 2016
LABORATORY ANALYSIS REPORT

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

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

December
23,
2015

**LABORATORY ANALYSIS
REPORT ****

Spike Sample Laboratory Results

Radon test result report for:
MCPS

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

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 173224

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

Date Start: 12/18/15 Date Stop: 12/21/15 Date Start: _____ Date Stop: _____

Time Start: 0929 Time Stop: 0929 Time Start: _____ Time Stop: _____

Device No.'s: 7705132, 7706208, Device No.'s: _____

7706211, 7706366, _____

7706380, 7706381 _____

F3 Left

Date Start: _____ Date Stop: _____ Date Start: _____ Date Stop: _____

Time Start: _____ Time Stop: _____ Time Start: _____ Time Stop: _____

Device No.'s: _____ Device No.'s: _____

Date Start: _____ Date Stop: _____ Date Start: _____ Date Stop: _____

Time Start: _____ Time Stop: _____ Time Start: _____ Time Stop: _____

Device No.'s: _____ Device No.'s: _____

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



Chain of Custody

Project Name: MCPS Radon Phase V

Name of Schools:

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

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

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