

# INDUSTRIAL HYGIENE REPORT

## Swegle Elementary School

Report to: Vonnie Good, Risk Management

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On-site: February 25– 28, 2013

Report: March 6, 2013

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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. 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 25 to Thursday, February 28, 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 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  
SWEGLE

Kit #	Room Id	Started	Ended	pCi/L	Analyzed
4601710	13.5 OFFICE	2013-02-25 @ 10:00 am	2013-02-28 @ 9:00 am	0.7	2013-03-05
4601722	BEHAV SP	2013-02-25 @ 10:00 am	2013-02-28 @ 9:00 am	< 0.3	2013-03-05
4601712	COMP LAB	2013-02-25 @ 10:00 am	2013-02-28 @ 9:00 am	0.9	2013-03-05
4601720	CONF RM	2013-02-25 @ 10:00 am	2013-02-28 @ 9:00 am	< 0.3	2013-03-05
4601723	CSSOC	2013-02-25 @ 10:00 am	2013-02-28 @ 9:00 am	< 0.3	2013-03-05
4601733	CUSTODIAN	2013-02-25 @ 10:00 am	2013-02-28 @ 9:00 am	1.3	2013-03-05
4601707	EAGLE'S NEST	2013-02-25 @ 10:00 am	2013-02-28 @ 9:00 am	0.7	2013-03-05
4601715	INSTRUCT C	2013-02-25 @ 10:00 am	2013-02-28 @ 9:00 am	1.0	2013-03-05
4601725	KITCHEN	2013-02-25 @ 10:00 am	2013-02-28 @ 9:00 am	< 0.3	2013-03-05
4601714	MEDIA	2013-02-25 @ 10:00 am	2013-02-28 @ 9:00 am	0.8	2013-03-05
4601718	MUSIC	2013-02-25 @ 10:00 am	2013-02-28 @ 9:00 am	0.6	2013-03-05
4597400	PE	2013-02-25 @ 10:00 am	2013-02-28 @ 9:00 am	0.6	2013-03-05
4601721	PRINCIPAL	2013-02-25 @ 10:00 am	2013-02-28 @ 9:00 am	0.5	2013-03-05
4601724	READING	2013-02-25 @ 10:00 am	2013-02-28 @ 9:00 am	< 0.3	2013-03-05
4601726	RM 10	2013-02-25 @ 10:00 am	2013-02-28 @ 9:00 am	0.6	2013-03-05
4601737	RM 10	2013-02-25 @ 10:00 am	2013-02-28 @ 9:00 am	1.0	2013-03-05
4601716	RM 11	2013-02-25 @ 10:00 am	2013-02-28 @ 9:00 am	1.2	2013-03-05
4601713	RM 12	2013-02-25 @ 10:00 am	2013-02-28 @ 9:00 am	1.0	2013-03-05
4601711	RM 13	2013-02-25 @ 10:00 am	2013-02-28 @ 9:00 am	< 0.3	2013-03-05
4601709	RM 13.5	2013-02-25 @ 10:00 am	2013-02-28 @ 9:00 am	0.8	2013-03-05
4601708	RM 14	2013-02-25 @ 10:00 am	2013-02-28 @ 9:00 am	0.8	2013-03-05
4601706	RM 15	2013-02-25 @ 10:00 am	2013-02-28 @ 9:00 am	1.6	2013-03-05
4601705	RM 16	2013-02-25 @ 10:00 am	2013-02-28 @ 9:00 am	0.6	2013-03-05
4601703	RM 18	2013-02-25 @ 10:00 am	2013-02-28 @ 9:00 am	1.3	2013-03-05
4601702	RM 19	2013-02-25 @ 10:00 am	2013-02-28 @ 9:00 am	< 0.3	2013-03-05
4601736	RM 2	2013-02-25 @ 10:00 am	2013-02-28 @ 9:00 am	< 0.3	2013-03-05
4601735	RM 2.5	2013-02-25 @ 10:00 am	2013-02-28 @ 9:00 am	0.6	2013-03-05
4601701	RM 20	2013-02-25 @ 10:00 am	2013-02-28 @ 9:00 am	0.7	2013-03-05
4601734	RM 3	2013-02-25 @ 10:00 am	2013-02-28 @ 9:00 am	1.1	2013-03-05
4601731	RM 4	2013-02-25 @ 10:00 am	2013-02-28 @ 9:00 am	1.0	2013-03-05
4601732	RM 5	2013-02-25 @ 10:00 am	2013-02-28 @ 9:00 am	0.8	2013-03-05
4601730	RM 6	2013-02-25 @ 10:00 am	2013-02-28 @ 9:00 am	0.8	2013-03-05
4601729	RM 7	2013-02-25 @ 10:00 am	2013-02-28 @ 9:00 am	1.1	2013-03-05
4601728	RM 8	2013-02-25 @ 10:00 am	2013-02-28 @ 9:00 am	0.9	2013-03-05
4601727	RM 9	2013-02-25 @ 10:00 am	2013-02-28 @ 9:00 am	0.5	2013-03-05
4601704	RM17	2013-02-25 @ 10:00 am	2013-02-28 @ 9:00 am	< 0.3	2013-03-05
4601717	STAFF RM	2013-02-25 @ 10:00 am	2013-02-28 @ 9:00 am	0.8	2013-03-05