

July 1, 2018

Patti Caswell  
Oregon DOT

Re: Radioactivity in AquaSalina

Dear Ms. Caswell

Ohio residents, families and concerned environmental health advocates were stunned and horrified after learning recently that a study by the Ohio Department of Natural Resources (ODNR) measured dangerously high levels of radiation in a deicer that is currently being sold to consumers and used on our roads.

We are writing to bring to your notice critical information about a highway deicer and dust suppressant, AquaSalina. Laboratory test results of the Ohio Department of Natural Resources (report attached) reveal that AquaSalina contains enormous quantities of radioactive isotopes. Pacific Northwest Snowfighters notably does not test for naturally-occurring radioactive materials (NORM) or technologically-enhanced naturally-occurring radioactive materials (TENORM). I submit that your organization should amend its testing protocols to fit the reality that oil and gas drilling waste is being commodified for highway maintenance uses. This will endanger public waterways and groundwater resources, potentially overload ecosystems with radioisotopes which will kill off and permanently damage the gene pool for wildlife, endanger highway workers, and incrementally poison the general human population. Pacific Northwest Snowfighters' organizational reputation will be collateral damage as the facts of your inaction in the face of bad science emerge.

AquaSalina is a product you can purchase by the gallon at Lowe's or a hardware store right now. It's also sold in huge quantities to Ohio Department of Transportation Regional garages for use as a deicer. It's bottled in the Cleveland area by an owner of several oil and gas wells. AquaSalina has been sold for several years.

It is called "brine," marketed as "ancient sea water;" and it is bottled radioactive waste. Depending on the concentrations of radioactive toxins in this "ancient seawater," it is called "NORM" (naturally-occurring radioactive material) but because this waste has been "enhanced" it is then considered to be "TENORM" (technologically-enhanced naturally-occurring radioactive material).

Here's how we know AquaSalina is radioactive waste. Scientists at the Ohio Department of Natural Resources analyzed AquaSalina in 2017. I've attached their report. Samples of AquaSalina bought right off the shelf ranged as high as 500 times the US EPA Drinking Water standard (5 pCi/L) for Radium-226 and -228, with the average of the samples tested by ODNR being 346 greater than the US EPA Drinking Water Standards for Radium- 226 and Radium- 228 combined.

Why is any of this significant? Radium-226 is a major radioisotope in the liquid and solid drilling wastes brought to the surface to get natural gas and oil. Ra-226 is especially dangerous because it dissolves readily in water. If you ingest water containing Ra-226, the body incorrectly recognizes it as dissolved calcium and deposits it in bone tissue. It is a bone seeker. Ra-226 is an "alpha particle emitter," meaning that an atom of it is energetic enough that it will electrically bombard surrounding cell tissues and cause cell mutations. Cell mutations often become cancers, also called blastomas which are more common in children. Alpha particles are difficult to detect and have a greater potential for damage in biological tissue. Exposure to high levels of radium results in an increased incidence of bone, liver, and breast cancer. The EPA and the National Academy of Sciences, Committee on Biological Effects of Ionizing Radiation, has stated that radium is a known human carcinogen (ATSDR ToxFAQs). We also fear that as AquaSalina dries, fine particles on the roads will be sucked into moving cars and breathed in by drivers and passengers, and this will impact every person that drives on the roads treated by this radioactive frack waste brine - Winter, Spring, Summer, and Fall.

Stephen Lester, a trained toxicologist and Science Director for the Center for Health, Environment & Justice, has examined the ODNR laboratory tests. I've attached his report, wherein he concludes that:

"The brine used in Nature's Own Source's AquaSalina product is treated radioactive oil and gas industry waste. The company's treatment process appears to increase the concentration of combined Radium-226/228 in the final product. All three post-treatment samples collected from Nature's Own Source production plants had substantially more radiation than the pre-treatment samples indicating that the addition of the radioactive oil and gas industry waste was the primary source of the radiation. The increase in combined Radium-226 and Radium-228 ranged from 11% to 92% in these three samples as shown in the DOGRM memorandum. Left untreated, the waste, a by-product of the oil and gas activity would be classified as a Naturally Occurring Radioactive Material (NORM). However, the treatment process used by Nature's Own Source to manufacture AquaSalina increases the radioactivity of the material resulting in a Technologically Enhanced NORM or TENORM."

Mr. Lester further states that "AquaSalina deicing brine is not fit to be sold to the public as it contains levels of radioactivity that pose significant risks to public health and the environment" and recommends that "further sales of this product should be halted until additional testing information can be acquired and evaluated."

When a city or township or state highway garage purchase this product for ice control, the recommended spray is 30 to 50 or so gallons per lane/mile. If you're driving on a six-lane Ohio Turnpike, there are 180 to 300 gallons sprayed on the roadway per mile. This radioactive waste then unavoidably washes into streams, wetlands, rivers, and lakes. And we all live downstream.

We understand that this product has been approved by the Pacific Northwest Snowfighters (PNS) and has been used by members of the Clear Roads Organization. But we have to wonder if by not testing this product for radiation you have overlooked a hazardous situation. We are also aware that the Clear Roads Organization is made up of many state Departments of Transportation agencies which makes this a national problem.

We ask that you reconsider and reevaluate the use of this product. In order to protect the public and our road warriors, we believe that any product or use of oil/gas brine must be tested for radioactive isotopes.

Sincerely,

Teresa B. Mills, Executive Director  
Buckeye Environmental Network  
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On behalf of the following signees

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