HB 2598 and HB 4083 both put drinking water at risk.

PROTECTING DRINKING WATER FROM OIL AND GAS WASTE TANKS

Both HB 2598 and HB 4083 would endanger drinking water quality across West Virginia

Proper regulation of oil and gas waste tanks is needed to prevent leaks into waterways that can contaminate drinking water. **Should HB 2598 or HB 4083 pass, approximately 766 oil and gas waste tanks across 30 counties would become unregulated.** These tanks are upstream from, and near, public drinking water intakes and wells across the state.

Oil and gas waste tanks contain a mixture of harmful chemicals

Only 13% of oil and gas waste tanks store just brine. Most 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 leaking from a compromised tank flows downstream to a surface water intake, the public water system can immediately become contaminated. Surface water–influenced groundwater systems (SWIGs) are also highly susceptible to contamination from chemicals released 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 or HB 4083 passes, regulation of oil and gas waste tanks would revert back to a less effective system

Aboveground Storage Tank Act regulation ensures 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.

HB 4083 expands upon HB 2598 to also include several other harmful changes that put drinking water at further risk

In addition to deregulating oil and gas waste tanks upstream from, and near, public drinking water intakes, HB 4083 goes further. It includes other harmful changes that put drinking water at further risk and that are inconsistent with existing state and federal regulations. It would also erase approximately 28,000 tanks from view.

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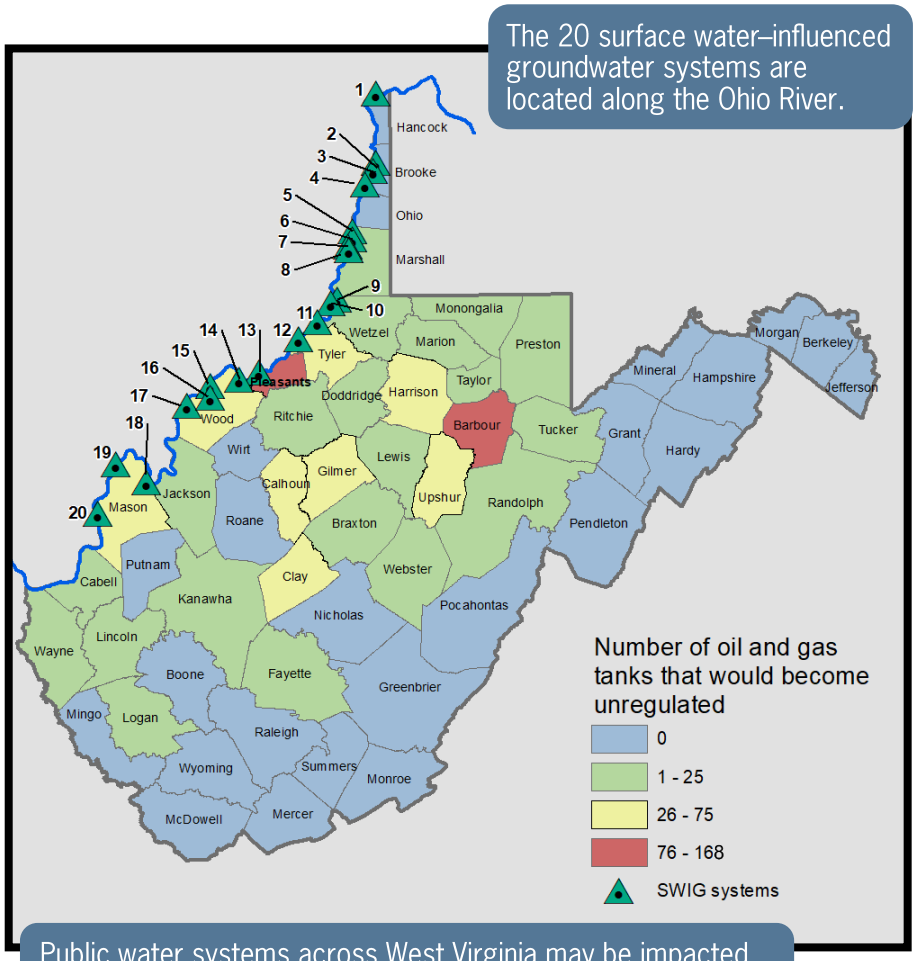
1 HB 2598 and HB 4083 would both endanger drinking water quality across West Virginia.

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 or HB 4083 pass, approximately 766 oil and gas waste tanks across 30 counties would become unregulated under the Aboveground Storage Tank Act. Many of 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.



Map Label	Surface water–influenced groundwater system	County	Pop. served
1	Newell Company	Hancock	650
2	Follansbee Municipal	Brooke	3,609
3	City of Wellsburg	Brooke	1,552
4	Beech Bottom Water Dept.	Brooke	230
5	Benwood Water Dept.	Marshall	564
6	McMechen Municipal Water	Marshall	783
7	Glen Dale Water Works	Marshall	1,140
8	Moundsville	Marshall	4,414
9	Grandview-Doolin PSD	Wetzel	996
10	New Martinsville	Wetzel	2,660
11	Paden City	Tyler	1,222
12	Tyler County PSD (FKA Friendly PSD)	Tyler	957
13	City of Belmont	Pleasants	427
14	Union Williams PSD	Wood	3,276
15	Vienna	Wood	5,356
16	Parkersburg	Wood	15,876
17	Lubeck PSD	Wood	4,866
18–20	Mason County PSD-Letart, Lakin District, Crab Creek	Mason	5,509

Approximately 766 oil and gas waste tanks, across 30 West Virginia counties, would become unregulated should either 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

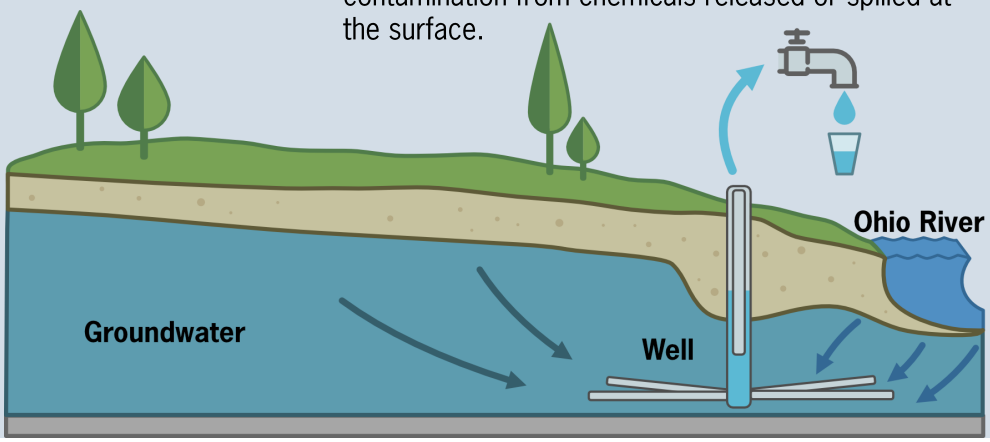
If pollution flows downstream to a surface water intake, the public water system can immediately become contaminated. This is what happened in 2014 when the chemical leak in the Elk River contaminated West Virginia American Water's system.

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.
- The Legislature passes the Aboveground Storage Tank Act to ensure that tanks are properly inspected and maintained.
- The Legislature also requires public water systems to take steps to minimize the risk of chemical contamination.

2017
- Parkersburg public water system designated as a SWIG.

2018
- An additional 19 public water systems along the Ohio River

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.

2021
- House Bill 2598 passed the House but was not taken up by the Senate. This bill has been reintroduced in 2022.

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 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 within five hours.

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Sources: Kozar, M.D., and Paybins, K.S., 2016, Assessment of hydrogeologic terrains, well-construction characteristics, groundwater hydraulics, and water-quality and microbial data for determination of surface-water-influenced groundwater supplies in West Virginia (ver. 1.1, October 2016): U.S. Geological Survey Scientific Investigations Report 2016–5048, 55 p., http://dx.doi.org/10.3133/sir20165048. Number of oil and gas waste tanks that would become unregulated derived from DEP's Aboveground Storage Tanks Database provided by DEP.

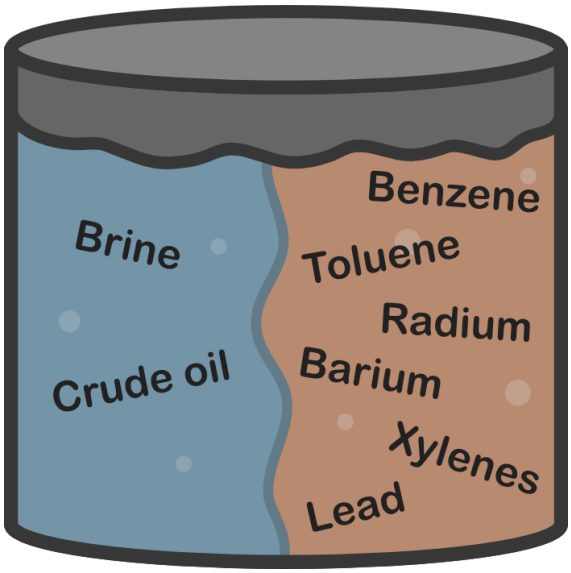
2 Oil and gas waste tanks contain a mixture of harmful chemicals.

Oil and gas waste tanks contain a mixture of produced water and crude oil, each of which contain pollutants that can contaminate drinking water and harm human health. It's not just table salt.

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.

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

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.

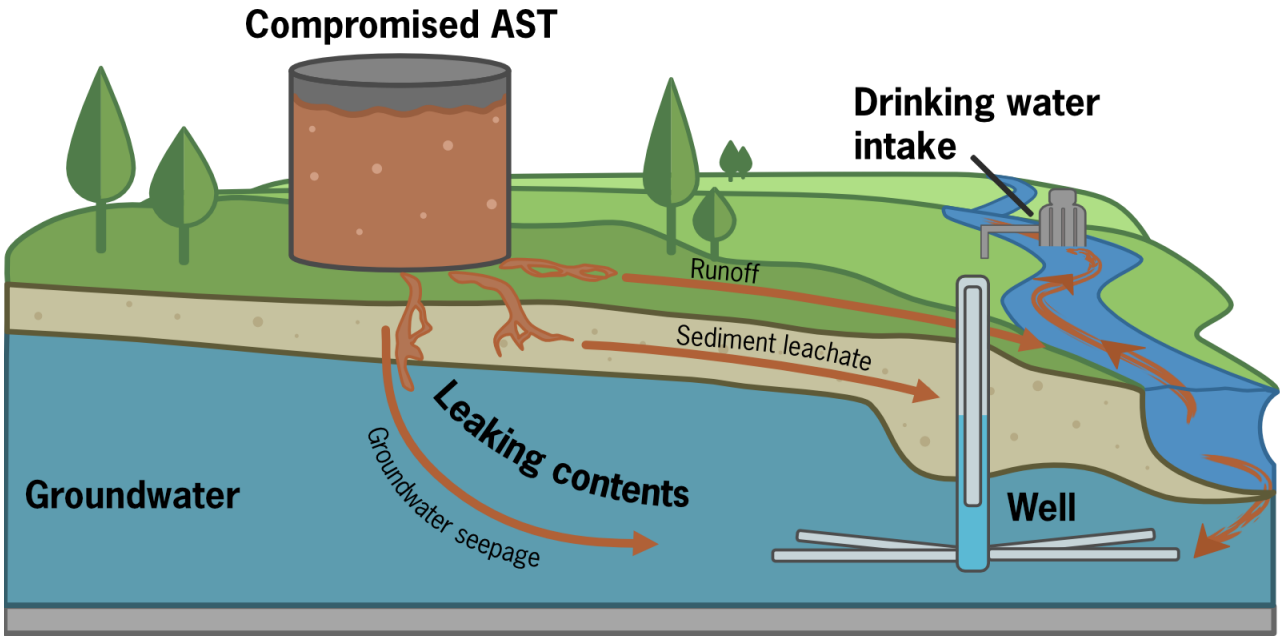
Pollutants of concern

- 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

87% of the 766 tanks self-report holding something other than just brine.

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.



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

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Pollutants of concern from Argonne National Laboratory, 2004, A White Paper Describing Produced Water from Production of Crude Oil, Natural Gas, and Coal Bed Methane. Prepared for U.S. Department of Energy National Energy Technology Laboratory, January. MCLs and health effects from U.S. Environmental Protection Agency, 2021, National Primary Drinking Water Regulations, https://www.epa.gov/ground-water-and-drinking-water/national-primary-drinking-water-regulations.

3 If HB 2598 or HB 4083 passes, regulation of oil and gas waste tanks would revert back to a less effective system.

PROTECTING DRINKING WATER FROM OIL AND GAS WASTE TANKS

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[1] Yearly inspection[2]	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[3]	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),[1] 35 CSR 4 (Oil and Gas Wells and Other Wells),[2] and 47 CSR 58 (Groundwater Protection Rule).[3]

Violations are common at oil and gas waste tanks

Should either of these bills pass, approximately 766 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 either 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 either bill pass. The table below shows the most common violations.

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

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

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 or HB 4083 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.

The Office of Oil and Gas only has nine inspectors statewide to monitor approximately 75,000 wells and almost 28,000 aboveground storage tanks.

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Number of oil and gas waste tanks that would become unregulated, and number of violations, derived from DEP's Aboveground Storage Tanks Database provided by DEP. Number of confirmed releases from DEP.

4 HB 4083 expands upon HB 2598 to also include several other harmful changes that put drinking water at further risk.

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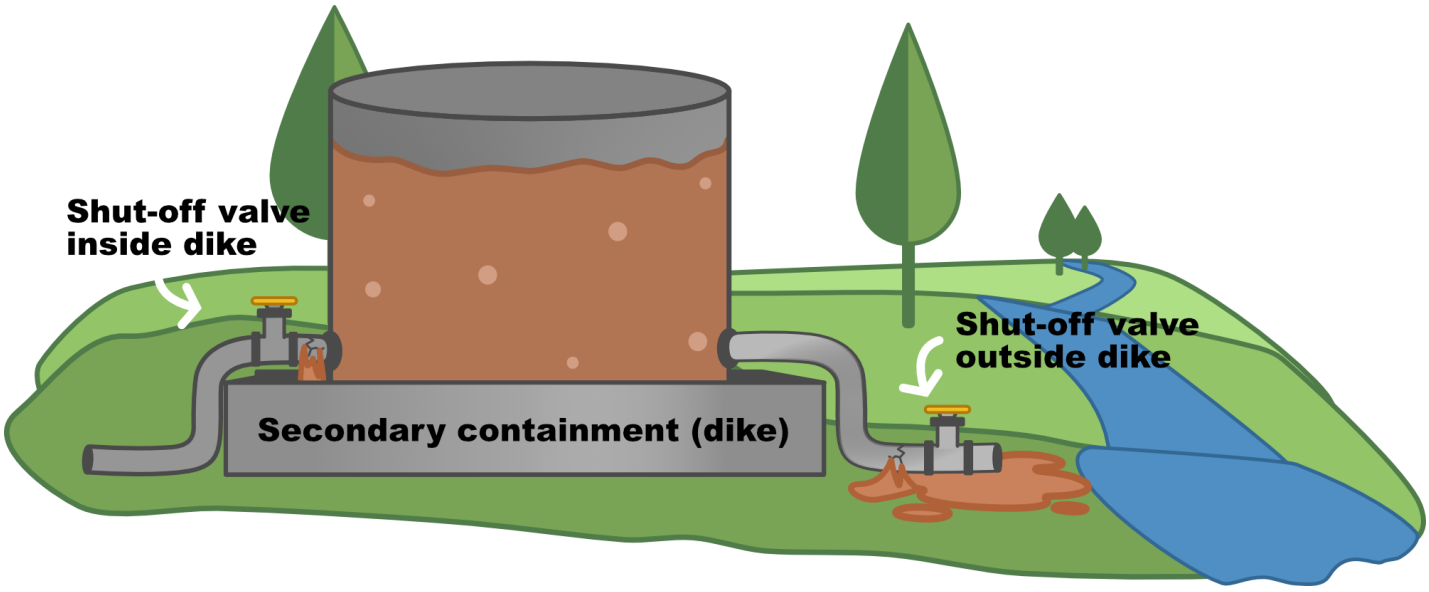
In addition to deregulating oil and gas waste tanks upstream from, and near, public drinking water intakes, HB 4083 goes further. It includes other harmful changes that put drinking water at further risk and that are inconsistent with existing state and federal regulations.

Shut-off valves would no longer be regulated and could be located outside of secondary containment, making it more likely that toxic chemicals will leak into rivers and streams

HB 4083 would allow aboveground storage tank shut-off valves (also called "first points of isolation") to be entirely excluded from regulation. Further, shut-off valves would no longer be required to be located within the secondary containment and would not be subject to required inspections. Without regulation, leaks would be more likely to occur, and leaks that occur outside of secondary containment are more likely to impact rivers and streams. This change would apply to all aboveground storage tanks, including those holding the most toxic chemicals and those located closest to rivers and streams. These changes to the Aboveground Storage Tank Act appear to conflict with existing state and federal regulations.



Locating shut-off valves outside of secondary containment structures would allow the entire contents of a tank to drain to the environment rather than into the secondary containment area. These important structures must be included in routine inspections.

Owners/operators of tanks that leak and become empty would no longer be required to remediate the site or follow other closure rules

Under current law, if an aboveground storage tank leaks, owners/operators must follow strict rules to remediate the land and water polluted by the spilled substance. But according to HB 4083, as soon as a tank is empty, the remediation rules would no longer apply. Some of the most important parts of the Aboveground Storage Tank Act, the requirements for site remediation and other closure rules, would very rarely, if ever, be triggered again.

Spills and leaks will be allowed to occur directly into rivers and streams

By creating a loophole in the definition of "release," HB 4083 explicitly allows certain spills and leaks from aboveground storage tanks into rivers and streams. This is an unacceptable policy, and it is also inconsistent with state and federal laws and regulations.

Regulatory agencies and downstream water utilities would no longer be informed of oil and gas waste tanks upstream from drinking water intakes

HB 4083 would remove the requirement for oil and gas waste tanks to register, whether they're very close to drinking water intakes or further away. Tanks would also be exempt from labeling requirements and requirements to notify downstream water utilities.

Almost 28,000 tanks that hold oil and gas waste would be erased from view.

HB 4083 contradicts other state and federal regulations

Not only would the proposed changes increase the chance that toxic substances would leak from aboveground storage tanks into waterways, but many of the changes contradict other existing state and federal regulations.

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