

# INDUSTRIAL HYGIENE REPORT

## Chapman Hill Elementary School

Report to: Vonnie Good, Risk Management

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On-site: January 15-18, 2013

Report: January 23, 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.

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, January 15, 2013 to Friday, January 18, 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**

All of the tested rooms but one had radon levels below the EPA recommended action level at or above 4.0 pCi/L. The PE office had a radon level of 5.6 pCi/L.

It is recommended that the operation of the ventilation system for this room be checked to make sure that the amount of outdoor air supplied has not been shut off. Retest the room for radon levels.

### **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 the 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:SALEMK  
CHAPMAN

Kit #	Room Id	Started	Ended	pCi/L	Analyzed
4592255	1	2013-01-15 @ 8:00 am	2013-01-18 @ 8:00 am	1.1	2013-01-22
4592256	2	2013-01-15 @ 8:00 am	2013-01-18 @ 8:00 am	1.4	2013-01-22
4592264	25	2013-01-15 @ 8:00 am	2013-01-18 @ 8:00 am	1.2	2013-01-22
4592254	27	2013-01-15 @ 8:00 am	2013-01-18 @ 8:00 am	1.5	2013-01-22
4592253	28	2013-01-15 @ 8:00 am	2013-01-18 @ 8:00 am	1.4	2013-01-22
4592257	3	2013-01-15 @ 8:00 am	2013-01-18 @ 8:00 am	1.6	2013-01-22
4592250	31	2013-01-15 @ 8:00 am	2013-01-18 @ 8:00 am	0.9	2013-01-22
4592251	32	2013-01-15 @ 8:00 am	2013-01-18 @ 8:00 am	1.3	2013-01-22
4592247	33 MUSIC	2013-01-15 @ 8:00 am	2013-01-18 @ 8:00 am	1.7	2013-01-22
4592258	4	2013-01-15 @ 8:00 am	2013-01-18 @ 8:00 am	1.9	2013-01-22
4592260	5	2013-01-15 @ 8:00 am	2013-01-18 @ 8:00 am	1.7	2013-01-22
4592259	5 OFFICE	2013-01-15 @ 8:00 am	2013-01-18 @ 8:00 am	1.8	2013-01-22
4592261	6	2013-01-15 @ 8:00 am	2013-01-18 @ 8:00 am	1.6	2013-01-22
4592262	7	2013-01-15 @ 8:00 am	2013-01-18 @ 8:00 am	1.1	2013-01-22
4592263	8	2013-01-15 @ 8:00 am	2013-01-18 @ 8:00 am	1.1	2013-01-22
4592249	CONF RM 35	2013-01-15 @ 8:00 am	2013-01-18 @ 8:00 am	1.0	2013-01-22
4592244	COUNSELOR	2013-01-15 @ 8:00 am	2013-01-18 @ 8:00 am	1.1	2013-01-22
4592246	CUSTODIAN	2013-01-15 @ 8:00 am	2013-01-18 @ 8:00 am	1.4	2013-01-22
4592265	KITCHEN	2013-01-15 @ 8:00 am	2013-01-18 @ 8:00 am	1.8	2013-01-22
4592273	LITERACY	2013-01-15 @ 8:00 am	2013-01-18 @ 8:00 am	1.8	2013-01-22
4592274	MEDIA OFFICE	2013-01-15 @ 8:00 am	2013-01-18 @ 8:00 am	0.9	2013-01-22
4592243	OFFICE MANAG	2013-01-15 @ 8:00 am	2013-01-18 @ 8:00 am	0.8	2013-01-22
4592248	PE OFFICE	2013-01-15 @ 8:00 am	2013-01-18 @ 8:00 am	5.6	2013-01-22
4592242	PRINCIPAL	2013-01-15 @ 8:00 am	2013-01-18 @ 8:00 am	1.3	2013-01-22
4592268	RM 11/12	2013-01-15 @ 8:00 am	2013-01-18 @ 8:00 am	1.7	2013-01-22
4592269	RM 13	2013-01-15 @ 8:00 am	2013-01-18 @ 8:00 am	2.0	2013-01-22
4592270	RM 14/15	2013-01-15 @ 8:00 am	2013-01-18 @ 8:00 am	2.3	2013-01-22
4592271	RM 16	2013-01-15 @ 8:00 am	2013-01-18 @ 8:00 am	2.5	2013-01-22
4592272	RM 17/18	2013-01-15 @ 8:00 am	2013-01-18 @ 8:00 am	2.0	2013-01-22
4592267	RM 19/20	2013-01-15 @ 8:00 am	2013-01-18 @ 8:00 am	1.8	2013-01-22
4592266	RM 9/10	2013-01-15 @ 8:00 am	2013-01-18 @ 8:00 am	1.5	2013-01-22
4592252	SPEECH 29	2013-01-15 @ 8:00 am	2013-01-18 @ 8:00 am	1.2	2013-01-22
4592245	STAFF RM	2013-01-15 @ 8:00 am	2013-01-18 @ 8:00 am	1.1	2013-01-22