California Science Center

CALIFORNIA STATE SCIENCE FAIR
2001 PROJECT SUMMARY

Your Name (List all student names if multiple authors.)
Brian M. Ingel

Project Title (Limit: 120 characters. Those beyond 120 will be ignored. See pg. 9)
Radon Gas; The Element of Fear

Science Fair Use Only

J0811

Division
X **Junior (6-8)** _ **Senior (9-12)**

Preferred Category (See page 5 for descriptions.)
8 - Environmental Engineering

Abstract (Include Objective, Methods, Results, Conclusion. See samples on page 14.)
Use no attachments. Only text inside these boxes will be used for category assignment or given to your judges.

Objective: Exposure to unsafe levels of indoor Radon gas is the second leading cause of lung cancer in the United States. This study will try to determine if the four major geologic formations or soil types found in the Ventura County city of Moorpark can be used to predict indoor Radon levels in homes located on these soil types.
Materials and Methods: The Experimental Variable for this study will be the four major geologic formations or soil types identified for the Ventura County city of Moorpark. Eight homes built on the four major soil types were selected for indoor Radon gas testing. Two homes were selected on each major soil type. Passive EPA approved Radon detector kits were used to measure indoor Radon levels, the Dependent Variable, over two consecutive 5-day testing periods. At the end of each testing period, the detector kits were sent to an EPA approved Radon measurement laboratory for analysis and determination of indoor Radon levels for each home. Final Average Radon Levels were calculated for each test home.
Results: Results from both test periods showed that none of the homes tested had indoor Radon gas levels above the EPA safe level. The first test period results showed Radon levels for most of the tested homes within a very safe range of 0.5 pCi/L to 0.8 pCi/L. The two highest Radon levels were measured in homes located on two different soil types. The second test results showed nearly all homes with lower Radon levels than the first test. Again, the two highest Radon levels were measured in homes located on two different soil types. Testing data showed that homes on the same soil type could have very different indoor Radon levels and homes on very different soil types could have very near or the same indoor Radon levels.
Conclusion: Final Average Radon levels did not clearly indicate a geologic formation or soil type that overwhelmingly demonstrates consistently high Radon levels or could be used to predict high Radon levels for one soil type or another. Test data showed homes on different soil types with nearly the same high or low Radon levels and homes on the same soil type with both high and low Radon levels. The results suggest that geologic formation or soil type may not be a good indicator of consistent indoor Radon levels within any given area.

Summary Statement (In one sentence, state what your project is about.)
This study will try to determine if geologic formation or soil type can be used to predict or indicate indoor Radon gas levels in homes located on the various soil types.

Help Received in Doing Project (e.g. Mother helped type report; Neighbor helped wire board; Used lab equipment at university X under the supervision of Dr. Y; Participant in NSF Young Scholars Program) See Display Regulation #8 on page 4.
Father provided transportation to homes in Moorpark and helped setup Radon detectors.