Feb. 15, 2026

Chairman Schaffer, Vice Chairman Koehler, Ranking Member Hicks-Hudson and members of the Senate Agriculture and Natural Resources Committee.

I submit the following proponent testimony on SB 329 on behalf of Athens County's Future Action Network (ACFAN), a network of hundreds of SE Ohio residents who have been studying health and environmental impacts of oil and gas processes and fighting to protect our region from the industry's activities and waste for fifteen years. Some of you have heard from another ACFAN steering committee member, former Athens County Commissioner Roxanne Groff, on matters related to brine spreading over recent years. She is out of the country and unable to submit individual testimony. She certainly wishes she could be in the hearing room on Tuesday.

SB 329 is extremely important legislation that would ban spreading of oilfield waste on Ohio roads. We support this bill because we have studied and are extremely concerned about the complex toxic chemicals in "brine," the high levels of radioactivity in "brine" documented by ODNR and other researchers, and the vast quantities produced in and imported into Ohio. Ohio officials know too of the dangers, which have led both **Ohio Department of Transportation and Ohio Turnpike Commission to discontinue use of deicers derived from oil and gas waste.**

The rest of this testimony will focus on radioactivity, in part because it's an extremely dangerous and prevalent component in "brine," and also because the **complex chemical mixtures that may be in what gets spread on roads are not even ascertained**! *We know that benzene, PFAS's, and other dangerous components of oil and gas waste are also likely in road "brine."*

Ohio Administrative Code sets the legal limit for combined Radium-226 and Radium-228 discharge to the environment to 120 pCi/L. (OAC 3701:1-38-12, Appendix C, Table II). Ohio Department of Natural Resources' study of brine from 107 wells across Ohio in 26 different counties and 10 different formations found that ***every sample was too radioactive to discharge into the environment according to per the OAC permitted levels***. The samples didn't even meet these standards, never mind U.S. Environmental Protection Agency's drinking water standard for combined Radium 226 and 228 at **5pCi/L.** (40 CFR 141.66)

**The Ohio Department of Health has recommended against use of brine in deicers due to human exposure radiation risks**. (2022)

Even with "Aquasalina," a product supposedly processed to be "safe" for road applications, all *samples tested by ODNR over the past decade exceeded federal Drinking Water legal limits for combined Ra-226 and Ra-228 as well as OAC legal limits for discharge to the environment by many times legal limits:*

- The Aquasalina samples tested by ODNR averaged 1,731 pCi/L, or *346 times* the EPA standard. The highest concentration found (from a container of AquaSalina purchased from a hardware store in Hartville, OH) was almost 500 times the standard.
- Ra-226 and Ra-228 radioactivity in all samples also exceeded State of Ohio limits for discharge to the environment (OAC 3701:1-38-12, App. C, Table II, Effluent Concentrations) by many times: The combined radium Ra226/Ra228 concentration in all samples of post-production AquaSalina, other than the Hartville Hardware sample, averaged within 10% of each other at 1,578.6 pCi/l. (ODNR Interoffice Memo 7/26/17)

If one considers the health-based standards determined by USEPA, the degree to which these products exceed standards is even more alarmingly horrific:

**Health-based exposure limits: from *Radioactive elements most commonly detected in drinking water Environmental Working Group Tap Water Database 2019*** ewg.org/tapwater/reviewed-radiological.php

| **Element** | **Primary health concern** | **Detection level, in picocuries per liter** | **Health-based limits (based on one-in-a-million cancer risk)** | **National Maximum Contaminant Level (MCL)** in pCi/L | **Cancer risk at legal limit** |
|---|---|---|---|---|---|
| Radium-226 & -228 | Bone cancer, other cancers | 1 | 0.05 pCi/L | 5 pCi/L for combined radium 226+228 | 7 cancer cases per 100,000 exposed |

*USEPA has set a health guideline of zero for all radioactive elements in drinking water.* However, federal legal limits for radiation and radioactive contaminants are based on the cost of removing contaminants and don't necessarily reflect exposure levels considered safe by public health and medical officials. Since detection limits (minimum level needed for detectability) of radioactive substances in water are higher than health-based guidelines, even residents of communities with "no detected radiation" may face cancer risks from radioactivity in drinking water.

It is not surprising that Aquasalina contains such high levels of radioactive materials, since **radioactivity cannot be removed in processing**. As confirmed by Ohio Department of Natural Resources tests, conventional oil and gas waste contains extremely high levels of radium 226 & 228. Results from tests of both conventional and deep horizontal wells reveal this waste to contain dangerously high levels of cancer-inducing radioactivity:

**Ohio Department of Natural Resources (ODNR) Oil and Gas Brine TEST RESULTS**

| Radioactive levels of **radium** 226 and 228 in brine from 151 oil & gas well samples. **Well Type** | **# Wells Sampled** | **Results*** |
|---|---|---|
| Conventional (vertical, shallow) wells, the old mom & pop wells | 118 | 66 to 9602 pCi/L** |
| Horizontal (deep) wells | 25 | 173 to 3264 pCi/L |
| Out-of-state (brine disposed in OH) | 8 | 54.6 to 9798 pCi/L |
| * Source: Tests completed for ODNR Radiation Safety Section, Division of Oil and Gas, cited in their memos of 1-23-18 and 7-2-18<br>** Picocuries: a measure of the intensity of radioactivity; piC/L reflects the intensity of radioactivity per liter of water. | | |

"Brine" (radioactive oil and gas waste) and Aquasalina are used on some Ohio roads as a a de-icer and dust suppressant. This "brine" is also used in portapotties, where it off-gases into the closed space to be breathed in by unsuspecting users. This is horrific.

**Use on roads and sidewalks means that the radioactivity gets into soil, can be tracked into homes and becomes airborne as radioactive dust, thus able to contaminate drinking water sources and**

**agricultural products. This source of radioactivity has long been known as a source of human illness and death by Ohio regulators. Needless to say, this is a long-term threat for many generations, given the thousand plus year half-lives of these two radioactivity particles. Radium-226 is especially dangerous because, unlike many radioactive isotopes, it dissolves readily in water.** When this contaminated water is ingested, the body mistakenly recognizes Ra-226 as dissolved calcium and deposits it in bone tissue. **Radium-226 is a bone seeker and causes bone cancer.** Radium-226 is an "alpha particle emitter," meaning that its atoms have enough radioactive energy to bombard surrounding cell tissues and cause cell mutations. Alpha particles are difficult to detect and have a greater potential to damage biological tissue. In fact, radon gas - radium in gas form - is the second leading cause of lung cancer in the U.S. Repeated or high level exposure to radium results in an increased incidence of bone, liver, and breast cancer. U.S. EPA and the National Academy of Sciences Committee on Biological Effects of Ionizing Radiation list radium as a known human carcinogen. (ATSDR ToxFAQs)

ACFAN represents many hundreds of concerned SE Ohio residents who have spoken out for years against the proliferation of radioactive oil and gas waste in our communities. We are extremely concerned about health risks to our families and members of the public exposed to this highly radioactive and highly toxic material. Allowing the spreading of these alpha particles in the environment is a serious health issue that must be stopped. Citizens are depending on you to halt this dangerous radioactive waste from further use and environmental discharge by adopting SB 329.

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