

Phosphogypsum: Should We Just Let It Go To Waste?

Written Testimony of Harlan Keaton

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**Florida Department of Health, Division of Environmental Health,
Bureau of Radiation Control**

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Intergovernmental Relations and the Census**

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Mr. Chairman and Members of the Subcommittee, I am Harlan Keaton, Environmental Administrator for the Bureau of Radiation Control, Division of Environmental Health, within the Florida Department of Health (DOH). I have been employed by DOH for 33 years and have served as the Administrator of DOH's Health Physics Laboratory, including several radiological environmental monitoring and emergency response programs, for the last 20 years. I also serve as an advisor to the Florida Institute of Phosphate Research (FIPR) regarding possible research projects. Thank you for the opportunity to discuss with you the potential environmental health risks of phosphogypsum, as well as the potential for its safe applications.

Role of Florida Department of Health

We would like to describe today what DOH's limited role is regarding naturally occurring radioactive material in the environment and specifically as it is associated with the phosphate mining industry.

The United States Environmental Protection Agency (EPA) has primary responsibility for developing rules and national standards for handling phosphogypsum and waste issues. The Florida Department of Environmental Protection (DEP), under authorization from EPA, also looks closely at the proper disposal and beneficial use of this material. As part of DOH's mission to promote and protect the health and safety of all residents of Florida, we have a limited role in the monitoring of phosphogypsum. Through our Bureau of Radiation Control (Bureau), we regulate the use of radiation and radioactive materials in medicine and industry. Please note, therefore, that our Bureau is only looking at the radioactive issues associated with phosphogypsum. We understand that there are also other environmental contaminants that can impact groundwater from the disposal and use of phosphogypsum such as sulfates, sodium, iron, fluoride and trace heavy metals. These contaminants should also be evaluated when making beneficial use decisions about this waste.

The Bureau also has several environmental monitoring programs, including one that monitors the radiation levels on phosphate lands both before mining and after land reclamation. This program has been ongoing since 1986. The data we have gathered indicates a small increase in radiation levels following reclamation of mined lands. However, please note that the pre-mined and reclaimed lands are not identical in makeup to the phosphogypsum, although there are many similarities, including the presence of naturally occurring radioactive materials.

Although DOH does not regulate the disposal of or use of phosphogypsum and has not been directly involved in research regarding potential uses and possible health risks from the use of phosphogypsum, we do conduct some testing in mining areas. Our staff have also served as advisors to FIPR to provide input on radiation related matters and advice on appropriate research areas. FIPR was established by the Florida Legislature to initiate, conduct or sponsor studies to minimize or rectify any negative impact of phosphate mining and processing on the environment and improve the industry's positive impact on

the economy. FIPR is a public entity located within the Florida Department of Education.

One aspect of our direct involvement in assessment of health risks from naturally occurring radiation in the phosphate mining areas is the risks from indoor radon levels. In an effort to control indoor levels of radon, both the EPA and the State of Florida began developing mitigation techniques to be used in existing buildings.

In 1978, the State also embarked on a project to develop radon-resistant construction techniques for new homes built on reclaimed phosphate lands. Standards for new construction and the mitigation of radon in existing construction were developed between 1989 and 1995, by the Florida Department of Community Affairs. These standards, called the *Florida Standards for Radon Resistant Construction*, are included as appendices of the Florida Building Code. Again, although this effort is not directly related to the use of phosphogypsum, it shows that research can be performed and efforts can be taken to mitigate the risks associated with naturally occurring radioactive material and ensure that the risk is at a safe level.

Studies of phosphate workers have not shown abnormal cancer rates and health reviews of populations living in previously mined areas do not indicate an increase or excess of lung cancers. More extensive research about the effects of exposure to phosphogypsum is needed.

Conclusion

It also makes sense to aggressively research appropriate and safe uses for this plentiful by-product. In Florida alone, we have approximately one billion tons in 24 stacks with an annual production of 30 million new tons of phosphogypsum. We are interested in any scientifically valid research that shows possible health risks, or lack of health risks, associated with potential uses of phosphogypsum. We believe this is a significant issue that we could understand better through more research, research that can enable us to determine appropriate uses for this material and what steps are needed to protect the public's health and the environment.

We believe that the current practice of stacking the phosphogypsum has potential environmental and public health risks, as evidenced by unintended releases and spills and the recent need to dispose of millions of gallons of gypsum and acidic wastewater. Last year, the federal government granted DEP permission to dispose of the treated wastewater in the Gulf of Mexico. We therefore support and encourage aggressive research to determine safe uses of phosphogypsum, while protecting the health and safety of the residents of Florida. Through this research, developments may allow for better roads, more efficient landfill covers, additional needed sulfur for the soil, and construction material like safe glass, thereby providing a residual benefit to society.

I am happy to answer any questions that you may have.