

# INDUSTRIAL HYGIENE REPORT

## Sumpter Elementary School

Report to: Vonnie Good, Risk Management

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On-site: December 3 – 6, 2012

Report: December 12, 2012

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### **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.

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, December 3 to Thursday, December 6 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, 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:  
**SUMPTER**  
**MAIN**

Kit #	Room Id	Started	Ended	pCi/L	Analyzed
4588462	A1	2012-12-03 @ 10:00 am	2012-12-06 @ 1:00 pm	0.9	2012-12-11
4588461	A2	2012-12-03 @ 10:00 am	2012-12-06 @ 1:00 pm	0.9	2012-12-11
4588460	A3	2012-12-03 @ 10:00 am	2012-12-06 @ 1:00 pm	0.8	2012-12-11
4588459	A4	2012-12-03 @ 10:00 am	2012-12-06 @ 1:00 pm	0.8	2012-12-11
4588458	A5	2012-12-03 @ 10:00 am	2012-12-06 @ 1:00 pm	1.0	2012-12-11
4588457	A6	2012-12-03 @ 10:00 am	2012-12-06 @ 1:00 pm	0.7	2012-12-11
4588463	A7	2012-12-03 @ 10:00 am	2012-12-06 @ 1:00 pm	0.6	2012-12-11
4588486	ART ROOM	2012-12-03 @ 10:00 am	2012-12-06 @ 1:00 pm	0.5	2012-12-11
4588475	B1/2	2012-12-03 @ 10:00 am	2012-12-06 @ 1:00 pm	0.8	2012-12-11
4588476	B3	2012-12-03 @ 10:00 am	2012-12-06 @ 1:00 pm	0.8	2012-12-11
4588477	B4	2012-12-03 @ 10:00 am	2012-12-06 @ 1:00 pm	< 0.3	2012-12-11
4588478	B5	2012-12-03 @ 10:00 am	2012-12-06 @ 1:00 pm	0.9	2012-12-11
4588480	B5/6 OFFICE	2012-12-03 @ 10:00 am	2012-12-06 @ 1:00 pm	0.7	2012-12-11
4588479	B6	2012-12-03 @ 10:00 am	2012-12-06 @ 1:00 pm	0.7	2012-12-11
4588468	BAND	2012-12-03 @ 10:00 am	2012-12-06 @ 1:00 pm	0.8	2012-12-11
4588481	C1	2012-12-03 @ 10:00 am	2012-12-06 @ 1:00 pm	< 0.3	2012-12-11
4588482	C2	2012-12-03 @ 10:00 am	2012-12-06 @ 1:00 pm	0.7	2012-12-11
4588483	C3	2012-12-03 @ 10:00 am	2012-12-06 @ 1:00 pm	< 0.3	2012-12-11
4588484	C4	2012-12-03 @ 10:00 am	2012-12-06 @ 1:00 pm	< 0.3	2012-12-11
4588485	C5	2012-12-03 @ 10:00 am	2012-12-06 @ 1:00 pm	< 0.3	2012-12-11
4588466	CUSTODIAN	2012-12-03 @ 10:00 am	2012-12-06 @ 1:00 pm	0.7	2012-12-11
4588465	KITCHEN	2012-12-03 @ 10:00 am	2012-12-06 @ 1:00 pm	0.7	2012-12-11
4588471	LRC 1	2012-12-03 @ 10:00 am	2012-12-06 @ 1:00 pm	< 0.3	2012-12-11
4588474	LRC 3	2012-12-03 @ 10:00 am	2012-12-06 @ 1:00 pm	< 0.3	2012-12-11
4588473	LRC 4	2012-12-03 @ 10:00 am	2012-12-06 @ 1:00 pm	0.9	2012-12-11
4588456	LRC GRAY	2012-12-03 @ 10:00 am	2012-12-06 @ 1:00 pm	0.6	2012-12-11
4588455	MRS SIEGIST	2012-12-03 @ 10:00 am	2012-12-06 @ 1:00 pm	0.7	2012-12-11
4588467	MUSIC	2012-12-03 @ 10:00 am	2012-12-06 @ 1:00 pm	0.5	2012-12-11
4588453	OFFICE	2012-12-03 @ 10:00 am	2012-12-06 @ 1:00 pm	0.8	2012-12-11
4588469	PE OFFICE	2012-12-03 @ 10:00 am	2012-12-06 @ 1:00 pm	1.0	2012-12-11
4588454	PRINCIPAL	2012-12-03 @ 10:00 am	2012-12-06 @ 1:00 pm	0.7	2012-12-11
4588472	SPEECH	2012-12-03 @ 10:00 am	2012-12-06 @ 1:00 pm	0.6	2012-12-11
4588464	STAFF RM	2012-12-03 @ 10:00 am	2012-12-06 @ 1:00 pm	0.6	2012-12-11
4588470	TECHNOLOGY	2012-12-03 @ 10:00 am	2012-12-06 @ 1:00 pm	1.0	2012-12-11