



Crude oil tank terminals: Vital hubs on energy highways

Enbridge's crude oil terminals are safe, well-maintained facilities that have been designed, built and located to minimize public impact.

These terminals are populated with breakout tanks for temporary storage of crude oil and liquids.

Terminals are important safety control points along Enbridge's cross-continent pipeline network. They also act as quality control facilities and strategic hubs for the North American refinery market.

How are tank terminals kept safe?

As it is across our network, safety is built in and stringently maintained at Enbridge's crude oil tank terminals.

Safety measures include automatic and manual isolation valves for piping and manifold systems, containment berms surrounding individual tanks, 24/7 monitoring by trained staff and multiple computerized systems, and floating roofs that minimize evaporation and capture emissions.

Who enforces safety standards at these terminals?

In the United States, Enbridge's terminals are federally governed by the Department of Transportation's Office of Pipeline Safety, whose regulations encompass tank design, maintenance and size, safety measures that include containment berms, and air quality and other environmental regulations.

What happens to oil when it arrives at a terminal?

Crude oil arrives at a tank terminal in batches, where it undergoes quality testing and is then either temporarily stored, blended or rerouted.

In addition to tanks, Enbridge's terminals may include pump stations, booster pumps and manifold systems to route the different types of oil we transport between tanks and pipelines.



Tank terminal safety

Safety is an integral component of Enbridge's crude oil tank terminals, covering everything from design, inspection and security to monitoring, regulation and emergency response.

Enbridge's terminal facilities are **secured and fenced**, with lighting designed to provide security while offering minimal disturbance to our neighbors.

Our facilities are federally regulated, and comply with a **stringent and thorough set of rules**. Federal pipeline safety inspectors from the Department of Transportation regularly monitor our compliance with these rules.

All new above-ground breakout storage tanks are built using **quality steel plate**, engineered to regulatory codes and industry standards for the size, environment and product to be stored. New tanks undergo **hydrostatic testing** (filling a tank with water and pressurizing the system above design limits to test for leaks) before being placed into service.

With breakout tanks, isolation valves and other containment mechanisms, tank terminals act as **safety control points** on Enbridge's pipeline network. These facilities are also **monitored 24/7** from our state-of-the-art control center.

Floating roofs on our storage tanks are built with **primary and secondary seals** to contain vapors and reduce emissions. We also use **cathodic protection** – that's the application of a low-voltage electrical current – to curb corrosion. **Tanks are grounded** to minimize static electricity buildup during filling and refilling, and also to safely channel potential lightning strikes.

All of Enbridge's tank facilities are **routinely monitored, inspected and maintained** by trained terminal personnel. This includes extensive in-service inspections, full cleanings involving internal and external inspections, and regular visual inspections.

And while a major release at a tank terminal is highly unlikely, Enbridge maintains **strong emergency preparedness** and response systems that we regularly test and continuously improve. This includes:

- Trained personnel who live in nearby communities and are prepared to respond immediately
- Multiple on-site systems to initiate **remote shutdown and isolation** as needed
- **Berms** surrounding each tank that are designed to hold 110% or more of the product stored in that tank (with product fully contained on Enbridge property, and promptly cleaned up with little or no environmental impact)
- **Regular drills** that we carry out alongside local first responders and emergency management personnel

Enbridge's tank terminals: Fast facts

- Enbridge's tanks range in size from **40 to 60 feet** high, and **150 to 270 feet** in diameter, and hold anywhere from **57,000 to 575,000 barrels** of crude oil or liquids.
- Enbridge's tank terminals are a vital component of the world's longest and most complex crude oil and liquids pipeline network. We operate **more than 30 tank terminals** across North America, where we temporarily store, blend or reroute the **3 million barrels** of crude and liquids we transport every day.
- With about **20 million barrels** in shell capacity, Enbridge is one of the largest operators at **Cushing Terminal** in Cushing, OK, the world's largest crude oil facility and a vital transshipment point on the energy landscape.
- About **20% of all daily U.S. crude imports** pass through Enbridge's **Superior Terminal**, in Superior, WI, which has a shell capacity of **12 million barrels**.