

INDUSTRIAL HYGIENE REPORT

RADON TESTING REPORT

Stephens Middle School

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

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On-site: February 3–6, 2014

Report: February 13, 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 Monday, February 3 to Thursday, February 6, 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
STEPHENS

Kit #	Room Id	Started	Ended	pCi/L	Analyzed
4735593	100	2014-02-03 @ 9:00 am	2014-02-06 @ 10:00 am	< 0.3	2014-02-10
4735585	100	2014-02-03 @ 9:00 am	2014-02-06 @ 10:00 am	< 0.3	2014-02-10
4735586	101	2014-02-03 @ 9:00 am	2014-02-06 @ 10:00 am	< 0.3	2014-02-10
4735587	102	2014-02-03 @ 9:00 am	2014-02-06 @ 10:00 am	1.0	2014-02-10
4735588	103	2014-02-03 @ 9:00 am	2014-02-06 @ 10:00 am	< 0.3	2014-02-10
4735589	104	2014-02-03 @ 9:00 am	2014-02-06 @ 10:00 am	0.9	2014-02-10
4735590	105	2014-02-03 @ 9:00 am	2014-02-06 @ 10:00 am	0.8	2014-02-10
4735591	106	2014-02-03 @ 9:00 am	2014-02-06 @ 10:00 am	< 0.3	2014-02-10
4735592	107	2014-02-03 @ 9:00 am	2014-02-06 @ 10:00 am	< 0.3	2014-02-10
4735594	109	2014-02-03 @ 9:00 am	2014-02-06 @ 10:00 am	< 0.3	2014-02-10
4735595	110	2014-02-03 @ 9:00 am	2014-02-06 @ 10:00 am	< 0.3	2014-02-10
4735596	111	2014-02-03 @ 9:00 am	2014-02-06 @ 10:00 am	0.6	2014-02-10
4735597	112	2014-02-03 @ 9:00 am	2014-02-06 @ 10:00 am	0.5	2014-02-10
4735598	113	2014-02-03 @ 9:00 am	2014-02-06 @ 10:00 am	0.6	2014-02-10
4735599	114	2014-02-03 @ 9:00 am	2014-02-06 @ 10:00 am	0.8	2014-02-10
4735600	115	2014-02-03 @ 9:00 am	2014-02-06 @ 10:00 am	0.6	2014-02-10
4735601	116	2014-02-03 @ 9:00 am	2014-02-06 @ 10:00 am	0.8	2014-02-10
4735602	117	2014-02-03 @ 9:00 am	2014-02-06 @ 10:00 am	0.7	2014-02-10
4735603	118	2014-02-03 @ 9:00 am	2014-02-06 @ 10:00 am	0.7	2014-02-10
4735604	119	2014-02-03 @ 9:00 am	2014-02-06 @ 10:00 am	0.7	2014-02-10
4735605	120	2014-02-03 @ 9:00 am	2014-02-06 @ 10:00 am	< 0.3	2014-02-10
4735606	121	2014-02-03 @ 9:00 am	2014-02-06 @ 10:00 am	< 0.3	2014-02-10
4735607	122	2014-02-03 @ 9:00 am	2014-02-06 @ 10:00 am	< 0.3	2014-02-10
4735613	123	2014-02-03 @ 9:00 am	2014-02-06 @ 10:00 am	< 0.3	2014-02-10
4735614	124	2014-02-03 @ 9:00 am	2014-02-06 @ 10:00 am	< 0.3	2014-02-10
4735615	125	2014-02-03 @ 9:00 am	2014-02-06 @ 10:00 am	< 0.3	2014-02-10
4735616	126	2014-02-03 @ 9:00 am	2014-02-06 @ 10:00 am	< 0.3	2014-02-10
4735617	127	2014-02-03 @ 9:00 am	2014-02-06 @ 10:00 am	< 0.3	2014-02-10
4735618	128 OFFICE	2014-02-03 @ 9:00 am	2014-02-06 @ 10:00 am	< 0.3	2014-02-10
4735621	129 OFFICE	2014-02-03 @ 9:00 am	2014-02-06 @ 10:00 am	0.6	2014-02-10
4735622	130 OFFICE	2014-02-03 @ 9:00 am	2014-02-06 @ 10:00 am	< 0.3	2014-02-10
4735573	131	2014-02-03 @ 9:00 am	2014-02-06 @ 10:00 am	0.6	2014-02-10
4735574	132	2014-02-03 @ 9:00 am	2014-02-06 @ 10:00 am	< 0.3	2014-02-10
4735624	ACTIVITIES OFFI	2014-02-03 @ 9:00 am	2014-02-06 @ 10:00 am	< 0.3	2014-02-10
4735577	ASSIST PRINCI	2014-02-03 @ 9:00 am	2014-02-06 @ 10:00 am	< 0.3	2014-02-10
4735575	BEHAV SP	2014-02-03 @ 9:00 am	2014-02-06 @ 10:00 am	0.9	2014-02-10
4735576	BEHAV SP JOHN	2014-02-03 @ 9:00 am	2014-02-06 @ 10:00 am	< 0.3	2014-02-10

Radon test result report for:SK
STEPHENS

Kit #	Room Id	Started	Ended	pCi/L	Analyzed
4735620	BOY'S PE	2014-02-03 @ 9:00 am	2014-02-06 @ 10:00 am	0.5	2014-02-10
4735612	CAMPUS MON	2014-02-03 @ 9:00 am	2014-02-06 @ 10:00 am	< 0.3	2014-02-10
4735581	COUNSELOR A	2014-02-03 @ 9:00 am	2014-02-06 @ 10:00 am	< 0.3	2014-02-10
4735582	COUNSELOR B	2014-02-03 @ 9:00 am	2014-02-06 @ 10:00 am	< 0.3	2014-02-10
4735583	COUNSELOR C	2014-02-03 @ 9:00 am	2014-02-06 @ 10:00 am	0.6	2014-02-10
4735584	COUNSELOR D	2014-02-03 @ 9:00 am	2014-02-06 @ 10:00 am	0.5	2014-02-10
4735623	CUSTODIAN	2014-02-03 @ 9:00 am	2014-02-06 @ 10:00 am	< 0.3	2014-02-10
4735619	GIRL'S PE	2014-02-03 @ 9:00 am	2014-02-06 @ 10:00 am	< 0.3	2014-02-10
4735625	KITCHEN	2014-02-03 @ 9:00 am	2014-02-06 @ 10:00 am	0.7	2014-02-10
4735608	LISTENING A	2014-02-03 @ 9:00 am	2014-02-06 @ 10:00 am	0.7	2014-02-10
4735609	LISTENING B	2014-02-03 @ 9:00 am	2014-02-06 @ 10:00 am	< 0.3	2014-02-10
4735610	MEDIA STORAGE	2014-02-03 @ 9:00 am	2014-02-06 @ 10:00 am	< 0.3	2014-02-10
4735580	OFFICE MANAG	2014-02-03 @ 9:00 am	2014-02-06 @ 10:00 am	< 0.3	2014-02-10
4735578	PRINCIPAL	2014-02-03 @ 9:00 am	2014-02-06 @ 10:00 am	< 0.3	2014-02-10
4735579	SRO	2014-02-03 @ 9:00 am	2014-02-06 @ 10:00 am	< 0.3	2014-02-10
4735626	STAFF LOUNGE	2014-02-03 @ 9:00 am	2014-02-06 @ 10:00 am	< 0.3	2014-02-10
4735611	TEACHER LIB	2014-02-03 @ 9:00 am	2014-02-06 @ 10:00 am	< 0.3	2014-02-10