

# HB 2598 puts drinking water at risk.

## PROTECTING DRINKING WATER FROM OIL AND GAS WASTE TANKS

### **HB 2598 would endanger drinking water quality across West Virginia.**

Proper regulation of oil and gas waste tanks is needed to prevent leaks that can contaminate drinking water. **HB 2598 would exempt tanks located closest to public drinking water intakes from the Aboveground Storage Tank Act.** Approximately 1,016 oil and gas waste tanks across 27 counties would become unregulated.

### **Oil and gas waste tanks contain a mixture of harmful chemicals.**

Oil and gas waste tanks contain a mixture of produced water and crude oil; this mixture is composed of a variety of pollutants—some water-soluble—that can contaminate drinking water and endanger human health. For some of these pollutants, only a very small quantity is safe for human consumption.

If pollution from a leaking tank flows downstream to a surface water intake, the public water system can immediately become contaminated. In addition to surface water intakes, 20 surface water-influenced groundwater systems (SWIGs) are located along the Ohio River. These SWIGs are also highly susceptible to contamination from chemicals released or spilled at the surface. Once pollution starts to travel through the sediment towards these wells, it is past the point of no return; the water system may become contaminated for a significant amount of time—possibly for years.

### **If HB 2598 passes, regulation of oil and gas waste tanks would revert back to a less effective system.**

Aboveground Storage Tank Act regulation helps ensure that tanks are properly inspected and maintained. DEP inspections—as well as those performed by tank owners—under the Aboveground Storage Tank Act are more frequent and comprehensive than those performed under other programs, ultimately making them more protective of public health.



Example of a failing oil and gas tank that would be deregulated by HB 2598, Ritchie County. Photo credit: WVDEP

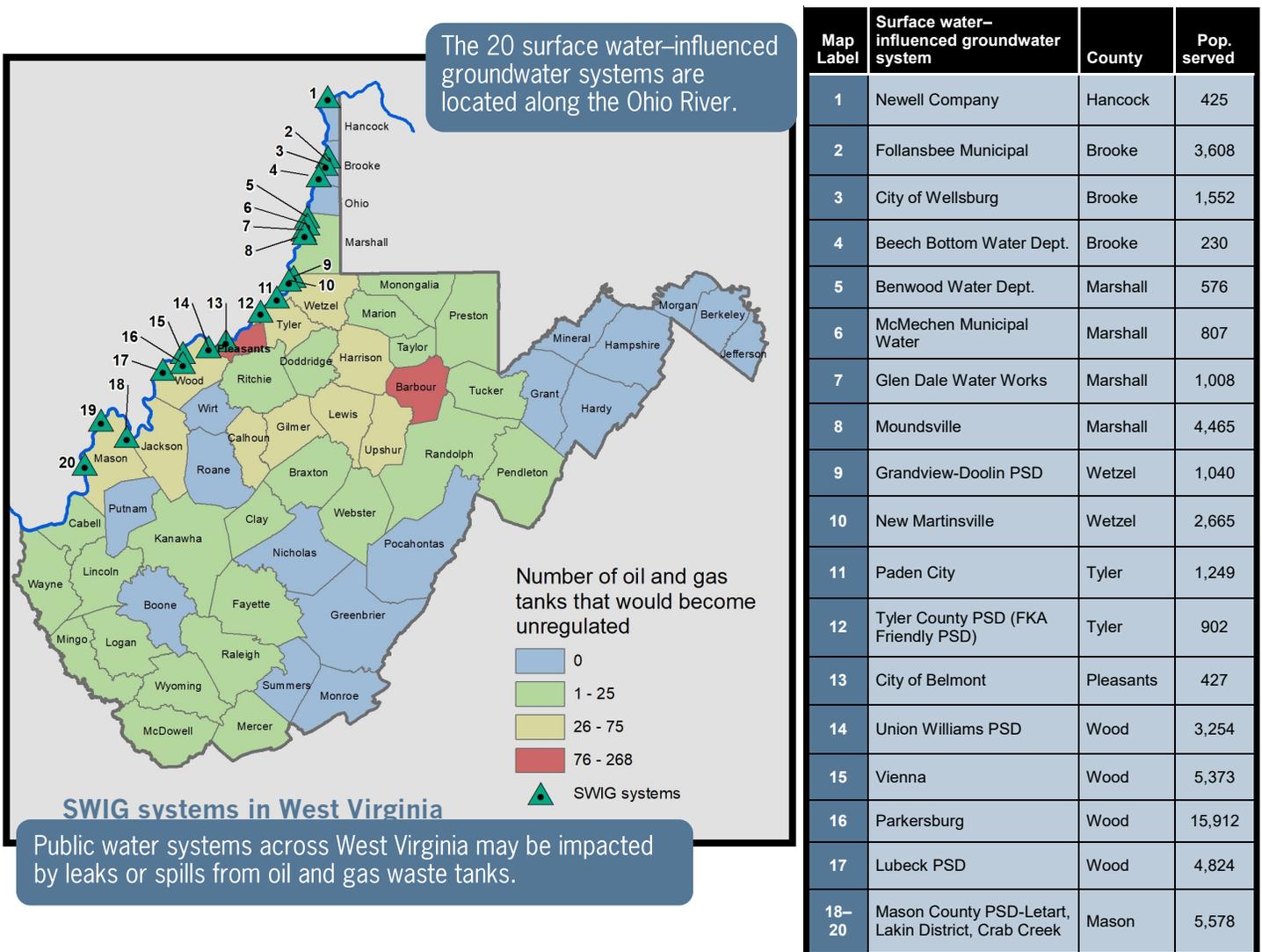


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# 1 HB 2598 would endanger drinking water safety across West Virginia.

## PROTECTING DRINKING WATER FROM OIL AND GAS WASTE TANKS

*Proper regulation of oil and gas waste tanks is needed to prevent leaks into waterways that can contaminate drinking water. Should HB 2598 pass, approximately 1,000 oil and gas waste tanks across 27 counties would become unregulated under the Aboveground Storage Tank Act. These tanks are upstream from, and close to, public drinking water intakes that draw water from rivers and streams. Others are upstream from, and close to, wells along the Ohio River that provide raw water to surface water–influenced groundwater systems; these wells are also highly susceptible to contamination.*



**Approximately 1,016** oil and gas waste tanks, across **27** West Virginia counties, would become unregulated should this bill pass.

The raw water drawn by surface water intakes and SWIG wells can be contaminated by pollution in the immediate vicinity of the intake or well. But it can also be contaminated by a leak or spill that occurs upstream and is transported to the intake or well by a river or stream.

**It is important to regulate tanks in ZCCs**

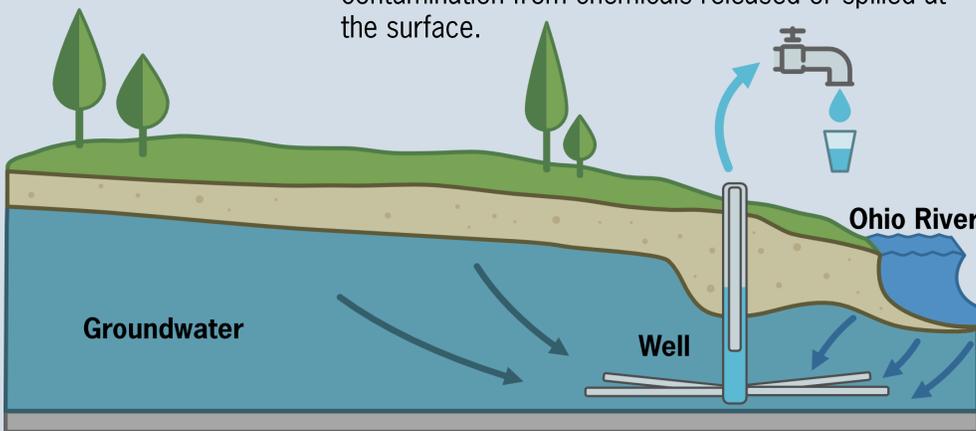
If pollution flows downstream to a surface water intake, the public water system can immediately become contaminated. This is what happened in 2014 when the chemical leak in the Elk River contaminated West Virginia American Water's system.

If pollution flows downstream to a SWIG well, the well will draw certain pollutants into the river's alluvial sediment and eventually into the groundwater. Once the pollution starts to travel through the sediment, it is past the point of no return because of the difficulty of treating polluted groundwater. The water system may become contaminated for a significant amount of time—possibly for years.

**Ohio River SWIGs are highly susceptible to contamination**

Many of West Virginia's public water systems pump water from wells next to the Ohio River. While these wells are drilled underground, they still draw a significant amount of water from the Ohio River itself. For example, as much as 75 percent of the water pumped into Parkersburg's wells is induced recharge from the Ohio River.

According to U.S. Geological Survey scientists, the SWIGs along the Ohio River are highly susceptible to contamination from chemicals released or spilled at the surface.



**Timeline**

**2014**

- Thousands of gallons of chemicals leak from an aboveground storage tank into the Elk River, contaminating the water supply for 300,000 West Virginians.
- Legislature passes the Aboveground Storage Tank (AST) Act to ensure that tanks are properly inspected and maintained.

**2017**

- Legislature amends the AST Act to exempt certain oil and gas tanks, **except those located in ZCCs.**
- Parkersburg public water system designated as a SWIG.

**2018**

- An additional 19 public water systems along the Ohio River designated as SWIGs.

**2019**

- SWIG ZCCs delineated.

**2020**

- SWIG ZCCs become effective.
- House Bill 4079 introduced but not placed on a committee agenda. This bill would have exempted oil and gas waste tanks in ZCCs from regulation.

**SWIG**

A public surface water-influenced groundwater supply source, or SWIG, is "a source of water supply for a public water system which is directly drawn from an underground well, underground river or stream, underground reservoir, or underground mine, and the quantity and quality of the water in that underground supply source is heavily influenced, directly or indirectly, by the quantity and quality of surface water in the immediate area." W.Va. Code § 16-1-2(19).

**ZCC**

A zone of critical concern, or ZCC, is the area alongside streams located immediately upstream from a public water system's intake or well. Under the Aboveground Storage Tank Act, oil and gas waste tanks and other aboveground storage tanks in ZCCs must be inspected and maintained to protect nearby downstream drinking water sources from leaks or spills. ZCCs include upstream areas that would deliver contaminants to an intake or well location within five hours.



## 2 Oil and gas waste tanks contain a mixture of harmful chemicals.

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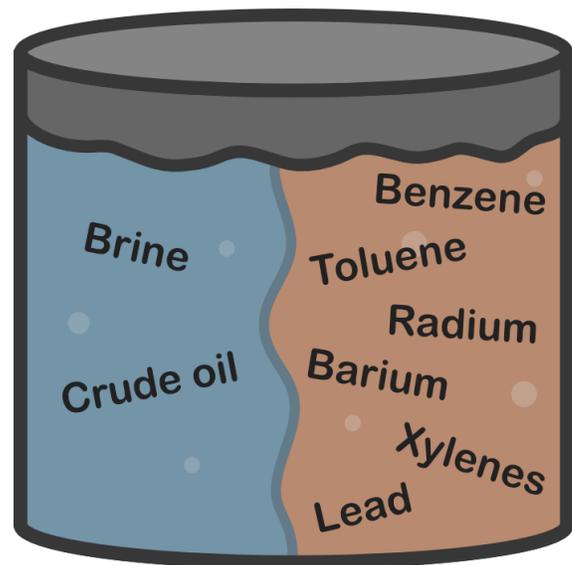
***Oil and gas waste tanks contain a mixture of produced water and crude oil, each of which contain pollutants that can contaminate drinking water and harm human health.***

**Oil and gas waste tanks contain a mixture of produced water and crude oil**

Under the Aboveground Storage Tank Act, owners and operators must report the substances stored in each tank to DEP. Because oil and gas waste tanks store a mixture of produced water and crude oil, owners and operators report these substances in many different ways, including brine, crude oil, sodium chloride, or natural gas condensates.

Produced water is the fluid trapped in underground formations that is brought to the surface along with the natural gas. It is sometimes misleadingly referred to as “brine.” But you wouldn’t want to brine your turkey with it, because produced water contains a mixture of many substances, some of which are harmful to human health even in very small amounts.

In addition to produced water, these tanks also store crude oil. The proportion of produced water to crude oil varies by tank. Crude oil also contains many different pollutants that are harmful to human health.



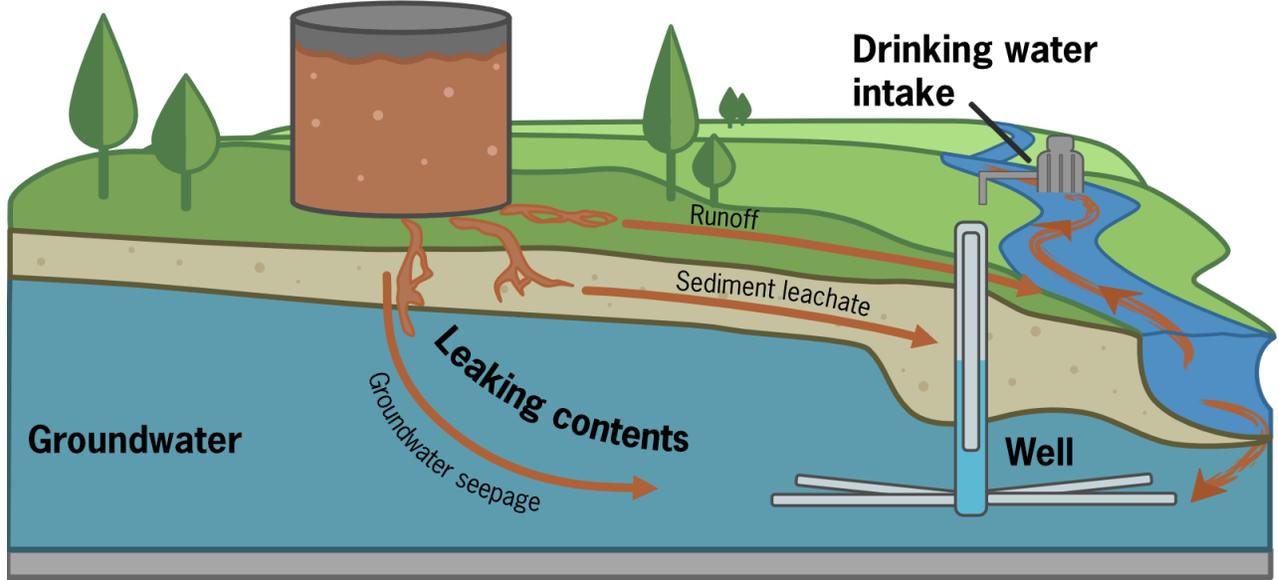
**Pollutants of concern**

- Hydrocarbons, including
  - ◊ benzene, toluene, ethylbenzene, and xylenes
  - ◊ polycyclic aromatic hydrocarbons
  - ◊ phenols
- Naturally occurring radioactive material (NORM), including radium-226 and radium-228
- Metals, including barium, iron, lead, manganese, and zinc

**Pollutants in oil and gas waste tanks can contaminate public drinking water**

Whether drawing water from a stream or a surface water–influenced groundwater well, public drinking water systems are vulnerable to pollution from oil and gas waste tanks. This is because a portion of the pollution from these tanks is soluble and will dissolve in water. Even the surface water–influenced groundwater wells along the Ohio River will draw this pollution into the public water systems.

**Compromised AST**



**These pollutants harm human health at low concentrations**

Only very small amounts of several of these pollutants are safe for human consumption. The maximum contaminant levels, or MCLs, listed in this table are the highest levels of contaminants allowed in drinking water.

Pollutant	Maximum contaminant level (MCL)	Health effects
Benzene	0.005 mg/L	Anemia; decrease in blood platelets; increased risk of cancer
Toluene	1 mg/L	Nervous system, kidney, or liver problems
Ethylbenzene	0.7 mg/L	Liver or kidney problems
Xylenes	10 mg/L	Nervous system damage
Radium 226, Radium 228	5 pCi/L	Increased risk of cancer
Barium	2 mg/L	Increase in blood pressure
Lead	0.015 mg/L	Delays in physical or mental development of infants and children; children could show slight deficits in attention span and learning abilities. Kidney problems or high blood pressure in adults



# PROTECTING DRINKING WATER FROM OIL AND GAS WASTE TANKS

**3** If HB 2598 passes, regulation of oil and gas waste tanks would revert back to a less effective system.

***Aboveground Storage Tank Act regulation is important to ensure that oil and gas waste tanks do not leak into streams that can contaminate drinking water. DEP inspections—as well as those performed by tank owners—under the Aboveground Storage Tank Act are more frequent and comprehensive than those performed under other programs. The sheer number of notices of violation issued to oil and gas waste tanks under the Aboveground Storage Tank Act underscores the importance of maintaining this regulation to protect drinking water.***

Before the Aboveground Storage Tank Act was passed, oil and gas waste tanks were subject to less effective regulation. While certain state rules did apply, these rules are far less protective, and agency inspections were rare.

Safeguard	Other rules*	Aboveground Storage Tank rule
Inspections by owners/operators	Periodic inspection <sup>1</sup> Yearly inspection <sup>2</sup>	Secondary containment routine maintenance inspection every 14 days Tank visual inspection every month Yearly inspections and certifications
Evaluations by professional engineer or other certified person	None	Evaluation and certification that tanks are fit for service every three years
Spill prevention and response plan or groundwater protection plan	Required <sup>3</sup>	Required to be updated every five years
Evaluation of damaged tanks	None	Evaluation by a professional engineer or other certified person within 30 days of discovery

\*Other rules include 35 CSR 1 (Miscellaneous Water Pollution Control Rules),<sup>1</sup> 35 CSR 4 (Oil and Gas Wells and Other Wells),<sup>2</sup> and 47 CSR 58 (Groundwater Protection Rule).<sup>3</sup>

## Violations are common at oil and gas waste tanks

Should this bill pass, approximately 1,000 oil and gas waste tanks in ZCCs would no longer be regulated under the Aboveground Storage Tank Act. From 2015 to 2020, DEP issued notices of violation to almost one-third of these tanks.

Of all the notices of violation DEP issued under the Aboveground Storage Tank Act from 2015 to 2020, almost one-fifth were for oil and gas waste tanks in ZCCs that would no longer be regulated, should this bill pass.



An oil and gas waste tank in contact with water, with moss growing around the bottom of the tank. Cited by DEP for lack of inspection and lack of spill prevention and response plan.

**AST Act inspections are needed to document violations**

From 2015 to 2020, inspections conducted under the Aboveground Storage Tank Act found 1,938 violations at tanks that would become unregulated, should HB 2598 pass. The table below shows the most common violations.



A corroding oil and gas waste tank. Cited by DEP for lack of inspection of secondary containment and lack of corrosion prevention measures.

In contrast, oil and gas waste tank inspections conducted under other rules have identified far fewer problems.

**AST Act inspections are thorough and protective**

Inspections conducted under the Aboveground Storage Tank Act are more comprehensive and protective of public health than other inspections.

For example, a single inspection in October 2020 uncovered 106 violations at 12 oil and gas waste tanks at a single facility in Wood County.

# Violations	Description
670	Lack of proper inspection
238	Inadequate leak detection
214	Inadequate corrosion protection
208	Inadequate secondary containment structures
159	Lack of notification to emergency service/public water intakes
131	Missing/inadequate spill response prevention plan
72	Tank not appropriately labeled
48	Lack of proper registration

**In 2019, most leaks and spills were from tanks that would be unregulated**

In 2019, 24 of the 34 confirmed releases from aboveground storage tanks were from tanks that would be exempted from regulation, should HB 2598 pass.



An oil and gas waste tank with corrosion and leakage. Cited by DEP for lack of registration, inspection, and maintenance as well as failure to notify downstream public water system of its contents and quantity.

