Introduction:
Radon (chemical symbol \(^{222}\text{Rn}\)) is a carcinogenic gaseous element that when inhaled in large enough quantities, causes lung cancer. The EPA estimates that radon causes 20,000 annual deaths in the United States—700 of these from the state of Minnesota. With so many deaths, and so little public awareness and political action, it is apparent that radon needs to be taken seriously as an environmental health issue in the state of Minnesota. The research in this project focuses on the sources of radon, ways in which it accumulates in residential households, methods of measuring and mitigating radon, and the radon policies that Minnesota currently has. In order to reduce radon exposure to Minnesotans, more aggressive state policies must be introduced and enforced. Furthermore, the public understanding, knowledge, and awareness of radon must be increased to support and facilitate radon regulation in Minnesota.

What is Radon, and where does it come from?
Radon is a naturally occurring radioactive gas that can be found in soils and rocks beneath Earth’s surface. Radon itself is a decay product of the element uranium.

Radon Concentrations in Minnesota Counties:
*EPA Recommends mitigation at 4 pCi/L and above.

Comparison of Yearly Deaths in the U.S.

Steps to mitigate:
Radon mitigation systems effectively remove radon from a structure and are the ultimate solution to reducing radon concentrations. Here is the process of mitigation:

1. Test your home! Kits are affordable, easy to use, and be bought at hardware stores, or online. If the results are 4 pCi/L or greater, then mitigation is strongly recommended.

2. Contact a certified mitigation company. The EPA recommends the National Radon Proficiency Program (NRPP) or the National Radon Safety Board (NRSB) to fix your home. See EPA website for more information: http://www.epa.gov/radon/radontest.html

3. Installation! After installation, your house should be safe. Perform another test just to make sure that radon levels have successfully been reduced.

Conclusions:
We have the ability to save a large number of lives each year in Minnesota. It is only a matter of implementing. There is simply not enough attention given to radon in the state of MN. Testing for radon in a residential building is the first step and basis to solving the issue. Therefore, a state policy mandating radon testing in residential homes during real estate transactions is strongly recommended. Such policies would subsequently promote radon awareness to the general public. If policies exist to mandate carbon monoxide detectors in active residential dwellings, then radon policies can certainly be integrated into the Minnesota legislature.

Secondly, mitigation systems must become more common. To make these systems more known and affordable, radon mitigation companies must become more well known through Minnesota Department of Health promotion. Along with this, homeowners should receive tax returns for the installation of their mitigation systems to alleviate financial costs.

Online state and federal government sources were most widely used to gather data. Information provided by the EPA, DNR, MDH, MN Revisor of Statutes, and USGS were used to analyze concentrations, guidelines/recommendations, geology, health effects, and state policy regarding radon. Multiple interviews were conducted with realtors and former physics professor, Dr. Dan Steck, who has performed extensive research on radon prevention in Minnesota. Peer reviewed journals were used to provide basis for radon health effects, radon policies, and possible solutions to reduce radon exposure. News from local MN media sources provide state perspectives and information on radon. Lastly, the World Health Organization (WHO) radon handbook was used, as it provides the best summary of the most current scientific knowledge about radon as agreed to by an international panel of experts.