Daily Environment Report[™]

Storage Tanks

Bloomberg BNA

Regulatory Gap Remains for Chemical Tanks Due to No EPA Spill-Prevention Requirement

he EPA does not require spill-prevention actions by operators of aboveground chemical storage tanks, a regulatory gap that continues to exist 20 months after a chemical tank spill that led to a 10-day public drinking water ban for 300,000 West Virginians.

The Environmental Protection Agency has for decades had clear statutory authority to require spillprevention actions for the tanks, officials told Bloomberg BNA in 2014 (90 DEN B-1, 5/9/14).

Also for decades, the EPA has had spill-prevention regulations on above-ground tanks containing petroleum products or hazardous waste. Since the early 1980s, the agency also has had spill-prevention regulations for chemical storage tanks that are underground.

According to environmental groups, the absence of an EPA spill-prevention requirement for chemical above-ground tanks puts people and the environment at unnecessary risk.

"Millions of people rely on drinking water sources that are unprotected from chemical tank spills because of that loophole," Rick Hind, legislative director of Greenpeace's toxics campaign, told Bloomberg BNA.

Above-ground chemical storage tank accidents that threaten public health did not stop with the West Virginia spill in January 2014, Hind said.

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RICK HIND, GREENPEACE

That spill of coal-processing chemicals containing 4-methylcyclohexane methanol (MCHM) triggered a state of emergency affecting as many as 300,000 people after the pollutants entered the Elk River just upstream from the intake pipe of a water treatment plant serving Charleston, the state capital (08 DEN A-13, 1/13/14).

The chemical mixture is distributed exclusively by Eastman Chemical and was being stored in a facility owned and operated by Freedom Industries Inc. Freedom Industries has faced litigation in separate lawsuits involving the same previous spill, including criminal charges to which company officials pleaded guilty March 18 (54 DEN A-10, 3/20/15).

According to what Hind called a registry of verified chemical accidents compiled by Greenpeace and other groups, on Aug. 20, an aboveground storage tank containing sodium hydrosulfide caught fire and partially exploded at an aboveground storage tank facility outside Bainbridge, Ga.

The accident killed one worker and forced the temporary evacuation of nearby homes.

Meanwhile, a consortium of environmental groups filed suit in the U.S. District Court for the Southern District of New York, asking the court in July to direct the EPA to promulgate spill-prevention regulations for aboveground chemical storage tanks (140 DEN A-10, 7/22/15) (140 DEN A-10, 7/22/15).

Statutory Authority for Rule Since 1972. Among the sweeping 1972 amendments to the Federal Water Pollution Control Act was a new section—311(j)(1)—requiring the president to promulgate "as soon as possible" regulations to prevent spills of petroleum products and hazardous substances from aboveground storage tanks on or adjacent to the nation's navigable waters.

The EPA established its first Spill-Prevention, Control and Countermeasure regulations to prevent water pollution from aboveground tanks containing petroleum products and other oils, in 1976. As such, all states must have rules at least as rigorous for aboveground petroleum product storage tanks.

Establishing the SPCC rule for aboveground storage tanks holding petroleum products and other oils made sense. The great majority of aboveground storage tanks in the U.S.—85 to 90 percent of them—contain petroleum products and other oils, said Katie Vassalli, manager of member eduction at the International Liquid Terminals Association.

Philip Myers, an aboveground storage consultant, said the vast majority of aboveground chemical storage tank storage installations are run well. He told Bloomberg BNA that the key is for installation owners and operators is to instill and maintain a strong safety culture.

If the EPA is to apply its spill-prevention, control and countermeasure rule to the aboveground chemical storage facilities, the necessary practices would not im-

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prove safety or environmental protection at well-run facilities but would reduce operational efficiencies, Myers said.

Asked whether a spill-prevention regulation could be devised that would not conflict with effective safety and environmental practices, Myers demurred. While the vast majority of AST facilities are run well, a few outliers such as Freedom Industries exist, Myers said. He suggested that chemical suppliers cut off such firms. Myers said he was surprised that Eastman Chemical sold MCHM to Freedom Industries.

Eastman Chemical Co. is fighting a lawsuit that accuses it of negligence in delivering MCHM to a facility unable to store it safely(111 DEN A-15, 6/10/15).

Hind, of Greenpeace, said the Freedom Industries spill shows the EPA needs to establish a spillprevention rule for aboveground chemical tank facilities. If operational efficiencies decline at well-run facilities, it's a small price to pay for protecting workers and the environment at all chemical AST facilities, he said.

Shortly after the Freedom Industries incident, Sen. Joe Manchin (D-W.Va.) introduced legislation (S. 1961) that would have required that states establish regulations to prevent spills from chemical ASTs near drinking water intakes.

On April 3, 2014, the Senate Environment and Public Works Committee approved the bill on a voice vote and sent it to the Senate floor (65 DEN A-16, 4/4/14).

The measure died when Congress adjourned at the end of 2014.

State Spill-Prevention Policies. With no EPA rule requiring spill-prevention action at aboveground chemical storage fatalities, and no federal statute requiring that states establish them, states are free it establish their own requirements but they have no obligation to do so.

Among six states with significant chemical industries examined by Bloomberg BNA reporters, half— Louisiana, New Jersey and New York—have spillprevention requirements that apply to aboveground chemical storage tanks statewide.

West Virginia requires spill-prevention plans for all aboveground chemical storage tanks close to public water supplies, less than half of the chemical ASTs in the state. The state had no spill-prevention requirements before the 2014 spill.

Texas has spill-prevention requirements for chemical ASTs in eight of its 254 counties. Illinois has no spill-prevention requirements for chemical ASTs.

Fire Marshal Authority Incomplete. State environmental agencies are one source of spill-prevention requirements. State fire marshals can be another source. The National Fire Protection Association's model code, adopted at least in part by most states, requires fire marshal spill-prevention inspections of ASTs holding flammable or explosive liquids.

Even if fully incorporated into state law or regulation, however, state fire marshal inspections only partially make up for the federal regulatory gap, because many hazardous substances are neither flammable nor explosive, Erik Olson, a senior attorney at the Natural Resources Defense Council, told Bloomberg BNA.

The authority of fire marshals to inspect aboveground chemical storage tanks varies widely among the states examined by Bloomberg BNA. In New York and New Jersey, fire marshals have ongoing authority to inspect aboveground chemical storage tank facilities, according to Bloomberg BNA interviews with the State Fire Marshal officials.

But state fire marshals in Illinois, Louisiana and West Virginia have no authority to inspect aboveground chemical storage tanks. In Texas, AST inspections can occur only at retail gas stations, Bloomberg BNA found.

Source Water Protection Shortfalls. As the 2014 spill in West Virginia showed, a major reason to prevent spills of chemicals from aboveground storage tank facilities, also known as liquid terminals, is to protect public water supplies.

Under the federal Emergency Planning and Community Right-to-Know Act, owners or operators of businesses that handle materials that could produce a public health or safety emergency are required to notify the state emergency management agency.

Under the act, state agencies are required to provide site-specific information to local emergency management committees so they can prepare for emergencies, Kevin Morley, security and preparedness manager for the American Water Works Association, told Bloomberg BNA.

Some 3,500 local emergency planning committees are supposed to plan accordingly with local public safety agencies but their performance varies widely, Morley said.

According to Peter Weaver, government affairs chief at International Liquid Terminals Association, owners and operators of aboveground storage tank facilities are providing states with product information, as EPCRA requires.

However, Weaver said the "back end" of the EPCRA process is broken, because the information is very often not used at the local level.

Under the EPCRA process, facilities with potentially hazardous materials must report them to the state. The state is then obligated to distribute the information to the appropriate local emergency planning committee, but that often does not happen, Weaver said.

Recordkeeping, Local Emergency Panel Problems. Morley said the EPCRA process is hobbled by major paperwork problems at the state level and local emergency management committees that range from very active to nonexistent.

Most states have yet to establish a digital process for businesses to report their hazardous product information to state emergency management boards, Morley said.

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the Safe Drinking Water Act but the EPA cannot

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EPA SPOKESMAN

That means the information comes in paper forms that are difficult to compile at the state level. It's also more difficult to put the information in a form that's useful for each local emergency management committee, Morley said.

The EPA cannot take over EPCRA information gathering and distribution, because the statute requires the chemical data be held by the states, Morley stated.

Meanwhile, water utilities do not have the resources or expertise to identify the locations of business operations that could harm local water supplies, Morley said.

Limits of the Safe Drinking Water Act. The EPA is taking steps to encourage state to improve source water protection since the Freedom Industries spill, an EPA spokesman told Bloomberg BNA, pointing to new initiatives by the Source Water Collaborative.

The Source Water Collaborative, formed in 2006, includes the EPA, National Association of Clean Water Agencies, which represents municipal-owned wastewater utilities; Association of Metropolitan Water Agencies, which represents drinking water utilities; and other groups and federal agencies.

After the Freedom industries spill, the EPA updated its Vulnerability Self-Assessment Tool for drinking water utilities.

In April 2014, then-EPA deputy Administrator Bob Perciasepe urged water utilities to update their sourcewater protection programs to be prepared to deal with future threats to supplies (69 DEN A-6, 4/10/14).

The EPA spokesman said Maine, Colorado and North Carolina have taken notable steps to improve source water protection.

States are obligated to protect source water under the Safe Drinking Water Act. But the spokesman said the EPA cannot require that states do more because the agency by 2003 had accepted every state source water protection plan.

The EPA is developing a Drinking Water Mapping Application for Protecting Source Waters (DWMAPS) tool to encourage protective actions, the spokesman said.

He said the mapping tool, which uses global information system (GIS) data, will help states, utilities and watershed groups identify potential sources of contamination.

Morley said DWMAPS will certainly help but added that states will need to take the lead, because many smaller water utilities lack the expertise and staffing needed to make use of the new information.

DWMAPS will identify potential source water threats near water bodies and indicate, based on water flows, how long it would take a contaminant to reach a water utility, Morley said.

Limits of ACC Responsible Care Program. According to the American Chemistry Council, the nation's major chemical manufactures use rigorous and comprehensive procedures to prevent spills at their facilities.

Under the ACC's Responsible Care Program, the chemical companies' distribution partners—some 180 Class 1 railroads, trucking companies, pipeline companies, bulk liquid storage companies and the like, do the same, said Dan Roczniak, senior director of the Responsible Care Program.

Partner companies must submit to triennial thirdparty audits of their headquarters and facilities to ensure that they have a structure and system in place to measure, manage and verify process safety. The companies must remedy any problems before they can be certified by the auditors, Roczniak said.

But the ACC does not see the audit results, and the Responsible Care program has never expelled a partner company for failure to meet its Responsible Care obligations, ACC spokeswoman Jenny Heumann said. Meanwhile, the 180 Responsible Care Program partners include only eight liquid terminal companies.

West Virginia: Spill-Prevention Mandate Narrowed. The Freedom Industries tank spill that caused a week-long ban on tap water use in Charleston, W.Va., led to the state Legislature in 2014 giving unanimous approval to a statute that, had it gone into effect, would have required spill-prevention plans and annual, spill-prevention inspections for every aboveground storage tank holding chemicals in the state, some 48,000 tanks.

Before the industry mandates of the 2014 legislation came into effect, however, the General Assembly in 2015 narrowed the spill-prevention plan mandate with the enactment of S.B. 423 (61 DEN A-10, 3/31/15).

Under the 2015 legislation, the most rigorous provisions now apply to ASTs holding more than 50,000 gallons of hazardous chemicals anywhere in the state, as well as all chemical ASTs in "zones of critical concern." That means all ASTs located five river-flow hours or less above a public water intake.

Tank owners or operators subject to the full regulation must have spill-prevention plans that prescribe a preventive maintenance program, monitoring and inspection procedures and employee training. The plans must be certified by a professional engineer or an individual certified to perform tank inspections by the American Petroleum Institute or the Steel Tank Institute and be recertified periodically.

The state Department of Environmental Protection must inspect those facilities once every three years.

Chemical ASTs more than five but less than 10 riverflow hours upriver from a public water intake are not subject to DEP spill-prevention inspections but are otherwise subject to the spill-prevention requirements.

In total, owners and operators of some 12,000 chemical ASTs must have spill-prevention, control and countermeasure plans, 36,000 fewer that under the 2014 stature.

But under 2015 legislation, the head of the Department of Environmental Protections can act to prevent spills from any aboveground chemical storage tank that pose an "imminent and substantial danger" to the environment or public health. ley Gillenwater told Bloomberg BNA. West Virginia's Office of the State Fire Marshal has no authority to inspect aboveground tanks holding chemicals, including tanks holding flammable chemicals, an office spokesman said.

utility that serves Charleston, DEP spokeswoman Kel-

Louisiana: Spill-Prevention Plans Mandatory. Owners and operators of aboveground chemical storage tank facilities in Louisiana must have spill-prevention and control plans, Louisiana Department of Environmental Quality spokesman Greg Langley told Bloomberg BNA.

The state Spill Prevention and Control (SPC) requirement applies to owners and operators of aboveground storage tanks containing any hazardous substance listed under the federal Comprehensive Environmental Response, Compensation, and Liability Act, the federal Clean Water Act, or in LDEQ's emergency notification regulation, Michael Bowman, an environmental attorney with the law firm Baldwin Haspel Burke & Mayer LLP, told Bloomberg BNA.

The EPA requires that most spill-prevention plans for petroleum product ASTs be certified by a professional engineer (PE). Louisiana's rule for chemical ASTs does not, Bowman said.

"That said, the SPC rule does require that the SPC plan be prepared in accordance with 'sound engineering practice,' which suggests that PE review is a good idea," Bowman said.

Periodic In-House Inspections Required. LDEQ requires that SPC plans include written procedures and schedules for periodic visual inspection of ASTs, which may be done by company staff. The agency also requires that the self-inspections be done according to facility SPC plans, Bowman explained.

Lousiana Administrative Code Section 33:IX.907 outlines details regarding the preparation and implementation of the spill control plan. The plans must:

■ include the name of the facility, operator, address and date of initial facility operation;

 describe the facility and indicate the nearest water body; and

■ list the identity, location and amount of substances stored at the facility.

SPC plans must be reviewed by the operator every five years.

Asked to comment on the SPC requirements, Guy Ward, environment, health and safety manager at Americas Styrenics LLC, said the company looks at its SPC plans annually. Adjustments to the SPC are a good idea if equipment is added or removed, Ward said.

The Louisiana Office of State Fire Marshal does not have safety inspection authority for aboveground storage tanks, an office spokeswoman told Bloomberg BNA.

AST Construction in Flood Zones. The biggest hole in LDEQ regulation of aboveground storage tanks is that it doesn't bar locating AST facilities in flood zones, Wilma Subra, president of environmental consulting firm Subra Co., told Bloomberg BNA.

While it is true that LDEQ regulations don't prohibit storage tanks in floodplains, localities have some authority to restrict them, Bowman said.

The Federal Emergency Management Agency maps flood zones in the state, and Louisiana law gives parishes authority to enact flood-protection ordinances. But the relationship between various parish ordinances and state law can be somewhat murky, Bowman said.

Illinois: No Spill-Prevention Plan Mandates. The Illinois Environmental Protection Agency does not require that owners and operators of aboveground storage tank facilities holding chemicals have spill-prevention plans, according to the agency.

IEPA's spill-prevention, control and countermeasure regulation applies only to underground chemical and petroleum storage tanks and aboveground storage tanks holding petroleum products and other oils.

The Illinois Office of the State Fire Marshal regulates all ASTs containing flammable or combustible liquids. Entities establishing ASTs that will hold flammable or combustible liquids must apply to the agency for a permit, a very detailed process.

The marshal's office also requires secondary spill containment for ASTs holding such liquids.

But the office does not require that AST owners or operators have spill-prevention plans.

Matthew Taksin, general counsel for the office, told Bloomberg BNA that ASTs in Illinois are rarely if ever inspected following the permitting process.

"We have generally found pretty good compliance,

particularly after a notice of violation."

Matthew Taksin, General Counsel for Illinois Office of the State Fire Marshal

Taksin added that the state's bulk storage regulations do not feature ongoing inspection requirements, and the state fire marshal's office does not have the manpower to conduct such reviews.

Inspections occur only if the agency receives a complaint about an existing tank. Taksin said such complaints generally come from a neighboring property owner or another agency that has reviewed the permitted entity's facility.

"We have generally found pretty good compliance, particularly after a notice of violation," he said. "People have been good about fixing whatever needs to be fixed."

Taksin said leaks and spills are referred to the IEPA, but such referrals are very rare. An IEPA spokeswoman could not remember any AST spills requiring agency intervention.

Illinois localities are allowed to subject ASTs to requirements beyond those established by the state fire marshal's office, according to a detailed summary of the office's policies for aboveground storage tanks.

New Jersey: Spill-Prevention Plans Mandatory. New Jersey's environmental regulations require spill-prevention, control and countermeasure plans at major

aboveground storage tank facilities—those holding 20,000 gallons of chemicals or more.

Meanwhile, aboveground storage of smaller quantities are subject to somewhat similar requirements under a welter of state and local mandates, New Jersey regulators, attorneys, industry leaders and environmental advocates told Bloomberg BNA.

Paul C. Dritsas, a partner in the environment and energy practice group at McCarter & English LLP in Newark, N.J., said New Jersey has "a robust set of environmental laws" and is "more activist than other states."

The primary spill-prevention requirements for aboveground chemical storage tanks in New Jersey is the Discharge Prevention Program, which operates under the authority of the New Jersey Spill Compensation and Control Act.

The program is administered by the New Jersey Department of Environmental Protection's Bureau of Release Prevention.

Stuart Lieberman, a founding shareholder of Lieberman & Blecher in Princeton, N.J., and a former deputy attorney general for New Jersey in the Environmental Protection Section, called the Spill Act, established in the 1970s, the "granddaddy of toxic regulation in New Jersey."

Chemical ASTs Regulated Since 1991. Chemical AST coverage under the Spill Act's Discharge Prevention Program took effect in 1991.

There are about 275 major AST facilities in New Jersey, according to the New Jersey Department of Environmental Protection (NJDEP). The number of aboveground storage tanks at each facility varies greatly, with some holding several hundred aboveground storage tanks and others holding one or two, NJDEP spokesman Larry Hajna told Bloomberg BNA.

Owners and operators of major facilities must prepare Discharge Prevention Containment and Countermeasure (DPCC) plan and a Discharge Cleanup and Removal (DCR) plan. The plan must be submitted for certification by a professional engineer and approval by NJDEP.

The plans must require periodic visual inspections and tank integrity testing, as well as high-level alarms and secondary containment. New plans are required every three years. In between, the facilities are subject to audits and inspections by NJDEP's Bureau of Release Prevention.

"It's very serious," Lieberman told Bloomberg BNA. "Your plan is really everything, because it describes how you're keeping everything safe, keeping it [toxic chemicals] out of the water, out of the soil."

While AST facilities storing less than 20,000 of chemicals are not subject to NJDEP's spill-prevention, containment and countermeasure mandates, Dritsas said they must report spills and take remedial action under other state laws.

Fire, Building Codes for Smaller Facilities. Large and smaller facilities are also subject to New Jersey's Uniform Fire Code and the statewide building code.

Under the building code, AST facilities cannot be built without numerous spill and release prevention features, William Kramer Jr., acting director of the New Jersey Division of Fire Safety and State Fire Marshal, told Bloomberg BNA.

Meanwhile, under New Jersey's fire code, aboveground storage tanks holding flammable or other products that pose public health or safety risks must be registered or permitted by the state, depending on the product stored. Kramer said local fire agencies must inspect registered and permitted facilities annually.

"It would be difficult to find another state that has oversight of everything, from birth to death," Kramer said.

Industry, Environmental Group Objections. New Jersey's numerous "redundant" and overlapping regulations can make compliance difficult for industries in the state, a factor that has led some companies to leave the state, said Anthony Russo, executive vice president for government affairs at the Commerce and Industry Association of New Jersey.

Russo told Bloomberg BNA that the majority of violations that facilities receive are "administrative." NJDEP inspectors should give a "grace period" before issuing a notice of violation, when there's only a paperwork problem, he said.

"We're not saying, 'Shield the bad actors.' "If a facility is doing real harm to the environment, the owner or operator should be fined, Russo said.

Jeff Tittel, director of the New Jersey Chapter of the Sierra Club, said the "biggest problem" with state regulation of aboveground storage tanks is the lack of clear siting requirements, other than banning the storage of hazardous substances in designated floodways. The tanks can be located in areas that are flooded by major surges, he said.

NJDEP's Hajna confirmed that New Jersey's Flood Hazard Area Control Act Rules only bar the placement, storage or processing of hazardous substances in floodways.

New York: Spill-Prevention Mandatory. Owners and operators of aboveground chemical storage tanks in New York state must have detailed spill-prevention plans, said Thomas Mailey, a spokesman for the state environmental agency.

The spill-prevention plan requirement applies to all aboveground ground storage tanks holding more than 185 gallons of any of some 1,000 hazardous substances.

The chemical bulk storage regulations (6 NYCRR 595-599), first imposed in 1988, require that AST facilities be registered with the state Department of Environmental Conservation (DEC), with registration including a record of what chemicals are being stored and how.

AST facility owners or operators must prepare and maintain a spill-prevention plan and comply with requirements for the safe storage and handling of hazardous substances. The plans must include daily inspection of aboveground storage tanks facilities for signs of leaks or spills, and more in-depth monthly inspections.

Still more comprehensive annual checks must include:

■ inspection for cracks, corrosion, maintenance problems and leak detection;

■ inspection of dikes and secondary containment systems; and

■ review of compliance with state regulations for storage of hazardous chemicals.

Owners of aboveground storage tanks with a capacity of more than 10,000 gallons must also have the tanks inspected and certified for structural soundness by a professional engineer. *State Compliance Inspections.* DEC conducts periodic facility inspections of AST facilities to ensure that the state's Chemical Bulk Storage regulations are being met, Mailey said.

Sean Dixon, a staff attorney at Riverkeeper, a New York environmental advocacy group, said enforcement is the key issue for aboveground chemical storage tank safety. He said there have been many small spills.

"You can have the world's best set of regulations" but if you don't inspect the sites, you will never know if the regulations are working, Dixon said. Riverkeeper is concerned about recent staff cuts at the DEC, particularly in the area of inspectors, he added.

The state Office of Fire Prevention and Control doesn't have chemical AST inspection jurisdiction, a spokeswoman told Bloomberg BNA.

On Sept. 30, New York established another policy to prevent spills from aboveground storage tanks. Under new final regulations by the New York State Department of Environmental Conservation, the agency will have the authority to stop the delivery of chemicals, as well as petroleum products, to bulk liquid storage facilities that are significantly out of compliance with the state's existing spill prevention regulations. The rule will also require that the operators of liquid terminal facilities undergo training within 30 days of receiving their operator's designation from the state (190 DEN A-5, 10/1/15).

Texas: Eight-County Spill-Prevention Mandate. Texas requires spill-prevention plans for chemical ASTs located in eight of the state's 254 counties, according to the Texas Commission on Environmental Quality.

Rainfall over those counties, located in south central Texas, feeds the Edwards Aquifer. Those counties are the only ones where spill-prevention plans are required for chemical ASTs, TCEQ spokeswoman Andrea Morrow told Bloomberg BNA.

As the groundwater source serving some 2 million users, including Austin, the state capital, the Edwards Aquifer is tapped for agricultural, industrial, domestic and recreational needs. Chemical AST spill-prevention and control plans are required for all permanent facilities in the eight-county area that store 500 gallons or more, under Title 30, Texas Administrative Code Chapter 213. Owners or operators of ASTs storing in excess of 10,000 pounds of a chemical anywhere in the state are required to file a chemical inventory report with the Texas Department of Health.

Flammable liquids storage is governed by Chapter 753 of The Texas Health and Safety Code. TCEQ has concurrent jurisdiction with the Office of State Fire Marshal, part of the Texas Department of Insurance (TDI), for inspection of initial installations and other administrative supervision of aboveground storage tanks.

Initial Inspections by Fire Departments. New aboveground storage tanks that will hold flammable or explosive liquids are subject to initial inspection, typically by state or local fire departments, Texas Fire Marshal office spokeswoman Rachel Moreno said.

The office of State Fire Marshal also has ongoing authority to inspect aboveground storage tanks at retail gas stations to prevent spills, but fire officials can perform spill-prevention inspections of other aboveground tanks holding flammable liquids only after citizen complaints, Moreno said.

ExxonMobil Chemical Co., a Texas-based subsidiary of the oil giant, would not comment on the Texas regulations.

But spokeswoman Margaret Ross said the company uses sound standards, procedures and management systems for facility design, construction and operation of aboveground storage tanks. Ross said that to operate the facilities "within established parameters and according to regulations," ExxonMobil ensures that effective procedures, structured inspection and maintenance programs, reliable equipment, and qualified personnel are in place to see that they are consistently followed.

Mechanical integrity programs are in place and stewarded to assure the testing, inspection, and maintenance of equipment, Ross said.

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