

INDUSTRIAL HYGIENE REPORT

RADON TESTING REPORT

Waldo Middle School

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

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On-site: December 15–18, 2014

Report: December 31, 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 December 15 to Thursday December 18, 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

Radon test result report for:**SCHOOL
WALDO**

Kit #	Room Id	Started	Ended	pCi/L	Analyzed
7015585	101	2014-12-15 @ 10:00 am	2014-12-18 @ 10:00 am	< 0.3	2014-12-22
7015584	102	2014-12-15 @ 10:00 am	2014-12-18 @ 10:00 am	< 0.3	2014-12-22
7015587	103	2014-12-15 @ 10:00 am	2014-12-18 @ 10:00 am	< 0.3	2014-12-22
7015588	103	2014-12-15 @ 10:00 am	2014-12-18 @ 10:00 am	< 0.3	2014-12-22
7015583	104	2014-12-15 @ 10:00 am	2014-12-18 @ 10:00 am	< 0.3	2014-12-22
7015579	105 H	2014-12-15 @ 10:00 am	2014-12-18 @ 10:00 am	< 0.3	2014-12-22
7015580	105 I	2014-12-15 @ 10:00 am	2014-12-18 @ 10:00 am	< 0.3	2014-12-22
7015581	105 J	2014-12-15 @ 10:00 am	2014-12-18 @ 10:00 am	0.5	2014-12-22
7015575	105F	2014-12-15 @ 10:00 am	2014-12-18 @ 10:00 am	< 0.3	2014-12-22
7015576	105F1	2014-12-15 @ 10:00 am	2014-12-18 @ 10:00 am	< 0.3	2014-12-22
7015578	105G	2014-12-15 @ 10:00 am	2014-12-18 @ 10:00 am	< 0.3	2014-12-22
7015631	106	2014-12-15 @ 10:00 am	2014-12-18 @ 11:00 am	< 0.3	2014-12-22
7015630	108	2014-12-15 @ 10:00 am	2014-12-18 @ 11:00 am	0.7	2014-12-22
7015629	110	2014-12-15 @ 10:00 am	2014-12-18 @ 11:00 am	0.9	2014-12-22
7015628	112	2014-12-15 @ 10:00 am	2014-12-18 @ 11:00 am	< 0.3	2014-12-22
7015626	114	2014-12-15 @ 10:00 am	2014-12-18 @ 11:00 am	< 0.3	2014-12-22
7015627	115	2014-12-15 @ 10:00 am	2014-12-18 @ 11:00 am	< 0.3	2014-12-22
7015625	116	2014-12-15 @ 10:00 am	2014-12-18 @ 11:00 am	< 0.3	2014-12-22
7015590	201	2014-12-15 @ 10:00 am	2014-12-18 @ 10:00 am	< 0.3	2014-12-22
7015622	202	2014-12-15 @ 10:00 am	2014-12-18 @ 11:00 am	< 0.3	2014-12-22
7015623	203	2014-12-15 @ 10:00 am	2014-12-18 @ 11:00 am	< 0.3	2014-12-22
7015620	204	2014-12-15 @ 10:00 am	2014-12-18 @ 11:00 am	< 0.3	2014-12-22
7015619	205	2014-12-15 @ 10:00 am	2014-12-18 @ 11:00 am	< 0.3	2014-12-22
7015618	206	2014-12-15 @ 10:00 am	2014-12-18 @ 10:00 am	< 0.3	2014-12-22
7015617	207	2014-12-15 @ 10:00 am	2014-12-18 @ 10:00 am	< 0.3	2014-12-22
7015616	208	2014-12-15 @ 10:00 am	2014-12-18 @ 10:00 am	0.6	2014-12-22
7015615	209	2014-12-15 @ 10:00 am	2014-12-18 @ 10:00 am	< 0.3	2014-12-22
7015614	210	2014-12-15 @ 10:00 am	2014-12-18 @ 10:00 am	< 0.3	2014-12-22
7015613	211	2014-12-15 @ 10:00 am	2014-12-18 @ 10:00 am	< 0.3	2014-12-22
7015609	211 OFFICE	2014-12-15 @ 10:00 am	2014-12-18 @ 10:00 am	< 0.3	2014-12-22
7015612	212	2014-12-15 @ 10:00 am	2014-12-18 @ 10:00 am	< 0.3	2014-12-22
7015611	213	2014-12-15 @ 10:00 am	2014-12-18 @ 10:00 am	< 0.3	2014-12-22
7015610	214	2014-12-15 @ 10:00 am	2014-12-18 @ 10:00 am	< 0.3	2014-12-22
7015624	215	2014-12-15 @ 10:00 am	2014-12-18 @ 11:00 am	0.6	2014-12-22
7015608	218	2014-12-15 @ 10:00 am	2014-12-18 @ 10:00 am	0.6	2014-12-22
7015596	301 OFFICE	2014-12-15 @ 10:00 am	2014-12-18 @ 10:00 am	< 0.3	2014-12-22
7015597	302	2014-12-15 @ 10:00 am	2014-12-18 @ 10:00 am	< 0.3	2014-12-22

Radon test result report for:

**SCHOOL
WALDO**

Kit #	Room Id	Started	Ended	pCi/L	Analyzed
7015600	303	2014-12-15 @ 10:00 am	2014-12-18 @ 10:00 am	< 0.3	2014-12-22
7015598	304	2014-12-15 @ 10:00 am	2014-12-18 @ 10:00 am	< 0.3	2014-12-22
7015599	305	2014-12-15 @ 10:00 am	2014-12-18 @ 10:00 am	< 0.3	2014-12-22
7015601	306	2014-12-15 @ 10:00 am	2014-12-18 @ 10:00 am	< 0.3	2014-12-22
7015602	307	2014-12-15 @ 10:00 am	2014-12-18 @ 10:00 am	< 0.3	2014-12-22
7015603	308	2014-12-15 @ 10:00 am	2014-12-18 @ 10:00 am	< 0.3	2014-12-22
7015605	309	2014-12-15 @ 10:00 am	2014-12-18 @ 10:00 am	< 0.3	2014-12-22
7015604	310	2014-12-15 @ 10:00 am	2014-12-18 @ 10:00 am	< 0.3	2014-12-22
7015606	311	2014-12-15 @ 10:00 am	2014-12-18 @ 10:00 am	< 0.3	2014-12-22
7015607	312-313	2014-12-15 @ 10:00 am	2014-12-18 @ 10:00 am	< 0.3	2014-12-22
7015591	402	2014-12-15 @ 10:00 am	2014-12-18 @ 10:00 am	< 0.3	2014-12-22
7015595	BAND OFFICE	2014-12-15 @ 10:00 am	2014-12-18 @ 10:00 am	< 0.3	2014-12-22
7015577	BEHAV SP	2014-12-15 @ 10:00 am	2014-12-18 @ 10:00 am	< 0.3	2014-12-22
7015589	KITCHEN	2014-12-15 @ 10:00 am	2014-12-18 @ 10:00 am	< 0.3	2014-12-22
7015621	LIBRARY OFF	2014-12-15 @ 10:00 am	2014-12-18 @ 11:00 am	< 0.3	2014-12-22
7015574	OFFICE	2014-12-15 @ 10:00 am	2014-12-18 @ 10:00 am	< 0.3	2014-12-22
7015586	PASS RM	2014-12-15 @ 10:00 am	2014-12-18 @ 10:00 am	< 0.3	2014-12-22
7015594	PE OFFICE B	2014-12-15 @ 10:00 am	2014-12-18 @ 10:00 am	< 0.3	2014-12-22
7015593	PE OFFICE G	2014-12-15 @ 10:00 am	2014-12-18 @ 10:00 am	< 0.3	2014-12-22
7015582	STAFF RM	2014-12-15 @ 10:00 am	2014-12-18 @ 10:00 am	< 0.3	2014-12-22