

INDUSTRIAL HYGIENE REPORT

Gubser Elementary School

Report to: Vonnie Good, Risk Management

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On-site: February 12-15, 2013

Report: February 21, 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 Tuesday, February 12 to Friday, February 15, 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 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 at or 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, 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.

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

GUBSER

Kit #	Room Id	Started	Ended	pCi/L	Analyzed
4597223	A1	2013-02-12 @ 11:00 am	2013-02-15 @ 1:00 pm	0.8	2013-02-19
4597221	A2	2013-02-12 @ 11:00 am	2013-02-15 @ 1:00 pm	< 0.3	2013-02-19
4597222	A3	2013-02-12 @ 11:00 am	2013-02-15 @ 1:00 pm	0.6	2013-02-19
4597250	A4	2013-02-12 @ 11:00 am	2013-02-15 @ 1:00 pm	< 0.3	2013-02-19
4597249	A5	2013-02-12 @ 11:00 am	2013-02-15 @ 1:00 pm	0.9	2013-02-19
4597248	A6	2013-02-12 @ 11:00 am	2013-02-15 @ 1:00 pm	< 0.3	2013-02-19
4597241	B1	2013-02-12 @ 11:00 am	2013-02-15 @ 1:00 pm	0.9	2013-02-19
4597240	B2	2013-02-12 @ 11:00 am	2013-02-15 @ 1:00 pm	0.7	2013-02-19
4597239	B3	2013-02-12 @ 11:00 am	2013-02-15 @ 1:00 pm	0.7	2013-02-19
4597238	B4	2013-02-12 @ 11:00 am	2013-02-15 @ 1:00 pm	0.6	2013-02-19
4597237	B5	2013-02-12 @ 11:00 am	2013-02-15 @ 1:00 pm	0.8	2013-02-19
4597235	B6	2013-02-12 @ 11:00 am	2013-02-15 @ 1:00 pm	0.8	2013-02-19
4597234	C1	2013-02-12 @ 11:00 am	2013-02-15 @ 1:00 pm	0.8	2013-02-19
4597236	C2	2013-02-12 @ 11:00 am	2013-02-15 @ 1:00 pm	1.1	2013-02-19
4597233	C3	2013-02-12 @ 11:00 am	2013-02-15 @ 1:00 pm	0.7	2013-02-19
4597232	C4	2013-02-12 @ 11:00 am	2013-02-15 @ 1:00 pm	0.8	2013-02-19
4597231	C5	2013-02-12 @ 11:00 am	2013-02-15 @ 1:00 pm	0.6	2013-02-19
4597230	C6	2013-02-12 @ 11:00 am	2013-02-15 @ 1:00 pm	0.8	2013-02-19
4597246	CONFER RM	2013-02-12 @ 11:00 am	2013-02-15 @ 1:00 pm	0.7	2013-02-19
4597244	COUNSELING	2013-02-12 @ 11:00 am	2013-02-15 @ 1:00 pm	0.9	2013-02-19
4597227	CUSTODIAN	2013-02-12 @ 11:00 am	2013-02-15 @ 1:00 pm	< 0.3	2013-02-19
4597243	INSTRUCTIONAL	2013-02-12 @ 11:00 am	2013-02-15 @ 1:00 pm	0.7	2013-02-19
4597226	KITCHEN	2013-02-12 @ 11:00 am	2013-02-15 @ 1:00 pm	< 0.3	2013-02-19
4597224	LRC	2013-02-12 @ 11:00 am	2013-02-15 @ 1:00 pm	0.6	2013-02-19
4597245	MEDIA IA	2013-02-12 @ 11:00 am	2013-02-15 @ 1:00 pm	1.1	2013-02-19
4597225	MUSIC	2013-02-12 @ 11:00 am	2013-02-15 @ 1:00 pm	0.6	2013-02-19
4597229	PE TEACHER	2013-02-12 @ 11:00 am	2013-02-15 @ 1:00 pm	< 0.3	2013-02-19
4597247	PRINCIPAL	2013-02-12 @ 11:00 am	2013-02-15 @ 1:00 pm	0.5	2013-02-19
4597242	SPEECH	2013-02-12 @ 11:00 am	2013-02-15 @ 1:00 pm	0.7	2013-02-19
4597228	STAFF RM	2013-02-12 @ 11:00 am	2013-02-15 @ 1:00 pm	1.0	2013-02-19