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Earthworks Oil & Gas Accountability Project
1612 K ST., NW, Suite 904
Washington, D.C., 20006

July 31, 2018

Mr. Scott Perry, Esq., Deputy Secretary of the Office of Oil and Gas Management
Department of Environmental Protection
Rachel Carson State Office Building
400 Market Street
Harrisburg, PA 17101

Mr. James Miller, Regional Director
Department of Environmental Protection Northwest Regional Office
230 Chestnut Street
Meadville, PA 16335

Re: Potential rulemaking allowing road spreading of oil and gas wastewater

Dear Deputy Secretary Perry & Regional Director Miller:

It has come to our attention that the Department is “currently working with stakeholders to develop new regulations that would codify the brine spreading approval process”¹ of oil and gas wastewater. We at Earthworks, along with the signatories below, urge the Department to cease any effort to reinstate the dispersal of oil and gas waste into the environment, a scientifically unsound, ineffective practice that poses significant, documented risks to the environment and public health.

Instead of a potential rulemaking, we urge the Department to conduct a thorough investigation of the immediate and longer-term effects of dispersing untreated oil and gas wastewater into the environment for dust suppression and de-icing. In particular, we urge the Department to begin by investigating and reporting to the Governor’s office and the public how authorization of road spreading of oil and gas well “brine” for dust control, in violation of Solid Waste Management Act 35 P.S. § 6018.103 and its residual waste regulations, occurred for decades with no serious efforts to examine efficacy or impacts.

Such an investigative effort might conveniently begin by examining the specifics of Approval No. NW9517 to Hydro Transport, LLC (Hydro) on June 8, 2017 (“Hydro 2017 Plan Approval”), which was the subject of the recent *Siri Lawson vs. Commonwealth of Pennsylvania, Department of Environmental Protection* case before the Environmental Hearing Board.

According to May 17, 2018 Environmental Hearing Board documents from that case, the Department conceded that it violated the law by approving Hydro’s road spreading plan, which was, like many others, prepared, submitted and approved in accord with Department policy prior to abandonment of that policy as unlawful in *Lawson v. PaDEP*.

Just weeks after repudiating its policy allowing road spreading of wastewater for dust control, the Department is attempting to develop administrative processes to resume legalizing this waste disposal practice. This smacks of unprincipled, arbitrary, and capricious decision-making. It is also inconsistent with the Department’s mission and a failure to meet the agency’s constitutional obligations, especially given the currently available research as well as the Department’s own conclusions from previous studies.²

We also point out that when the Department is engaged in ongoing discussions with any stakeholder regarding the potential dispersal of oil and gas waste into the environment,

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¹ Myers, V. (2018, May 22). Ruling hasn’t changed hold on brine use on dirt roads. *Erie Times-News*. Retrieved from <http://www.goerie.com>

² Permafrix Environmental Services for PADEP. [Technologically Enhanced Naturally Occurring Radioactive Materials \(TENORM\) Study Report](#). 2015.



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that the agency should make every reasonable effort to include all community stakeholders (farmers, residents, businesses, sovereign nations, environmental groups) in those same deliberations, whether formal or informal.

Finally, we urge the Department to ensure that any step toward each decision made on road spreading of oil and gas waste complies with Commonwealth Documents Law (CDL) (45 P.S. §§ 1102–1208), Administrative Code (71 P.S. § 232), Commonwealth Attorneys Act (71 P.S. §§ 732-101–732-506), Regulatory Review Act (RRA) (71 P.S. §§ 745.1–745.15) as well as applicable open records, environmental (see *infra*), and other laws.

Documented Toxicity of Conventional Oil & Gas Waste

It is widely understood that oil and gas wastewater, regardless of the formation of origin, contains chemicals, including hydrocarbons and salts, that can be toxic to humans and the environment. Nearly 30 years ago, the U.S. Environmental Protection Agency concluded that oil and gas development wastes “contain a wide variety of hazardous constituents.”³

More recently, researchers have found accumulations of radium up to 650 times higher in river sediments where *treated conventional* oil and gas wastewater is discharged, under the Department’s authority, than the levels detected at sampling locations directly upstream.

According to a Duke University study released in January 2018, even though “conventional oil and gas wastewater is treated to reduce its radium content,” this has not prevented “high levels of radioactive build-up in the stream sediments” over time.

The researchers concluded:

“While restricting the disposal of fracking fluids to the environment was important, it’s not enough...Conventional oil and gas wastewaters also contain radioactivity, and their disposal to the environment must be stopped, too.”⁴

If the discharge of treated conventional oil and gas waste can create a toxic accumulation of radioactivity, the Department should, as a precaution under its mission to protect the public from pollution, prevent the dispersal of untreated oil and gas well wastewater in the environment, such as road spreading of oil and gas well brine, because it necessarily increases risks of exposures to known contaminants such as carcinogenic radium.

Research published in the journal *Environmental Science & Technology* in May reported on the spreading of oil and gas wastewater on roads specifically. Experts at The Pennsylvania State University and University of Alberta found:

“...nearly all of the metals from these wastewaters leach from roads after rain events, likely reaching ground and surface water. Release of a known carcinogen (e.g., radium) from roads treated with O&G wastewaters has been largely ignored. In Pennsylvania from 2008 to 2014, spreading O&G wastewater on roads released over 4 times more radium to the environment (320 millicuries) than O&G wastewater treatment facilities and 200 times more radium than spill events.”⁵

A case study of brine spreading was also conducted in Farmington Township, Warren County by hydrogeologist Paul Rubin, who stated, “Hydrologically, it is not possible to regulate the spreading of chemically-laden production brines in a manner that will preclude off-road transport to surface and groundwater resources.” While Warren County is in northwestern PA, it is representative of the geologic and hydrologic conditions present throughout Pennsylvania.

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³ EPA, [Regulatory Determination for Oil and Gas and Geothermal Exploration, Development, and Production Wastes](#), 53 FR 25447, 1988.

⁴ [“Sources of Radium Accumulation in Stream Sediments Near Disposal Sites in Pennsylvania: Implications for Disposal of Conventional Oil and Gas Wastewater,”](#) N. Lauer, N. Warner, A. Vengosh, *Environmental Science and Technology*, Jan 4, 2018, DOI: 10.1021/acs.est.7b04952

⁵ [“Environmental and Human Health Impacts of Spreading Oil and Gas Wastewater on Roads,”](#) T. L. Tasker, W. D. Burgos, et al., *Environmental Science & Technology*, May 30, 2018, 52 (12), 7081-7091 DOI: 10.1021/acs.est.8b00716



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Other documented risks have recently been summarized by Penn State Law and Penn State Institutes of Energy and the Environment:

“The spreading of brine from oil and gas drilling can threaten environmental and public health by leaching into the surface or ground water, accumulating in roads or adjacent soils, modifying adjacent soil chemistry, and migrating in air and dust. In addition, a recent study indicated high levels of radium resulting from such spreading.”⁶

It appears the Department has allowed the dispersal of untreated oil and gas wastewater on roads since its inception and, since 1988, has done so under an established, though now admittedly unlawful, policy. During all that time, the Department has neglected to include testing for radionuclides as a requirement for its approvals of road spreading of oil and gas well brine and has casually and improperly described the practice as a “beneficial use” with no serious evidence supporting effectiveness or safety.

In 2015, Earthworks and many other organizations submitted comments to the Department recommending the prohibition of road spreading due to a lack of evidence that the practice meets federal and state drinking water standards. We also questioned the legality of allowing spreading of conventional oil and gas waste in the first place.

Several years and scientific studies later, our concerns remain:

“DEP has set limits on contaminant levels in brine, but has never provided scientific evidence that road-spreading is environmentally safe, especially over large areas for prolonged periods of time. Until DEP can demonstrate that brine-spreading treatments in use meet federal and state drinking water standards, it cannot be considered safe.

“Nor has DEP demonstrated that brine from conventional wells is similar or analogous to the fluid it is intended to replace (e.g., other types of de-icers or dust suppressants) and that the new product will not harm the environment or human health—both of which are requirements under the state’s Beneficial Use Determination (BUD) program. In fact, DEP has yet to legally approve of road spreading as a beneficial use.”⁷

Our unpaved roads and roadsides are frequently used by cyclists, runners, children at play, and our agricultural community, including both the Plain Sect community using horse-drawn vehicles and those using farm machinery. These diverse populations are particularly vulnerable to toxins DEP approves for dispersal onto roadways, as are the agricultural lands that run parallel to these roads.

Road Degradation

In addition to the toxic loads that road spreading distributes to the environment, an analysis by Dr. Bryce Payne clarified what residents have observed over time -- the accelerated degradation of roads treated with conventional oil and gas wastewater.

In a letter sent to Siri Lawson on May 7, 2017, Dr. Payne listed preliminary conclusions after an initial consideration of the issue in Ms. Lawson’s township:

1. The surface material on unpaved roads in your area is probably made up of local subsoil, which is primarily of the clay mineral, illite.
2. The bulk strength of illite, as most clays, is substantially reduced as sodium levels in the illite increase.
3. Sodium levels in clays increase due to exposure to water with even moderately elevated sodium concentrations.

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⁶ “[The Pennsylvania Department of Environmental Protection’s Beneficial Reuse Program for...Road Spreading Halted Pending Revised Processes](#),” Lara B. Fowler, Penn State Law/Penn State Institutes of Energy and the Environment, June 5, 2018.

⁷ See comments on proposed revisions to Title 25, Chapter 78 of the Pennsylvania Code by Earthworks et al, May 18, 2015: https://earthworks.org/cms/assets/uploads/archive/files/publications/Ch_7878a_EWComments_FINAL_5-18-15.pdf



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4. The O&G wastewater being applied as a dust control measure contains very high levels of sodium.
5. It should be expected that the sodium in the applied O&G wastewater will displace other salt ions from the clays in the road surface material, resulting in loss of soil strength under both wet and dry conditions.
6. Upon wetting, dry road surfaces can be expected to rapidly turn to a mud with a noticeable “slipperiness” and tendency to adhere to surfaces the mud contacts. Road traffic over the muddy road will cause formation of ruts, which may not or may not be deep depending on the degree and duration of wetting of the road surface.
7. Upon drying, the road surface will harden dramatically, but the low strength of the sodium-loaded clay soil road material will not resist the mechanical loads of wheel traffic. The upper layer of the road surface contacted by wheel traffic will shatter to form dust. Grading to smooth the road surface can be expected to worsen the dustiness...⁸

Given that this practice can increase dust, increase degradation of roads and driving conditions, and increase environmental and public health risks in ways not previously considered, we believe that spreading wastewater on roads does nothing more than just that -- disperses waste onto roads. In other words, it is an environmental and health threat, ineffective for dust control, destabilizes roads and has no lasting benefit other than providing oil and gas companies with an easy way to dump their waste.

Constitutional Obligation

The Environmental Hearing Board and courts of Pennsylvania have all found that the various environmental statutes of the Commonwealth must be read in a way that makes them consistent with Article I, Section 27 of the Constitution of the Commonwealth of Pennsylvania, known as the Environmental Rights Amendment (ERA):

Clean Streams Law, 35 P.S.691.1 -- See, *Commonwealth v. Harmar Coal Co.* 306 A.2d 308, 311-312 (Pa. 1973);

Air Pollution Control Act, 35 P.S. 4001 – See, *Department of Environmental Res. v. Locust Point Quarries, Inc.*, 396 A.2d 1205, 1206, 1209 (Pq. 1979);

Solid Waste Management Act, 35 P.S. 6018.101 -- See, *Commonwealth v. Packer*, 798 A.2d 192, 198-199 (Pa. 2002);

Oil and Gas Act, 58 P.S.601.101-102—See, *Declaration of Purpose*, The purposes of this act are to: (1) Permit the optimal development of the oil and gas resources of Pennsylvania consistent with the protection of the health, safety, environment and property of the citizens of the Commonwealth. (2) Protect the safety of personnel and facilities employed in the exploration, development, storage and production of natural gas or oil or the mining of coal. (3) Protect the safety and property rights of persons residing in areas where such exploration, development, storage or production occurs. (4) Protect the natural resources, environmental rights and values secured by the Pennsylvania Constitution, 58 P.S. § 601.102

Therefore, all policies implemented and enforced by the Department of Environmental Protection must embrace the trustee obligations in the ERA to preserve and defend the people’s constitutional rights to a clean environment. Approving the road spreading of oil and gas wastewater is in direct conflict with the Department’s trustee obligation.

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⁸ Bryce Payne, Jr., PhD. Letter to Siri Lawson. May 7, 2017. <https://www.dropbox.com/s/y1h0ocy4xd5ocos/SIRI%20LAWSON%20-%20Bryce%20Payne%20ltr.%20to%20Siri%205-7-17.PDF?dl=0>



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EPA Produced Water Study

Finally, the Environmental Protection Agency (EPA) announced in May that it is “embarking on a new study that will take a holistic look at how the Agency, states and stakeholders regulate and manage wastewater from the oil and gas industry.”⁹

We expect EPA already has reached out to the Department about this study. Any result therefrom would naturally inform the Department’s own process. Duplicating EPA efforts strains the Department’s resources. Considering any administrative action to allow the road spreading of brine ahead of EPA’s conclusions would be premature on the part of the Department. Therefore, we ask that DEP cease any steps toward a road spreading approval process until EPA has completed its wastewater study.

Our organizations are dedicated to protecting our members and the public under the full extent of the law, and we welcome any further engagement or correspondence with the Department on this issue. Thank you for taking these concerns into consideration.

Sincerely,

Melissa A. Troutman
Research & Policy Analyst
Earthworks Oil & Gas Accountability Project

Plus, the following signatories (see attached)

.....

Cc: Pennsylvania Governor Tom Wolf
Attorney General Josh Shapiro
DEP Secretary Patrick McDonnell
Earthworks Senior Policy Counsel Aaron Mintzes

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⁹ <https://www.epa.gov/eg/study-oil-and-gas-extraction-wastewater-management>



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SIGNATORIES

Physicians for Social Responsibility

Pouné Saberi, MD, MPH, President

Pennsylvania Environmental Defense Foundation

Ron Evans, President

Environmental Integrity Project

Mary E. Greene, Deputy Director

Paradise Gardens and Farm

J. Stephen Cleghorn, Owner

SWPA Environmental Health Project

Raina Rippel, Director

Damascus Citizens for Sustainability

B. Arrindell, Director

Center for Coalfield Justice

Veronica Coptis, Executive Director

Mountain Watershed Association

Beverly Braverman, Executive Director

Upper Allegheny River Waterkeeper (affiliate)

Pam Digel, Director

Middle Susquehanna Riverkeeper

Carol Parenzan, Executive Director

Three Rivers Waterkeeper

Sean Brady, Board President

Delaware Riverkeeper Network

Tracy Carluccio, Deputy Director

Responsible Drilling Alliance

Robert Cross, President

Catskill Mountainkeeper

Kathleen Nolan, MD, MSL, Senior Research Director

OVEC-Ohio Valley Environmental Coalition

Natalie Thompson, Executive Director

Breathe Project

Matthew Mehalik, Ph.D., Executive Director

Cattaraugus-Chataugua for Clean Water

Glenn Wahl, Co-founder

Beaver County Marcellus Awareness Committee

Robert Schmetzer, President



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SIGNATORIES (cont.)

Anthony R. Ingraffea, Ph.D., P.E

Dwight C. Baum Professor of Engineering Emeritus and Weiss Presidential Teaching Fellow
Cornell University

Citizens Alliance Upholding a Safe Environment

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Marcellus Outreach Butler

Diane Sipe, President

Clean Water Action

Steve Hvozdovich, Pennsylvania Campaigns Director

Our Air, Our Water, Our Rights

Sam Miller, Organizer

Energy Justice Network

Mike Ewall, Esq., Executive Director

Project CoffeeHouse

Barbara Jarmoska, President

FracTracker Alliance

Brook Lenker, Executive Director

Defend Ohi:yo'

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Bill, Carrie, Ally and Katie Hahn

Wilmington Township, Lawrence County, PA

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SIGNATORIES (cont.)

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Barb Lucia

Warren City, Warren County, PA

Justin Pribanic Fly Fishing

Justin Pribanic, Owner

Wayne and Siri Lawson

Farmington Township, Warren County, PA

Pennsylvania Association for Sustainable Agriculture

Hannah Smith-Brubaker, Executive Director

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