



Preventing Spills

Preventing spills is one of our key performance objectives — a goal that drives accountability across all employee levels.

For eight years we have tied our compensation program to our spill prevention performance. In 2021, our net spill intensity was 0.009 — a rate that beat our corporate goal that year.

We calculate our net spill intensity by taking the ratio of liquids spilled outside of secondary containment (and not recovered) to total liquids produced. Using a rate allows for more accurate year-over-year comparison and incentives reducing the environmental impact of spills. Beyond our enterprise-wide compensation program, we measure spills by count, total barrels and percentage recovered for regulatory reporting and internal analysis for continuous improvement.

2021 Spill Metrics

Metric	# of Spills	Total Barrels	% Recovered
Hydrocarbon spills >1 bbl outside of secondary containment	38	1,155	53%
Non-hydrocarbon spills >1 bbl outside of secondary containment	41	1,578	91%

In 2021, we handled more than 104 million barrels of liquids, including freshwater, produced water and oil, and contained more than 99.96% of these liquids. Although we consider this rate to be successful, our goal is always zero spills.

Spill Prevention Programs

Employees from our HSER teams collect and analyze spill data, identify spill causes and collaborate to implement operational design improvements to prevent spills. Our prevention efforts focus on several primary spill causes, including human error when transferring liquids, weather, corrosion and equipment failure. To safeguard our operations, we implement a number of proactive prevention programs.

Integrity management	Secondary containment	Regular maintenance and repair	Monitoring
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Integrity Management

Our integrity management efforts use technology and innovation to proactively identify and mitigate equipment corrosion. Over time, environmental conditions and produced water can corrode steel equipment, particularly tanks, valves, pipes and gathering lines.

Our company-design standard requires new steel storage tanks to be internally coated to resist corrosion and built according to API standards. To ensure our design specifications are met, Chesapeake periodically visits and inspects tank manufacturer operations.

To further safeguard our tanks and heater treaters, we encourage the use of anodes — pieces of sacrificial metal that corrode first and protect the integrity of our equipment. Sacrificial anodes are monitored and replaced periodically as part of our prevention initiatives. Chesapeake also utilizes cathodic protection, which operates similarly to sacrificial anodes, to protect buried equipment including flow lines and pipelines.

In addition to internal protection, steel tanks are externally coated with a protective primer and paint layer and placed on gravel rings or other elevated bases to limit corrosion from standing rain or surface water. We also use ultrasonic testing to measure wall loss on equipment so it can be repaired or retired when appropriate.

Specific to our Marcellus operating area, we use double-walled fiberglass tanks for produced water storage. Unlike steel, fiberglass is naturally impervious to corrosion and the double-wall design eliminates the need for secondary containment. The Appalachia area receives significant precipitation that can gather in secondary containment and cause external corrosion or wear if not properly monitored. Chesapeake installs a water monitor in the interstitial area between the walls to ensure the integrity of the tank.

Secondary Containment

Secondary containment for storage tanks is a facility design standard and key to our spill prevention efforts. On all Chesapeake constructed facilities, impervious containment is required around tanks to capture any fluid that could escape primary containment. Secondary containment consists of steel walls layered with a polyurea coating or other acceptable materials designed to last the lifetime of the facility.



Maintenance and Monitoring

Early detection of corrosion is key to mitigating risk, and our operational staff receive training on how to identify corrosion as part of their routine field equipment inspections and maintenance. Production lines, vessels and tanks are regularly monitored through a corrosion chemical management program. Although most of our producing wells are treated with a liquid corrosion inhibitor, regular inspections help to determine whether corrosion has been mitigated or if further treatment is needed.

In addition to these inspections, our tank fluid-level sensors alert employees if tank levels change unexpectedly, indicating the potential for a leak. If such an instance arises, we either repair the corroded area or replace the equipment. As an additional precaution, our Operations team conducts reviews of near-miss incidents to identify causal factors and any necessary mitigations.

Spill Response Team

If a spill occurs, we're prepared to respond efficiently with a comprehensive, cross-functional team including Operations, Emergency Response and HSER employees. When activated, this team focuses first on safety, then on environmental protection and regulatory compliance.

Operations	Emergency Response	Environmental
<ul style="list-style-type: none"> • Secure site for public safety and protection of on-site personnel • Collect initial information • Determine appropriate level of resources needed • Initiate containment measures and control the spill 	<ul style="list-style-type: none"> • Initiate emergency response plan and procedures tailored to the incident's severity level • Establish an incident command system with response experts on location, as needed based on severity level • Unify command with outside responders, as needed based on severity level 	<ul style="list-style-type: none"> • Notify the appropriate parties, including regulatory agencies and landowners if needed • Develop a spill delineation plan • Review data, develop a remediation plan • Conduct remediation activities • Confirm remediation and request regulatory closure

Each week, Operational and HSER leaders review company incidents, including environmental spills, to ensure corrective actions are taken and to identify opportunities for continuous improvement.