

INDUSTRIAL HYGIENE REPORT

RADON TESTING REPORT

Hammond Elementary School

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

By: Kathy Ellis, Senior Industrial Hygiene Consultant

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

On-site: January 28–31, 2014

Report: February 6, 2014

PURPOSE

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

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 period.

These short-term devices work by trapping room air inside the grains of charcoal within 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, January 28 to Friday, January 31, 2014, 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 4.0 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

No test locations were above the EPA's Action Level of 4.0 picoCuries per liter (pCi/l).

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, of 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.

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:**SK
HAMMOND**

Kit #	Room Id	Started	Ended	pCi/L	Analyzed
4735560	A1	2014-01-28 @ 10:00 am	2014-01-31 @ 10:00 am	< 0.3	2014-02-04
4735561	A1 OFFICE	2014-01-28 @ 10:00 am	2014-01-31 @ 10:00 am	< 0.3	2014-02-04
4735562	A2	2014-01-28 @ 10:00 am	2014-01-31 @ 10:00 am	< 0.3	2014-02-04
4735563	A3	2014-01-28 @ 10:00 am	2014-01-31 @ 10:00 am	< 0.3	2014-02-04
4735565	A5	2014-01-28 @ 10:00 am	2014-01-31 @ 10:00 am	< 0.3	2014-02-04
4735566	A6	2014-01-28 @ 10:00 am	2014-01-31 @ 10:00 am	< 0.3	2014-02-04
4735567	A7	2014-01-28 @ 10:00 am	2014-01-31 @ 10:00 am	0.7	2014-02-04
4735547	B1	2014-01-28 @ 10:00 am	2014-01-31 @ 10:00 am	< 0.3	2014-02-04
4735548	B2	2014-01-28 @ 10:00 am	2014-01-31 @ 10:00 am	< 0.3	2014-02-04
4735549	B3	2014-01-28 @ 10:00 am	2014-01-31 @ 10:00 am	< 0.3	2014-02-04
4735550	B4	2014-01-28 @ 10:00 am	2014-01-31 @ 10:00 am	< 0.3	2014-02-04
4735551	B5	2014-01-28 @ 10:00 am	2014-01-31 @ 10:00 am	< 0.3	2014-02-04
4735552	B6	2014-01-28 @ 10:00 am	2014-01-31 @ 10:00 am	< 0.3	2014-02-04
4735553	C1	2014-01-28 @ 10:00 am	2014-01-31 @ 10:00 am	< 0.3	2014-02-04
4735554	C2	2014-01-28 @ 10:00 am	2014-01-31 @ 10:00 am	< 0.3	2014-02-04
4735555	C3	2014-01-28 @ 10:00 am	2014-01-31 @ 10:00 am	< 0.3	2014-02-04
4735556	C4	2014-01-28 @ 10:00 am	2014-01-31 @ 10:00 am	< 0.3	2014-02-04
4735557	C5	2014-01-28 @ 10:00 am	2014-01-31 @ 10:00 am	< 0.3	2014-02-04
4735558	C6	2014-01-28 @ 10:00 am	2014-01-31 @ 10:00 am	< 0.3	2014-02-04
4735559	COMPUTER	2014-01-28 @ 10:00 am	2014-01-31 @ 10:00 am	< 0.3	2014-02-04
4735542	CUSTODIAN	2014-01-28 @ 10:00 am	2014-01-31 @ 10:00 am	< 0.3	2014-02-04
4735543	E3	2014-01-28 @ 10:00 am	2014-01-31 @ 10:00 am	< 0.3	2014-02-04
4735571	E6 CONF RM	2014-01-28 @ 10:00 am	2014-01-31 @ 10:00 am	< 0.3	2014-02-04
4735570	E7 ITINERANT	2014-01-28 @ 10:00 am	2014-01-31 @ 10:00 am	< 0.3	2014-02-04
4735569	E8 COUNSELOR	2014-01-28 @ 10:00 am	2014-01-31 @ 10:00 am	< 0.3	2014-02-04
4735568	E9/D3	2014-01-28 @ 10:00 am	2014-01-31 @ 10:00 am	< 0.3	2014-02-04
4735572	KITCHEN	2014-01-28 @ 10:00 am	2014-01-31 @ 10:00 am	< 0.3	2014-02-04
4735544	MUSIC	2014-01-28 @ 10:00 am	2014-01-31 @ 10:00 am	< 0.3	2014-02-04
4735541	PE OFFICE	2014-01-28 @ 10:00 am	2014-01-31 @ 10:00 am	< 0.3	2014-02-04
4735545	PRINCIPAL	2014-01-28 @ 10:00 am	2014-01-31 @ 10:00 am	< 0.3	2014-02-04
4735546	STAFF ROOM	2014-01-28 @ 10:00 am	2014-01-31 @ 10:00 am	< 0.3	2014-02-04