



## STATE POLICIES ON USE OF HYDRAULIC FRACTURING WASTE AS A ROAD DEICER

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### DEFINITIONS

**Hydraulic Fracturing:** the process of injecting a fluid consisting of water, sand, and chemicals at a high pressure to fracture shale formations to allow gas to flow and be brought into a well for collection ("fracking")

**Wastewater:** water that comes to the surface as a result of hydraulic fracturing operations (refers to both flowback fluid and production brine)

**Flowback fluid:** fracturing fluid (water, sand, and chemicals) that returns to the surface when production starts

**Production brine:** naturally occurring salty water that lies underground and is brought to the surface in the fracking process (also called produced water, formation water, or simply "brine")

### QUESTIONS

1. What is hydraulic fracturing waste?
2. What are the risks associated with using this waste to deice roads?
3. Do Connecticut and other states use or allow others to use the waste for this purpose and, for those that do, how do they regulate its use for deicing?

### SUMMARY

Hydraulic fracturing is a process used to extract natural gas in shale formations, such as the Marcellus Shale region that includes part of New York, Ohio, and Pennsylvania. This process produces high volumes of wastewater that can pose risks to humans and the environment if not treated, recycled, or safely disposed. One of the methods for disposing of the wastewater is to spread it on roads for dust and ice control, since wastewater (especially naturally occurring production brine) is very salty. Both the Environmental Protection Agency (EPA) and the Natural Resources Defense Council (NRDC) advise against spreading wastewater on roads because this practice potentially exposes drinking water to natural contaminants, radioactive material, and drilling chemicals.

Connecticut neither bans the use of hydraulic fracturing waste to deice state highways nor specifically regulates its use for this purpose. However, the Department of Transportation (DOT) cannot use any waste product to deice

highways until the Department of Energy and Environmental Protection (DEEP) evaluates its environmental impact and authorizes its [beneficial use \(CGS §22a-209f\)](#). This requirement also applies to substances DOT contractors use to deice highways. But law does not specifically require a seller or contractor to disclose if a substance contains hydraulic fracturing waste, which may prevent DEEP from properly evaluating its safety.

We researched whether the other New England states and the natural gas-rich states of New York, Ohio, and Pennsylvania use hydraulic fracturing waste to deice roads. Five of these states (New York, Massachusetts, Ohio, Pennsylvania, and Vermont) either regulate or ban the use of wastewater as a deicer.

New York, Ohio, and Pennsylvania permit the use of production brine from fracking operations to be applied to roads as a deicer based on its chemical composition, application rate, and other criteria. However, if New York's moratorium on high-volume hydraulic fracturing (HVHF) is lifted and the state's proposed regulations are adopted, road spreading of wastewater from HVHF operations would be prohibited. Some local governments in New York have also prohibited the practice by passing ordinances banning fracking and waste disposal.

Massachusetts and Vermont have banned or are attempting to ban fracking and wastewater disposal. In 2012, Vermont became the first state to ban hydraulic fracturing and the collection, storage, or treatment of the wastewater it generates ([Vt. Stat. tit. 29, § 571](#)). By banning these activities, this law effectively bans the use of fracking waste as a road deicer. The Massachusetts legislature is currently considering a bill approved by the Environment Committee that would place a 10-year ban on fracking and the collection, storage, treatment, and disposal of waste from operations in the state ([Bill H.3796](#)).

Although they do not specifically regulate road spreading of hydraulic fracturing waste, Maine ([CMR 06-096 chap. 418](#)), New Hampshire ([NH Code Admin. Rules ENV-SW 200](#)), and Rhode Island ([RI Gen. Laws §28-18.9-16](#)) regulate the reuse of waste products through a beneficial use determination (Maine and Rhode Island) or a waiver of solid waste restrictions (New Hampshire). Similar to Connecticut's law, agencies or individuals must apply for a permit and the state's environmental protection agency must determine if a waste product can be reused safely.

## **FRACKING WASTEWATER**

Hydraulic fracturing is a process used to extract natural gas in shale formations. According to the [Government Accountability Office](#), it involves injecting a fluid consisting of water, sand, and chemicals at high pressure to fracture shale formations, such as the Marcellus Shale region in New York, Pennsylvania, and Ohio, to allow gas to flow and be brought into a well for collection.

The process produces high volumes of wastewater that must be treated, recycled, or safely disposed. The wastewater is generally classified in two categories: (1) flowback fluid, which is the fracturing fluid (the mix of water, sand, and chemicals) that returns to the surface when production starts, and (2) production brine (also called produced water, formation water, or simply "brine"), which is the naturally occurring salty water that lies underground and is brought up in the fracking process. Waste from fracking operations is exempt from federal hazardous waste regulations, according to the [Environmental Protection Agency](#) (EPA). Generally, states permit only production brine to be spread on roads for ice or dust control.

## **RISKS OF SPREADING FRACKING WASTE ON ROADS**

In its [evaluation](#) of New York's environmental impact statement on HVHF, the EPA recommends against spreading both types of wastewater on roads because it could violate the [Clean Water Act](#). The EPA notes that produced water (production brine) may still contain chemicals used in the fracking process and also have higher concentrations of natural contaminants, given its prolonged contact with the shale formation. It also states that levels of naturally occurring radioactive material (NORM) vary widely, even in the same well, and that each truckload of wastewater, rather than simply the well, would have to be tested to be sure that its NORM concentrations are acceptable for spreading on roads.

A recent Natural Resources Defense Council (NRDC) [report](#) also identified potential risks of wastewater disposal from fracking operations. The council is a Washington, DC-based environmental advocacy organization. The report notes that fracking wastewater (both flowback water and production brine) contains pollutants and NORM that can be toxic to humans and the environment, and spreading wastewater on roads increases the risk that pollutants will wash into water bodies or groundwater. Though states generally permit only production brine to be spread on roads, the NRDC states that the distinction between flowback water and production brine is unclear and even production brine can be dangerous because of high NORM levels.

## REGULATION IN OTHER STATES

### ***New York***

New York allows production brine and brine from liquid petroleum gas (LPG) well storage to be spread on state roads for ice and dust control. According to a 2009 [notice](#) from the Department of Environmental Conservation (DEC) to gas and oil well fluid haulers, any person, including contract haulers and government entities, that wishes to spread brine on roads must apply for a Waste Transporter Permit and submit a beneficial-use determination (BUD) to DEC. The BUD petition must include separate road spreading and brine storage plans and a chemical analysis of a representative sample of the brine performed by a New York State Department of Health-approved laboratory. The DEC must approve the BUD before road spreading begins. Drilling, fracking, and plugging fluids are not permitted to be used on roads.

There is currently a moratorium in New York on high-volume hydraulic fracturing (HVHF) (which typically uses more than 300,000 gallons of water) as relevant agencies develop regulations for HVHF and assess its environmental impact. Because low-volume hydraulic fracturing (LVHF) (which typically uses less than 300,000 gallons of water) is currently permitted in the state, much of the wastewater used to deice roads is likely to come from in-state LVHF operations. Despite the moratorium on HVHF, it is possible that waste from out-of-state fracking may be trucked into New York and spread on roads. However, if the moratorium is lifted on HVHF and current proposed regulations are adopted, road spreading of HVHF production brine would be prohibited. In its [draft assessment](#) of the environmental impact of proposed HVHF regulations, the NYS DEC notes that “data available to date associated with NORM concentrations in Marcellus Shale production brine is insufficient to allow road spreading under a BUD.”

Although the state permits road spreading of production brine, many local county and municipal governments have banned fracking and the disposal of fracking waste, including road spreading. These bans, however, have been challenged in court, according to the [New York Times](#). Lower courts have sided with local governments, but the Court of Appeals heard arguments in August 2013 to overturn the bans. A decision is expected in 2014.

### ***Ohio***

Ohio allows state agencies and local governments to spread brine from fracking on roads for dust and ice control. Both must develop guidelines for road spreading activity that meet standards set by Ohio law. These standards include requirements for application equipment, methods, and rates. In addition to complying with these

standards, local governments must first adopt a resolution permitting the use of brine for these purposes.

The law prohibits state agencies and local governments from spreading brine from horizontal wells, drilling fluids, flowback fluids, and treatment fluids on roads ([Ohio Rev. Code §1509.226](#)).

### ***Pennsylvania***

Pennsylvania permits road spreading of brine from natural gas wells for ice and dust control ([WMGR064](#)). Any state agency, municipality, or individual seeking to spread production brine on roads must apply for a beneficial use permit through the state's Department of Environmental Protection (DEP). Approved brine must meet established standards for chemical content, among other restrictions, as well as adhere to established application rates.

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