



OEC [Action Fund]

**Interested Party Testimony - Ohio House Bill 393 (DeVitis, O'Brien)
Melanie Houston - Director of Climate Programs
January 23, 2018**

Good afternoon, Chairman Landis, Vice Chairwoman Hagan, Ranking Member O'Brien and members of the House Energy and Natural Resources Committee; My name is Melanie Houston and I am Director of Climate Programs for the Ohio Environmental Council (OEC) Action Fund. Thank you for the opportunity to testify on Ohio House Bill 393 today.

Current Ohio law contains a cradle-to-grave approach in managing brine produced by oil and gas operations; meaning, brine waste products are monitored from point of origin to point of disposal. While we support the goal of recycling oil and gas brine in order to move away from full reliance on injection well disposal, we are concerned that the bill doesn't specify the correct measures in testing protocols to ensure utmost protection of public health and safety and the environment.

We appreciate the time committee members have given us to share our concerns and appreciate the bill sponsors' willingness to require the collection and testing of samples through the amendment being offered today. While requiring the collection and testing of materials is a big step in the right direction, our concerns for heavy metals and radioactive materials remains, which is why I am testifying as an interested party to the bill.

Recommendation for a qualified lab to test the material

In its current form, the legislation uses a testing standard set by an association of transportation agencies (i.e. Pacific Northwest Snowfighters Association) and the Department of Transportation. It is our understanding that neither of these institutions are testing for radioactive materials or heavy metals.

In order to support this bill, we would need to see either 1. Satisfactory test results from a lab equipped to test for radiological materials and heavy metals or 2. A

required testing protocol within the bill language that would require at least quarterly testing of the treated brine by a lab equipped to test for radiological materials and heavy metals. We understand that this is a tall order. We understand that the company is a small business owner in northeast Ohio with a product that works well to treat ice and snow on our roads, and we appreciate the need for safe car travel throughout the state. We understand that there are competing public health priorities and that de-icing roads is essential to keep our communities safe and functioning throughout the winter months. The OEC Action Fund understands that you also may prioritize the public safety goal of adding another deicing product to the market over the public safety goal of minimizing radiological and heavy metal content that is brought to the surface through resource extraction.

Duty of the manufacturer

The manufacturer of this product must be able to demonstrate that the product is safe and that there is not radioactivity in this product. The mere fact that the intent of the bill, in turning treated oil and gas brine into a commodity, is for the material to become more broadly used for spreading on roads, parking lots and other surfaces where humans come into regular contact, means that there should be a duty to demonstrate that it is safe.

While we have heard about the efficacy of the product to treat ice and snow, we have not yet seen the lab analyses to demonstrate that there are not NORM or heavy metals present in the product.

We also understand from consulting with Dr. Henry Spitz, Professor of Nuclear & Radiological Engineering at the University of Cincinnati that testing for radium in oil and gas brine is a complex process. Dr. Henry Spitz runs a University of Cincinnati lab that can in fact test for radium content and he has offered his services to test the product.

Radioactive materials a concern in oil and gas brine

Rock salt and brine from oil and gas wells are not equal. They should not be regulated in the same manner. Oil and gas brine has been demonstrated through numerous academic studies to contain NORM or naturally occurring radioactive material. Oil and gas brine also often contains heavy metals such as lead, mercury, arsenic and others. The human health effects of these heavy metals are well-documented.

According to one specific peer-reviewed study in the International Journal of Coal Geology --with authors from the US Geological Survey and the Department of Geological Services at University of Texas at El Paso --“the use of road spreading brines from conventional oil and gas wells for deicing resulted in the accumulation of Radium-226 in soil and sediment proximal to roads.” The study further notes that it is possible that some of this material could have infiltrated the shallow groundwater but notes that further study is needed.

Risks of human exposure to radium

For the purposes of my testimony today, I am going to delve into the risks of potential radium content in oil and gas brine. This is where I have found substantial scientific evidence to suggest a real risk may be present in treated oil and gas brine products.

According to the US EPA, chronic exposure to high levels of radium can result in an increased incidence of bone, liver and breast cancer. As radium decays it creates a radioactive gas, known as radon. Radon is the second leading cause of lung cancer in the United States. It is common in many soils and can collect in homes and other buildings. While radon can be present in our homes, it is important to note that we as a society have decided to reduce the risk of human exposure. We have required radon testing during home purchases and the installation of radon mitigation systems in homes. We should be looking at the same reduction of risk with this legislation.

Routes of exposure to radium

The routes for human exposure to radioactive materials, such as radium-226, are through inhalation and ingestion. In simple terms, the radium can be aerosolized and then be breathed in by people. When it's put on the ground for deicing purposes, cars drive over it and it gets re-suspended in the air where it can and will be inhaled. Humans can also be exposed to radium through the ingestion of plants and animals that have ingested or inhaled radium. Radium behaves in the body similarly to calcium, where systemic deposition occurs primarily in the skeleton.

Radium's persistence in the environment

Once brought to the surface, radium persists for a long time in our environment. Radium-226 has a half-life of 1,600 years, which means that it remains in the environment for many human lifetimes. According to Dr. Henry Spitz, Professor of Nuclear & Radiological Engineering at the University of Cincinnati, “estimating the

risk to many generations of individuals living or working on NORM-contaminated land ... is a considerable challenge.”

Conclusion

As you consider this testimony and the facts, please note that our sister state of Pennsylvania is encountering elevated radium levels in their rivers due to the release of treated oil and gas brine from conventional (non-shale) wells to these waters. A recent study determined that treatment plants that handle conventional oil and gas brine are causing a buildup of radioactive materials at the bottom of three Western Pennsylvania waterways. The authors wrote “we concluded that recent disposal of treated conventional (oil and gas waste) is the source of high (radium concentrations) in stream sediments at (waste) facility disposal sites.” The study found high levels of radium in river and stream sediment at levels up to 650 times those found upstream of three industrial waste treatment plants that handle fluid produced by conventional oil and gas wells. The study appears in the journal Environmental Science & Technology and was funded by the National Science Foundation and the Park Foundation.

I ask that you weigh the costs and benefits completely, understanding that an increase in exposure to heavy metals and radiological content poses a very serious risk to public health. While we are very cautious about the safety of this product for use on roads and parking lots in Ohio, we look forward to working with the bill sponsors on possible approaches that would improve this legislation, and I am happy to answer any questions at this time.