



## **House Environmental & Natural Resource Protection Committee**

### ***Public Hearing Agenda:***

Road Spreading of Oil and Gas Wastewater / DEP's "Mineral Brine Permit"

Monday, October 5<sup>th</sup>, 2026

10:00am – 12:00pm

Room 205 Ryan Office Building

|                   |                                                                                                                                                                                                                                                              |
|-------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 10:00am – 10:10am | Call to Order<br>Roll Call<br>Opening Remarks                                                                                                                                                                                                                |
| 10:10am – 10:40am | Seth Pelepko<br>Deputy Secretary, Office of Oil and Gas Management<br>PA Department of Environmental Protection<br><br>Ali Tarquino Morris<br>Deputy Secretary, Office of Waste, Air, Radiation and Remediation<br>PA Department of Environmental Protection |
| 10:40am – 11:10am | Dr. William Burgos<br>Professor, Department of Civil & Environmental Engineering<br>Pennsylvania State University<br><br>Eric Chase<br>Assistant Teaching Professor, Center for Dirt and Gravel Road Studies<br>Pennsylvania State University                |
| 11:10am – 11:25am | David Hess<br>Former Secretary, Department of Environmental Protection                                                                                                                                                                                       |
| 11:25am – 11:40am | Holly Fishel<br>Director of Policy & Research<br>PA State Association of Township Supervisors (PSATS)                                                                                                                                                        |
| 11:40am – 11:55am | Shannon Smith<br>Executive Director<br>FracTracker                                                                                                                                                                                                           |
| 11:55am – 12:00pm | Closing Remarks                                                                                                                                                                                                                                              |
| 12:00pm           | Adjournment                                                                                                                                                                                                                                                  |



# Environmental & Natural Resource Protection *Committee*

State Representative Greg Vitali  
*Democratic Chairman*

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## MEMORANDUM

DATE: 9/10/2026

TO: House Environmental & Natural Resource Protection Members

FROM: Representative Greg Vitali, Majority Chairman  
House Environmental & Natural Resource Protection Committee

RE: Environmental & Natural Resource Protection Committee Public Hearing  
– Monday, October 5<sup>th</sup> 2026

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Dear House Environmental Committee Members and Staff,

The House Environmental Committee will hold a public hearing on **Monday, October 5th, starting at 10:00am in Room 205 Ryan Office Building, Harrisburg, PA 17120.**

The subject of this hearing is the Road Spreading of Oil and Gas Wastewater / DEP's "Mineral Brine Permit".

Please contact Hayley Shupe at 717-787-7647 or [hshupe@pahouse.net](mailto:hshupe@pahouse.net) with any questions. If you are unable to attend this meeting, please submit an Official Leave of Absence Form prior to the start of the meeting. Members will have the option to attend virtually if you cannot be there in person.

Thank you,

GV/hs

## Introduction

I am a Professor of Environmental Engineering at The Pennsylvania State University where I have worked since 1995. I earned a BS in Mechanical Engineering, a MS in Environmental Engineering, and a PhD in Environmental Engineering, all from Virginia Tech. I am a member of the Academy of Distinguished Alumni for the Charles E. Via, Jr. Department of Civil and Environmental Engineering at Virginia Tech. I am a past member of the American Chemical Society, having served as the Geochemistry Division Chair, and a past member of the American Society of Civil Engineers and the Association of Environmental Engineering and Science Professors. I have conducted research on the environmental impacts of disposal practices associated with oil and gas development in Pennsylvania since 2015. I have co-authored a dozen papers on various aspects of these practices in well-regarded peer-reviewed scientific journals.

I will expand on the following main points for the committee's consideration:

1. Produced waters from conventional oil and gas wells are commonly no more effective than rainwater in suppressing dust from dirt and gravel roads.
2. Produced waters from conventional oil and gas wells contain elevated concentrations of radium, a known carcinogen, and other contaminants of concern.
3. Brines sourced from conventional oil and gas wells and sold commercially for dust suppression and ice control also contain elevated concentrations of radium.
4. Produced waters from conventional and unconventional oil and gas wells in Pennsylvania are not substantially different.
5. Produced waters sourced from conventional oil and gas wells will not be effective dust suppressants because of their high sodium concentrations.
6. Produced water fails to meet US EPA's criteria for beneficial reuse or PADEP's criteria for coproduct designation.
7. Land application of produced water from conventional oil and gas wells into unlined pits has already been shown to be an unacceptable disposal practice.

**1. Produced waters from conventional oil and gas wells are commonly no more effective than rainwater in suppressing dust from dirt and gravel roads.**

We developed laboratory testing procedures to determine the effectiveness of dust suppressants on reducing dust concentrations from roads constructed from dirt and gravel (Stallworth et al., 2020, Laboratory Method to Assess Efficacy of Dust Suppressants for Dirt and Gravel Roads, *Transportation Research Record*. 2674, 188–199). We validated the laboratory procedures in the field with the same dust measurement equipment mounted on the back of a car while driven along gravel roads. We found that produced waters from conventional oil and gas wells in Pennsylvania are no more effective than rainwater in suppressing dust, and in several cases, were worse than rainwater. In other words, more dust was produced from road material treated with some produced waters as compared to rainwater (Farnan et al., 2024, Oil and gas produced waters fail to meet beneficial use recommendations for use as dust suppressants, *Science of the Total Environment*. 2024, 919, 170807).

**2. Produced waters from conventional oil and gas wells contain elevated concentrations of radium, a known carcinogen, and other contaminants of concern.**

The combined radium activity ( $^{226}\text{Ra} + ^{228}\text{Ra}$ ) in conventional oil and gas produced water in Pennsylvania typically ranges from 1,000 to 8,000 pCi/L (Tasker et al., 2020, Geochemical and isotope analysis of produced water from the Utica/Point Pleasant Shale, Appalachian Basin, *Environmental Science: Processes & Impacts*, 22, 1224–1232). We analyzed produced waters collected from fourteen (14) brine tanks used by road masters in northwest Pennsylvania and spread on public gravel roads (Tasker et al., 2018, Environmental and Human Health Impacts of Spreading Oil and Gas Wastewater on Roads, *Environmental Science & Technology*. 2018, 52, 7081–7091). These tanks were typically filled by local oil and gas operators and used to fill township tanker trucks. The median combined radium activity for those brines was 1,230 pCi/L and the maximum value was 2,270 pCi/L. For comparison, the US EPA drinking water standard for combined radium activity is 5 pCi/L.

In addition to radium, contaminants of concern in produced water from conventional oil and gas wells include petroleum hydrocarbons, lead, and bromide.

**3. Brines sourced from conventional oil and gas wells and sold commercially for dust suppression and ice control also contain elevated concentrations of radium.**

LS25 is a brine product sold by Seneca Mineral Company (located in McKean, PA and Erie, PA) for dust suppression and ice control. LS25 is advertised as a “naturally occurring, liquid chloride brine” but is sourced from a conventional oil and gas well that either stopped producing oil and gas or never produced oil and gas. The combined radium activity in LS25 was 1,900 pCi/L (Farnan et al., 2023, Toxicity and chemical composition of commercial road palliatives versus oil and gas produced waters, *Environmental Pollution*. 2023, 334, 122184).

Aqua Salina is a brine product sold by Duck Creek Energy / Nature’s Own Source (located in Brecksville, OH) for dust suppression and ice control. Aqua Salina is advertised as a “liquid brine product” but is sourced from a conventional oil and gas well. The combined radium activity in Aqua Salina was 1,040 pCi/L (Farnan et al., 2023, Toxicity and chemical composition of commercial road

palliatives versus oil and gas produced waters, *Environmental Pollution*. 2023, 334, 122184). Radium is inherently present in the source brine regardless of the production status of the oil and gas well.

#### **4. Produced waters from conventional and unconventional oil and gas wells in Pennsylvania are not substantially different.**

The chemical characteristics of conventional and unconventional oil and gas produced waters from Pennsylvania overlap considerably with respect to major constituents (e.g., Na, Ca, Mg, Cl) and radium activity (Tasker et al., 2020, Geochemical and isotope analysis of produced water from the Utica/Point Pleasant Shale, Appalachian Basin, *Environmental Science: Processes & Impacts*, 2020, 22, 1224–1232). For example, the combined radium activity was 2,034 pCi/L (n=25) in conventional oil and gas produced waters, was 1,794 pCi/L (n=40) in unconventional Marcellus Shale oil and gas produced waters and was 3,105 pCi/L (n=24) in unconventional Utica Shale oil and gas produced waters. Chloride concentrations in conventional, Marcellus Shale, and Utica Shale oil and gas produced waters were 153,000 (n=1123), 102,000 (n=127), and 145,000 (n=24), respectively.

From a practical and statistical standpoint, it is challenging to chemically distinguish between conventional and unconventional oil and gas produced waters in Pennsylvania. These industrial wastewaters are quite similar. However, PADEP policy on wastewater disposal differs between conventional and unconventional oil and gas produced waters. Specifically, PADEP permanently banned road spreading of unconventional oil and gas produced waters while there is only a temporary moratorium on road spreading of conventional oil and gas produced waters.

#### **5. Produced waters sourced from conventional oil and gas wells will not be effective dust suppressants because of their high sodium concentrations.**

High concentrations of sodium relative to calcium and magnesium in all oil and gas produced waters in Pennsylvania is the problem. Sodium concentrations in conventional, Marcellus Shale, and Utica Shale oil and gas produced waters were 55,300 mg/L (n=1071), 39,500 mg/L (n=127), and 53,000 mg/L (n=24), respectively (Tasker et al., 2020, Geochemical and isotope analysis of produced water from the Utica/Point Pleasant Shale, Appalachian Basin, *Environmental Science: Processes & Impacts*, 2020, 22, 1224–1232). Calcium concentrations in conventional, Marcellus Shale, and Utica Shale oil and gas produced waters were 26,600 mg/L (n=1098), 14,700 mg/L (n=127), and 21,300 mg/L (n=24), respectively. Magnesium concentrations in conventional, Marcellus Shale, and Utica Shale oil and gas produced waters were 3,280 mg/L (n=1074), 1,480 mg/L (n=127), and 2,250 mg/L (n=24), respectively.

Calcium chloride and magnesium chloride brines work as dust suppressants because they contain the divalent cations  $\text{Ca}^{2+}$  and  $\text{Mg}^{2+}$ . Divalent cations help retain moisture and bridge clay particles together, physically stabilizing the roadbed. Clay particles are the finest materials in the roadbed and constitute most dust generated from vehicular traffic. Sodium chloride brines do not work as dust suppressants because they contains the monovalent cation  $\text{Na}^+$ . Sodium chloride brines will disperse clay particles and destabilize the roadbed.

The sodium adsorption ratio (SAR – the relative ratio of sodium to calcium and magnesium concentrations) of a brine can be calculated based on measured concentrations of calcium, magnesium, and sodium, and used to predict the efficacy of that brine’s ability to function as a dust suppressant (Stallworth et al., 2021, Efficacy of oil and gas produced water as a dust suppressant, *Science of the Total Environment*. 2021, 799, 149347). Brines with low SAR values are more effective dust suppressants. For example, a brine with a SAR value less than 3 would be predicted to be an effective dust suppressant while a brine with a SAR value greater than 15 would be predicted to be an ineffective dust suppressant. For produced waters from conventional oil and gas wells in Pennsylvania, typical SAR values range from 60 to 70, classifying them as ineffective dust suppressants.

**6. Produced water fails to meet US EPA’s criteria for beneficial reuse or PADEP’s criteria for coproduct designation.**

An approach to a more sustainable means to manage industrial waste is to promote the ‘beneficial reuse’ of one industry’s waste as a feedstock in another industry’s production process. Guidance from the United States Environmental Protection Agency (US EPA) recommends that waste products proposed for beneficial use must meet two criteria: 1) they perform as well as or better than the material being replaced, and 2) using the waste product does not increase the risk of harm to either the environment or human health. These criteria are presumably the same as for PADEP’s coproduct designation. However, produced waters from conventional oil and gas wells fail to meet either of these criteria for use as dust suppressants on dirt and gravel roads.

As noted above, produced waters from conventional oil and gas wells do not perform as well as the calcium chloride brines they are intended to replace. We confirmed this by comparing dust generation from road aggregate discs individually treated with five calcium chloride-based brines and ten produced waters from conventional oil and gas wells in Pennsylvania (Farnan et al., 2024, Oil and gas produced waters fail to meet beneficial use recommendations for use as dust suppressants, *Science of the Total Environment*. 2024, 919, 170807).

To address criteria 2, we conducted large-scale laboratory rainfall-runoff experiments using model roadbeds treated with various dust suppressants then subjected the roadbed to a simulated storm event (Farnan et al., 2024, Oil and gas produced waters fail to meet beneficial use recommendations for use as dust suppressants, *Science of the Total Environment*. 2024, 919, 170807). We compared roads treated with a calcium chloride brine, soybean oil, three produced waters from conventional oil and gas wells in Pennsylvania, and a rainwater control. Runoff from the roadbeds was collected over the course of the storm and analyzed for contaminants of concern. We found that measured concentrations in runoff generally reflected the concentration of the dust suppressant originally applied to the road (i.e., most constituents were washed off the road). All radium added to the roadbed during produced water application was mobilized during the storm event. This release of radium would increase the risk of harm to the environment and human health.

Spreading produced waters on roads can decrease roadbed stability because the high sodium concentrations present in produced waters cause clay dispersion. Roadbeds treated with produced water did not reduce total solids lost from the roadbed compared to roadbeds treated

with rainwater. In some instances, roadbeds treated with produced water increased total solids lost from the roadbed compared to roadbeds treated with rainwater. In contrast, calcium chloride brine significantly reduced solids lost during the storm event compared to the rainwater controls. Based on this second performance metric, produced waters did not perform as well as the calcium chloride brine they are intended to replace.

**7. Land application of produced water from conventional oil and gas wells into unlined pits has already been shown to be an unacceptable disposal practice.**

A report prepared for State Senator John Peterson's Joint Technical Committee for Oil and Gas Development concluded that land application of produced water from conventional oil and gas wells was unacceptable because increased concentrations of chlorides were found in groundwater downgradient from seven of ten disposal pits (Walentosky and Waite, 1997, Impacts of Land Surface Discharge of Shallow Oil Field Production Water on Ground Water - Ten Pennsylvania Case Studies, 43 pp.). While the geometry of the disposal operation differs between a pit and a road, the release of contaminants into the environment is likely similar. In other words, there is regulatory precedent for banning road spreading of produced water from conventional oil and gas in Pennsylvania.

**REFERENCES:** Attached as part of this written testimony.

1. Stallworth et al., 2020, Laboratory Method to Assess Efficacy of Dust Suppressants for Dirt and Gravel Roads, *Transportation Research Record*. 2674, 188–199
2. Farnan et al., 2024, Oil and gas produced waters fail to meet beneficial use recommendations for use as dust suppressants, *Science of the Total Environment*. 2024, 919, 170807.
3. Tasker et al., 2020, Geochemical and isotope analysis of produced water from the Utica/Point Pleasant Shale, Appalachian Basin, *Environmental Science: Processes & Impacts*, 2020, 22, 1224–1232.
4. Tasker et al., 2018, Environmental and Human Health Impacts of Spreading Oil and Gas Wastewater on Roads, *Environmental Science & Technology*. 2018, 52, 7081–7091.
5. Farnan et al., 2023, Toxicity and chemical composition of commercial road palliatives versus oil and gas produced waters, *Environmental Pollution*. 2023, 334, 122184.
6. Stallworth et al., 2021, Efficacy of oil and gas produced water as a dust suppressant, *Science of the Total Environment*. 2021, 799, 149347
7. Walentosky and Waite, 1997, Impacts of Land Surface Discharge of Shallow Oil Field Production Water on Ground Water - Ten Pennsylvania Case Studies, 43 pp.

Thank you to the members of the House Environmental & Natural Resources Protection Committee for the invitation to present at the October 5, 2026, hearing on the use and permitting of oil and gas produced waters and brine. I am an Assistant Teaching Professor and Assistant Director of the Center for Dirt and Gravel Road Studies (Center) at The Pennsylvania State University, where I have worked since 2014. I earned my BS in Geology from Guilford College and my MS in Watershed Hydrology from Colorado State University, and I hold a Professional Geologist license in the Commonwealth. Before joining the Center, I spent a decade in the public and private sectors as a Geologist and Hydrologist. I serve on the Transportation Research Board's standing committee on Low-Volume Roads and the National Association of County Engineers' subcommittee on unpaved roads.

At the Center, I coordinate research supporting Pennsylvania's \$35-million Dirt, Gravel and Low-Volume Road Maintenance Program (Program), which implements Environmentally Sensitive Maintenance Practices to reduce the environmental impacts and long-term maintenance costs on publicly owned roads. My research focuses on road surface aggregate selection, maintenance practices, and dust/sediment production from unpaved roads, in collaboration with agencies including the US Forest Service, US Fish and Wildlife Service, Susquehanna River Basin Commission, and Trout Unlimited. In recent years I have also worked with Penn State's Department of Civil and Environmental Engineering evaluating the environmental impacts of oil and gas produced water disposal, including brine spreading in Pennsylvania. I have co-authored and advised on several peer-reviewed publications with Dr. Burgos, who you will also hear from today.

As Assistant Director, I coordinate the Program's product approval process, which reviews and approves products such as soil stabilizers and dust suppressants for funding eligibility. Established more than 20 years ago, this process rigorously tests products to support a conclusion that their use is reasonably certain to cause no environmental harm. This process is consistent with Section 9106 of the Vehicle Code, which requires counties to adopt "standards that prohibit use of materials or practices which are environmentally harmful."

At this point I will discuss in more detail three items at the foundation of the Program with respect to the use of Oil and Gas formation produced waters (O&G produced water) as a dust suppressant: effectiveness, environmental impact and road maintenance. Because the Program funded by taxpayer dollars, it is imperative to make sure that O&G brines work for their intended purpose and do not cause environmental harm or road deterioration.

On the topic of effectiveness, our research has shown through laboratory testing that O&G produced waters do not perform as well as commercially available dust suppressants, due to their high sodium content. The most recent study, using laboratory testing and a model roadbed, found that O&G produced waters performed no better than rainwater at suppressing dust or reducing sediment runoff (Farnan et al., 2024, *Oil and gas produced waters fail to meet beneficial reuse recommendations for use as dust suppressants*, Science of the Total Environment, 919, 170807). By contrast, commercial calcium-based brines and other commercially available dust suppressants significantly reduced both dust generation and sediment runoff. Bench-scale testing showed that high sodium content decreases dust-suppression effectiveness relative to calcium-based brines and can also destabilize the road surface (Stallworth et al., 2020, *Laboratory Method to Assess Efficacy of Dust Suppressants for Dirt and Gravel Roads*, Transportation Research Record, 267, 188-199).

This lack of effectiveness and resulting destabilization stems from sodium's chemistry. Because sodium is a monovalent cation ( $\text{Na}^+$ ), sodium chloride disperses the fine silt and clay particles that hold the road surface together, destabilizing the road matrix and increasing dust once the brine dries. While there is a temporary reprieve from dust while the O&G produced water is wet on the road surface, that effect reverses once it dries and ultimately can produce more dust than before, driving up long-term maintenance costs as the road surface degrades. The loss of these fines can also lead to rutting and unraveling of the road, since fines are what bind the road matrix together. Testing has further shown that chloride-based salts reduce road surface and base strength over time, accelerating deterioration (Cetin, B., & Anctil, A., 2026, *Evaluation of Gravel Stabilizer Used on Gravel Roads and Gravel Shoulders*, Minnesota Department of Transportation, Local Road Research Board, Report #2026-22).

Repeated use of O&G produced waters can load the road matrix with chloride, which depresses the freezing point of water held in the roadbed and surface. This depression of the freezing point causes the road to thaw earlier in the spring and increases the number of freeze-thaw cycles compared to an untreated road. Freeze thaw cycles can lead to road heaving, rutting and generally unstable road surface conditions (Naqvi et al., 2025, *Understanding Freeze–Thaw in Soils: Analysis of Salt Effects Using Different Freeze–Thaw Protocols*, Transportation Research Record, 2679(7), 927–939). In addition, the calcium chloride and magnesium chloride found in O&G produced waters make it harder for the road to dry out due to their hygroscopic properties and can extend the period that the road is wet in the spring and vulnerable to rutting and plowing damage. For the same reasons,

the Program does not recommend using any chloride-based products for winter maintenance of dirt and gravel roads.

O&G produced waters also raise significant environmental concerns due to the chemicals they contain. A 2018 study on the chemical composition of conventional O&G produced waters spread on Pennsylvania roads found elevated concentrations of total dissolved solids (TDS), chloride, bromide, radium, barium, and, in some cases, petroleum hydrocarbons (Tasker et al., 2018, *Environmental and Human Health Impacts of Spreading Oil and Gas Wastewater on Roads*, Environmental Science & Technology, 52, 7081–7091).

Of note, the median chloride concentration in commercially sold O&G produced waters LS25 and AquaSalina was 182,000 mg/L (Farnan et al., 2023, Toxicity and chemical composition of commercial road palliatives versus oil and gas produced waters, Environmental Pollution, 334, 122184). This is more than 700 times the 250 mg/L drinking water standard for chloride that the Program uses as a maximum concentration limit in its product approval testing (for reference, chloride in seawater runs around 20,000 mg/L). This 250 mg/L limit has been in place in the Program for over 20 years, and no chloride-based dust suppressant has ever been approved for use within the Program. Chloride at these concentrations also poses a direct aquatic toxicity risk. The Program's product approval process includes aquatic toxicity testing on rainbow trout, and the USEPA has shown chloride to be toxic to trout species at levels 20 times lower than those found in O&G produced waters (USEPA, *Ambient Water Quality Criteria for Chloride*, EPA 440/5-88-001, February 1988).

Radium levels present a further concern. Five O&G produced waters from Pennsylvania contained radium levels ranging from 84 to 2,500 pCi/L, far above the Program's approval limit of 15 pCi/L (Farnan et al., 2023, *Toxicity and chemical composition of commercial road palliatives versus oil and gas produced waters*, Environmental Pollution, 334, 122184).

Taken together, these findings show that O&G produced waters would fail multiple environmental testing protocols required for Program approval, posing a risk of environmental harm. They are also ineffective at suppressing dust and can destabilize the road surface, driving up long-term maintenance costs. For these reasons, O&G produced waters would not qualify for use or funding within the Program. Ultimately, their use on Program-funded projects runs counter not only to the Program's fundamental goals, but to the law that created it.

**References:**

Cetin, B., & Anctil, A. (2026). *Evaluation of gravel stabilizer used on gravel roads and gravel shoulders* (Report No. 2026-22). Minnesota Department of Transportation, Local Road Research Board.

Farnan, T., et al. (2023). Toxicity and chemical composition of commercial road palliatives versus oil and gas produced waters. *Environmental Pollution*, 334, 122184.

Farnan, T., et al. (2024). Oil and gas produced waters fail to meet beneficial reuse recommendations for use as dust suppressants. *Science of the Total Environment*, 919, 170807.

Naqvi, M. W., Sadiq, M. F., Cetin, B., & Daniels, J. L. (2025). Understanding freeze–thaw in soils: Analysis of salt effects using different freeze–thaw protocols. *Transportation Research Record*, 2679(7), 927–939.

Stallworth, H., et al. (2020). Laboratory method to assess efficacy of dust suppressants for dirt and gravel roads. *Transportation Research Record*, 267, 188–199.

Tasker, T. L., et al. (2018). Environmental and human health impacts of spreading oil and gas wastewater on roads. *Environmental Science & Technology*, 52, 7081–7091.

U.S. Environmental Protection Agency. (1988, February). *Ambient water quality criteria for chloride* (EPA 440/5-88-001).



**TESTIMONY BY  
THE PENNSYLVANIA STATE ASSOCIATION OF  
TOWNSHIP SUPERVISORS**

**BEFORE THE  
HOUSE ENVIRONMENTAL AND NATURAL RESOURCE  
PROTECTION COMMITTEE**

**ON**

**HB 84 (PN 38)**

**PRESENTED BY**

**HOLLY FISHEL  
POLICY AND RESEARCH DIRECTOR**

**OCTOBER 5, 2026  
HARRISBURG, PA**

**4855 Woodland Drive Enola, PA 17025-1291    [www.psats.org](http://www.psats.org)**

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Good morning, Chairman Vitali, Chairman Rader, and members of the House Environmental and Natural Resource Protection Committee.

Thank you for the opportunity to present remarks on behalf of the 1,453 townships of the second class represented by our association. My name is Holly Fishel and I am the Policy and Research Director for the Pennsylvania State Association of Township Supervisors (PSATS). We are a nonprofit, nonpartisan organization committed to preserving and strengthening township government and securing greater visibility and involvement for townships in the state and federal political arenas. Our members cover 95% of Pennsylvania's land mass and represent 5.7 million Pennsylvanians — more residents than any other type of municipality in the commonwealth.

In rural townships across the state, it is common to have unpaved, low volume roads, roads made of dirt and gravel. In fact, 17,500 miles of these dirt and gravel low volume roads are the responsibility of municipalities, most of which are townships. These unpaved roads provide access to our agricultural, residential, commercial, industrial and recreational assets of our Commonwealth. One of the major challenges of dirt and gravel roads over the summer months, particularly in dry years, are dust complaints, which in addition to coating everything with a layer of dust, can reduce create a visibility hazard and create poor air quality conditions that can be particularly challenging for those with sensitive conditions.

Until 2018, municipalities could receive permits from the state Department of Environmental Protection to use salt brine from conventional oil and gas wells for road maintenance activities. Township officials found this product to be affordable and particularly useful for dust control and road stabilization on dirt roads, particularly in the northcentral and northwest regions where conventional brine was available. At the time, townships could apply brine products under the rules and regulations created by DEP, which included avoiding areas near streams, not applying before predicted rainfall, and applying with established application rates.

This was an economical and easily accessible way for rural townships to mitigate these issues. Available dust control and soil stabilization options now include expensive petroleum

emulsions, synthetic fluids, acrylic solutions, and recycled steel slag. There are currently eight products approved by the Dirt & Gravel Maintenance Program and eligible for purchase with liquid fuels funds, which has declined due to more fuel-efficient vehicles. The cost of these approved products far exceeds that of brine from conventional wells and our member townships report mixed reviews on the effectiveness of these products. Rural townships simply do not have the resources to afford such products and costs can approach that of tar and chipping the roads.

For those townships participating in the Northcentral Regional All-Terrain Vehicle Trail, DCNR provides reimbursement for dust suppression and road maintenance for the 200 roads that are part of the trail and the average cost per mile is \$2,475. A 2023 report on the trail's pilot program identified dust from dirt and gravel roads as a safety concern from limited visibility, increased sedimentation in adjacent streams, degrading air quality from suspended particulates, and creating a nuisance to residences along these roads as reasons why DCNR created the dust suppressant reimbursement program. Townships have found this program to be very helpful. However, costs for using available products continue to be out of reach for many other roads. Some products that have been the most beneficial can be hard to obtain or require a significant delivery cost due to the distance from the vendors to the roads needing these products.

The loss of the use of conventional salt brine for dust suppression and road stabilization had a significant impact on many of our very rural townships that have a low population and tax base, often due to large amounts of agricultural and publicly owned land. Our members passed a resolution asking for the DEP permit program to be reinstated, which was renewed by our membership in 2024.

As such, the Association supports the development of a new program through DEP to permit the use of conventional salt brine for road maintenance activities with appropriate oversight. PSATS opposes a permanent prohibition of the use of brine from conventional wells for road maintenance purposes, such as that proposed under HB 84. To be clear, our concerns are with the use of brine from the conventional wells, not the byproducts from unconventional Marcellus or Utica wells.

Thank you for the opportunity to comment today.

**Testimony of  
David E. Hess  
Former Secretary Of The Department Of Environmental Protection  
Before The  
House Environmental & Natural Resource Protection Committee  
Management Of Contaminated Water From Conventional Oil & Gas Wells  
October 5, 2026**

Thank you for the opportunity to appear before the Committee today on the critical environmental, health and worker safety issues of managing contaminated water from conventional oil and gas wells.

My name is David Hess, former Secretary of the Department of Environmental Protection under Governors Tom Ridge and Mark Schweiker.

We are here today discussing contaminated water from conventional oil and gas wells because we have failed to provide solutions to managing these fluids in a way that is compatible with industry operations and meets environmental, health and safety requirements.

The solution to this problem cannot be the continued dumping of more contaminated water, “mineral brine” or production wastewater on our public roads or anywhere else.

I believe the solution is to treat contaminated water as a resource and to take advantage of the capabilities Pennsylvania’s oil and gas industry already has to deal with this issue.

We already have a sophisticated network for reclaiming and reusing contaminated water from conventional and shale gas wells in Pennsylvania.

In fact, Pennsylvania’s shale gas industry pioneered “world class” methods of reclaiming and reusing contaminated water in its operations that is the envy of the industry.

Thousands of trucks, miles of pipeline, storage and reclamation facilities are already here dedicated to this purpose in the same areas conventional oil and gas wells are located.

The result has been up to 93% of all shale gas wastewater recycled and/or reused in its operations.

I propose we develop a Good Neighbor Conventional Oil & Gas Contaminated Water Recycling Program that requires the recycling and reuse of all the contaminated water produced by conventional wells by the shale gas industry at no cost to conventional well owners.

The up to 100 million gallons of contaminated water produced by conventional well owners is a drop in the bucket (3.3%) of the over 3 billion gallons produced annually by the shale gas industry from other contaminated water and fresh water sources.

The details can be worked out by the industry, the public, and other stakeholders working together in a special task force convened by DEP.

Pennsylvania’s shale gas industry has the opportunity to be a Good Neighbor using its expertise to solve the contaminated water problems for an entire sister-industry.

In 1999, the General Assembly passed and Gov. Ridge signed the Environmental Good Samaritan Act to encourage third party reclamation of abandoned coal mines and plugging abandoned oil and gas wells.

Today, the shale gas industry has an unprecedented chance to show real leadership and be a Good Samaritan in a way that will benefit the environment, public health and worker safety

Thank you again for the opportunity to testify.

**Testimony of Shannon Smith**

Executive Director, FracTracker Alliance

Before the Pennsylvania House Environmental & Natural Resource Protection Committee

Public Hearing: Road Spreading of Oil and Gas Wastewater and DEP's "Mineral Brine" Permit

October 5, 2026

Good morning, Chairman Vitali, Chairman Rader, and members of the Committee. Thank you for the opportunity to testify.

My name is Shannon Smith, and I'm the Executive Director of FracTracker Alliance, a Pennsylvania-based nonprofit that has worked since 2010 to make information about oil and gas development accessible, transparent, and understandable to the public. Our work includes tracking how oil and gas wastewater is managed and disposed of, including through the road spreading of brine. I've been with FracTracker since 2019 and have more than 15 years of experience as a public health advocate.

In June 2025, I captured video of a truck spreading brine on a dirt road in Erie County, PA.



**Exhibit 1.** [Video](#) recorded by Shannon Smith in Erie County, Pennsylvania, June 3 2025, showing a truck labeled "BRINE" applying liquid to a public dirt road.

The truck was clearly labeled 'BRINE.' I knew that Penn State researchers, including Dr. Burgos and Mr. Chase, had studied this practice at DEP's request. Their research found that conventional oil and gas wastewater was essentially no better than rainwater at controlling dust and documented contaminants including radium moving off treated roads in runoff, and [DEP itself has acknowledged](#) concerns about salts, heavy metal, and other contaminants reaching surface water and drinking-water supplies.



I called the township supervisor, who told me the brine came from a “DEP-approved well” owned by BCD Properties. I looked into it and found that DEP had sent BCD Properties, Inc., a letter on April 16, 2025 stating that its coproduct determination for a nearby well in Erie County, the Danylko 4 well, did not meet Pennsylvania’s regulatory requirements.

For those who are unfamiliar, a coproduct determination is basically a self-certification process that allows a waste generator to classify a material that would otherwise be regulated as waste as a commercial product instead, given that certain regulatory requirements are met.

BCD appealed DEP’s determination to the Environmental Hearing Board, but that appeal did not constitute an approval to continue spreading the material on roads. Yet only weeks later, that material was being applied to a public road by a township that apparently believed the practice was authorized.

I filed a formal complaint with DEP’s Waste Management Program. DEP determined that the Danylko 4 brine could not be used for road spreading as a coproduct, and the remaining material was ultimately removed and sent to an injection well in Ohio.

I do not fault local officials for not being experts in Pennsylvania residual waste law. They should be informed, clearly and in advance, whether a material being marketed to them may legally and safely be applied to a public road.

While the Danylko 4 dispute was still pending, FracTracker learned that DEP had issued a permit for another nearby well, Danylko 6, on May 12, 2026.

Danylko 6 is approximately 500 feet from Danylko 4. On the permit application, the well type was listed as “Other” and described as “Mineral Brine.” FracTracker had never seen a permit for a “mineral brine” well in Pennsylvania.





## FracTracker Data Portal

Date: 9/29/2026

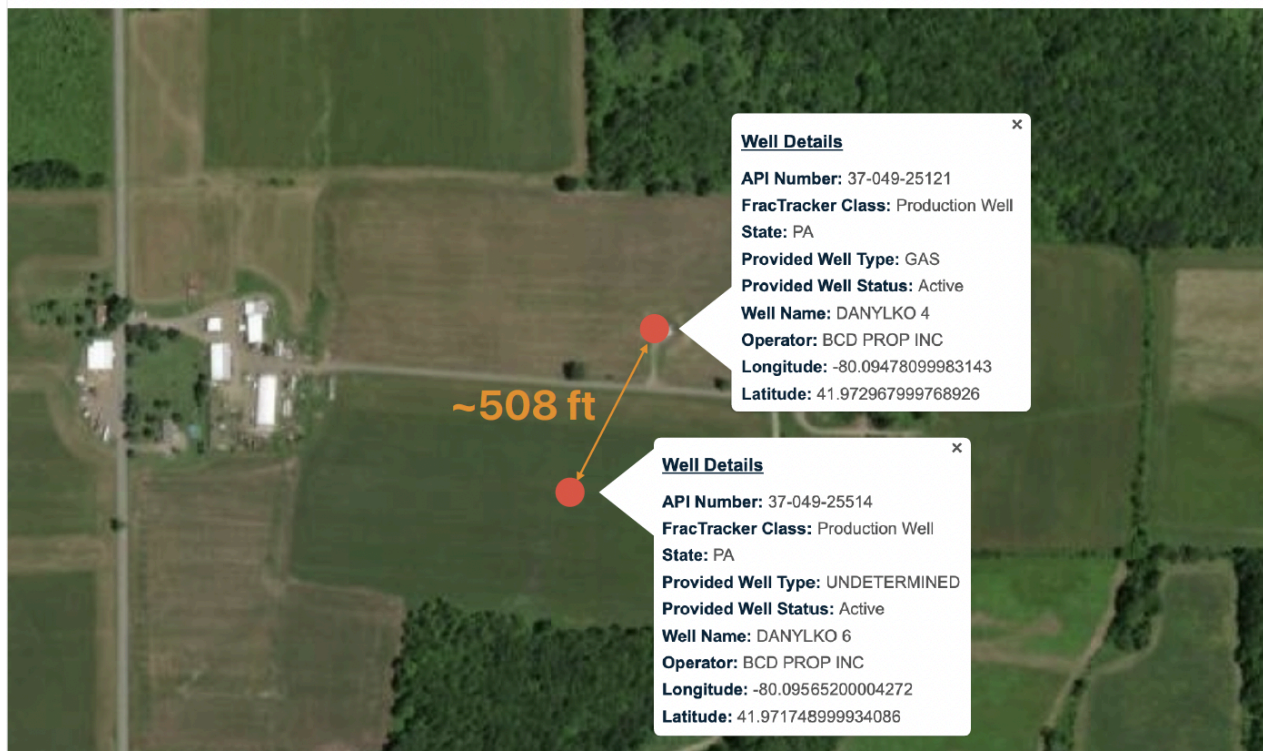


**Figure 1.** Location of the Danylko 4 and Danylko 6 wells in McKean Township, Erie County, Pennsylvania. *Source: FracTracker Alliance using Pennsylvania DEP well data.*

The Danylko 6 permit apparently anticipates the production and commercial distribution of brine by requiring BCD to report how much brine it produces and distributes and the customers receiving it. It prohibits that material from being mixed with what the permit itself calls "waste brine" or with brine from wells permitted as oil and gas production wells. At the same time, the DEP-issued permit says that any oil and gas produced by Danylko 6 must be managed as solid waste.

So in the Danylko 4 well permit, oil and gas is the product, and the brine is considered waste. At Danylko 6, approximately 500 feet away, the brine is apparently the product, while the oil and gas become the waste. Yet the same general categories of material—gas and brine—are coming out of the ground at both wells.



DEP did not require chemical or radiological testing of the brine as part of the well permit before authorizing its production, even though the permit expressly contemplates distribution to customers.

FracTracker has appealed the issuance of the Danylko 6 well permit to the EHB on several grounds, and the Board will ultimately decide whether the permit was issued legally. I'm not here to address that question, but only to highlight that the existence of the permit, legal or otherwise, is difficult to reconcile with what we already know about the potential hazards of brine from conventional oil and gas formations, and raises serious questions about whether and how DEP intends to regulate the use of brine produced from the well. The public is not currently being protected from these risks, and there is a lack of transparency about when and where this oil and gas wastewater is being introduced into the environment.

DEP's own experience shows how difficult it is to monitor road spreading when the system depends so heavily on operators reporting it themselves.

[FracTracker recently analyzed](#) Pennsylvania's 2025 oil and gas production and waste data. [DEP confirmed](#) that it received no information about waste generation or disposal for approximately 81,000 conventional oil and gas wells that year. More than 56,000 of those wells reported oil or gas production but no waste information. DEP has acknowledged this reporting gap and is considering changes to its reporting system, including requiring operators to explain when no waste is reported. These gaps make it difficult to know how much oil and gas wastewater is being generated, where it is going, and whether it is being managed appropriately. DEP should investigate reporting gaps, require operators to correct incomplete reports, and take enforcement action—including civil penalties—when violations of waste-reporting requirements are established.

The situation with BCD Properties illustrates that broader problem. [FracTracker analyzed](#) DEP's public well and waste data and found that BCD Properties operated 101 active wells in Pennsylvania as of June 10 of this year. Yet we could not find public oil and gas waste generation or disposal records reported by BCD after 2017.

DEP's own efforts to investigate road spreading have revealed similar problems. In 2022, DEP contacted 26 operators that had reported road spreading of brine during the previous year. Two said the reports were errors. Thirteen said they would stop road spreading. Two submitted information that DEP said did not constitute valid coproduct determinations. Nine did not respond. [DEP later testified](#) that it had not identified a single coproduct determination that met the Department's regulatory requirements for road-spreading brine.

And yet the practice has continued.



DEP itself recognized the larger problem in [testimony before this Committee in 2024](#). The Department said road spreading of brine was not an authorized practice, described concerns about contaminants reaching surface water and drinking-water supplies, and noted that conventional brine had not been authorized by its Oil and Gas Program for dust suppression since 2017. Most importantly, DEP testified that ‘the Administration is supportive of this clear ban on the practice.’

FracTracker urges this committee to advance a clear statewide ban on the road spreading of oil and gas wastewater and formation brine, including material characterized as “mineral brine,” a coproduct, or a commercial product, because those classifications do not by themselves change the chemical composition or potential environmental risks of the materials being applied

Thank you.



## HOUSE OF REPRESENTATIVES

### DEMOCRATIC COMMITTEE BILL ANALYSIS

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|                   |                                                |                            |                                         |
|-------------------|------------------------------------------------|----------------------------|-----------------------------------------|
| <b>Bill No:</b>   | HB0084 PN0038                                  | <b>Prepared By:</b>        | Andrew McMenamin<br>(717) 783-4043,6941 |
| <b>Committee:</b> | Environmental & Natural<br>Resource Protection | <b>Executive Director:</b> | Evan Franzese                           |
| <b>Sponsor:</b>   | Vitali, Greg                                   |                            |                                         |
| <b>Date:</b>      | 1/14/2025                                      |                            |                                         |

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#### **A. Brief Concept**

Prohibits the road spreading and land application of oil and gas wastewater.

#### **B. Committee Votes**

Reported as committed from the House Environmental Committee 14-12 (party line) on June 8, 2026.

#### **C. Analysis of the Bill**

HB 84 amends the Solid Waste Management Act (Act 97 of 1980) to prohibit the road spreading and land application of oil and gas wastewater. This bill does the following:

- Prohibits individuals and municipalities from road spreading or land application of wastewater from both conventional and unconventional oil and gas wells.
- Prohibits vehicles used to transport oil and gas wastewater from being equipped with spreader mechanisms.
- Establishes that oil and gas wastewater used for dust suppression, road deicing or roadbed stabilization shall not be considered a coproduct under DEP regulations.

#### **Definition**

Updates the definition of *residual waste* to include "oil-related and gas-related wastewater, tophole water, production water of any type, brine or wastewater sludge from conventional or unconventional oil and gas wells."

**Effective Date:**

60 days.

**D. Third Party Feedback**

**Support**

- PA Environmental Council
- Clean Water Action
- Sierra Club
- Chesapeake Bay Foundation
- UUJusticePA
- Center for Coalfield Justice ([see letter](#))
- Earthworks ([see letter](#))
- DEP/Admin
- Better Path Coalition ([see letter](#))
- Protect PT ([see letter](#))
- Sierra Club - Allegheny Chapter ([see letter](#))
- Physicians for Social Responsibility PA ([see letter](#))
- Delaware Riverkeepers Network

**Neutral**

N/A

**Oppose**

- National Federation of Independent Business (NFIB)
- Marcellus Shale Coalition ([see letter](#))
- American Petroleum Institute ([see letter](#))

- PA Chamber
- PA State Association of Township Supervisors (PSATS)

From *Clean Water Action*: HB 84 is something Clean Water Action supports and would welcome seeing brought up for a committee vote. More conventional oil and gas operators have turned to using the same fracking techniques as the big Marcellus Shale unconventional oil and gas companies. This means their produced wastewater often contains the same dangerous mix of toxic chemicals, metals, salts, and radioactive materials, specifically radium. In addition, Penn State's 2022 study concluded that the practice of spreading brine on the roads is ineffective and poses significant environmental risks. Finally, Pennsylvania banned the use of spreading Marcellus Shale unconventional wastewater on roadways back in 2016, so why wouldn't we do the same with convention oil and gas wastewater.

From *DEP*: This tracks closely with the language from last session. DEP would like to work on clarification language. After further review they think some language may be a bit ambiguous as it only mentions "brine" and the correct statutory interpretation would be "waste brine".

From *PSATS*: While brine from conventional gas wells was previously used as an effective and low cost means of dust control on dirt and gravel roads, this option has not been available to townships for since around 2018, when DEP stopped issuing permits for the beneficial reuse of these materials. We oppose the bill because it would make this a permanent ban. Dust control is a major issue for townships with dirt and gravel roads and residents site health issues and air quality as reasons for wanting the township to do dust control. However, those townships that did benefit from the former low cost options are struggling with expenses of currently available options, only a few of which have been approved for purchase with liquid fuels.

From *Delaware Riverkeeper Network*: The practice has contaminated streams, rivers other surface water bodies, wetlands, groundwater, and vegetation with oil and gas contaminants, chlorides, toxic constituents used in fracking and drilling, and radioactivity, among other dangerous and hazardous materials. The high salt content has ruined water quality in surface waters that receive runoff from the wastewater application on roadways, adversely impacting habitats and the species of aquatic life and wildlife that depend on those habitats. The practice is is not effective at improving winter road conditions and can destabilize roads at all times of the year.

From *PA Chamber*: H.B. 84 imposes unnecessary regulations on the natural gas industry related to the wastewater produced during the extraction of natural gas and

the vehicles used to transport wastewater. These operations are already regulated, including by the Solid Waste Management Act, and adding additional layers of regulations that serve a similar purpose but differ in detail and application will create undue and challenging compliance complications.

**E. Prior Session (Previous Bill Numbers & House/Senate Votes)**

HB 84 was previously introduced as HB 2384 during the 2023-2024 Legislative Session. HB 2384 was reported out of the House Environmental Resources & Energy Committee as amended on a party line vote (14-11) on June 11, 2024, but received no further consideration.

**F. Key Points**

Although road spreading is prohibited of oil and gas wastewater is banned, the practice continues. DEP records show 18 companies reported disposing of more than 580,000 gallons of drilling wastewater by road spreading in 2021, according to the department's Oil and Gas Waste Reporting Database. DEP's website lists 84 municipalities in 13 counties that allow road spreading

Spreading wastewater, or brine, from conventional oil and gas wells on unpaved roads is a longstanding practice for dust suppression, road stabilization and ice prevention. However, brine contains toxic chemicals and has negative impacts to public health and the environment.

A recent study from Penn State found that production brine spreading exposes groundwater, soil, and air to contaminants like metals, salts, and radioactive materials, specifically radium.

In a study commissioned by the DEP, Penn State researchers found that production brine is about as effective as rainwater at controlling dust but worse for the environment.

The study found that the use of production brine is likely ineffective as a dust suppressant because of the elevated concentrations of sodium relative to calcium and magnesium. Instead, sodium can destabilize gravel roads and increase long-term road maintenance costs.

Regarding ice prevention, the uses of brine are limited, as it cannot be applied to wet surfaces. Thus, any ice treatment done during a storm cannot be done with brine. Additionally, brine is more corrosive to vehicles than rock salt.

## **G. Relevant Existing Laws**

The road spreading of brine from unconventional wells for dust suppression, road stabilization, pre-wetting, anti-icing or de-icing is currently prohibited by regulation under Title 25 (Environmental Protection), sections 78a 70 and 70a of the PA Code. There is nothing in statute prohibiting this practice, however.

In 2018, DEP halted plan approvals for wastewater spreading on roads from conventional oil and gas development in response to a complaint filed with the Environmental Hearing Board.

## **H. Messaging**

### **Production brine is ineffective in dust suppression and ice prevention.**

Production brine is about as effective for dust suppression as rainwater because of its chemical content and can actually increase long-term maintenance costs due to the presence of sodium, which can destabilize gravel roads.

For ice prevention, production brine can only be applied to dry surfaces, rendering it useless during a storm. Additionally, brine is more corrosive to vehicles than rock salt.

### **Production brine spreading continues despite DEP's moratorium.**

In 2018, DEP halted plan approvals for wastewater spreading on roads. The practice is not prohibited under state law, and DEP can still allow the practice if the production brine meets certain criteria.

Some conventional drilling companies have circumvented the prohibition by using the Bureau of Waste Management's Coproduct Determination Program, where production brine can be reclassified as a 'coproduct' and used in place of commercial dust suppressants on roads.

18 companies reported disposing of more than 580,000 gallons of drilling wastewater by road spreading in 2021. DEP's website lists 84 municipalities in 13 counties that allow road spreading.

**This bill cements the brine spreading prohibition into state law and closes the**

**loophole through the Bureau of Waste Management's Coproduct Determination Program.**

All vehicles used to transport oil and gas production brine would be prohibited from being equipped with spreading mechanisms.

In addition, production brine proposed to be used for dust suppression, road deicing, or roadbed stabilization could no longer be considered a coproduct.

**Road spreading of production brine is dangerous for human health.**

Brine spreading exposes groundwater, soil, and air to contaminants including metals, salts, and radioactive materials, specifically radium.

Studies have shown brine spreading releases significantly more radium into the environment than oil and gas wastewater treatment facilities and even spill events.

This document is a summary of proposed legislation and is prepared only as general information for use by the Democratic Members and Staff of the Pennsylvania House of Representatives. The document does not represent the legislative intent of the Pennsylvania House of Representatives and may not be utilized as such.