CHEMICAL STORAGE IN THE COMMONWEALTH
An Evaluation of Existing Statutory and Regulatory Tools

A report to the State Water Commission, the Chairman of the Senate Committee on Agriculture, Conservation and Natural Resources, and the Chairman of the House Committee on Agriculture, Chesapeake and Natural Resources

Virginia Department of Environmental Quality
Virginia Department of Emergency Management
Virginia Department of Health

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Acronyms

ACP	Area Contingency Plan
AST	Aboveground storage tank
BACT	Best Available Control Technology
CAS	Chemical Abstracts Service
CERCLA	Comprehensive Environmental Response, Compensation & Liability Act
CFATS	Chemical Facility Anti-Terrorism Standards
CWA	Clean Water Act
DEQ	Department of Environmental Quality
DHCD	Department of Housing and Community Development
DHS	Department of Homeland Security
EHS	Extremely Hazardous Substances
EPA	Environmental Protection Agency
EPCRA	Emergency Planning and Community Right-to-Know Act
EO	Executive Order
FIFRA	Federal Insecticide, Fungicide, and Rodenticide Act
FOSC	Federal On-Scene Coordinator
HS	Hazardous substance
LEPC	Local Emergency Planning Committee
MACT	Maximum Achievable Control Technology
NASAP	National Association of State AST Programs
NCP	National Contingency Plan
NRC	National Response Center
NRF	National Response Framework
NRT	National Response Team
NSPS	New Source Performance Standards
ODW	Office of Drinking Water
OPA	Oil Pollution Act of 1990
OSC	On-Scene Coordinator
PSM	Process Safety Management
RCRA	Resource Conservation and Recovery Act
RMP	Risk Management Program
RRT	Regional Response Team
SARA	Superfund Amendments and Reauthorization Act of 1986
SWDA	Safe Drinking Water Act
SERC	State Emergency Response Commission
SFPC	Virginia Statewide Fire Prevention Code
SPCC	Spill Prevention Control & Countermeasures
SWCL	State Water Control Law
VSWMR	Virginia Solid Waste Management Regulations
TPQ	Threshold Planning Quantity
TSCA	Toxic Substances Control Act
USBC	Uniform Statewide Building Code

VDEM	Virginia Department of Emergency Management
VDH	Virginia Department of Health
VHWMR	Virginia Hazardous Waste Management Regulations
VOC	Volatile Organic Compound
WAC	Waterworks Advisory Committee

Executive Summary

The Director of the Department of Environmental Quality, the State Health Commissioner, and the State Coordinator of Emergency Management were directed to evaluate existing statutory and regulatory tools regarding chemical storage in the Commonwealth of Virginia pursuant to Chapter 241 of the 2015 Acts of Assembly (herein also referred to as "Senate Bill 811").

The Virginia Department of Environmental Quality, Virginia Department of Health, and Virginia Department of Emergency Management coordinated in the drafting of this evaluation. The evaluation focuses primarily on existing state and federal laws and regulations. This includes state regulations that address various elements of chemical storage, state programmatic frameworks to identify areas of oversight addressing chemical storage, and federal programs which address chemical storage including those that may not be implemented at the state level. Other state programs that have some relationship to regulating chemical storage were included as well as regulatory programs from other states that have undertaken chemical storage specific regulatory action.

Additional considerations including federal regulatory action underway regarding chemical storage and management of information particularly in light of the Virginia Freedom of Information Act are included.

The evaluation also highlights distinctions between reporting quantities for the purposes of Senate Bill 811 and identifies potential gaps in the existing framework and recommendations should further legislative action be considered.

INTRODUCTION

This report is being submitted by the Department of Environmental Quality (DEQ), Virginia Department of Health (VDH) and Virginia Department of Emergency Management (VDEM) pursuant to:

> **CHAPTER 241**
>
> *An Act to examine approaches to ensure that chemical storage is conducted in a manner that protects human health and the environment.*
>
> [S 811]
> Approved March 17, 2015
>
> Be it enacted by the General Assembly of Virginia:
>
> **1.** *§ 1. The Director of the Department of Environmental Quality, the State Health Commissioner, and the State Coordinator of Emergency Management shall evaluate existing statutory and regulatory tools for ensuring that chemical storage in the Commonwealth is conducted in a manner that is protective of human health, public safety, drinking water resources, and the environment of the Commonwealth. This evaluation may include (i) an examination of Virginia's existing programs to protect drinking water resources from contamination from chemical storage; (ii) identification of any existing gaps or inadequacy in drinking water protections related to chemical storage; (iii) identification of any existing gaps or inadequacy in chemical storage standards; (iv) any recommendations on chemical storage in the Commonwealth to address protection of human health, public safety, drinking water resources, the environment, and the economy of the Commonwealth; and (v) other policies and procedures that the Director of the Department of Environmental Quality, the State Health Commissioner, and the State Coordinator of Emergency Management determine may enhance the protection of Virginia's drinking water resources and the safe storage of chemicals in Virginia.*

The Director of the Department of Environmental Quality, the State Health Commissioner, and the State Coordinator of Emergency Management shall report the findings of the evaluation to the State Water Commission, the Chairman of the Senate Committee on Agriculture, Conservation and Natural Resources, and the Chairman of the House Committee on Agriculture, Chesapeake and Natural Resources no later than December 1, 2016.

For purposes of this section, "chemical storage" means those chemicals identified by the Superfund Amendments and Reauthorization Act (SARA) and the Emergency Planning and Community Right-To-Know Act (EPCRA) that provides for hazardous chemical storage reporting requirements in Section 312 of the SARA and are stored in excess of 10,000 gallons.

2. That the provisions of this act shall expire on January 1, 2017.

A patchwork of federal and state laws and regulations aim to protect water resources from chemical releases. These environmental regulations generally target different, often overlapping sets of chemicals and differ in the extent to which they impose potential burdens on regulated entities and in the degree of protection afforded to human health and the environment. Evaluation of the existing programs in Virginia to protect drinking water resources from contamination from chemical storage requires a review of both federal and state environmental statutes and regulations.

When the major environmental statutes were enacted, Congress employed various regulatory strategies to achieve their goals. The federal environmental statutes generally define what activities, products, pollutants or entities can be regulated. Regulatory targets may be categorized as products, pollutants, industrial facilities, government agencies, individuals, and land uses. The extent to which regulations control a regulatory target may be based on: health or environmental-related terms; technology capabilities; or benefit-cost balancing. The resulting types of regulations include: design standards or technology specifications; performance standards or emission limits; ambient or health-based standards; product-based bans or use limitations; or information disclosure requirements.

Federal environmental programs were designed by Congress to be administered at the state and local levels wherever possible. State and local governments are expected to assume primary responsibility for the implementation of national programs, while EPA is to provide national environmental leadership, develop general program frameworks, establish standards as required by the legislation, conduct research and national information collection, assist states in preparing to assume responsibility for program operations, provide technical support to states in maintaining high quality programs and ensure national compliance with environmental quality standards.[1] With few exceptions, the federal government has delegated authority to Virginia to adopt and implement the federal environmental regulations. In some cases, Virginia has expanded programs to be protective of human health and the environment.

Senate Bill 811 focuses on those chemicals identified by SARA and EPCRA in quantities greater than 10,000 gallons. This report considers the chemicals covered by this definition and provides an overview of a comprehensive set of federal and state statutes and regulations which apply to the storage, release, and disposal of chemicals. This comprehensive review of statutes and regulations illustrates the patchwork approach to protecting human health, public safety, drinking water resources, and the environment.

[1] *See* U.S. Environmental Protection Agency, *EPA POLICY CONCERNING DELEGATION TO STATE AND LOCAL GOVERNMENTS* (1984).

This report also looks at how other states have regulated chemical storage.

This report concludes by identifying regulatory and knowledge gaps and making recommendations if additional legislative initiatives are undertaken.

REGULATION OF TOXIC SUBSTANCES

In the 1970s, public concern over toxic substances prompted enactment of a series of federal statutes that focused on protection of public health, including the statutes discussed below.

Toxic Substances Control Act

The Toxic Substances Control Act[2] (TSCA) authorizes the EPA to screen existing and new chemicals used in manufacturing and commerce to identify potentially dangerous products or uses that should be subject to federal control.[3] TSCA gives the EPA three major responsibilities: to gather information on new and existing chemicals being manufactured in the United States; to collect and produce data for use in assessing the risks of chemicals; and to properly control those chemicals deemed to present an "unreasonable risk of injury to health or the environment" through rule making that includes restrictions, labeling, and bans.

On June 22, 2016, President Obama signed the Frank R. Lautenberg Chemical Safety for the 21st Century Act, which updates the Toxic Substances Control Act. The new law includes:

- Mandatory requirement for EPA to evaluate existing chemicals with clear and enforceable deadlines;
- New risk-based safety standard;
- Increased public transparency for chemical information; and
- Consistent source of funding for EPA to carry out the responsibilities under the new law.[4]

EPA has begun to undertake efforts to address these updates including release of an implementation plan.

Federal Insecticide, Fungicide, and Rodenticide Act

The Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA) establishes a basic framework for pesticide regulation. FIFRA requires EPA to regulate the sale and use of pesticides through registration

[2] 15 U.S.C. 2601 *et seq.* (1976).
[3] Linda. Jo-Schierow, *The Toxic Substances Control Act (TSCA): A Summary of the Act and Its Major Requirements* (CRS Report No. RL31905) (Washington D.C.: Congressional Research Service, 2013), https://www.fas.org/sgp/crs/misc/RL31905.pdf.
[4] "The Frank R. Lautenburg Chemical Safety for the 21st Century Act," U.S. Environmental Protection Agency, last updated October 11, 2016, https://www.epa.gov/assessing-and-managing-chemicals-under-tsca/frank-r-lautenberg-chemical-safety-21st-century-act.

and labeling. Pesticides are broadly defined in FIFRA Section 2(u) as chemicals and other products used to kill, repel, or control pests.

FIFRA Section 26 gives primary enforcement authority for pesticide use under FIFRA to states that have adequate enforcement procedures, laws, and regulations, including inspection authority. [5] Virginia enacted the Pesticide Control Law[6] which authorizes the Virginia Board of Agriculture and Consumer Services to promulgate regulations that apply to both businesses and pesticides.

Safe Drinking Water Act

The Safe Drinking Water Act[7] (SDWA) regulates the quality of the water delivered by public water systems to consumers. The SDWA applies to any "public water system," which is defined as "a system for the provision to the public of water for human consumption through pipes or other constructed conveyances," so long as the system has at least fifteen service connections or regularly serves at least twenty-five persons. The SDWA does not apply to water systems that do not have collection and treatment facilities, obtain all of their water from another entity that is subject to the standards, is not an interstate carrier, and do not sell water to any person or entity; this includes private wells regulated under the Virginia Private Well Construction Act. The SDWA requires the EPA Administrator to establish standards for certain contaminants to protect public health.

Section 1413 of the SDWA authorizes states to assume primary oversight and enforcement responsibility (primacy) for public water systems (referred to as "waterworks" in Virginia). Virginia has been granted primacy by adopting regulations no less stringent than the National Primary Drinking Water Regulations. Virginia enacted the Virginia Public Water Supplies Law[8] which authorizes the State Board of Health to promulgate regulations.

Virginia Public Water Supplies Law

The Virginia Public Water Supplies Law[9]establishes that the State Board of Health shall have general supervision and control over all water supplies and waterworks in the Commonwealth with regard to the bacteriological, chemical, radiological, and physical quality of waters furnished for human consumption. Under this law, the State Board of Health is authorized to adopt regulations which govern water supplies and waterworks in order to protect public health and promote public welfare. These regulations may include, without limitation:

1. Requirements and procedures for the issuance of permits required by the Public Water Supplies Law;
2. Minimum health and aesthetic standards for pure water;

[5]David M. Bearden et. al., *Environmental Laws: Summaries of Major Statutes Administered by the Environmental Protection Agency* (CRS Report No. RL30798) (Washington D.C.: Congressional Research Service, 2013), https://www.fas.org/sgp/crs/misc/RL30798.pdf.
[6] Va. Code § 3.2-3900 *et seq.*
[7] 42 U.S.C. § 300f *et seq.* (1974).
[8] Va. Code § 32.1-167 *et seq.*
[9] Va. Code § 32.1-167 *et seq.*

3. Minimum standards for the quality of water which may be taken into a waterworks;
4. Criteria for the siting, design, and construction of water supplies and waterworks;
5. Requirements for inspections, examinations, and testing of raw or finished water;
6. A requirement that owners submit (i) regular samples of water for bacteriological, chemical, radiological, physical, or other tests or (ii) the results of such tests from such laboratory as may be acceptable to the State Health Commissioner;
7. Requirements for record keeping and reporting;
8. Methodology for determining the waterworks operation fee authorized by § 32.1-171.1 of the Code of Virginia;
9. Requirements and criteria for the development and maintenance of an emergency management plan for each community public water supply for the provision of pure water during any extended power outage; and
10. Such other provisions as may be necessary to guarantee a supply of pure water.

Under § 32.1-167 of the Code of Virginia, pure water is defined as "water fit for human consumption that is (i) sanitary and normally free of minerals, organic substances, and toxic agents in excess of reasonable amounts and (ii) adequate in quantity and quality for the minimum health requirements of the persons served." In addition to authorizing the promulgation of regulations, the Public Water Supplies Law also addresses operation permits, technical assistance, waterworks operation fees, the Water Supply Assistance Grant fund, bonding, emergency and special orders, and penalties. As currently written, the Public Water Supplies Law does not address "chemical storage" as defined by Chapter 241 of the 2015 Acts of Assembly. The law, however, does authorize the State Board of Health to adopt regulatory provisions necessary to guarantee a supply of water that is normally free of toxic substances in excess of reasonable amounts.

Virginia Waterworks Regulations

In accordance with § 32.1-170 of the Code of Virginia, the State Board of Health promulgated the Virginia Waterworks Regulations[10] to protect public health and promote public welfare. In general, the Waterworks Regulations:

1. Ensure that all water supplies destined for public consumption be pure water, as defined by § 32.1-167;
2. Guide the State Health Commissioner in his/her determination of whether a permit for a public water supply or waterworks should be issued; and
3. Assist the owner or his/her authorized engineer in the preparation of an application, plans, specifications, reports and other data.

The regulations are administered by the Virginia Department of Health's (VDH) Office of Drinking Water (ODW) on behalf of the State Board of Health and the State Health Commissioner. In addition, a Waterworks Advisory Committee (WAC) appointed by the State Health Commissioner provides input and recommendations to VDH regarding policies and procedures of the drinking water program.

[10] 12VAC25-590-10 *et seq.*

The Waterworks Regulations are organized into three parts: Part I consists of general regulation provisions (e.g., definitions, procedures), Part II is comprised of operational requirements (e.g., sampling frequencies, drinking water quality requirements, cross connection control, backflow prevention) for regulated waterworks, and Part III is the manual of practice for waterworks design. As currently written, the Waterworks Regulations do not include provisions pertaining to "chemical storage" as defined by Chapter 241 of the 2015 Acts of Assembly.

Virginia Source Water Assessment Program

Surface water (streams, rivers, and lakes) or groundwater (underground aquifers) can serve as sources of drinking water, referred to as source water. Source water provides water for public water systems and individual private drinking water wells. Water utilities treat most water used for public drinking water supplies. Therefore, protecting source water from contamination can reduce treatment costs, and other economic impacts deriving from water availability issues (e.g. business closings and healthcare costs as a result of exposures to contaminated water).

Source water assessments provide water utilities, community governments, and others with information needed to protect drinking water sources. The 1996 amendments to the SDWA required each state, including Virginia, to develop and implement a Source Water Assessment Program. The main program elements include the following steps:

1. Delineate the source water assessment area. Delineation shows the most likely area from which drinking water supplies may be impacted by contamination events.
2. Inventory, to the extent practicable, known and potential sources of contamination. The inventory compiles several databases in a list of sites that could pose risk of contamination to drinking water supplies.
3. Determine the susceptibility of the public water system (waterworks) to contaminant sources or activities within the source water protection area. Determining the susceptibility of the public water system (waterworks) to inventoried threats relates the nature and severity of the threat to the likelihood of source water contamination.
4. Make the results of the source water assessment(s) available to the public. Effective programs ensure that the public has information necessary to help prevent contamination.

The Virginia Department of Health, Office of Drinking Water heavily relies on Geographic Information System (GIS) technology to complete Source Water Assessments. More specifically, the Office of Drinking Water compiles several third-party databases. These external resources include, but are not limited to the following datasets:

1. Airports;
2. Boat ramps;
3. Conservation lands;
4. Geophysical information;
5. Golf courses;
6. Hospitals;

7. Hydrogeologic soil groups;
8. Impaired streams/waterbodies;
9. Industrial sites;
10. Land use;
11. Landfills;
12. Marinas;
13. Mine operations;
14. Petroleum tank release investigations sites;
15. Petroleum/Natural Gas pipelines;
16. Rails;
17. Resource Conservation and Recovery Act sites;
18. Roads;
19. Superfund sites;
20. Tire piles;
21. Underground injection well locations;
22. Wastewater discharge permitted sites; and
23. Wetlands.

Before new drinking water sources are approved for use, the Office of Drinking Water conducts a preliminary source water assessment. The information is subsequently provided to water utility owners for their use, most notably for the voluntary development and implementation of Source Water Protection Plans (e.g., Watershed Management Plans, Wellhead Protection Plans). To date, approximately 25% of community water system owners in the Commonwealth have developed Source Water Protection Plans. The continued implementation of these plans further protects the public health of approximately 4,461,000 Virginians.

Water utility owners implementing Source Water Protection frequently ask for Office of Drinking Water assistance in identifying the location and content of chemical storage tanks. The Office of Drinking Water's GIS system does not include "chemical storage" information as defined in Chapter 241 of the 2015 Acts of Assembly. The availability of "chemical storage" information throughout the Commonwealth would further strengthen the Office of Drinking Water's Source Water Assessment Program. For example, the Office of Drinking Water's list of known and potential sources of contamination could be expanded to include the previously unknown "chemical storage" facilities. This 'new' information could then be provided to water utility owners for their use in developing new or revised source water protection plans.

Virginia Private Well Construction Act

The Virginia Private Well Construction Act, § 32.1-176.1 *et seq.* of the Code of Virginia, provides the Virginia Department of Health with the authority to enact requirements for the construction and location of private wells to protect aquifers as groundwater resources. Under this law (§ 32.1-174), the State Board of Health is authorized to adopt regulations pertaining to the location and construction of private wells in the Commonwealth. These regulations shall include minimum storage capacity and yield requirements for residential drinking water wells.

As currently written, the Private Well Construction Act does not address "chemical storage" as defined by Chapter 241 of the 2015 Acts of Assembly. The law, however, does require VDH to disseminate information on confirmed oil releases and discharges, contained in DEQ's monthly report prepared pursuant to § 62.1-15:4.1, to the local health departments. The local health departments are subsequently required to make the reports available for public inspection. Upon the request of any person whose private well is located in an area where an oil release or discharge has been confirmed in the reports prepared by DEQ, VDH must also test the private well water supply for the presence of oil to determine whether there is risk to public health.

Virginia Private Well Regulations

In accordance with §§ 32.1-12 and 32.1-176.4 of the Code of Virginia, the State Board of Health promulgated the Virginia Private Well Regulations[11] in order to protect public health and ensure that groundwater resources are not adversely affected by the construction and location of private wells. In general, the Private Well Regulations:

1. Ensure that all private wells are located, constructed and maintained in a manner which does not adversely affect ground water resources, or the public welfare, safety and health;
2. Guide the State Health Commissioner in his/her determination of whether a permit for construction of a private well should be issued or denied;
3. Guide the owner or his/her agent in the requirements necessary to secure a permit for construction of a private well; and
4. Guide the owner or his/her agent in the requirements necessary to secure an inspection statement following construction.

As currently written, the regulations do not include provisions pertaining to "chemical storage" as defined by Chapter 241 of the 2015 Acts of Assembly. The regulations, however, do specify minimum separation distances from potential sources of contamination, such as drainfields, underground storage tanks, barnyards, and hog lots, for private drinking water wells.

[11] 12VAC25-630-10 *et seq.*

The Private Well Regulations are administered by the local health departments with the assistance of the VDH Office of Environmental Health Services on behalf of the State Board of Health and the State Health Commissioner.

Emergency Planning and Community Right-to-Know Act

The Emergency Planning and Community Right-to-Know Act (EPCRA)[12] requires certain facility owner/operators to complete a toxic chemical inventory form (Tier II Form) to report the storage of toxic chemicals in quantities that exceed established threshold quantities during the preceding calendar year. The EPA established reporting thresholds of 10,000 pounds for Comprehensive Environmental Response, Compensation & Liability Act (CERCLA) hazardous substances and 500 pounds for extremely hazardous substances (EHS) or the threshold planning quantity (TPQ).

WATER POLLUTION CONTROL

Clean Water Act

Under the Clean Water Act[13] (CWA) federal jurisdiction is broad, particularly regarding establishment of national standards or effluent limitations. The EPA issues regulations containing the BPT (Best Practicable Control Technology Currently Available) and BAT (Best Available Technology Economically Achievable) effluent standards applicable to categories of industrial sources (such as iron and steel manufacturing, organic chemical manufacturing, petroleum refining, and others). Certain responsibilities are delegated to the states such as adopting water quality standards, which include designated use or uses for water bodies and criteria to support the designated uses by setting acceptable upper limits on pollutants in the waterbody. The CWA bans all discharges of pollutants from point sources unless a permit has been obtained. This act, like other environmental laws, embodies a philosophy of federal-state partnership in which the federal government sets the agenda and standards for pollution abatement, while states carry out day-to-day activities of implementation and enforcement.[14] The Virginia Department of Environmental Quality is responsible for administering the CWA and the State Water Control Law.

Oil Pollution Act

The Oil Pollution Act[15] (OPA)

> streamlined and strengthened EPA's ability to prevent and respond to catastrophic oil spills. A trust fund financed by a tax on oil is available to clean up spills when the

[12] 42 U.S.C. § 11001 (1974).
[13] 33 USC §1251 *et seq*. (1972).
[14] David M. Bearden et. al., *Environmental Laws: Summaries of Major Statutes Administered by the Environmental Protection Agency* (CRS Report No. RL30798) (Washington D.C.: Congressional Research Service, 2013), https://www.fas.org/sgp/crs/misc/RL30798.pdf.
[15] 33 U.S.C. § 2701 (1990).

responsible party is incapable or unwilling to do so. The OPA requires oil storage facilities and vessels to submit to the federal government plans detailing how they will respond to large discharges. EPA has published regulations for aboveground storage facilities; the Coast Guard has done so for oil tankers. The OPA also requires the development of Area Contingency Plans to prepare and plan for oil spill response on a regional scale.[16]

EPA's oil spill prevention program includes the Spill Prevention, Control, and Countermeasure (SPCC) and the Facility Response Plan (FRP) rules. The SPCC rules require facilities that store more than 1,320 gallons of oil (which includes animal fats and vegetable oils) to develop and implement a SPCC Plan designed to prevent oil spills from leaving those facilities. Plan requirements include a description of containment, drainage control, and diversionary structures; liquid storage areas, container materials, and secondary containment; drainage for raw material storage areas; and controls for other site features that could produce runoff. SPCC plans also address issues such as preventative maintenance, facility security, and training. Plans must be reviewed and certified by a registered professional engineer.

The FRP rule requires certain facilities that could reasonably be expected to cause "substantial harm" to the environment by discharging oil into or on navigable waters to submit a response plan and prepare to respond to a worst case oil discharge or threat of a discharge.

WASTE MANAGEMENT AND POLLUTION PREVENTION

Comprehensive Environmental Response, Compensation, and Liability Act

The Comprehensive Environmental Response, Compensation, and Liability Act of 1980[17] (CERCLA) authorizes "the federal government to clean up contaminated sites in the United States and to make the 'potentially responsible parties' connected to those sites financially liable for the cleanup costs. CERCLA created the Superfund program to carry out these authorities. EPA administers the program. Subsequent amendments to CERCLA also authorized EPA to administer a separate grant program to support the cleanup of abandoned or idled "brownfields" properties to encourage their redevelopment.[18]

Resource Conservation and Recovery Act

The Resource Conservation and Recovery Act[19] (RCRA) defines solid and hazardous waste; authorizes EPA to set standards for facilities that generate or manage hazardous waste under Subtitle C of the act; establishes a permit program for hazardous waste treatment, storage, and disposal facilities; and authorizes EPA to set criteria for disposal facilities that accept municipal solid waste.

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[16] "Summary of the Oil Pollution Act," U.S. Environmental Protection Agency, last updated on May 25, 2016. https://www.epa.gov/laws-regulations/summary-oil-pollution-act.
[17] 42 U.S.C § 9601 (1980).
[18] David M. Bearden et. al., *Environmental Laws: Summaries of Major Statutes Administered by the Environmental Protection Agency* (CRS Report No. RL30798) (Washington D.C.: Congressional Research Service, 2013), https://www.fas.org/sgp/crs/misc/RL30798.pdf.
[19] 42 U.S.C. § 6901 (1976).

Through the 1984 RCRA amendments and the 1986 Superfund Amendments and Reauthorization Act (SARA), Congress established a leak prevention, detection, and cleanup program for underground storage tanks (USTs) under Subtitle I of the act.

Virginia Hazardous Waste Management Program

The Virginia Hazardous Waste Management Regulations[20] (VHWMR) closely follow the RCRA Subtitle C program for the management of hazardous wastes. The objective of the VHWMR, and the RCRA Subtitle C program is to ensure that hazardous waste is handled in a manner that protects human health and the environment. The regulations identify the criteria to define which solid wastes are hazardous and then establish various requirements for the three categories of hazardous waste handlers: generators, transporters, and treatment, storage and disposal facilities.

Virginia has adopted by reference the requirements for hazardous waste tank systems but replaced certain compliance deadlines and added requirements regarding reports submitted in the event of tank leaks and spills.[21] In addition, owners and operators of hazardous waste treatment, storage, and disposal facilities that use tanks to store or treat hazardous waste must comply with the state's hazardous waste permitting certification requirements and obtain a permit for such activities. As part of the permit application requirements, the permittee is required to pay a state permit application and permit certification fees.

The VHWMRs do not apply to commercial chemical products or hazardous substances unless these materials are discarded by being disposed of, burned, incinerated and/or recycled in certain ways and the material meets the definition of a hazardous waste.[22]

Virginia Solid Waste Management Program

The Virginia Solid Waste Management Regulations[23] (VSWMR) establish standards and procedures pertaining to the management of solid wastes by providing the requirements for siting, design, construction, operation, maintenance, closure, and post-closure care of solid waste management facilities in the Commonwealth.

The VSWMR defines solid waste as any material that is discarded.[24] The storage of commercial chemical products and other materials are not subject to the requirements of the VSWMRs unless they are discarded. The definition of discarded also includes abandoned, so if stored chemicals are abandoned, they become solid waste and subject to the VSWMR, and if the solid waste meets the definition of a hazardous waste, the chemicals are subject to the VHWMR. All solid wastes, unless otherwise exempt, are required to be managed and disposed of at facilities permitted under the VSWMR.

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[20] 9VAC20-60 *et seq*.
[21] 9VAC20-60-264-265 (incorporating by reference 40 C.F.R. §§ 264-265).
[22] 9VAC20-60-261 (incorporating by reference 40 C.F.R. § 261.4).
[23] 9VAC20-81 *et seq*.
[24] 9VAC20-81-95 (incorporating by reference 40 C.F.R. § 261.2)

A release from a chemical storage unit onto the land constitutes disposal, which is not allowed without a permit. A release of non-hazardous chemicals needs to be recovered as much as possible and contaminated soils and equipment need to be removed for treatment and proper disposal at a VSWMR permitted facility. Cleanup of releases of hazardous chemicals should be conducted in accordance with the VHWMR and VSWMR.

Underground Storage Tank Program

In 1987, Virginia General Assembly established Articles 9 and 10 of the State Water Control Law, [25] which give the State Water Control Board and DEQ general supervision of underground storage tanks (USTs), set financial responsibility requirements, and establish the Virginia Underground Petroleum Storage Tank Fund (State Cleanup Fund). The technical requirements for USTs are set forth in regulation as "Underground Storage Tanks: Technical Standards and Corrective Action Requirements."[26]

An UST is generally defined as an underground manmade structure (10% or more beneath the ground) used to contain an accumulation of regulated substances. Regulated substance has been defined as: 1) a substance that, when released into the environment, may present substantial danger to the public health, welfare, or the environment; 2) any substance defined in § 101(14) of CERCLA of 1980 (42 USC § 9601 et seq.), not including hazardous waste; or 3) petroleum, any blend of hydrocarbons derived from crude oil petroleum, and petroleum-based substances.

Unlike the aboveground storage tank (AST) program, the UST regulation does cover storage of hazardous substances in underground storage tanks. Currently, there are 22 nonpetroleum USTs being regulated by the UST program (out of some 18,000 total active USTs). Releases from USTs are reportable and are addressed through corrective action program requirements.

Facility and Aboveground Storage Tank Program

Under authority provided by Article 11 of the State Water Control Law,[27] the DEQ administers the Virginia Facility and Aboveground Storage Tank Regulations,[28] which apply to individual ASTs with an aboveground storage capacity greater than 660 gallons of oil. Oil is defined as petroleum and petroleum byproducts, fuel oil, lubricating oils, sludge, oil refuse, oil mixed with other wastes, crude oils, and all other liquid hydrocarbons. The regulations establish requirements for registration, pollution prevention, recordkeeping, leak detection monitoring, discharge contingency planning, and closure. The AST regulations also contain a number of exclusions, including but not limited to tanks regulated by certain federal and state statutes and regulations, tanks in residential use, tanks associated with oil or gas production, process tanks and equipment tanks. The storage of non-petroleum chemicals in an AST is exempted from the AST regulations.

[25] Sections 62.1-44.34:8-12
[26] 9VAC25-580 *et seq*.
[27] Virginia Code § 62.1-44.34:14 *et seq.*
[28] 9VAC25-91 *et seq.*

The AST regulations were last revised on November 1, 2015. The AST regulations were revised primarily to incorporate new performance standards for certain aboveground storage tanks located in the City of Fairfax as mandated by the 2011 General Assembly.[29] Other changes align Virginia's regulatory requirements with federal requirements and current industry standards.

CLEAN AIR ACT

The Clean Air Act[30] (CAA) authorizes EPA to set mobile source limits, ambient air quality standards, hazardous air pollutant emission standards, standards for new pollution sources, and significant deterioration requirements; to identify areas that do not attain federal ambient air quality standards set under the act; to administer a cap-and-trade program to reduce acid rain; and to phase out substances that deplete the Earth's stratospheric ozone layer.

While the act authorizes EPA to set national ambient air quality standards (NAAQS), the states are responsible for establishing procedures to attain and maintain the standards. Under Section 110 of the CAA, the states adopt plans, known as State Implementation Plans (SIPs), and submit them to EPA to ensure that they are adequate to meet statutory requirements. The Virginia Department of Environmental Quality is responsible for ensuring that Virginia meets its federal obligations under the Clean Air Act as well as for carrying out the mandates of the State Air Pollution Control Law.

Virginia Air Pollution Control Program

The Virginia Air Pollution Control Board promulgates the Virginia Air Pollution Control Regulations.[31] These regulations implement State Air Pollution Control Law and address stationary sources, such as industrial facilities and other fixed-emission sources; mobile sources, such as vehicle emissions; and regulations to ensure that certain projects conform to federal requirements. Pursuant to the regulations, storage tanks greater than 40,000 gallons of Volatile Organic Compounds (VOCs) would be required to have a permit that would contain Best Available Control Technology (BACT) standards. BACT is a pollution control standard used to control a specific pollutant to a specified limit and is mandated by the federal Clean Air Act. When a BACT is determined, factors such as energy consumption, total source emission, regional environmental impact, and economic costs are taken into account.

There also are federal air regulations, New Source Performance Standards (NSPS) and Maximum Achievable Control Technology (MACT) Standards that may apply to chemical storage tanks. Section 112(r), Accidental Release Prevention/Risk Management Plan Rule was added as part of the Clean Air Act Amendments of 1990. This section requires companies to develop risk managements plans if they store over a specified threshold of hazardous air pollutants. These plans are submitted to EPA and must be reviewed every five years. Elements of the plan must include a hazardous assessment that details the potential effects of an accidental release, an account of any accidental release over the last five years, an evaluation of worst-case and alternative accidental release scenarios, as well as monitoring, recordkeeping and training requirements.

[29] Chapter 884, Virginia General Assembly, (2011).
[30] 42 U.S.C. 7401 *et seq.* (1970).
[31] 9VAC5-10 *et seq.*

Chemical storage tanks less than 40,000 gallons are exempted from permitting requirements.

CHEMICAL SECURITY

In 2013, President Obama issued Executive Order (EO) 13650 "Improving Chemical Facility Safety and Security."

The focus of EO 13650 is to reduce risks associated with hazardous chemical incidents to owners and operators, workers, and communities by enhancing the safety and security of chemical facilities. A Federal Interagency Working Group led by representatives from the Department of Homeland Security (DHS), the Occupational Safety and Health Administration (OSHA), and the EPA, in coordination with the Department of Justice (DOJ), the Bureau of Alcohol, Tobacco, and Firearms (ATF), the Department of Transportation (DOT), and the Department of Agriculture (USDA) oversees chemical facility safety and security. Through the analysis of the current operating environment, existing regulatory programs and stakeholder feedback, a consolidated Federal Action Plan was created to minimize risk through five action areas:

- Strengthening community planning and preparedness;
- Enhancing Federal operational coordination;
- Improving data management;
- Modernizing policies and regulations; and
- Incorporating stakeholder feedback and developing best practices.

EO 13650 also seeks to increase coordination between OSHA, EPA and DHS on administration of three programs described below.[32]

Process Safety Management

OSHA has issued the Process Safety Management of Highly Hazardous Chemicals standard[33] which contains requirements for the management of hazards associated with processes using highly hazardous chemicals.

Process safety management (PSM) is addressed in specific standards for the general and construction industries. OSHA's standards emphasize the management of hazards associated with highly hazardous chemicals and establishe a comprehensive management program that integrates technologies, procedures, and management practices.[34]

[32] "Actions to Improve Chemical Facility Safety and Security-A Shared Commitment," U.S. Department of Labor, https://www.osha.gov/chemicalexecutiveorder/.
[33] 29 C.F.R. 1910.199.
[34] "Process Safety Management," U.S. Department of Labor, https://www.osha.gov/SLTC/processsafetymanagement/.

Accidental Release Program/Risk Management Plan

When Congress passed the Clean Air Act Amendments of 1990, Section 112r required EPA to publish regulations and guidance for chemical accident prevention at facilities using substances that posed the greatest risk of harm from accidental releases. These regulations were built upon existing industry codes and standards and require companies of all sizes that use certain listed regulated flammable and toxic substances to develop a Risk Management Program, which includes a:

- Hazard assessment that details the potential effects of an accidental release, an accident history of the last five years, and an evaluation of worst-case and alternative accidental releases scenarios;
- Prevention program that includes safety precautions and maintenance, monitoring, and employee training measures; and
- Emergency response program that spells out emergency health care, employee training measures and procedures for informing the public and response agencies (e.g., the fire department) should an accident occur.[35]

Chemical Facility Anti-Terrorism Standards

The Chemical Facility Anti-Terrorism Standards (CFATS) program identifies and regulates high-risk chemical facilities to ensure they have security measures in place to reduce the risks associated with these chemicals.[36]

> Initially authorized by Congress in 2007, the program uses a dynamic multi-tiered risk assessment process and requires facilities identified as high-risk to meet and maintain performance-based security standards appropriate to the facilities and the risks they pose. DHS chemical security inspectors work in all 50 states to help ensure facilities have security measures in place to meet CFATS requirements.
>
> On December 18, 2014, the President signed into law the Protecting and Securing Chemical Facilities from Terrorist Attacks Act of 2014, which recodifies and reauthorizes the CFATS program for four years.[37]

VIRGINIA BUILDING AND FIRE CODES

The Board of Housing and Community Development, a state policy board, promulgates regulations related to housing, community development, building safety, and fire prevention. These regulations

[35] "Clean Air Act Section 112(r): Accidental Release Prevention/Risk Management Plan Rule," U.S. Environmental Protection Agency, https://www.epa.gov/sites/production/files/2013-10/documents/caa112_rmp_factsheet.pdf.
[36] "Chemical Facility Anti-Terrorism Standards," U.S. Department of Homeland Security, last published July 20, 2016, https://www.dhs.gov/chemical-facility-anti-terrorism-standards.
[37] "Chemical Facility Anti-Terrorism Standards," U.S. Department of Homeland Security, last published July 20, 2016, https://www.dhs.gov/chemical-facility-anti-terrorism-standards.

include, but are not limited to, the Virginia Uniform Statewide Building Code[38] (USBC) and Statewide Fire Prevention Code (SFPC). The USBC contains the building regulations that must be complied with when constructing a new building, structure, or an addition to an existing building. The USBC "must also be used when maintaining or repairing an existing building or renovating or changing the use of a building or structure."[39] The SFPC "contains the regulations which must be complied with for the protection of life and property from the hazards of fire and explosion."[40] The technical requirements of the SFPC are based on nationally recognized model codes and standards.

The USBC and the SFPC are enforced by local government building and fire officials. The USBC has standards for the construction of new storage tanks to ensure compliance with design and alteration requirements in the building code, and where a locality has adopted the property maintenance code, maintenance issues of existing storage tanks. The USBC does not regulate the contents of storage tanks, although it does specifically address above ground liquid fertilizer storage tanks.

The SFPC has standards for operational aspects of storage tanks, such as the transfer of liquids and for the maintenance of tanks.

SPILL RESPONSE AND PLANNING

The National Oil and Hazardous Substances Pollution Contingency Plan, often referred to as the National Contingency Plan (NCP), establishes the procedures for federal response to oil and chemical spills. The scope of the NCP encompasses discharges of oil into or upon U.S. waters and adjoining shorelines and releases of hazardous substances into the environment. Three federal environmental statutes authorized the development of the NCP: the Clean Water Act, as amended; the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) of 1980, as amended; and the Oil Pollution Act of 1990.

Several executive orders have delegated the presidential response authorities of these statutes to the federal departments and agencies tasked with implementing the NCP. EPA is the lead agency responsible for coordinating the federal response within the inland zone, and the U.S. Coast Guard serves as the lead agency within the coastal zone.[41]

The U.S. National Response Team (NRT) consists of 15 federal departments and agencies. The NRT provides technical assistance, resources and coordination on preparedness, planning, response and recovery activities for emergencies involving hazardous substances, pollutants and contaminants, oil, and weapons of mass destruction in natural and technological disasters and other environmental incidents of

[38] 13VAC5-63-10 et seq.
[39] "Virginia Uniform Statewide Building Code," Virginia Department of Housing and Community Development, http://www.dhcd.virginia.gov/index.php/va-building-codes/building-and-fire-codes/regulations/uniform-statewide-building-code-usbc.html.
[40] 13VAC5-51-11 *et seq.* "Statewide Fire Prevention Code," Virginia Department of Housing and Community Development, http://www.dhcd.virginia.gov/index.php/va-building-codes/building-and-fire-codes/regulations/statewide-fire-prevention-code-sfpc.html.
[41] David M. Bearden and Johnathan L. Ramseur, *Oil and Chemical Spills: Federal Emergency Response Framework* (CRS Report No. R43251), 2014, https://www.fas.org/sgp/crs/homesec/R43251.pdf.

national significance. EPA serves as the Chair of the NRT, and the U.S. Coast Guard serves as Vice-Chair.

The NCP provides state, territorial, local, and tribal governments the opportunity to participate in the federal response to an incident through the Regional Response Teams that fall under the NRT. The NCP established 13 Regional Response Teams. Virginia is an executive committee member of the Region 3 Regional Response Team (RRT3).

Area Committees support the Regional Response Teams in preparing for a response to a discharge of oil or a hazardous substance into U.S. waters and the adjoining shorelines, as authorized under Section 311(j)(4) of the Clean Water Act. The primary function of each committee is to prepare an Area Contingency Plan (ACP) for its designated geographic area within a region. Representatives from the U.S. Coast Guard Sector Hampton Roads and the DEQ serve as co-chairs of the Virginia Area Committee.

REGULATION OF CHEMICAL STORAGE IN OTHER STATES

Underground storage tanks (USTs) are extensively regulated; however, relatively few federal regulations apply to aboveground storage tanks (ASTs). States have the predominant role in regulating ASTs that contain chemicals, and various states have developed AST programs that include many comparable provisions to the UST regulatory programs. The National Association of State AST Programs (NASAP) consists of 18 member states that have developed state-specific AST regulatory programs for petroleum and/or non-petroleum chemical storage. In March 2016, the DEQ conducted an informal survey of NASAP member states to gather information on the multiple approaches and methods to regulating chemical storage that other states have implemented. The DEQ received 12 survey responses, including responses from Connecticut, Delaware, Florida, Maryland, Minnesota, New Hampshire, New Jersey, New York, Pennsylvania, South Dakota, West Virginia, and Wisconsin. Based on the responses, 11 states regulate both petroleum and non-petroleum chemical storage. Tables 1 provides a general overview of the survey responses.

Table 1. Summary of State Survey Responses

	Regulate Petroleum AST Storage	Regulate Chemical AST Storage	No. of Regulated Units[1]	Plans to Expand Regulatory Program in Future	Implemented Water Source Protection Programs
Connecticut	√	√	<10,000	√	√
Delaware	√	√	4,150	√	√
Florida	√	√	2,000		√
Maryland	√		10,000	√	√
Minnesota	√	√	>20,000		√
New Hampshire	√	√	8,318		√
New Jersey	√	√	8,000[2]		√
New York	√	√	89,500	√	√

Pennsylvania	√	√	18,000		√
South Dakota	√	√	1,000	√	√
West Virginia	√	√	44,000	√	√
Wisconsin	√	√	85,570		√

[1] Includes both petroleum and non-petroleum chemical facilities, tanks and containers.
[2] New Jersey regulates thousands of non-bulk containers e.g. totes and drums.

States use a combination of state environmental statutes and regulations and state and local fire code programs to regulate chemical storage. The chemical storage statutes generally define the types of facilities, products or substances, and uses that are regulated. The regulatory targets differ from state to state and include products or substances on a referenced chemical list, types of units in excess of a threshold capacity, or a combination of the two. The statutes also identify exemptions or conditional exclusions from the regulation to avoid regulating materials and uses that pose a low-risk and/or duplication of regulation where another statute has provided coverage. The type of regulatory targets the states select have a direct impact on the number of facilities and/or units that are subject to regulation and have a direct implication for state agency resources required to implement and administer the program.

Table 2. Examples of regulated substances and units and common exemptions

Regulated substances	Any liquid at standard temperature and pressure and not otherwise exempted; consumer products; petroleum-derived substances; hazardous substances as defined by CERCLA; substances containing 0.1 % or more of a carcinogen as defined by EPA in the Integrated Risk Information System (IRIS); flammable, combustible and hazardous liquids; pesticides and fertilizers; any substance that contains a regulated contaminant for which an ambient groundwater quality standard has been established pursuant to state code/regulation; and any substance determined by the designated state authority through regulation to present a risk to public health or welfare or the environment if released into the environment.
Regulated unit types	Consumer product containers, drums, intermediate bulk containers and tanks. Many states have established a threshold capacity for the tank or container to avoid regulating consumer product containers and containers less than 110 gallons in size. Smaller containers may be regulated if aggregate volume of all containers at a single facility exceeds a certain threshold quantity.
Exemptions and conditional exclusions	Heating oil storage tanks used for on-site heating; tanks and containers in agricultural service; drip irrigation system tanks; process tanks or vessels; mobile tanks; surface impoundments; stormwater or wastewater collection systems; oil-containing electrical equipment or transformers; tanks and vessels associated with oil and gas production; and fuel tanks for backup power generation Exemptions where unit or substance is subject to other statutes/regulations/programs: agricultural exemptions where tanks are regulated by federal or state pesticide and fertilizer storage program; tank systems regulated under Subtitle C of the Resource Conservation and Recovery Act; wastewater treatment plant units subject to regulation under a Clean Water Act permit; certain pipeline equipment (e.g., gathering line systems, breakout tanks, odorant tanks) and/or facilities regulated under federal pipeline statutes; tanks which are used to store brines, crude oil, drilling or fracking fluids and similar substances or materials and are directly related to the exploration, development or production of crude oil or natural gas

	regulated under the Oil and Gas Act; pressurized vessels subject to regulation (e.g., boilers); facilities subject to regulation by the Nuclear Regulatory Commission or the Atomic Energy Act; facilities subject to regulation by Toxic Substances Control Act; tanks used for the storage of products which are regulated under the Federal Food, Drug and Cosmetic Act; and tanks regulated under surface mining statutes.

The states that have implemented chemical storage programs, for the most part, utilize traditional information disclosure, design and technology-based approaches and methods to regulating petroleum and chemical storage. These approaches and methods range from notification and registration, design and construction, inspection and periodic testing, release detection, overfill prevention, financial responsibility, preparedness planning for releases, and corrective action requirements.

A few states have employed risk-benefit balancing as a basis for regulating certain units and establishing tiered regulatory controls. In the case of West Virginia, additional regulatory controls have been established for ASTs that are located within a zone of critical concern, source water protection area, and public surface water influenced groundwater supply source area. In Minnesota, units normally exempt under the regulation are subject to regulation where adjacent to surface waters.

FEDERAL PROPOSED RULEMAKING

On February 16, 2016, EPA entered into a consent decree settlement and agreed to initiate rulemaking to address hazardous substances.[42] The consent decree establishes a schedule for issuing the notice of proposed rulemaking (August 2017) and the notice taking final action following notice and comment rulemaking pertaining to the issuance of Hazardous Substance Regulations. The proposed rulemaking will expand the oil SPCC program to cover hazardous substances.

Freedom of Information Act Considerations

Many states have encountered challenges in balancing the public's right to know under Freedom of Information Acts (FOIA) with chemical facility security. Hazardous substance storage may potentially be an attractive target for terrorists due to the damage that could result from releasing the substance through vandalism or other means. For example, storage of chlorine used for disinfection could create a major public health hazard if compromised. The West Virginia Water Study Commission's December 2014 report identified this issue as a challenge with recommendations to modify its FOIA. Other states that capture information on chemical storage frequently include a companion FOIA-exemption statutory provision.

CHEMICAL STORAGE IN VIRGINIA

Under EPCRA, the EPA established reporting thresholds of 10,000 pounds for CERCLA hazardous substances and 500 pounds for extremely hazardous substances (EHS) or the threshold planning quantity

[42] Environmental Justice Health Alliance for Chemical Policy Reform, et al. v. U.S. Environmental Protection Agency, Case No. 1:15-cv-05705 (S.D.N.Y. Feb. 16, 2016)

(TPQ). Senate Bill 811 used a different definition of chemical than EPCRA. Senate Bill 811 defines chemical storage to "mean those chemicals identified by the Superfund Amendments and Reauthorization Act (SARA) and the Emergency Planning and Community Right-To-Know Act (EPCRA) that provides for hazardous chemical storage reporting requirements in Section 312 of the SARA and are stored in excess of 10,000 *gallons*" (*emphasis added*).

To address the scope of the evaluation, the DEQ conducted a limited review of the difference between the EPCRA reporting threshold of 10,000 pounds and the Senate Bill 811 mandate to assess risk of chemicals stored in quantities greater than 10,000 gallons. Based on the 2014 Tier II data submitted by facilities in Virginia, the top five chemicals based on a) frequency of chemicals reported and b) total quantity reported were studied. Using Chemical Abstracts Service (CAS) numbers as a reference, the top five chemicals based on the number of chemical reports submitted were Lead Acid Batteries, #2 Diesel Fuel, Gasoline, Propane, and Fuel Oil #2. The top five chemicals based on the total quantity reported were #2 Diesel Fuel, Gasoline, Coal (including Coal Ash and Bituminous Coal), Asphalt Cement, and Sodium Chloride. For the purposes of this section of the report, the density of the chemicals was used to convert weights into volumes.

The following tables illustrate the difference in numbers of facilities that are subject to EPCRA reporting requirements compared to the number that store more than 10,000 gallons. For example, over one thousand facilities reported storage of more than 10,000 pounds of diesel fuel, but fewer than 600 would be included once the threshold is changed to gallons. Thus, this evaluation is limited to a smaller universe of chemical storage facilities than is currently reportable under federal rules.

Table 3. Top 5 Chemical by Number of Chemical Reported

Chemical Name	CAS #	Total # of Chemical Reports	No. of Reporting Facilities	No. of Facilities Above EPCRA Threshold (10,000 pounds HS, 50 pounds EHS)	No. of Facilities Above SB811 Threshold (10,000 gallons HS & EHS)
Lead-acid Batteries (EHS)	7664-93-9	1575	1535	1359	83
Diesel Fuel	68476-34-6 68334-30-5	1365	1314	1135	596
Gasoline	8006-61-9 86290-81-5	737	725	583	273
Propane	74-98-6	560	559	387	276
Fuel Oil #2	68476-30-2	547	531	465	215

Table 4. Top 5 Chemical by Quantities Reported

Chemical Name	CAS #	Total Quantity Reported (pounds)	No. of Reporting Facilities	No. of Facilities Above EPCRA Threshold (10,000 pounds HS, 50 pounds EHS)	No. of Facilities Above SB811 Threshold (10,000 gallons HS & EHS)
Diesel Fuel	68476-34-6	7,738,730,262	1314	1135	596
Gasoline	8006-61-9	5,754,516,071	725	583	273
Coal, Coal Ash, and Coal (Bituminous)	71243-67-9 125612-26-2	4,544,687,861	32	31	28
Asphalt	8052-42-4	1,817,061,241	164	153	76
Sodium Chloride	7647-14-5	1,495,896,342	294	288	251

Identification of Potential Gaps

- While SARA and EPCRA identify certain chemicals for reporting and notification requirements, there are no corresponding regulatory programs that govern the storage of these chemicals.

- The patchwork of federal and state statutes and regulations discussed in previous sections may expand regulatory coverage to chemicals not identified by SARA and EPCRA; however, the basis for each statute or regulation is different and results in different regulatory approaches that may or may not address the risks associated with chemical storage.

- While TSCA requires producers of new chemicals to submit a pre-manufacture notification that contains information on the new chemical's name, physical properties, and use, along with any available data on its toxicity, existing chemicals are not subject to the same information disclosure requirements. Lack of scientific knowledge about toxicity complicates risk assessment for chemicals not already regulated by existing federal and state statutes. To establish a regulatory framework, it will be necessary to understand the potential human health risks of chemicals targeted for regulation.

- A few regulations have minimal setback requirements from surface water, wetlands or drinking water wells; however, there is a general lack of siting requirements for chemical storage tanks in near proximity to source water areas identified through the SDWA source water assessment program.

- Under EPCRA, facilities that store hazardous chemicals in excess of threshold quantities or release chemicals in excess of established quantities are required by federal law to report and

notify state and local emergency response personnel. However, the law does not require the nearby or downstream water supplier to be notified.

Recommendations

- EPA entered into a consent decree settlement and agreed to initiate rulemaking to address hazardous substances under Section 311 of the CWA. The schedule for issuing a notice of proposed rulemaking is August 2017. To avoid potential conflicts in regulatory goals, policymakers may want to defer any new initiative until after EPA works through the administrative rulemaking process.

- A key step in the development of a more comprehensive chemical storage program in Virginia would include the framework for inventorying and registering a defined universe of chemical storage facilities and inventory of materials in Virginia. This registration and inventory in advance of any other regulatory activity would provide necessary information for the identified agencies to utilize such information within existing programs, planning, and response efforts.

- A common operating platform, such as the Office of Drinking Water's GIS system, for collecting and disseminating such registration and inventory information would enhance the coordination and /or collaboration efforts of the identified agencies.

- Any proposed legislation would need to clearly define regulatory targets, the basis for regulation, and the type of regulation. Where other states have expanded coverage to chemical storage of hazardous substances, the regulatory targets vary widely – and include specific chemicals, facilities, tanks or source water protection areas. The basis for regulation will need to carefully consider the lack of scientific knowledge about chemical toxicity.

- Any additional proposed action to address chemical storage including any specific legislation should include stakeholders as a part of the development process to assist in the necessity of clearly defined regulatory targets, basis for regulation, and type of regulation.

- Funding would be required for any new chemical storage initiatives or additional studies to ensure administrative feasibility.

- Any proposed action may also consider information disclosure requirements that require facilities to provide information to public water systems about emergency response plans and chemical inventories for chemical storage tanks within the same watershed as the water system.