



Testimony of the

Pennsylvania Department of Environmental Protection

Before the

Senate Democratic Policy Committee

“Public Hearing on Road-Spreading of Brine in Pennsylvania”

April 17, 2024

Chair Muth, Chair Comitta, and Members of the Senate Democratic Policy Committee:

The Pennsylvania Department of Environmental Protection (DEP) would like to thank you for the opportunity to provide testimony to explain the agency’s perspective on spreading of oil and gas brine in Pennsylvania. Thank you for your interest in protecting both our public health and environment. As noted below, road spreading of brine is currently not an authorized practice in Pennsylvania and DEP takes enforcement action in instances where it becomes aware of unauthorized spreading. DEP encourages members of the public who observe potentially unauthorized road spreading of brine to report the activity to their closest DEP Regional Office.

Road-Spreading of Brine

“Oil and gas produced water” is an industry term used to describe what is generated during the extraction of oil and gas from underground reservoirs. This water—produced along with oil and gas—often contains a complex mixture of hydrocarbons, salts, heavy metals, and other contaminants. Produced water is more commonly referred to as “brine,” and municipalities in the northwest region of the Commonwealth, in particular, are interested in using brine as a dust suppressant on their dirt and gravel roads. Recent studies raise questions about the safety of the application of these brines due to potential runoff of contaminants of concern contained in the brines—as compared to pure salt brine used for de-icing roads—and potential impacts to the waters of the Commonwealth and drinking water supplies. Concerns have also been raised about the effects of brine salinity on the water quality of bodies of water into which brines may enter.

In the past, the DEP authorized the use of brines produced by conventional oil and gas wells to be used as a dust suppressant in accordance with DEP guidance (Approval of Roadspreading Plans, 550-2100-007, October 31, 1998) rather than through a permit under the Solid Waste Management Act. The DEP prohibited the use of unconventional gas well brine or produced water as a dust suppressant, road stabilizer or for pre-wetting, anti-icing and de-icing in 2016 with the passage of the Chapter 78a oil and gas regulations (see, 25 Pa. Code §§ 78a.70 – 78a71).

In 2017, the DEP discontinued the practice of authorizing brine use for dust suppression purposes under the guidance document. Since that time, the DEP has not authorized the use of brine as a dust suppressant under the 1998 guidance document or the Commonwealth’s Oil and Gas Act.

DEP Investigation of Brine-Spreading Reports

Over the past few years, the DEP’s Office of Oil and Gas Management (OOGM) Program has coordinated with the Bureau of Waste Management (BWM) to regulate brine produced by the conventional oil and gas operators and provided for road spreading as a co-product. DEP also identified these operators in OOGM’s Oil and Gas Electronic Reporting (OGRE) database.

A “coproduct” is defined in the residual waste regulations at 25 Pa. Code § 287.1, as a material generated by a manufacturing or production process, or a spent material, of a physical character and chemical composition that is consistently equivalent to the physical character and chemical composition of an intentionally manufactured product or produced raw material, if the use of the material presents no greater threat of harm to human health and the environment than the use of the product or raw material. A material may not be compared, for physical character and chemical composition, to a material that is no longer determined to be waste in accordance with § 287.7 (relating to determination that a material is no longer a waste). A coproduct determination, which shall be made in accordance with § 287.8 (relating to coproduct determinations), only applies to materials that will be applied to the land or used to produce products that are applied to the land, including the placement of roadway aggregate, pipe bedding or construction materials, or that will be used for energy recovery as is with a minimum BTU value of 5,000/lb. as generated or as fired.

In response to the information provided by OOGM and other reported incidents of road-spreading, BWM requested information from the identified oil and gas operators regarding their coproduct determinations.

In 2022, the DEP requested documentation from 26 oil and gas operators that reported “road-spreading” as the disposition of their brine via the OGRE database for the 2021 calendar year. Please note that conventional oil and gas operators are not required to report their waste production data until February of the following calendar year (e.g., data for the 2021 calendar year was not available until mid-February 2022).

- Two operators stated that the OGRE reporting was entered incorrectly, and no brine was sent for road-spreading. The records in OGRE have since been rectified by the operator;
- Thirteen operators responded that they would discontinue the use of brine for road-spreading, and some indicated they would continue working with DEP on making a valid coproduct determination;
- Two operators responded with information that did not constitute a valid coproduct determination; and
- Nine operators did not respond. In these cases, the Department followed up with additional letters reaffirming that the operators had yet to provide documentation that sufficiently supported a coproduct determination and that the brine must be managed as a waste.

- A 27th operator was identified in the OGRE reports, however, none of their brine was utilized within the Commonwealth for road-spreading, and therefore, did not use their brine for road-spreading in Pennsylvania under a coproduct determination.

In 2023, the DEP again ran the OGRE database reports and found that only one operator reported road-spreading in Pennsylvania during the 2022 calendar year.

This operator has been unresponsive to several DEP requests for documentation to demonstrate the existence of a valid coproduct determination. As a result, the DEP is evaluating enforcement options to address these unauthorized activities.

- A second operator was identified in the OGRE reports, however, none of their brine was utilized within the Commonwealth for road-spreading, and therefore, did not use their brine for road-spreading in Pennsylvania under a coproduct determination.

The DEP recently ran the OGRE reports for the 2023 calendar year and identified two oil and gas operators that have reported road-spreading of brine in Pennsylvania. The DEP has sent letters requesting documentation from these operators and is awaiting their responses. The Department will take appropriate regulatory action once responses are received.

Pennsylvania State University Study on Environmental Impacts Associated with Dust Suppressants

To ascertain the effectiveness and impacts of using treated and untreated brine as a dust suppressant, DEP entered into a contract with the Pennsylvania State University (PSU) on May 18, 2020, to study the potential runoff of brines used for these purposes when precipitation events occur after road-spreading of brine. The study consisted of using artificial roadbeds constructed using native rock from northwest Pennsylvania, applying the brine, then simulating a two-year, 24-hour rainfall event and measuring the runoff as compared to a similarly constructed road where only freshwater was applied to the road.

PSU submitted the final study titled, “Evaluation of Environmental Impacts from Dust Suppressants Used on Gravel Roads” to the OOGM on May 26, 2022. The study concluded that the efficacy of oil and gas brines as a dust suppressant is limited due to elevated sodium levels in the brine. Based upon the regulatory language in 25 Pa. Code §§ 287.1 and 287.8, for persons making a coproduct determination where they are comparing a waste to a product or produced raw material, there is not a required evaluation of the ability of the waste to function effectively for its intended use, or at the same level of efficacy as the product or produced raw material it is replacing. The information in the study about the efficacy of the oil and gas brines doesn't appear to be something that is required to be considered when performing a coproduct determination that compares a waste to a product or produced raw material. As a result, if a valid coproduct determination can be made that adequately compares brine to a commercially available product,

even if it may not be as effective as other road-spreading products, it's possible that oil and gas waste brine may continue to be spread as a dust suppressant.

Conclusion

The DEP understands that there are and will continue to be environmental and public health concerns related to the potential impacts of oil and gas brine spreading in Pennsylvania. The Department intends to evaluate this data and any additional information brought to our attention for use in decision making about brine-spreading on Pennsylvania roadways.