



December 23, 2024

Mr. Nick Olson/FMCS Director
Council Bluffs Community School District
300 W. Broadway, Ste 1600
Council Bluffs, IA, 51503
nolson@cb-schools.org

Subject: Report for Radon Post Mitigation Testing Services
Lewis & Clark Elementary School
1603 Grand Avenue
Council Bluffs, Iowa
Atlas Project No. 240BS08039.B

Dear Mr. Olson:

Atlas Technical Consultants LLC (Atlas) is pleased to provide Council Bluffs Community School District (Client) with the results of the radon testing services for the above-referenced property

PROJECT DESCRIPTION

Atlas Technical Consultants (Atlas) conducted short-term radon measurement for Council Bluffs Community School District (Client) at Lewis & Clark Elementary School located at 1603 Grand Avenue in Council Bluffs, Iowa. The objectives were to collect radon measurements following radon mitigation efforts and to compare measured radon concentrations to regulatory evaluation criteria.

Standard Of Care

This measurement event was conducted based on information provided to Atlas by the Client and was conducted in a manner consistent with the level of care and skill ordinarily exercised by members of the profession currently practicing under similar conditions in the same locale. Atlas did not attempt to identify every potential exposure or hazard present in the building. The results, findings, conclusions, and recommendations expressed in this report are based on conditions observed during our measurement activities. The information contained in this report should not be relied upon to represent conditions that existed prior to or after this measurement event. Atlas does not warrant the services of regulatory agencies, laboratories, or other third parties supplying information that may have been used in the preparation of this report.

Reliance

This report is for the exclusive use of the Client. Reliance by any other party on this report is prohibited without written authorization of Atlas and the Client. Reliance on this report by the Client and all authorized parties will be subject to the terms, conditions, and limitations stated in the proposal, this report, and the project contract.



FIELD ACTIVITIES

The Client was informed, prior to the measurement event, that closed-building conditions were to be maintained starting 12-hours prior to the start of measurement and throughout the entire measurement period.

- Closed building conditions include, but are not limited to:
 - Keeping windows closed, including in areas not being tested.
 - Exterior doors being kept closed except for momentary entry and exit.
 - Heating and cooling systems set to normal operation.
 - Fireplaces not being used.

Initial radon measurements were collected from January 8-10, 2024, and post mitigation measurements were collected from December 9-11, 2024, by Mr. Stephen Sycuro, an Iowa certified Radon Measurement Specialist (certification number RNTST10107), in accordance with guidelines set forth by the United States Environmental Protection Agency (USEPA) and the Iowa Department of Public Health (IDPH). Mr. Sycuro's certification can be found in [Appendix B](#).

Atlas collected measurements for airborne radon concentrations at 14 first floor locations. Two duplicate and one field blank measurement for quality control purposes were also collected.

METHODS

Radon measurements were collected in general accordance with the American National Standards Institute (ANSI)/American Association of Radon Scientists and Technologists, Inc. (AARST) Protocol for Conducting Measurements of Radon and Radon Decay Products in Multifamily, School, Commercial and Mixed-Use Buildings (MA-MFLB 2023) using Iowa-approved activated charcoal devices. The devices were placed between two feet and six feet above the floor surface, in areas of normal air circulation, and away from air vents, doors, and windows. HVAC systems in the areas were set to auto and appeared to be working properly. Atlas assessed each location to ensure that closed-building conditions were met at the time of placement and at the time of collection of the devices. The devices were retrieved 48 hours after placement.

Analyzed devices included ANSI/AARST Protocol and IDPH required duplicates (10% of devices) and blanks (5% of devices).

Field blanks and duplicate devices were blindly submitted to the laboratory so a distinction could not be made between the devices for internal quality control purposes. A field log identifying measurement locations and summarizing the laboratory analytical results is also attached.

Activated charcoal devices used for sampling were shipped under chain-of-custody to Air Chek, Inc., in Ward Hill, Massachusetts for laboratory analysis to detect gamma rays by scintillation counting using sodium iodide detectors. Air Chek, Inc. is an Iowa-certified radon laboratory.

The laboratory analytical results and field log are included in [Appendix A](#).

EVALUATION CRITERIA

The following has been excerpted from the ANSI/AARST Protocol for Conducting Measurements of Radon and Radon Decay Products In Multifamily, School, Commercial and Mixed-Use Buildings (MA-MFLB 2023)



– Section 7.1: Action Level Guidance. The following action level descriptions reflect guidance from the USEPA:

4 pCi/L or greater: Fix the building. The higher the radon concentration, the more quickly action should be taken to reduce the concentrations.

Between 2.0 and 4.0 pCi/L: Consider fixing the building if test results indicate that radon concentrations are greater than half the action level, such as between 2 and 4 pCi/L.

Less than or equal to 2.0 pCi/L: When measurement devices indicate concentrations lower than about 2.0 pCi/L, test data should normally be interpreted as being lower than the test device can accurately measure.

If test results are below the action level, confirm the low results by testing again, at least every 5 years and whenever significant changes to the building’s structure or mechanical systems occur or every 2 years if there is an active mitigation system installed to ensure continued effectiveness.

FINDINGS

During the January, 2024 testing event, Radon concentrations were detected at or above 4.0 pCi/L in 14 of the samples collected at the site. The site contact indicated that adjustments had been made to the HVAC system in an attempt to mitigate elevated radon concentrations detected at the site. Atlas conducted follow-up testing at the site from December 9-11, 2024. Post mitigation radon concentrations **were not detected** at or above 4.0 pCi/L in the samples collected at the site.

Table 1.0
Average Radon Concentrations

Room/Area	January 2024 Radon Concentration pCi/L	December, 2024 Radon Concentration pCi/L
123	5.3	< 0.3
127	7	< 0.3
131	4.9	0.5
136	5	0.6
139	6.4	< 0.3
141	4.6	0.7
144	5.5	< 0.3
154	4.3	< 0.3
172	8.7	< 0.3
182/182 Duplicate	5	< 0.3/< 0.3
186	6.5	0.5
187/187 Duplicate	8.3/8.7	0.8/< 0.3
162 (171)	4.3	<0.3

Post mitigation radon concentrations **were not detected** between 2.0 and 4.0 pCi/L in the samples collected at the site.

Atlas personnel did not see signs that the other devices were tampered with after initial placement.

Results for measurements collected for quality control purposes were found to be within control limits. These results are used to help measure precision and evaluate bias associated with radon concentrations.



RECOMMENDATIONS

Based on the results of the measurements and using guidance from ANSI/AARST, USEPA and NEDHHS, Atlas recommends the following:

Per section 8.2.5 of the ANSI/AARST Protocol, additional testing should take place when one or more of the following conditions are met:

- A new addition is constructed or alterations for building reconfiguration or rehabilitation occur;
- A ground contact area not previously tested is occupied, or a building is newly occupied;
- Heating or cooling systems are significantly altered, resulting in changes to air pressures or pressure relationships;
- Ventilation is significantly altered by extensive weatherization, changes to mechanical systems or comparable procedures;
- Significant openings to soil occur due to:
 - Groundwater or slab surface water control systems that are altered or added (e.g., sumps, perimeter drain tile, shower/tub retrofits, etc.) or,
 - Natural settlement causing major cracks to develop;
- Earthquakes or construction blasting, fracking or formation of sink holes nearby;
- A mitigation system is altered, modified or repaired.
- Significant openings to soil occur due to:
- HVAC equipment is added, removed, replaced, operated differently or improperly maintained;
- Significant changes to the slab or foundation, such as major cracks or penetrations from natural settling, or water proofing or groundwater control efforts;
- An installed mitigation system is altered, modified or repaired;
- A ground contact area that was not previously tested is occupied; or
- Every five years.

Should testing indicate concentrations that meet or exceed the action level, conduct evaluations, corrections and further testing until radon concentrations have been mitigated to below the action level.

Please note that there is some uncertainty associated with radon measurement. Factors that effect this uncertainty include statistical variations related to seasonal weather and building operation, as well as operation of building mechanical equipment.

LIMITATIONS

Atlas's radon testing services represent the concentrations only during the time that the testing occurred. There is an uncertainty with any measurement result due to statistical variations and other factors such as daily and seasonal variations in radon concentrations. Variations may be due to changes in the weather, operation of the dwelling, or possible interference with the necessary test conditions.

The results, findings, and conclusions expressed in this report are based only on conditions observed during our survey. Atlas makes no representation or assumptions as to past conditions or future occurrences. The findings of this report represent Atlas's professional judgment; no other warranty is expressed or implied.

Atlas recommends that the Client comply with regulations and response actions in accordance with federal, state, and local regulations. Atlas does not undertake responsibility for the persons in charge of the subject



property or the responsibility for reporting to any local, state, or federal public agencies regarding conditions that may present a potential danger to public health or safety.

Our professional services have been performed, our findings obtained, and our conclusions and recommendations prepared in accordance with customary principles and practices in the fields of environmental science and engineering. This statement is in lieu of other statements either expressed or implied. This report does not warrant against future operations or conditions, nor does it warrant against operations or conditions present of a type or at a location not investigated.

This report is for the exclusive use of the Client as addressed. The scope of services performed in the execution of this evaluation may not be appropriate to satisfy the needs of other users and use or re-use of this document or the findings, conclusions, or recommendations is at the risk of said user.

Atlas appreciates the opportunity to provide you with these services and looks forward to working with you on future assignments. If you have questions regarding the information in this report or if we can be of further assistance, please do not hesitate to contact the Omaha, Nebraska office at (402) 697-9747.

Respectfully submitted,

ATLAS TECHNICAL CONSULTANTS LLC

A handwritten signature in black ink, appearing to read "Stephen Sycuro".

Stephen Sycuro CIE, OHST
Project Manager
Email: Stephen.Sycuro@oneatlas.com
IA Radon Measurement Specialist
#RNTST10107

A handwritten signature in black ink, appearing to read "Phillip Thomas".

Phillip Thomas, OHST, CHMM
Senior Project Manager
Email: Phillip.Thomas@oneatlas.com
IA Radon Measurement Specialist
#RNTST09025

APPENDICES


APPENDIX A – LABORATORY RESULTS & FIELD LOG

APPENDIX B – STAFF CERTIFICATIONS

APPENDIX A
LABORATORY RESULTS & FIELD LOG

P9319 / STEPHEN SYCURO / ATLAS TECHNICAL CONSULTANTS

Kit Number	Start Date	Start Time	End Date	End Time	Temp.	Facility	Building	Room	Project ID	Floor	Result
11891425	2024-12-09	4:00 pm	2024-12-11	4:00 pm	72	LEWIS & CLARK	SCHOOL	127	204BS08039B	1	< 0.3
11891426	2024-12-09	4:00 pm	2024-12-11	4:00 pm	72	LEWIS & CLARK	SCHOOL	131	204BS08039B	1	0.5
11891427	2024-12-09	4:00 pm	2024-12-11	4:00 pm	72	LEWIS & CLARK	SCHOOL	136	204BS08039B	1	0.6
11891428	2024-12-09	4:00 pm	2024-12-11	4:00 pm	72	LEWIS & CLARK	SCHOOL	139	204BS08039B	1	< 0.3
11891429	2024-12-09	4:00 pm	2024-12-11	4:00 pm	72	LEWIS & CLARK	SCHOOL	123	204BS08039B	1	< 0.3
11891430	2024-12-09	4:00 pm	2024-12-11	4:00 pm	72	LEWIS & CLARK	SCHOOL	141	204BS08039B	1	0.7
11891431	2024-12-09	4:00 pm	2024-12-11	4:00 pm	72	LEWIS & CLARK	SCHOOL	144	204BS08039B	1	< 0.3
11891432	2024-12-09	4:00 pm	2024-12-11	4:00 pm	72	LEWIS & CLARK	SCHOOL	172	204BS08039B	1	< 0.3
11891433	2024-12-09	4:00 pm	2024-12-11	4:00 pm	72	LEWIS & CLARK	SCHOOL	154	204BS08039B	1	< 0.3
11891434	2024-12-09	4:00 pm	2024-12-11	4:00 pm	72	LEWIS & CLARK	SCHOOL	162	204BS08039B	1	< 0.3
11891435	2024-12-09	4:00 pm	2024-12-11	4:00 pm	72	LEWIS & CLARK	SCHOOL	187	204BS08039B	1	0.8
11891436	2024-12-09	4:00 pm	2024-12-11	4:00 pm	72	LEWIS & CLARK	SCHOOL	187	204BS08039B	1	< 0.3
11891437	2024-12-09	4:00 pm	2024-12-11	4:00 pm	72	LEWIS & CLARK	SCHOOL	186	204BS08039B	1	0.5
11891438	2024-12-09	4:00 pm	2024-12-11	4:00 pm	72	LEWIS & CLARK	SCHOOL	186	204BS08039B	1	< 0.3
11891443	2024-12-09	4:00 pm	2024-12-11	4:00 pm	72	LEWIS & CLARK	SCHOOL	182	204BS08039B	1	< 0.3
11891444	2024-12-09	4:00 pm	2024-12-11	4:00 pm	72	LEWIS & CLARK	SCHOOL	182	204BS08039B	1	< 0.3

Facility:	Lewis & Clark Elementary School			# of Residence Devices:	0	
Address:	1603 Grand Avenue, Council Bluffs, IA			# of NR Devices:	13	
Contact:	Nick Olson			Duplicates:	2	
Set/Type/RS:	12/9/2024	ST	Stephen Sycuro	Blanks:	1	
Retrieve/Type/RS:	12/11/2024	ST	Stephen Sycuro	Total # of Devices:	16	

Serial Number	Start Date	Start Time	Stop Date	Stop Time	Temp.	Facility	Building	Room	Proj. ID	Floor	Result pCi/L
11891425	12/09/2024	1600	12/11/2024	1600	72	Lewis & Clark	School	127	204BS08039B	1	< 0.3
11891426	12/09/2024	1600	12/11/2024	1600	72	Lewis & Clark	School	131	204BS08039B	1	0.5
11891427	12/09/2024	1600	12/11/2024	1600	72	Lewis & Clark	School	136	204BS08039B	1	0.6
11891428	12/09/2024	1600	12/11/2024	1600	72	Lewis & Clark	School	139	204BS08039B	1	< 0.3
11891429	12/09/2024	1600	12/11/2024	1600	72	Lewis & Clark	School	123	204BS08039B	1	< 0.3
11891430	12/09/2024	1600	12/11/2024	1600	72	Lewis & Clark	School	141	204BS08039B	1	0.7
11891431	12/09/2024	1600	12/11/2024	1600	72	Lewis & Clark	School	144	204BS08039B	1	< 0.3
11891432	12/09/2024	1600	12/11/2024	1600	72	Lewis & Clark	School	172	204BS08039B	1	< 0.3
11891433	12/09/2024	1600	12/11/2024	1600	72	Lewis & Clark	School	154	204BS08039B	1	< 0.3
11891434	12/09/2024	1600	12/11/2024	1600	72	Lewis & Clark	School	162	204BS08039B	1	< 0.3
11891435	12/09/2024	1600	12/11/2024	1600	72	Lewis & Clark	School	187	204BS08039B	1	0.8
11891436	12/09/2024	1600	12/11/2024	1600	72	Lewis & Clark	School	187 Duplicate	204BS08039B	1	< 0.3
11891437	12/09/2024	1600	12/11/2024	1600	72	Lewis & Clark	School	186	204BS08039B	1	0.5
11891438	12/09/2024	1600	12/11/2024	1600	72	Lewis & Clark	School	186 Blank	204BS08039B	1	< 0.3
11891443	12/09/2024	1600	12/11/2024	1600	72	Lewis & Clark	School	182	204BS08039B	1	< 0.3
11891444	12/09/2024	1600	12/11/2024	1600	72	Lewis & Clark	School	182 Dup	204BS08039B	1	< 0.3

APPENDIX B
STAFF CERTIFICATIONS

**Bureau of Radiological Health
Radon Measurement Specialist Certification**

Stephen Sycuro

Certification #: RNTST10107

Has complied with the requirements and is hereby authorized to perform radon testing pursuant to Iowa code 136B and 641 Iowa Administrative Code Chapter 43.

Approved Testing Methods:

AT-Alpha-Track Detection

CC-Activated Charcoal Adsorption

LS-Charcoal Liquid Scintillation

Expiration: June 30, 2025



CEU Due Date: June 30, 2025

Radiological Health | Iowa Department of Public Health | Lucas State Office Building | Des Moines, IA 50319

Fold here to mail - Cut here to display

Stephen Sycuro
11117 MOCKINGBIRD DRIVE
OMAHA, NE 68137
UNITED STA

Fold here to mail

**Bureau of Radiological Health
Radon Measurement Specialist Certification**

Phillip Thomas

Certification #: RNTST09025

Has complied with the requirements and is hereby authorized to perform radon testing pursuant to Iowa code 136B and 641 Iowa Administrative Code Chapter 43.

Approved Testing Methods:
CC-Activated Charcoal Adsorption

Expiration: March 31, 2025



CEU Due Date: March 31, 2026

Radiological Health | Iowa Department of Public Health | Lucas State Office Building | Des Moines, IA 50319

Fold here to mail - Cut here to display

Phillip Thomas
12919 CHURCH ROAD
LOUISVILLE, NE 68037

Fold here to mail