

INDUSTRIAL HYGIENE REPORT

McNary High School

Report to: Vonnie Good, Risk Management

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On-site: November 27-30, 2012

Report: December 5, 2012

PURPOSE

Radon monitoring was done to measure the background levels in all classrooms, offices and staff work rooms that are in contact with the ground or below ground level.

TEST METHOD

Radon Air-Chek short-term test devices were used in each location by placing the device 5-6 feet above the floor where it is not in direct contact with airflow from the ventilation system, windows or exterior doors. Staff were requested to keep windows closed during the testing.

These short-term devices work by trapping room air inside the grains of charcoal with the devices, meaning that live radon gas is being captured. The analysis is performed by measuring the radiation emitted from the charcoal, which is proportional to the amount of radon that was present in the room air.

The testing occurred from Tuesday, November 27 to Friday, November 30 during normal and routine operation of the school.

EPA RADON GUIDELINES

The EPA has set an action level of 4.0 pCi/L (picoCuries per liter) for schools. If classrooms or buildings have radon levels at or above 4.0 pCi/L, EPA recommends that schools take action to reduce the level. These actions include:

Step 1. If your result is 4 pCi/L or higher take a follow-up test (Step 2) to be sure.

Step 2. Follow up with either a long-term test or a second short-term test:

RESULTS and RECOMMENDATION

All test locations, except one, were below the EPA's action level of 4.0 picoCuries per liter (pCi/l).

One test location in Room 41 office had a radon level of 7.5 pCi/L. Another test location, Music Library, had a radon level just below the EPA action level at @3.6 pCi/L.

It is recommended that the operation of the ventilation systems for these two rooms be checked to make sure that the amount of outdoor air supplied has not been shut off. If possible increase the amount of outdoor air to these two rooms, then retest the rooms for radon levels.

BACKGROUND ON RADON

Radon is a gas that occurs in nature, seeping up from the earth. It is odorless, colorless and tasteless. Radon comes from the natural breakdown, or radioactive decay, from uranium 238, and produces radon. The half-life of an individual element is relatively short. Within two weeks, about 90% of a given amount of radon gas will be gone. However, the actual health concern is for the radon decay products, called radon progeny, which carry a small static charge that allows their attachment to water vapor, dust and smoke particles in the air.

The Radon progeny can become lodged in the lung tissue when they are inhaled, and it is these particles' further radiation decay that is associated with potential lung cancer effects.

Radon can seep into buildings or schools through cracks in slab floors or porous cinderblock. It can enter around loose-fitting drainage pipes or through sump pumps.

The US EPA has set an action level of 4.0 pCi/L. At or above this level of radon, the EPA recommends that corrective measures should be taken to reduce the exposure to radon gas.

CONTROL OF RADON LEVELS IN SCHOOLS

The major control mechanism for lowering radon levels within school buildings is use of dilution ventilation. If the amount of outside air delivered into a building increases, the radon levels should decrease.

Sample Data Attached

Radon test result report for:
MCNARY
MAIN

Kit #	Room Id	Started	Ended	pCi/L	Analyzed
4588402	133	2012-11-27 @ 12:00 pm	2012-11-30 @ 1:00 pm	< 0.3	2012-12-04
4588403	134	2012-11-27 @ 12:00 pm	2012-11-30 @ 1:00 pm	< 0.3	2012-12-04
4588412	135	2012-11-27 @ 12:00 pm	2012-11-30 @ 1:00 pm	< 0.3	2012-12-04
4588404	136	2012-11-27 @ 12:00 pm	2012-11-30 @ 1:00 pm	< 0.3	2012-12-04
4588405	137	2012-11-27 @ 12:00 pm	2012-11-30 @ 1:00 pm	< 0.3	2012-12-04
4588406	138	2012-11-27 @ 12:00 pm	2012-11-30 @ 1:00 pm	< 0.3	2012-12-04
4588407	139	2012-11-27 @ 12:00 pm	2012-11-30 @ 1:00 pm	< 0.3	2012-12-04
4588411	140	2012-11-27 @ 12:00 pm	2012-11-30 @ 1:00 pm	< 0.3	2012-12-04
4588408	140A.3	2012-11-27 @ 12:00 pm	2012-11-30 @ 1:00 pm	< 0.3	2012-12-04
4588410	140A.4	2012-11-27 @ 12:00 pm	2012-11-30 @ 1:00 pm	< 0.3	2012-12-04
4588409	140A2	2012-11-27 @ 12:00 pm	2012-11-30 @ 1:00 pm	< 0.3	2012-12-04
4588413	140B	2012-11-27 @ 12:00 pm	2012-11-30 @ 1:00 pm	< 0.3	2012-12-04
4588414	141	2012-11-27 @ 12:00 pm	2012-11-30 @ 1:00 pm	< 0.3	2012-12-04
4588415	142	2012-11-27 @ 12:00 pm	2012-11-30 @ 1:00 pm	< 0.3	2012-12-04
4588416	143	2012-11-27 @ 12:00 pm	2012-11-30 @ 1:00 pm	< 0.3	2012-12-04
4588417	144	2012-11-27 @ 12:00 pm	2012-11-30 @ 1:00 pm	< 0.3	2012-12-04
4588418	145	2012-11-27 @ 12:00 pm	2012-11-30 @ 1:00 pm	0.7	2012-12-04
4588419	146	2012-11-27 @ 12:00 pm	2012-11-30 @ 1:00 pm	< 0.3	2012-12-04
4588420	147	2012-11-27 @ 12:00 pm	2012-11-30 @ 1:00 pm	< 0.3	2012-12-04
4588421	148	2012-11-27 @ 12:00 pm	2012-11-30 @ 1:00 pm	< 0.3	2012-12-04
4588431	153	2012-11-27 @ 1:00 pm	2012-11-30 @ 1:00 pm	0.6	2012-12-04
4588432	155	2012-11-27 @ 1:00 pm	2012-11-30 @ 1:00 pm	0.6	2012-12-04
4588433	156	2012-11-27 @ 1:00 pm	2012-11-30 @ 1:00 pm	< 0.3	2012-12-04
4588440	157 ADAM	2012-11-27 @ 1:00 pm	2012-11-30 @ 1:00 pm	0.5	2012-12-04
4588441	157 ATTENDANCE	2012-11-27 @ 1:00 pm	2012-11-30 @ 1:00 pm	< 0.3	2012-12-04
4588439	157 SUE	2012-11-27 @ 1:00 pm	2012-11-30 @ 1:00 pm	0.5	2012-12-04
4588435	158 OFFICE	2012-11-27 @ 1:00 pm	2012-11-30 @ 1:00 pm	< 0.3	2012-12-04
4588436	159	2012-11-27 @ 1:00 pm	2012-11-30 @ 1:00 pm	0.7	2012-12-04
4588437	160	2012-11-27 @ 1:00 pm	2012-11-30 @ 1:00 pm	1.3	2012-12-04
4588422	50	2012-11-27 @ 12:00 pm	2012-11-30 @ 1:00 pm	< 0.3	2012-12-04
4588425	53	2012-11-27 @ 12:00 pm	2012-11-30 @ 1:00 pm	0.7	2012-12-04
4588426	53 OFFICE	2012-11-27 @ 12:00 pm	2012-11-30 @ 1:00 pm	< 0.3	2012-12-04
4588423	60	2012-11-27 @ 12:00 pm	2012-11-30 @ 1:00 pm	1.8	2012-12-04
4588424	62 OFFICE	2012-11-27 @ 12:00 pm	2012-11-30 @ 1:00 pm	1.6	2012-12-04
4588392	ASSISTANT PRINCI	2012-11-27 @ 12:00 pm	2012-11-30 @ 1:00 pm	1.3	2012-12-04
4588396	BOOKKEEPER	2012-11-27 @ 12:00 pm	2012-11-30 @ 1:00 pm	1.0	2012-12-04
4588438	BOYS LR OFFICE	2012-11-27 @ 1:00 pm	2012-11-30 @ 1:00 pm	1.3	2012-12-04

December 4, 2012

**** LABORATORY ANALYSIS REPORT ****

Radon test result report for:
MCNARY
MAIN

Kit #	Room Id	Started	Ended	pCi/L	Analyzed
4588452	CAREER CENTER	2012-11-27 @ 1:00 pm	2012-11-30 @ 1:00 pm	2.4	2012-12-04
4588401	CHOIR OFFICE	2012-11-27 @ 12:00 pm	2012-11-30 @ 1:00 pm	< 0.3	2012-12-04
4588449	COMPUTER LAB	2012-11-27 @ 1:00 pm	2012-11-30 @ 1:00 pm	1.7	2012-12-04
4588451	CONF RM/TECHN	2012-11-27 @ 1:00 pm	2012-11-30 @ 1:00 pm	1.9	2012-12-04
4588445	COUNSELOR D-AO	2012-11-27 @ 1:00 pm	2012-11-30 @ 1:00 pm	1.2	2012-12-04
4588444	COUNSELOR MI-SE	2012-11-27 @ 1:00 pm	2012-11-30 @ 1:00 pm	1.2	2012-12-04
4588427	CUSTODIAN OFFICE	2012-11-27 @ 12:00 pm	2012-11-30 @ 1:00 pm	0.7	2012-12-04
4588398	DRAMA OFFICE	2012-11-27 @ 12:00 pm	2012-11-30 @ 1:00 pm	0.9	2012-12-04
4588434	FOOD SERV STAFF	2012-11-27 @ 1:00 pm	2012-11-30 @ 1:00 pm	< 0.3	2012-12-04
4588429	GIRLS LR OFFICE	2012-11-27 @ 1:00 pm	2012-11-30 @ 1:00 pm	0.8	2012-12-04
4588430	GIRLS LR OFFICE	2012-11-27 @ 1:00 pm	2012-11-30 @ 1:00 pm	0.7	2012-12-04
4588448	GRAD COACH	2012-11-27 @ 1:00 pm	2012-11-30 @ 1:00 pm	1.0	2012-12-04
4588450	LIBRARY	2012-11-27 @ 1:00 pm	2012-11-30 @ 1:00 pm	1.3	2012-12-04
4588400	MUSIC LIBRARY	2012-11-27 @ 12:00 pm	2012-11-30 @ 1:00 pm	3.6	2012-12-04
4588391	OFFICE MANAGER	2012-11-27 @ 12:00 pm	2012-11-30 @ 1:00 pm	1.3	2012-12-04
4588395	OPEN AREA	2012-11-27 @ 12:00 pm	2012-11-30 @ 1:00 pm	1.0	2012-12-04
4588394	PRINCIPAL	2012-11-27 @ 12:00 pm	2012-11-30 @ 1:00 pm	1.5	2012-12-04
4588447	REGISTRAR	2012-11-27 @ 1:00 pm	2012-11-30 @ 1:00 pm	1.1	2012-12-04
4588443	RESOURCE OFFICE	2012-11-27 @ 1:00 pm	2012-11-30 @ 1:00 pm	0.9	2012-12-04
4588442	RM 114	2012-11-27 @ 1:00 pm	2012-11-30 @ 1:00 pm	0.7	2012-12-04
4588397	RM 12	2012-11-27 @ 12:00 pm	2012-11-30 @ 1:00 pm	1.4	2012-12-04
4588399	RM 41 OFFICE	2012-11-27 @ 12:00 pm	2012-11-30 @ 1:00 pm	7.5	2012-12-04
4588446	SAS/DAT	2012-11-27 @ 1:00 pm	2012-11-30 @ 1:00 pm	1.0	2012-12-04

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

December 4, 2012

**** LABORATORY ANALYSIS REPORT ****

Radon test result report for:
**MCNARY
AUTO SHOP**

Kit #	Room Id	Started	Ended	pCi/L	Analyzed
4588428	SHOP OFFICE	2012-11-27 @ 1:00 pm	2012-11-30 @ 1:00 pm	0.6	2012-12-04

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