

INDUSTRIAL HYGIENE REPORT

RADON TESTING REPORT

Baker School

Report to: Vonnie B. Good, EHS Salem Keizer School District

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Reviewed By: DeEtta Burrows, MSPH, CIH – Wise Steps, Inc.

On-site: January 5–8, 2015

Report: February 8, 2015

PURPOSE

Initial radon monitoring was performed December 2014 to measure the background levels in all classrooms, offices and staff work rooms that are in contact with the ground or below ground level. One test location, the Custodian's office, was above the EPA's Action Level of 4.0 picoCuries per liter (pCi/l) and the kitchen office level was just below the Action Level. Follow up radon tests in the Custodian office, General Purpose Room, Kitchen office and Library were then conducted following EPA retest protocols.

SAMPLE RESULTS

In the Custodian's office, the radon level measured December was 6.7 pCi/L. The follow up test in January found the radon level was slightly lower at 5.4 pCi/l.

The kitchen area had a decrease in radon compared to the initial test. Initially the ambient radon level was 3.0 pCi/l, but the second test was only 2.3 pCi/l.

The rooms near the Custodian's office also had radon levels below the EPA Action level. The General Purpose Room had a radon level of 2.7 pCi/L and the Library had a radon level of 1.4 pCi/L.

RECOMMENDATION

It appears that the amount of supplied air into this room is not adequate to maintain the radon level below the EPA Action level of 4.0 pCi/L. It is recommended that this room not be used as an office.

TEST METHOD

Radon Air-Chek short-term test devices were used in these tests 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.

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 January 5 through January 8, 2015 during normal and routine operation of the school.

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. 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. Pressure differential between the building and the soil surrounding the foundation can draw soil gases into the building.

The US EPA has set an action level of 4.0 pCi/L. At or above this level of radon, the EPA recommends corrective measures 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

January 12, 2015

**** LABORATORY ANALYSIS REPORT ****

Radon test result report for:

**SCHOOL
BAKER**

Kit #	Room Id	Started	Ended	pCi/L	Analyzed
7015748	CUSTODIAN	2015-01-05 @ 10:00 am	2015-01-08 @ 10:00 am	5.4	2015-01-09
7015747	GEN PURPOSE	2015-01-05 @ 10:00 am	2015-01-08 @ 10:00 am	2.7	2015-01-09
7015749	KITCHEN	2015-01-05 @ 10:00 am	2015-01-08 @ 10:00 am	2.3	2015-01-09
7015750	LIB/COMP	2015-01-05 @ 10:00 am	2015-01-08 @ 10:00 am	1.4	2015-01-09

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