Center for Progressive Reform CPR
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July 26, 2022

Office of Land and Emergency Management
U.S. Environmental Protection Agency
1200 Pennsylvania Avenue, N.W.
Washington, DC 20460

Via Regulations.Gov

RE: Clean Water Act Hazardous Substance Worst Case Discharge Planning Regulations Notice of Request for Public Comment; Docket Number EPA-HQ-OLEM-2021-0585

Dear Acting Assistant Administrator Breen,

Thank you for the opportunity to comment on the proposed rule for Clean Water Act Hazardous Substance Discharge Planning Regulations (proposed March 28, 2022). The Center for Progressive Reform (CPR), is a non-profit research and educational organization that envisions a government that uses the full force of its power to curb climate change and ensure a sustainable environment, economic justice, and healthy workplaces and communities for all.

CPR's mission is to harness the power of law and public policy to create a responsive government, a healthy environment, and a just society. CPR operates with a network of more than 60 Member Scholars who are leaders in various legal academic fields, and a professional staff of policy analysts, communication experts, and others. We work together to advance the idea that government safeguards and other regulations are key to social justice and planetary health. Our website may be found at www.progressivereform.org and responses to the comments below may be sent to Katlyn Schmitt at kschmitt@progressivereform.org.

CPR works with frontline and overburdened communities across the country that depend on the U.S. Environmental Protection Agency (EPA) to protect them from harmful pollution. We commend EPA for proposing a rule that aims to strengthen spill response measures, however, we believe the rule could more rigorously respond to the worsening impacts of the climate crisis. Our analysis, detailed below, found that at least 11.6% of facilities in six states that regulate non-petroleum aboveground storage tanks (ASTs) are at risk of wildfire, flooding, hurricane storm surge, and coastal flooding. These and other risks of climate-driven natural disaster are growing, yielding more severe hazards to workers and communities living at the frontline of these facilities. Furthermore, while the rule may improve spill response measures during worst case discharges, without a complimentary spill *prevention* rulemaking, as required under the

Clean Water Act, regulated facilities – and frontline, overburdened communities – will still be at risk of hazardous substance spills from ASTs.[1]

I. EPA must strengthen response planning requirements for facilities vulnerable to worsening climate impacts

A. Non-petroleum aboveground storage tanks (ASTs) are in high-risk climate zones

As the effects of climate change intensify, so too will the risk of storage tank releases. Hurricanes and extreme weather, for example, can cause severe damage to tanks or facilities storing hazardous chemicals, and floodwaters can carry dislodged or damaged tanks and released materials into communities and waterways. A 2012 study of hazardous materials releases due to natural hazards (such as hurricanes, floods, tornados, earthquakes, etc.) found that storage tanks were the source of 11 percent of spills reported to the National Response Center between 1990 and 2008.[2] Storage tank releases were most often attributed to rain, hurricanes, and floods, and 30 percent of these releases resulted in evacuations.[3] A 2021 analysis by the Center for Progressive Reform of storage tank releases in Virginia found that in the 10 days following Hurricanes Isabel (2003), Irene (2011), and Matthew (2016) making landfall, the number of tank-related incidents in Virginia increased roughly eight-, five-, and two-fold, respectively, compared to the 10 days prior.[4]

According to the aforementioned 2012 study, the two most common causes of hurricane- and flood-induced releases were flotation of storage tanks, causing a rupture in the tank or associated piping, and overflow of containment.[5] The study also found that among all facility types and equipment, storage tanks released the largest volume of hazardous substances. As shown in Figure 1, storage tanks contributed to roughly 1,600,000 liters of chemicals released during natural hazard events (primarily floods and hurricanes) reported to the National Response Center between 1990 and 2008. The study concluded that, in light of the fact that hurricane-related releases increased fifteen-fold between 2005 and 2008, the "security of storage tanks (against hurricane damage) is an important area for improvement."[6] Finally, these findings are likely significant underestimates of the true extent of spills since the National Response Center and state pollution response programs rely on self-reported data.[7]

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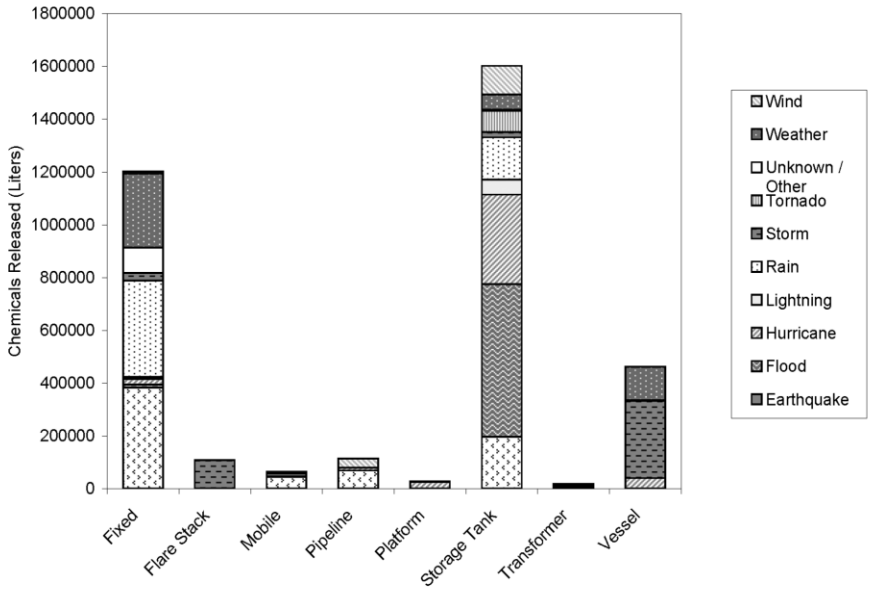
[1] Flores D, Minovi D, & Clark J. (2021). Tanks for Nothing: The Decades Long Failure to Protect the Public from Climate-Driven Chemical Spills. Center for Progressive Reform. Available at https://cpr-assets.s3.amazonaws.com/documents/tanks-for-nothing-ast-rpt.pdf.
[2] Sengul H, Santella N, Steinberg L. J., & Cruz, A. M. (2012). Analysis of Hazardous Material Releases Due to Natural Hazards in the United States. Disasters, 36(4);723-743.
[3] Id.
[4] Flores, 2021.
[5] Sengul, 2012.
[6] Id.
[7] Flores, 2021.

Figure 1: Volume of Chemicals Released by Facility/Equipment Type, 1990-2008[8]



Evidence suggests that climate hazards will also impact facilities under other federal regulatory regimes, such as the Risk Management Program (RMP). Many RMP facilities will likely be affected by this rulemaking. A report published by the Center for Progressive Reform, Union of Concerned Scientists, and Earthjustice in 2021 found that roughly one-third of facilities regulated under the RMP are exposed to risks of wildfire, storm surge, flooding, and sea level rise, which are increasing dramatically as the climate changes.[9] A 2022 analysis by the Government Accountability Office (GAO) yielded similar results, finding that roughly 31 percent of currently regulated RMP facilities are within areas with one or more natural hazards beyond flooding, and many more are a risk beyond these recognized hazard zones.[10] The GAO report also found that natural hazards and unusual weather events accounted for 5 percent of reported discharges between 2017 and 2022 alone.[11]

Analysis of Non-Petroleum ASTs in High Climate Risk Zones

Our analysis of six U.S. states (Delaware, Florida, Minnesota, New York, Pennsylvania, and South Dakota) found that, on average, 11.6 percent of facilities with non-petroleum ASTs (also referred to as non-oil ASTs) are at risk of wildfire, flooding, hurricane storm surge, and coastal flooding (Table 1).[12] Flooding and storm surge appear to be significant drivers of climate risk.

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[8] Id.

[9] Flores D, Kalman C, Mabson M, & Minovi D. (2021). Preventing "Double Disasters." Center for Progressive Reform, Earthjustice, and Union of Concerned Scientists. Available at https://progressivereform.org/our-work/energy-environment/preventing-double-disasters/.

[10] U.S. Government Accountability Office. (2022). Chemical Accident Prevention: EPA Should Ensure Regulated Facilities Consider Risks from Climate Change. Available at https://www.gao.gov/assets/gao-22-104494.pdf, p.13.

[11] Id.

[12] The geospatial layer for "High Climate Risk Zones" was developed by researchers at the Union of Concerned Scientists using publicly available data. The complete methodology and data sources can be

Based on our analysis, regulated facilities in Delaware and Florida face the greatest risk of harm, with 29.5 and 27.9 percent of facilities, respectively, with non-oil ASTs in high climate risk zones. The non-coastal states in our analysis appear to face fewer climate risks. In Minnesota, which had the largest number of non-oil ASTs and regulated facilities, only 0.5 percent of facilities are at risk. Our methodology is described in the Appendix to this comment.

These values are likely significant underestimates of the proportion of at-risk facilities due to limitations in publicly available data. For example, our analysis excluded roughly one thousand facilities due to missing or incomplete location data in state databases. In addition, state regulatory programs do not cover the full universe of chemicals stored in ASTs. We also do not have a complete picture of climate risks. For example, the flood data used in our analysis is from the Federal Emergency Management Agency's (FEMA) National Flood Hazard Layer database, which is outdated and does not cover all U.S. counties.[13] While our analysis helps characterize climate risks to facilities with non-petroleum ASTs, it also reveals how the paucity of data on ASTs at the state and federal level prevents regulators, operators, and members of the public from understanding the risks to public health and the environment – further affirming why spill response planning, and more importantly, spill prevention rules are critically needed.

Table 1: Facilities with Non-Oil ASTs in High Climate Risk Zones, State Comparison

State	Number of Regulated Facilities with Active Non-Oil ASTs	Number of Active Non-Oil ASTs	Number of Active Non-Oil ASTs in High Climate Risk Zones	Number of Facilities with Non-Oil ASTs in High Climate Risk Zones	Proportion of Facilities with Non-Oil ASTs in High Climate Risk Zones from Total Regulated Facilities
DE	420	1,431	587	124	29.5%
FL	1,159	4,187	1,080	324	27.9%
MA*	-	835	-	-	-
MN	1,569	9,859	86	8	0.5%
NY**	1,275	-	-	162	12.7%
PA	1,059	5,472	160	35	3.3%
SD	139	396	0	0	0%

found in https://progressivereform.org/our-work/energy-environment/preventing-double-disasters/, pg. 20-22.

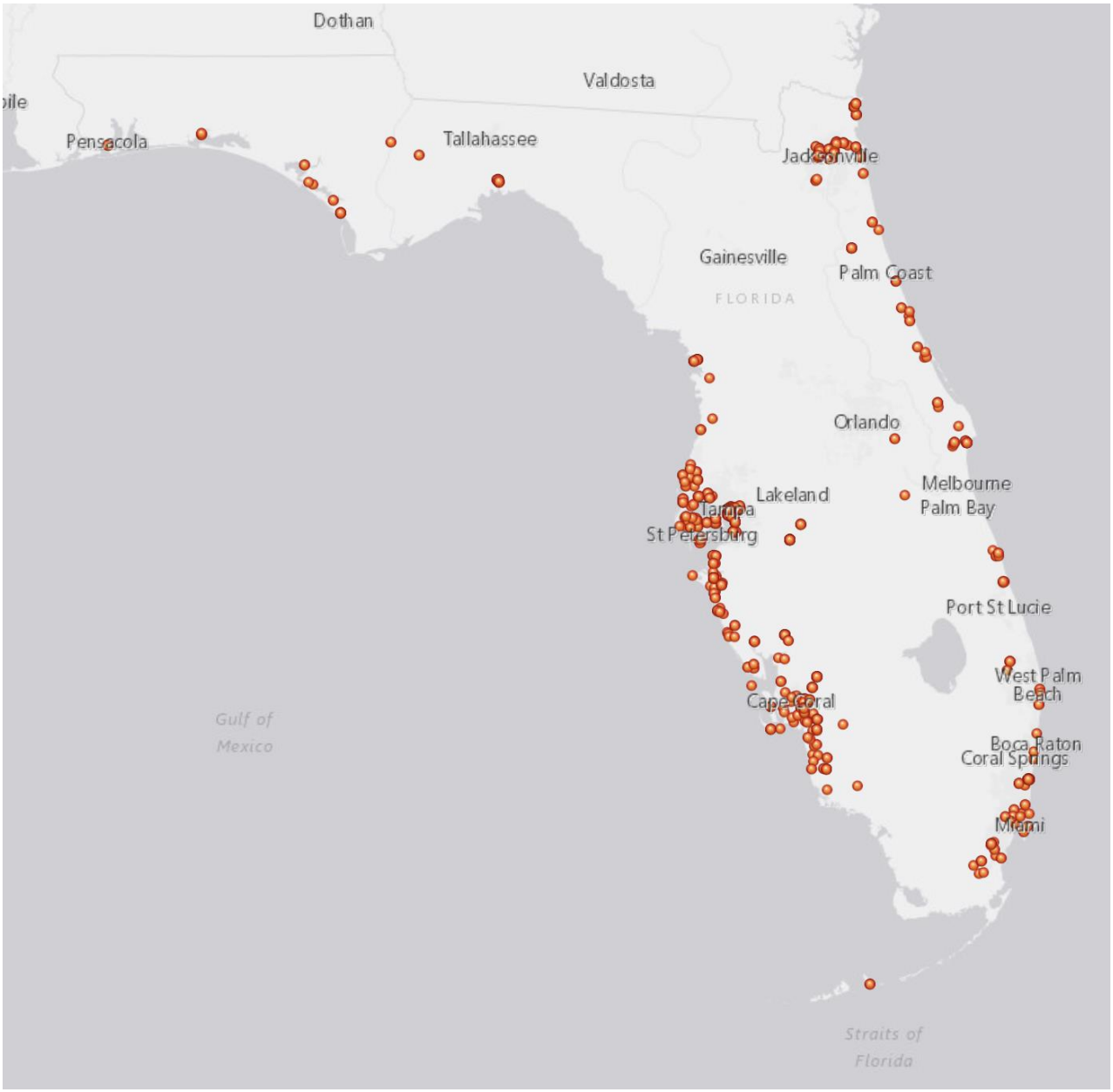
[13] Frank T. Studies Sound Alarm on 'Badly Out-of-Date' FEMA Flood Maps. Scientific American. February 27, 2020. Available at https://www.scientificamerican.com/article/studies-sound-alarm-on-badly-out-of-date-fema-flood-maps/; Association of State Floodplain Managers, Inc. (2020). Flood Mapping for the Nation: A Cost Analysis for Completing and Maintaining the Nation's NFIP Flood Map Inventory. Available at https://asfpm-library.s3-us-west-2.amazonaws.com/FSC/MapNation/ASFPM_MaptheNation_Report_2020.pdf.

Total	5,621 (excluding MA)	22,180 (excluding NY)	1,913 (excluding MA and NY)	653 (excluding MA)	11.6% (weighted average, excluding MA)

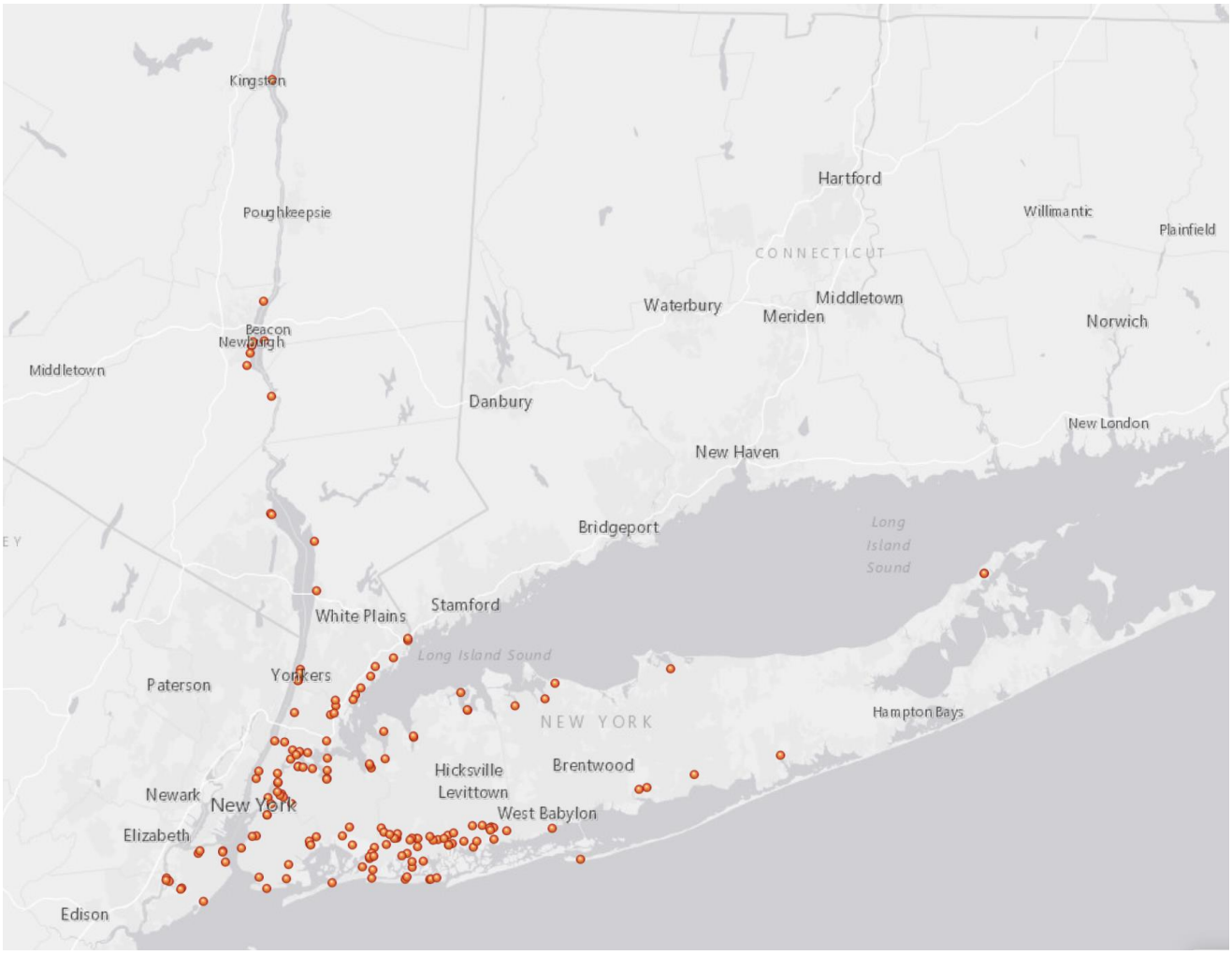
*The Massachusetts Department of Fire Services declined to provide information on the contents and location of aboveground storage tanks in the state, but shared the number of active tanks in their aboveground storage tank database as of March 29, 2022.

**The New York State Department of Environmental Conservation provided the location of *facilities* regulated under the Chemical Bulk Storage program, but declined to provide *tank* locations and contents, therefore information on individual tanks is excluded.

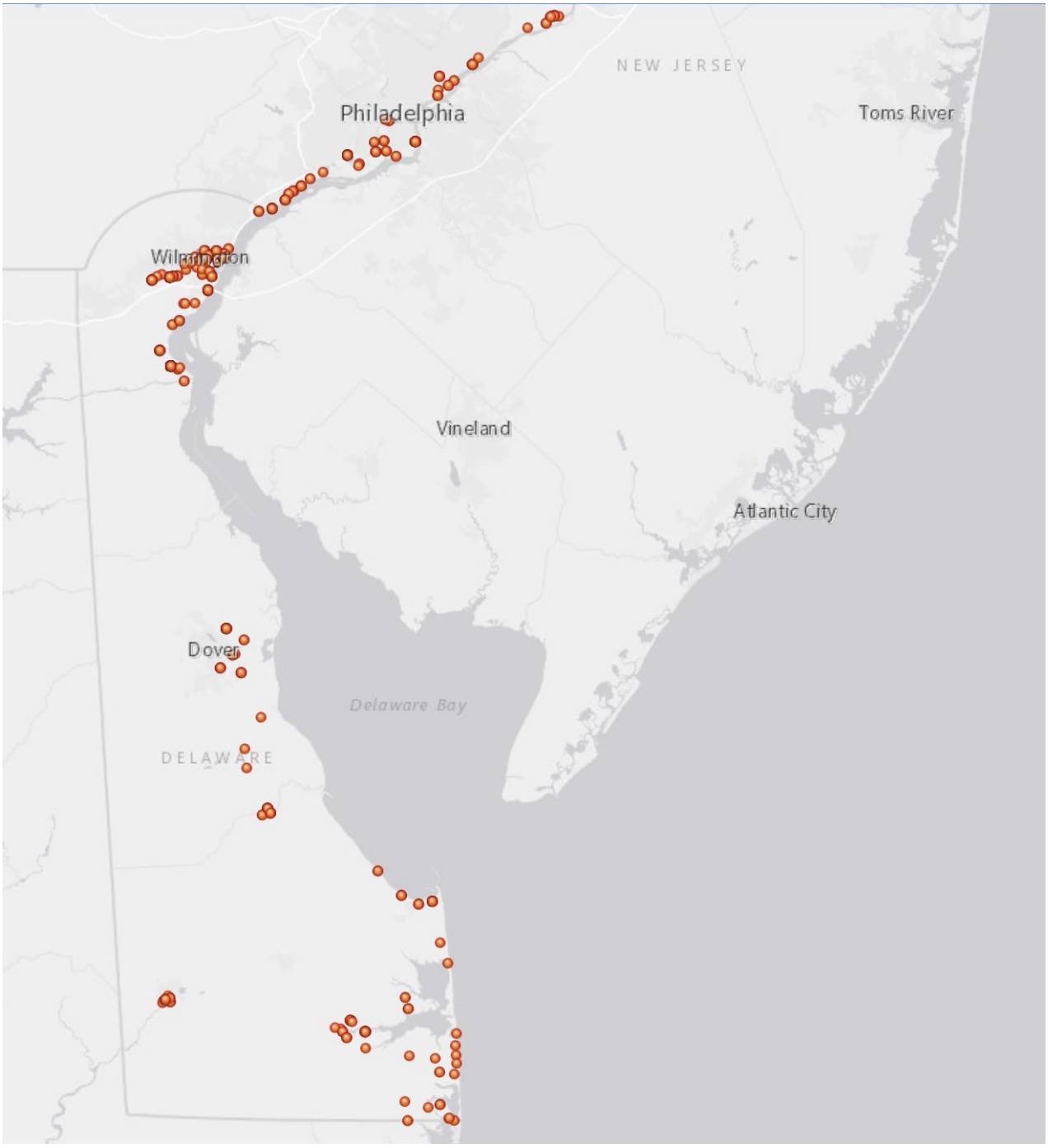
Maps of High Climate Risk Facilities with Non-Oil ASTs



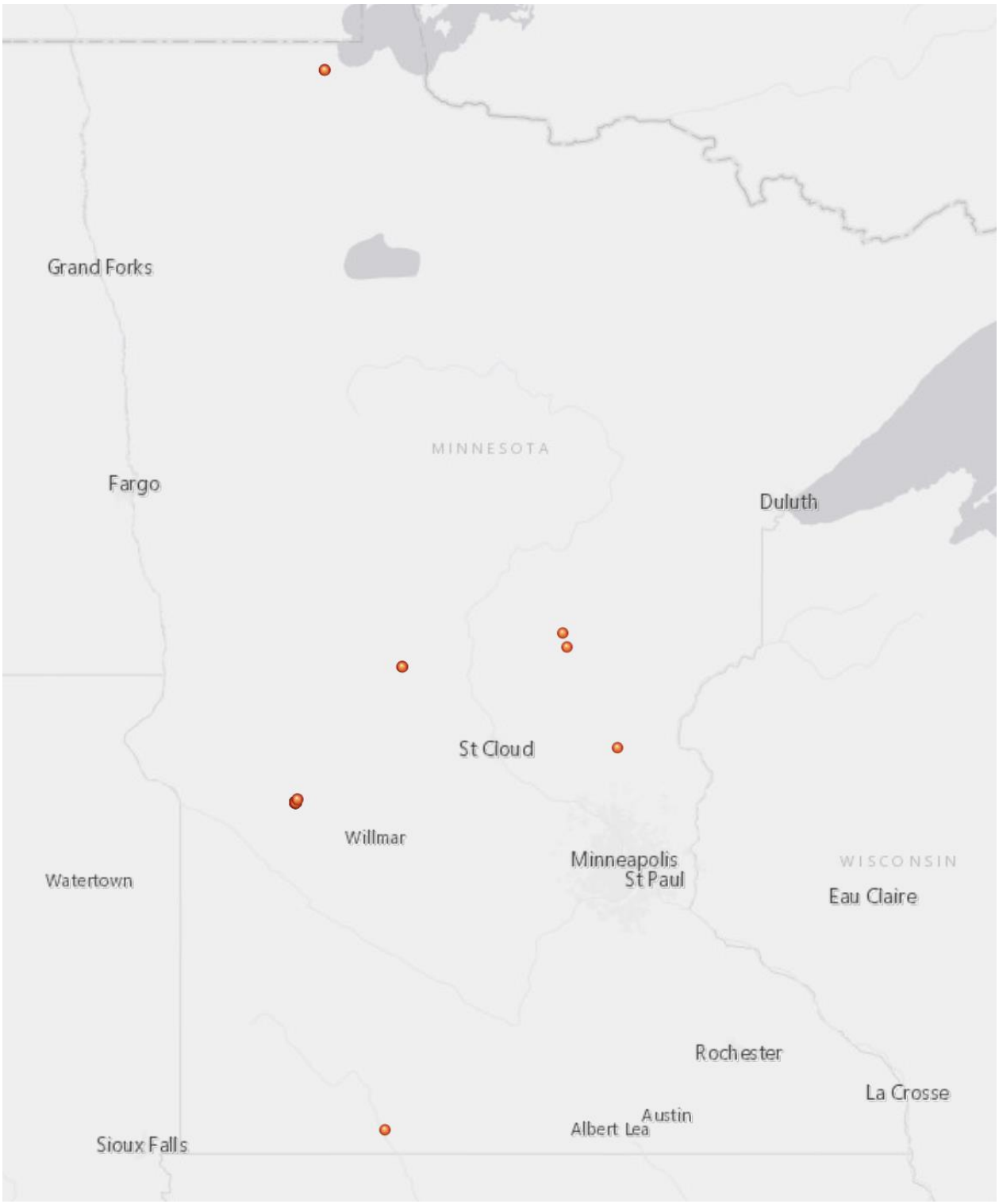
Facilities with Non-Oil ASTs in High Climate Risk Zones in Florida



Facilities with Non-Oil ASTs in High Climate Risk Zones in New York



Facilities with Non-Oil ASTs in High Climate Risk Zones in Delaware and Pennsylvania



Facilities with Non-Oil ASTs in High Climate Risk Zones in Minnesota

B. Adverse weather and climate-related provisions in state regulation of ASTs

Nine states currently regulate aboveground storage tanks with respect to planning for natural hazards and adverse weather risks. For example, three states limit siting of ASTs in storm surge or flood prone areas. California[14] constrains siting of ASTs both inside and outside of the 25-year, 24-hour storm surge zone and Louisiana[15] generally prohibits siting of ASTs in any area considered to have any potential flood risk, regardless of size. New York[16] restricts siting of ASTs close to "sensitive receptors" (within 500 horizontal feet of streams, wells, aquifers, wetland, lake/pond, estuary, or storm drain), and is applicable to all ASTs, regardless of size. Furthermore, Massachusetts[17] mandates more stringent building and design codes for ASTs within flood prone or at-risk zones, and New Hampshire[18] requires site assessments to include any special flood hazard zone within a close proximity.

More ambitiously, New Jersey[19] requires individual spill contingency prevention and control plans which include: existence and proximity to flood prone areas, flood risk assessments, and proof of flood protection for those ASTs within federally recognized tidal floodplains regardless of size. New Jersey's regulations not only require discharge prevention but also an acknowledgement and evaluation of damage caused by discharge carried off by floodwaters, thereby expanding the area covered by worst case spill assessments. Beyond flooding, Vermont[20] requires contingency plans and designs to demonstrate protections against snow and ice. Additional information on state-level AST spill planning is provided in Table 2 in the Appendix of this comment.

Of the 10 states that regulate ASTs containing hazardous substances and other chemicals, only four (Delaware, Michigan, New Jersey, and Pennsylvania) require spill prevention plans beyond the Spill Prevention, Control, and Countermeasure (SPCC) rule, and only *three* (Massachusetts, New Jersey, and New York) contain flood protections going beyond those included in National

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[14] California's "Aboveground Petroleum Storage Act" (HSC Chapter 6.670), https://leginfo.legislature.ca.gov/faces/codes_displayText.xhtml?lawCode=HSC&division=20.&title=&part=&chapter=6.67.&article.

[15] Louisiana Administrative Code (LAC) Title 33, Part IX, Subpart 1. Water Pollution Control, Chapter 9 − Spill Prevention and Control Plans, https://www.deq.louisiana.gov/assets/docs/Water/33v09-201102.pdf.

[16] New York Environmental Conservation Law, Article 17, Title 10 − Control of the Bulk Storage of Petroleum. Oil Spill Prevention, Control and Compensation Act (Article 12 of Navigation Law), https://www.dec.ny.gov/chemical/2650.html.

[17] 527 Code of Massachusetts Regulations (CMR) 9.00 − Board of Fire Prevention Regulations − Tanks and Containers, https://www.mass.gov/files/documents/2017/10/11/527cmr1.pdf.

[18] New Hampshire Code of Administrative Rules (N.H. Code Admin. R.) Chapter Env−Or 307.03 − Plans and Specifications, https://casetext.com/regulation/new-hampshire-administrative-code/title-env-department-of-environmental-services/subtitle-env-or-oil-and-remediation-programs/chapter-env-or-300-aboveground-petroleum-storage-facilities/part-env-or-307-installation-requirements/section-env-or-30703-plans-and-specifications.

[19] New Jersey Administrative Code, Title 7, Chapter 1E, Subchapter 4 - Plans, https://casetext.com/regulation/new-jersey-administrative-code/title-7-environmental-protection/chapter-1e-discharges-of-petroleum-and-other-hazardous-substances/subchapter-4-plans.

[20] Vermont Aboveground Storage Tank Rules, Subchapters 1−3, https://dec.vermont.gov/sites/dec/files/wmp/UST/Aboveground_Storage_Tank_Rules_8-15-2017.pdf.

Fire Protection Association (NFPA) codes. Research by the Center for Progressive Reform has shown that ASTs containing hazardous substances are under-regulated at both the state and federal levels to the detriment of communities and the environment.[21] Due to the limited scope of current regulations across a small number of states, federal action is needed, and the proposed rule would be instrumental in closing regulatory gaps.

C. EPA should expand the substantial harm criteria to include facilities in storm surge zones and floodplains

As climate change continues to alter weather conditions, facilities that may not be within the half-mile distance threshold to navigable waters or conveyances may still be at risk of flood hazards. As demonstrated in our aforementioned analysis, many ASTs that are not adjacent to navigable waters may still be at risk of discharges catalyzed by storm surge, floods, and sea-level rise. To ensure regulated facilities prepare for future risks, and in accordance with states that require response planning for facilities in flood prone areas, we recommend that EPA expand the substantial harm criteria to include facilities that are located in storm surge zones and floodplains.

According to National Storm Surge Hazard Maps developed by the National Oceanic and Atmospheric Administration (NOAA),[22] coastal regions in the Southeast and Gulf Coast beyond the one-half mile threshold are at risk of flooding with only a Category 1 hurricane. One study found that nearly 10 percent of Risk Management Plan and Toxic Release Inventory facilities, and 30 percent of crude oil and gas extraction facilities in storm storm surge areas in Louisiana, Mississippi, and Alabama experienced hazardous material releases during Hurricane Katrina in 2005 – many of which were well beyond a half mile from navigable waters.[23] Half of the releases in storm surge zones were of liquid quantities exceeding 1,000 gallons. Hazardous material releases were attributed to flaring events during startup and shutdown (26 percent), other equipment damage (26 percent), and damage to chemical storage tanks (22 percent).[24]

Importantly, the authors concluded that the majority of severe damage, including "worst releases" were the result of flooding and storm surge.[25] For example, a BP gas plant in Moss Point, Mississippi released nearly 1,500 pounds of nitrogen oxide into the surrounding area due to damage sustained during the hurricane. This facility's outermost boundary sits just outside of the one-half mile threshold from navigable waters, with the bulk of its storage tanks sitting well over a mile away (nearly 2,500 meters away). Additionally, the Chemours DeLisle plant in Mississippi sustained heavy damage, potentially threatening the surrounding community.[26]

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[21] Flores, 2021.
[22] National Storm Surge Risk Maps - Version 3. National Oceanic and Atmospheric Administration. Available at https://www.nhc.noaa.gov/nationalsurge/.
[23] Santella N, Steinberg L. J., & Sengul H. (2010). Petroleum and Hazardous Material Releases from Industrial Facilities Associated with Hurricane Katrina. Risk Analysis, 30(4);635-649.
[24] Id.
[25] Id.
[26] Harris S. P. & Wilson D. O. (2007). Mitigating Hurricane Storm Surge Perils at the DeLisle Plant. Process Safety Progress, 27;177-184.

While the outermost boundary of the DeLisle plant is within the one-half mile threshold, many of its tanks sit almost a full mile away from navigable waters (roughly 1,400 meters away). While the one-half mile threshold would cover facilities which pose substantive risk to the environment and surrounding communities, the current regulatory language does not adequately capture the fullest extent of at-risk facilities.

Beyond coastal communities, flooding in Midwestern states like Iowa leaves facilities well beyond the current distance threshold vulnerable to damage and potential discharges carried by floodwaters.[27] Based on the existing and accelerating risk of storm surge beyond the half-mile threshold of navigable waters during hurricanes and other extreme weather events, we recommend the substantial harm criteria for proximity to navigable waters be expanded to include facilities that are located within Category 3 (or above) hurricane storm surge zones and 500-year floodplains.

II. EPA should require facilities in environmental justice communities to submit Facility Response Plans (FRPs)

EPA has requested feedback on ways to prioritize the needs of communities with environmental justice concerns in the proposed rulemaking. We recommend that the agency require FRPs from facilities in communities with a high environmental justice concern. EPA should consider using screening tools such as EPA EJSCREEN or The White House Council of Environmental Quality's Climate and Economic Justice Screening Tool (CEJST) to identify these communities.[28] While neither tool characterizes cumulative burdens in their current forms, they are the most comprehensive national tools available and allow users to easily search for facility addresses. We defer to environmental justice communities and partners on the most appropriate tool and criteria for identifying priority communities. In sum, we propose that EPA add a substantial harm criterion requiring an FRP from any facility that falls within or within one mile of a priority census tract identified in a federal screening tool.

We thank you for the opportunity to provide these comments.

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Jake Moore

David Flores

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Center for Progressive Reform

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[27] Iowa Draft Flood Hazards Maps. Iowa Flood Center. Available at https://ifis.iowafloodcenter.org/ifis/newmaps/hazard/.

[28] Climate and Economic Justice Screening Tool (beta). The White House Council on Environmental Quality. Available at https://screeningtool.geoplatform.gov/en/#3/33.47/-97.5.

III. Appendix

Methodology

Data on non-petroleum aboveground storage tanks were collected through publicly available databases and Freedom of Information Act requests to state agencies between February through March 2022. We have provided links to the public databases below.

State	AST Database Link
Delaware	https://data.delaware.gov/Energy-and-Environment/Aboveground-Storage-Tanks/cgmv-7ssg
Florida	https://prodlamp.dep.state.fl.us/www_stcm/publicreports/FacilityLocTank
Minnesota	https://files.pca.state.mn.us/pub/file_requests/datasets/tanks/
New York	https://data.ny.gov/Energy-Environment/Bulk-Storage-Facilities-in-New-York-State/pteg-c78n
Pennsylvania	https://www.dep.pa.gov/Business/Land/Tanks/Registration/Pages/Regulated-Tank-List.aspx
South Dakota	https://apps.sd.gov/NR42InteractiveMap

We removed tanks/facilities that were listed as temporarily out of use, inactive, moved, removed, closed, abandoned, and empty. Active, unregulated, and expired permit tanks were included. Tanks/facilities with incomplete or unlisted addresses or coordinates were removed. We also removed tanks/facilities that listed petroleum or oil substances in the tank contents field. As a result, our analysis was of in-use aboveground tanks and facilities storing non-petroleum substances.

The High Climate Risk Zones geospatial layer was developed by researchers at the Union of Concerned Scientists. The methods, limitations, and data sources can be found on pages 20-22 of the following report: https://progressivereform.org/our-work/energy-environment/preventing-double-disasters/

Table 2: State-Level AST Spill Contingency Planning

State	AST Spill Planning	Additional Specifications
Alabama	SPCC provisions must be Certified by a state Registered Engineer	Restricts AST siting within 500 feet of a community water supply, or 100 feet of a potable water supply whether or not it is associated with navigable waters.
California	SPCC plans which are then overseen by state agencies in addition to the EPA	Constrains siting of ASTs both inside and outside of the 25-year, 24-hour storm surge zone.
Delaware	Requires the creation of additional contingency plans (RPP) beyond SPCC	N/A
Florida	SPCC is only applicable plan	N/A
Indiana	Requires the creation of additional contingency plans beyond SPCC	N/A
Kansas	SPCC is only applicable plan	N/A
Louisiana	SPCC is only applicable plan	Generally prohibits siting of ASTs in any area prone to flooding.
Maine	SPCC plans which are then overseen by state agencies in addition to the EPA	Limits siting of ASTs in any protected wellhead area, not only areas adjacent to navigable waters.
Massachusetts	SPCC is only applicable plan	Mandates more stringent building and design codes for those ASTs within flood prone or at-risk zone.
Michigan	Requires the creation of additional contingency plans (PIPP) beyond SPCC	N/A
Minnesota	SPCC is only applicable plan	N/A
New Hampshire	SPCC provisions must be Certified by a state Registered Engineer	Requires site assessments to include any special flood hazard zone within close proximity.
New Jersey	Requires the creation of additional contingency plans (DPCC) beyond SPCC	Requires disclosure of existence and proximity to flood prone areas, flood risk assessments, and proof of flood protection for those ASTs within federally recognized tidal floodplains. Requires evaluation of damage caused by discharge carried off by floodwaters.

New York	SPCC is only applicable plan	Restricts siting of ASTs close to “sensitive receptors” (within 500 horizontal feet of streams, wells, aquifers, wetland, lake/pond, estuary, or storm drain).
Oklahoma	SPCC provisions must be Certified by a state Registered Engineer	N/A
Oregon	SPCC plans which are then overseen by state agencies in addition to the EPA	N/A
Pennsylvania	SPCC plans which are then overseen by state agencies in addition to the EPA	N/A
Rhode Island	Requires the creation of additional contingency plans beyond SPCC	N/A
South Dakota	SPCC is only applicable plan	N/A
Vermont	SPCC is only applicable plan	AST owners must prove protections against not just flooding and flood risks, but snow and ice.
Virginia	Requires the creation of additional contingency plans (ODCP) beyond SPCC	N/A
Washington	Requires the creation of additional contingency plans beyond SPCC	N/A
West Virginia	SPCC is only applicable plan	N/A

Note: Highlighted boxes indicate states which have comprehensive regulations for hazardous substance ASTs.