



Proponent Testimony
On
SB 165
From
Tony Fiore, Legislative Counsel for Nature's Own (producer of AquaSalina)
Before the
Senate Energy and Natural Resources Committee
On
Wednesday, March 21, 2018

Chairman Balderson, Vice Chair Jordan, Ranking member O'Brien, thank you for the opportunity to provide proponent testimony today on SB 165, jointly sponsored by Sen. Matt Dolan (R-Chagrin Falls) and Sen. Michael Skindell (D-Lakewood). I'm providing the following information to address some of the statements made during testimony regarding **HB 393** and **SB 165** in the House and Senate. In doing so we consulted Dr. Rish who testified before the House Energy and Natural Resources Committee as a proponent on Tuesday, January 23, 2018 and is testifying as a proponent today on SB 165.

No "fracturing" or "frack" water from shale wells will be used

An amendment was drafted to clarify SB 165 that no "shale" water will be used for this process. The amendment deletes from each bill the phrase "from a vertical" and replaces it with "that is not from a horizontal" well. "Horizontal well" is defined in the Ohio Revised Code 1509.01 (GG) as "a well that is drilled for the production of oil or gas in which the wellbore reaches a horizontal or near horizontal position in the Point Pleasant, Utica, or Marcellus formation and the well is stimulated." These are the shale formations. The source of the raw brine used to produce AquaSalina is confirmed and tracked by the fact that every gallon of brine that comes from conventional oil and gas well to a Nature's Own facility for processing into AquaSalina is reported to the ODNR today and will continue to be when this bill becomes law. In addition, "frack" water does not have the same ice melting properties as conventional well water and does not result in a useable product. Therefore, any assertion that this permits use of "frack" water in this process is simply false.

Raw "Brine" Can Be Used on Ohio Roads Today – This bill cleans it up

HB 393 and SB 165 are trying to encourage the processing and recycling of "brine". ORC 1509.01 (U) defines "brine" as "all saline geological formation water resulting from, obtained from, or produced in connection with exploration, drilling, well stimulation, production of oil or gas, or plugging of a well." This raw "brine" can legally be spread on the ground today as long as the hauler registers as a BRINE hauler, pays the \$50 fee and tracks and reports back to the Ohio Department of Natural Resources (ODNR) where it was spread. Raw brine is where environmental groups and the government's concern should remain, not brine that has been processed, recycled and rigorously and independently tested like AquaSalina.



Our client, Duck Creek Energy/Nature's Own, processes the residual oil out of this raw brine and uses carbon filters to further remove any impurities down to 5 microns. Then, they inject the solution with vitamin C to keep any iron molecules in the water from oxidizing and a corrosion inhibitor similar to liquid found in IV bags used in hospitals to hydrate humans. A food grade dye is then used (either blue or green) to make sure ODOT and other users know how much

solution is in their tank. This dye is UV sensitive, so it disappears when sunlight hits it. What is left is a solution that has 7-11% sodium chloride, 8-10% calcium chloride, 2-2.5% magnesium chloride and .5-1.5% potassium chloride all naturally occurring substances found in bottled water in smaller quantities. The clear and blue liquid in the picture above are processed/recycled brine that ODNR has treated as an unregulated "product/commodity" from 2004 to 2016. If AquaSalina is dehydrated (pictured on the right) the remaining granules are not subject to ODNR regulation.

Trace Amounts of Metals in AquaSalina Are Not Alarming

Most elements in nature are metals. Look at the table of earth's elements below.

The periodic table is color-coded as follows:

- Non-metals (Yellow):** H, He, B, C, N, O, F, Ne, Al, Si, P, S, Cl, Ar, Ga, Ge, As, Se, Br, Kr, In, Sn, Sb, Te, I, Xe, Cs, Ba, La, Hf, Ta, W, Re, Os, Ir, Pt, Au, Hg, Tl, Pb, Bi, Po, At, Rn.
- Metals (Green):** Li, Be, Na, Mg, K, Ca, Sc, Ti, V, Cr, Mn, Fe, Co, Ni, Cu, Zn, Ag, Cd, Hg, Tl, Pb, Bi, Po, At, Rn, Fr, Ra, Ac, Rf, Ha, Sg, Ns, Hs, Mt, 111, 112, 113, Ce, Pr, Nd, Pm, Sm, Eu, Gd, Tb, Dy, Ho, Er, Tm, Yb, Lu, Th, Pa, U, Np, Pu, Am, Cm, Bk, Cf, Es, Fm, Md, No, Lr.
- Metalloids (Blue):** B, C, N, O, F, Ne, Al, Si, P, S, Cl, Ar, Ga, Ge, As, Se, Br, Kr, In, Sn, Sb, Te, I, Xe, Cs, Ba, La, Hf, Ta, W, Re, Os, Ir, Pt, Au, Hg, Tl, Pb, Bi, Po, At, Rn.

In the environmental world, the term “heavy metals” was created to refer to the more dense metals. Like all metals these can be toxic if taken into the body at high enough levels. Some of these “heavy metals” are also essential nutrients for good health when taken into the

body at proper levels. That is why vitamin tablets contain them. **In fact, based on laboratory analysis of AquaSalina, taking one vitamin containing the recommended daily amount of chromium, copper, selenium, and zinc puts more of these metals (factors of 42, 47, 3, and 78 respectively) into the body than would drinking an 8 ounce glass of AquaSalina (not recommended).**

“Heavy metals” (and all metals) occur naturally in soil and waters in the environment. Ohio EPA has issued an “Evaluation of Background Metal Soil Concentrations” (Updated August 24, 2017) for several counties across Ohio. You can find the report by clicking [here](#). These background levels are used as cleanup levels for Ohio regulatory programs.

The following concentrations of metals are in natural background soils in Ohio:

Arsenic	13 to 24 mg/kg
Cadmium	Approximately 1 mg/kg
Chromium	16 to 21 mg/kg
Lead	22 to 52 mg/kg
Mercury	Approximately 0.1 mg/kg
Selenium	Approximately 1 mg/kg
Thallium	0.35 to 0.75 mg/kg
Nickel	Approximately 36 mg/kg

Radiation is everywhere and in everything

According to the Ohio EPA, background radiation is the normal radiation that is present in the environment from natural sources. These sources include radiation from the sun, cosmic rays, food and water, radiation from naturally occurring elements in the soil and rocks, and some building materials. The majority comes from soil and rocks. The elements that contribute most to this are uranium, thorium, radium, and radon.

In Ohio, the background radiation average ranges from 80 to 240 millirem/year. The accepted value for the average background radiation dose to people living in the United States is 360 mrem/year. Cosmic radiation alone results in about 27 mrem/year. Human beings receive radiation exposures from naturally occurring radionuclides contained in food, air, and water. These sources contribute another 39 mrem/year to dose from natural sources of radiation.

Recall that the upper bound dose calculated by the Pennsylvania Bureau of Radiation, based on extensive sampling of radiation resulting from deicing with brine, is approximately 0.5 mrem/year if directly exposed to brine used for deicing. This study, as well as all others referenced in this memo, are being provided to the Chairman's office in the House and Senate in lieu of attaching the files due to the size of each file.

Here is a diagram of natural sources of radiation. (from *Assessment of Variations in Radiation Exposure in the United States*, U.S. Environmental Protection Agency, Office of Radiation and Indoor Air, July 2005).

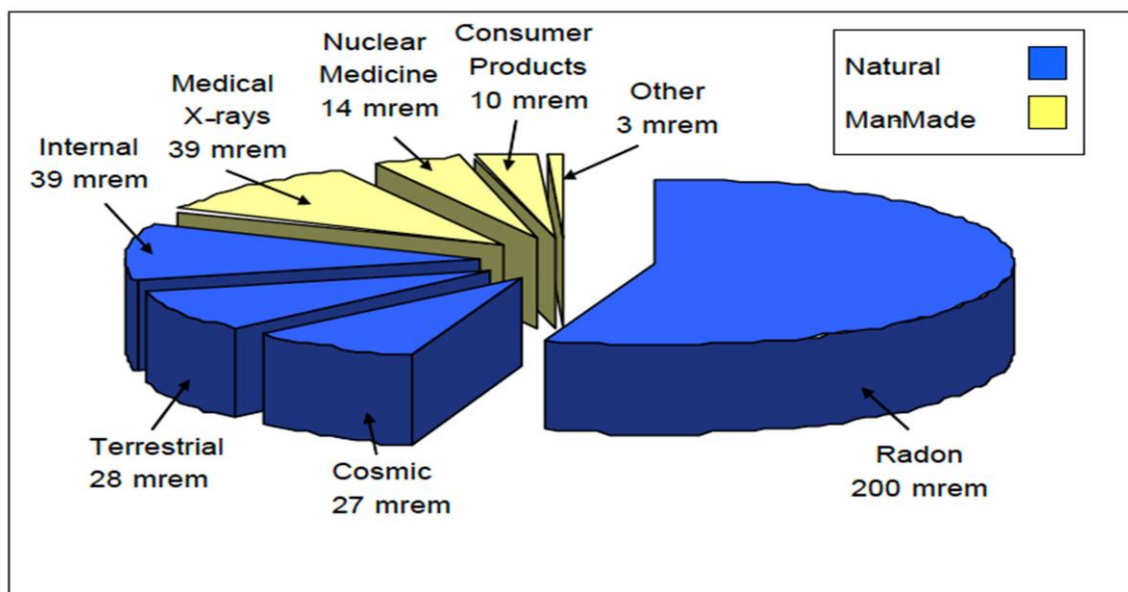


Figure 1. Sources of Radiation Exposure to the U.S. Population
(derived from Figure 1-1 of BEIR 1990)

Objective Standards that are Reasonable for Processing Brine

The state should be encouraging and supporting Nature's Own and other companies to process and recycle brine into a useful product/commodity that can be reused. The Clear Roads Group and Pacific Northwest Snowfighters (PNS) standards to become a qualified product are rigorous. In fact, while AquaSalina was tested and has become a qualified product by PNS, rock salt and man-made brine (rock salt fouling fresh water) would not meet the applicable standards due to their corrosive nature. AquaSalina is 70% less corrosive than rock salt and several independent studies by Ohio Department of Transportation (performed by Montana State and Akron University) as well as Pennsylvania Department of Transportation (by Temple University) confirm that AquaSalina is a safer environmental alternative for anti-icing and de-icing in the winter.

ODNR approved processing/recycling raw brine into AquaSalina in 2004. For over a decade, it deemed the finished product a commodity which was not subject to further regulation. Every year, ODNR receives an annual lab analysis to confirm the treatment process is effective. The legislation increases sampling frequency and provides for up to 4 samples per year, if ODNR believes there is cause for concern.

ODNR was on the right track when it issued the Chief's Order in 2004 and renewed it every year thereafter until 2015 to promote the processing/recycling of brine. Enacting this legislation furthers that policy direction and serves several purposes. **First**, more brine processed to AquaSalina = less water in Class II injection wells and less dirty raw brine being spread on roads in Ohio. **Second**, the lower freezing point of AquaSalina means drivers are safer on Ohio roads in the winter. **Third**, AquaSalina being 70% less corrosive than rock salt means less wear and tear on state and local government vehicles and infrastructure as well as on our own vehicles.

Conclusion

Products, like AquaSalina, must be deemed a commodity in the future in order for it to compete with other products on the market used to keep our roads safe from ice in the winter, suppress dust in the summer and an alternative to harsh chemicals used to sanitize portable toilets. If not, public and private users will either choose not to use the product or create enormous compliance issues for ODNR. Ohio will also discourage the development of innovative and effective options for the processing of raw brine, an effort that is promoted in our neighboring states.

Thank you Chairman Balderson for the opportunity to provide proponent testimony on SB 165. We feel the legislation contains the right safeguards for Ohio and ODNR to continue to promote the processing/recycling of brine. I hope this testimony, along with the testimony and studies provided, will give the Senate members the information necessary to support this legislation. I would be happy to answer any questions.