

INDUSTRIAL HYGIENE REPORT

Judson Middle School

Report to: Vonnie Good,

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On-site: February 18-21, 2013

Report: March 2, 2013

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 Monday, February 18 to Thursday, February 21, 2013, 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).

Four locations were slightly below the action level, Classroom 106 @ 3.4 pCi/L, Classroom 309 @ 3.4 pCi/L, Boys Locker Room office @ 3.0 pCi/L, and the Media office at 2.7 pCi/L

It is recommended that the operation of the ventilation system for these rooms be checked to make sure that the amount of outdoor air supplied has not been lowered or shut off. If possible increase the amount of outdoor air to this room.

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. 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 pCi/L. At or above this level of radon, the EPA recommends 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
JUDSON

Kit #	Room Id	Started	Ended	pCi/L	Analyzed
4597261	ASSIST PRINC	2013-02-18 @ 11:00 am	2013-02-21 @ 9:00 am	1.6	2013-02-26
4597258	ATTENDANCE	2013-02-18 @ 11:00 am	2013-02-21 @ 9:00 am	1.7	2013-02-26
4597260	BEHAVIOR SP	2013-02-18 @ 11:00 am	2013-02-21 @ 9:00 am	2.2	2013-02-26
4597275	BOY'S PE	2013-02-18 @ 11:00 am	2013-02-21 @ 9:00 am	3.0	2013-02-26
4597311	COUNSELOR	2013-02-18 @ 11:00 am	2013-02-21 @ 9:00 am	1.0	2013-02-26
4597276	CUSTODIAN	2013-02-18 @ 11:00 am	2013-02-21 @ 9:00 am	< 0.3	2013-02-26
4597273	GIRL'S PE	2013-02-18 @ 11:00 am	2013-02-21 @ 9:00 am	1.2	2013-02-26
4597269	KITCHEN	2013-02-18 @ 11:00 am	2013-02-21 @ 9:00 am	1.4	2013-02-26
4597307	MEDIA OFFICE	2013-02-18 @ 11:00 am	2013-02-21 @ 9:00 am	2.7	2013-02-26
4597259	PRINCIPAL	2013-02-18 @ 11:00 am	2013-02-21 @ 9:00 am	1.2	2013-02-26
4597266	RM 101	2013-02-18 @ 11:00 am	2013-02-21 @ 9:00 am	1.0	2013-02-26
4597265	RM 102	2013-02-18 @ 11:00 am	2013-02-21 @ 9:00 am	0.6	2013-02-26
4597264	RM 104	2013-02-18 @ 11:00 am	2013-02-21 @ 9:00 am	1.4	2013-02-26
4597267	RM 105	2013-02-18 @ 11:00 am	2013-02-21 @ 9:00 am	1.1	2013-02-26
4597263	RM 106	2013-02-18 @ 11:00 am	2013-02-21 @ 9:00 am	3.4	2013-02-26
4597268	RM 107	2013-02-18 @ 11:00 am	2013-02-21 @ 9:00 am	1.1	2013-02-26
4597306	RM 108	2013-02-18 @ 11:00 am	2013-02-21 @ 9:00 am	1.1	2013-02-26
4597308	RM 110	2013-02-18 @ 11:00 am	2013-02-21 @ 9:00 am	0.7	2013-02-26
4597309	RM 112	2013-02-18 @ 11:00 am	2013-02-21 @ 9:00 am	0.9	2013-02-26
4597310	RM 114	2013-02-18 @ 11:00 am	2013-02-21 @ 9:00 am	1.0	2013-02-26
4597271	RM 200	2013-02-18 @ 11:00 am	2013-02-21 @ 9:00 am	< 0.3	2013-02-26
4597272	RM 200A	2013-02-18 @ 11:00 am	2013-02-21 @ 9:00 am	0.7	2013-02-26
4597270	RM 201	2013-02-18 @ 11:00 am	2013-02-21 @ 9:00 am	0.8	2013-02-26
4597303	RM 202	2013-02-18 @ 11:00 am	2013-02-21 @ 9:00 am	< 0.3	2013-02-26
4597305	RM 203	2013-02-18 @ 11:00 am	2013-02-21 @ 9:00 am	0.7	2013-02-26
4597301	RM 204	2013-02-18 @ 11:00 am	2013-02-21 @ 9:00 am	< 0.3	2013-02-26
4597304	RM 205	2013-02-18 @ 11:00 am	2013-02-21 @ 9:00 am	0.6	2013-02-26
4597299	RM 206	2013-02-18 @ 11:00 am	2013-02-21 @ 9:00 am	0.8	2013-02-26
4597302	RM 207	2013-02-18 @ 11:00 am	2013-02-21 @ 9:00 am	< 0.3	2013-02-26
4597297	RM 208	2013-02-18 @ 11:00 am	2013-02-21 @ 9:00 am	< 0.3	2013-02-26
4597300	RM 209	2013-02-18 @ 11:00 am	2013-02-21 @ 9:00 am	1.0	2013-02-26
4597293	RM 212	2013-02-18 @ 11:00 am	2013-02-21 @ 9:00 am	0.5	2013-02-26
4597294	RM 215	2013-02-18 @ 11:00 am	2013-02-21 @ 9:00 am	< 0.3	2013-02-26
4597280	RM 301	2013-02-18 @ 11:00 am	2013-02-21 @ 9:00 am	0.7	2013-02-26
4597278	RM 302	2013-02-18 @ 11:00 am	2013-02-21 @ 9:00 am	0.8	2013-02-26
4597283	RM 303	2013-02-18 @ 11:00 am	2013-02-21 @ 9:00 am	0.6	2013-02-26
4597285	RM 305	2013-02-18 @ 11:00 am	2013-02-21 @ 9:00 am	0.6	2013-02-26

Radon test result report for:SK
JUDSON

Kit #	Room Id	Started	Ended	pCi/L	Analyzed
4597279	RM 306	2013-02-18 @ 11:00 am	2013-02-21 @ 9:00 am	1.0	2013-02-26
4597287	RM 307	2013-02-18 @ 11:00 am	2013-02-21 @ 9:00 am	0.7	2013-02-26
4597281	RM 308	2013-02-18 @ 11:00 am	2013-02-21 @ 9:00 am	0.7	2013-02-26
4597288	RM 309	2013-02-18 @ 11:00 am	2013-02-21 @ 9:00 am	3.4	2013-02-26
4597282	RM 310	2013-02-18 @ 11:00 am	2013-02-21 @ 9:00 am	1.1	2013-02-26
4597284	RM 312	2013-02-18 @ 11:00 am	2013-02-21 @ 9:00 am	< 0.3	2013-02-26
4597286	RM 314	2013-02-18 @ 11:00 am	2013-02-21 @ 9:00 am	0.5	2013-02-26
4597289	RM 316	2013-02-18 @ 11:00 am	2013-02-21 @ 9:00 am	0.6	2013-02-26
4597315	RM 402	2013-02-18 @ 11:00 am	2013-02-21 @ 9:00 am	0.6	2013-02-26
4597314	RM 404	2013-02-18 @ 11:00 am	2013-02-21 @ 9:00 am	0.7	2013-02-26
4597313	RM 406	2013-02-18 @ 11:00 am	2013-02-21 @ 9:00 am	1.0	2013-02-26
4597292	RM 408 IT	2013-02-18 @ 11:00 am	2013-02-21 @ 9:00 am	1.7	2013-02-26
4597290	RM 410	2013-02-18 @ 11:00 am	2013-02-21 @ 9:00 am	1.5	2013-02-26
4597277	RM 501	2013-02-18 @ 11:00 am	2013-02-21 @ 9:00 am	< 0.3	2013-02-26
4597274	RM 501 OFFICE	2013-02-18 @ 11:00 am	2013-02-21 @ 9:00 am	0.6	2013-02-26
4597295	RM210	2013-02-18 @ 11:00 am	2013-02-21 @ 9:00 am	0.8	2013-02-26
4597298	RM211	2013-02-18 @ 11:00 am	2013-02-21 @ 9:00 am	1.1	2013-02-26
4597296	RM213	2013-02-18 @ 11:00 am	2013-02-21 @ 9:00 am	< 0.3	2013-02-26
4597312	RM406 COUN	2013-02-18 @ 11:00 am	2013-02-21 @ 9:00 am	0.7	2013-02-26
4597291	RM408 OFFICE	2013-02-18 @ 11:00 am	2013-02-21 @ 9:00 am	0.9	2013-02-26
4597262	SECURITY	2013-02-18 @ 11:00 am	2013-02-21 @ 9:00 am	1.9	2013-02-26