

# INDUSTRIAL HYGIENE REPORT

## Whiteaker Middle School

Report to: Vonnie Good, Risk Management

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On-site: February 12- 15, 2013

Report: February 21, 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 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****WHITEAKER**

Kit #	Room Id	Started	Ended	pCi/L	Analyzed
4597163	ASSIST PRINCIPAL	2013-02-12 @ 10:00 am	2013-02-15 @ 12:00 pm	1.1	2013-02-19
4597161	BEHAVIOR SP	2013-02-12 @ 10:00 am	2013-02-15 @ 12:00 pm	0.9	2013-02-19
4597197	BOYS LOCKER RM	2013-02-12 @ 10:00 am	2013-02-15 @ 12:00 pm	< 0.3	2013-02-19
4597211	CUSTODIAN	2013-02-12 @ 11:00 am	2013-02-15 @ 12:00 pm	1.3	2013-02-19
4597196	GIRL'S LOCKER RM	2013-02-12 @ 10:00 am	2013-02-15 @ 12:00 pm	< 0.3	2013-02-19
4597169	GUIDANCE A-H	2013-02-12 @ 10:00 am	2013-02-15 @ 12:00 pm	0.6	2013-02-19
4597166	GUIDANCE I-Z	2013-02-12 @ 10:00 am	2013-02-15 @ 12:00 pm	< 0.3	2013-02-19
4597170	GUIDANCE OFFICE	2013-02-12 @ 10:00 am	2013-02-15 @ 12:00 pm	< 0.3	2013-02-19
4597165	HEALTH RM	2013-02-12 @ 10:00 am	2013-02-15 @ 12:00 pm	1.9	2013-02-19
4597204	KITCHEN	2013-02-12 @ 11:00 am	2013-02-15 @ 12:00 pm	< 0.3	2013-02-19
4597167	LRC	2013-02-12 @ 10:00 am	2013-02-15 @ 12:00 pm	< 0.3	2013-02-19
4597168	LRC OFFICE	2013-02-12 @ 10:00 am	2013-02-15 @ 12:00 pm	< 0.3	2013-02-19
4597216	MEDIA OFFICE	2013-02-12 @ 11:00 am	2013-02-15 @ 12:00 pm	< 0.3	2013-02-19
4597194	MUSIC OFFICE	2013-02-12 @ 10:00 am	2013-02-15 @ 12:00 pm	< 0.3	2013-02-19
4597164	OFFICE MANAGER	2013-02-12 @ 10:00 am	2013-02-15 @ 12:00 pm	1.0	2013-02-19
4597193	PIANO PRACTICE	2013-02-12 @ 10:00 am	2013-02-15 @ 12:00 pm	< 0.3	2013-02-19
4597162	PRINCIPAL	2013-02-12 @ 10:00 am	2013-02-15 @ 12:00 pm	0.6	2013-02-19
4597213	RM 103	2013-02-12 @ 11:00 am	2013-02-15 @ 12:00 pm	< 0.3	2013-02-19
4597212	RM 104	2013-02-12 @ 11:00 am	2013-02-15 @ 12:00 pm	< 0.3	2013-02-19
4597210	RM 105 COMP LAB	2013-02-12 @ 11:00 am	2013-02-15 @ 12:00 pm	< 0.3	2013-02-19
4597209	RM 106	2013-02-12 @ 11:00 am	2013-02-15 @ 12:00 pm	0.7	2013-02-19
4597208	RM 107 OFFICE	2013-02-12 @ 11:00 am	2013-02-15 @ 12:00 pm	< 0.3	2013-02-19
4597207	RM 108	2013-02-12 @ 11:00 am	2013-02-15 @ 12:00 pm	< 0.3	2013-02-19
4597206	RM 109	2013-02-12 @ 11:00 am	2013-02-15 @ 12:00 pm	< 0.3	2013-02-19
4597205	RM 110	2013-02-12 @ 11:00 am	2013-02-15 @ 12:00 pm	0.9	2013-02-19
4597203	RM 115	2013-02-12 @ 11:00 am	2013-02-15 @ 12:00 pm	0.8	2013-02-19
4597202	RM 116	2013-02-12 @ 10:00 am	2013-02-15 @ 12:00 pm	< 0.3	2013-02-19
4597200	RM 117	2013-02-12 @ 10:00 am	2013-02-15 @ 12:00 pm	< 0.3	2013-02-19
4597201	RM 118	2013-02-12 @ 10:00 am	2013-02-15 @ 12:00 pm	< 0.3	2013-02-19
4597199	RM 120	2013-02-12 @ 10:00 am	2013-02-15 @ 12:00 pm	< 0.3	2013-02-19
4597198	RM 121	2013-02-12 @ 10:00 am	2013-02-15 @ 12:00 pm	< 0.3	2013-02-19
4597192	RM 122	2013-02-12 @ 10:00 am	2013-02-15 @ 12:00 pm	< 0.3	2013-02-19
4597195	RM 122 OFFICE	2013-02-12 @ 10:00 am	2013-02-15 @ 12:00 pm	< 0.3	2013-02-19
4597191	RM 123	2013-02-12 @ 10:00 am	2013-02-15 @ 12:00 pm	0.7	2013-02-19
4597190	RM 130	2013-02-12 @ 10:00 am	2013-02-15 @ 12:00 pm	< 0.3	2013-02-19
4597186	RM 131	2013-02-12 @ 10:00 am	2013-02-15 @ 12:00 pm	< 0.3	2013-02-19
4597189	RM 132	2013-02-12 @ 10:00 am	2013-02-15 @ 12:00 pm	< 0.3	2013-02-19

Radon test result report for:

SK

WHITEAKER

Kit #	Room Id	Started	Ended	pCi/L	Analyzed
4597188	RM 133	2013-02-12 @ 10:00 am	2013-02-15 @ 12:00 pm	< 0.3	2013-02-19
4597184	RM 134	2013-02-12 @ 10:00 am	2013-02-15 @ 12:00 pm	< 0.3	2013-02-19
4597185	RM 135	2013-02-12 @ 10:00 am	2013-02-15 @ 12:00 pm	< 0.3	2013-02-19
4597183	RM 136	2013-02-12 @ 10:00 am	2013-02-15 @ 12:00 pm	0.6	2013-02-19
4597182	RM 137	2013-02-12 @ 10:00 am	2013-02-15 @ 12:00 pm	< 0.3	2013-02-19
4597181	RM 138	2013-02-12 @ 10:00 am	2013-02-15 @ 12:00 pm	< 0.3	2013-02-19
4597180	RM 139	2013-02-12 @ 10:00 am	2013-02-15 @ 12:00 pm	< 0.3	2013-02-19
4597179	RM 140 W.O.	2013-02-12 @ 10:00 am	2013-02-15 @ 12:00 pm	< 0.3	2013-02-19
4597178	RM 141	2013-02-12 @ 10:00 am	2013-02-15 @ 12:00 pm	< 0.3	2013-02-19
4597173	RM 151 W.O.	2013-02-12 @ 10:00 am	2013-02-15 @ 12:00 pm	< 0.3	2013-02-19
4597172	RM 152	2013-02-12 @ 10:00 am	2013-02-15 @ 12:00 pm	< 0.3	2013-02-19
4597171	RM 153	2013-02-12 @ 10:00 am	2013-02-15 @ 12:00 pm	< 0.3	2013-02-19
4597174	RM 154	2013-02-12 @ 10:00 am	2013-02-15 @ 12:00 pm	< 0.3	2013-02-19
4597175	RM 155A	2013-02-12 @ 10:00 am	2013-02-15 @ 12:00 pm	0.7	2013-02-19
4597176	RM 155B	2013-02-12 @ 10:00 am	2013-02-15 @ 12:00 pm	0.8	2013-02-19
4597177	RM 156	2013-02-12 @ 10:00 am	2013-02-15 @ 12:00 pm	0.5	2013-02-19
4597219	RM 161	2013-02-12 @ 11:00 am	2013-02-15 @ 12:00 pm	0.6	2013-02-19
4597218	RM 162	2013-02-12 @ 11:00 am	2013-02-15 @ 12:00 pm	< 0.3	2013-02-19
4597217	RM 163	2013-02-12 @ 11:00 am	2013-02-15 @ 12:00 pm	< 0.3	2013-02-19
4597220	RM 164	2013-02-12 @ 11:00 am	2013-02-15 @ 12:00 pm	< 0.3	2013-02-19
4597214	RM 165	2013-02-12 @ 11:00 am	2013-02-15 @ 12:00 pm	< 0.3	2013-02-19
4597187	SCIENCE OFFICE	2013-02-12 @ 10:00 am	2013-02-15 @ 12:00 pm	0.5	2013-02-19
4597215	STAFF ROOM	2013-02-12 @ 11:00 am	2013-02-15 @ 12:00 pm	< 0.3	2013-02-19