JOINT STATE GOVERNMENT COMMISSION

General Assembly of the Commonwealth of Pennsylvania

ENVIRONMENTAL LAWS OF PENNSYLVANIA

A STAFF STUDY

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Serving the General Assembly of the Commonwealth of Pennsylvania Since 1937

REPORT

Environmental Laws of Pennsylvania

Project Managers:	Ronald Grenoble, Assistant Counsel Yvonne Llewellyn Hursh, Counsel
Project Staff:	Mark Bogush, Staff Attorney (Fall 2017) Michael Dirckx, Staff Attorney (Winter 2018) Grant Rosul, Staff Attorney Kahla Lukens, Administrative Assistant

JOINT STATE GOVERNMENT COMMISSION

Room 108 Finance Building
613 North Street
Harrisburg, PA 17120-0108

Telephone: 717-787-4397
Fax: 717-783-9380
E-mail: jntst02@legis.state.pa.us
Website: http://jsg.legis.state.pa.us

The Joint State Government Commission was created in 1937 as the primary and central non-partisan, bicameral research and policy development agency for the General Assembly of Pennsylvania.[1]

A fourteen-member Executive Committee comprised of the leadership of both the House of Representatives and the Senate oversees the Commission. The seven Executive Committee members from the House of Representatives are the Speaker, the Majority and Minority Leaders, the Majority and Minority Whips, and the Majority and Minority Caucus Chairs. The seven Executive Committee members from the Senate are the President Pro Tempore, the Majority and Minority Leaders, the Majority and Minority Whips, and the Majority and Minority Caucus Chairs. By statute, the Executive Committee selects a chairman of the Commission from among the members of the General Assembly. Historically, the Executive Committee has also selected a Vice-Chair or Treasurer, or both, for the Commission.

The studies conducted by the Commission are authorized by statute or by a simple or joint resolution. In general, the Commission has the power to conduct investigations, study issues, and gather information as directed by the General Assembly. The Commission provides in-depth research on a variety of topics, crafts recommendations to improve public policy and statutory law, and works closely with legislators and their staff.

A Commission study may involve the appointment of a legislative task force, composed of a specified number of legislators from the House of Representatives or the Senate, or both, as set forth in the enabling statute or resolution. In addition to following the progress of a particular study, the principal role of a task force is to determine whether to authorize the publication of any report resulting from the study and the introduction of any proposed legislation contained in the report. However, task force authorization does not necessarily reflect endorsement of all the findings and recommendations contained in a report.

Some studies involve an appointed advisory committee of professionals or interested parties from across the Commonwealth with expertise in a particular topic; others are managed exclusively by Commission staff with the informal involvement of representatives of those entities that can provide insight and information regarding the particular topic. When a study involves an advisory committee, the Commission seeks consensus among the members.[2] Although an advisory committee member may represent a particular department, agency, association, or group, such representation does not necessarily reflect the endorsement of the department, agency, association, or group of all the findings and recommendations contained in a study report.

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[1] Act of July 1, 1937 (P.L.2460, No.459); 46 P.S. §§ 65 – 69.

[2] Consensus does not necessarily reflect unanimity among the advisory committee members on each individual policy or legislative recommendation. At a minimum, it reflects the views of a substantial majority of the advisory committee, gained after lengthy review and discussion.

Over the years, nearly one thousand individuals from across the Commonwealth have served as members of the Commission's numerous advisory committees or have assisted the Commission with its studies. Members of advisory committees bring a wide range of knowledge and experience to deliberations involving a particular study. Individuals from countless backgrounds have contributed to the work of the Commission, such as attorneys, judges, professors and other educators, state and local officials, physicians and other health care professionals, business and community leaders, service providers, administrators and other professionals, law enforcement personnel, and concerned citizens. In addition, members of advisory committees donate their time to serve the public good; they are not compensated for their service as members. Consequently, the Commonwealth of Pennsylvania receives the financial benefit of such volunteerism, along with their shared expertise in developing statutory language and public policy recommendations to improve the law in Pennsylvania.

The Commission periodically reports its findings and recommendations, along with any proposed legislation, to the General Assembly. Certain studies have specific timelines for the publication of a report, as in the case of a discrete or timely topic; other studies, given their complex or considerable nature, are ongoing and involve the publication of periodic reports. Completion of a study, or a particular aspect of an ongoing study, generally results in the publication of a report setting forth background material, policy recommendations, and proposed legislation. However, the release of a report by the Commission does not necessarily reflect the endorsement by the members of the Executive Committee, or the Chair or Vice-Chair of the Commission, of all the findings, recommendations, or conclusions contained in the report. A report containing proposed legislation may also contain official comments, which may be used in determining the intent of the General Assembly.[3]

Since its inception, the Commission has published more than 350 reports on a sweeping range of topics, including administrative law and procedure; agriculture; athletics and sports; banks and banking; commerce and trade; the commercial code; crimes and offenses; decedents, estates, and fiduciaries; detectives and private police; domestic relations; education; elections; eminent domain; environmental resources; escheats; fish; forests, waters, and state parks; game; health and safety; historical sites and museums; insolvency and assignments; insurance; the judiciary and judicial procedure; labor; law and justice; the legislature; liquor; mechanics' liens; mental health; military affairs; mines and mining; municipalities; prisons and parole; procurement; state-licensed professions and occupations; public utilities; public welfare; real and personal property; state government; taxation and fiscal affairs; transportation; vehicles; and workers' compensation.

Following the completion of a report, subsequent action on the part of the Commission may be required, and, as necessary, the Commission will draft legislation and statutory amendments, update research, track legislation through the legislative process, attend hearings, and answer questions from legislators, legislative staff, interest groups, and constituents.

[3] 1 Pa.C.S. § 1939 ("The comments or report of the commission . . . which drafted a statute may be consulted in the construction or application of the original provisions of the statute if such comments or report were published or otherwise generally available prior to the consideration of the statute by the General Assembly").

General Assembly of the Commonwealth of Pennsylvania
JOINT STATE GOVERNMENT COMMISSION
Room 108 – Finance Building
Harrisburg, Pa 17120

717-787-4397 *Fax* 717-783-9380

April 18, 2018

To the Members of the General Assembly of Pennsylvania:

Senate Resolution 385 of 2015 (Printer's No. 2092) directed the Joint State Government Commission to conduct "a study to analyze and identify which environmental laws and regulations of this Commonwealth have more stringent standards than Federal law requires…".

This study addresses federal and state laws and regulations as they existed at the end of 2017/beginning of 2018. On January 24, 2017, the Trump Administration imposed a freeze on implementation of any new or pending federal regulations until reviewed by the administration. Additionally, some regulations face ongoing federal and state constitutional challenges. There is no guarantee that any of these regulations will exist in the future in the form reviewed here.

The full report is also available at http://jsg.legis.state.pa.us/.

Respectfully submitted,

Glenn J. Pasewicz
Executive Director

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EXECUTIVE SUMMARY

Senate Resolution 385 of 2015 (Printer's No. 2092) was adopted October 18, 2016, directing the Joint State Government Commission to conduct "a study to analyze and identify which environmental laws and regulations of this Commonwealth have more stringent standards than Federal law requires…." This report is due 18 months from the adoption of the resolution, or April 18, 2018.

Because environmental laws relate to health and safety, their adoption and implementation are generally a power reserved to the States. When human activities cross state boundaries, the federal government has the authority to intervene to create national standards. Air and water, by their nature, tend to be transient, and thus, for the most part, fall under federal statutory and regulatory jurisdiction. Conversely, land, a more fixed asset, rarely cross borders on its own initiative and therefore activities relating to its use and development usually remain under State authority.

When the federal government acts, it can take over an issue in its entirety, allowing no variance among the states (total preemption), but more commonly in environmental matters, the federal statutes and regulations set a "floor" for State regulation. States may impose more stringent standards than the federal standards, but not less. Pennsylvania varies in its use of more stringent standards. In some cases, Commonwealth laws require strict adherence to the federal regulations. In others, more stringent standards are imposed to address unique aspects of Pennsylvania's need to regulate particular areas. Finally, there are areas that the federal government has not regulated at all, but Pennsylvania has, and thus, by the fact of their existence, these state regulations are more stringent than any absent federal regulation.

This study addresses regulations as they existed at the end of 2017/beginning of 2018. They should be relied upon with caution. On January 24, 2017, the Trump Administration imposed a freeze on implementation of any new or pending federal regulations until they could be reviewed by the administration. A number of federal regulations have been impacted by this freeze, and its consequences are discussed in further detail in this report where relevant. Additionally, federal and state constitutional challenges of some regulations are on-going, and many of the cases that have pronounced an interpretation of a particular law or regulation are under appeal and counter-appeal. Further, interpretations of Pennsylvania's Environmental Rights Amendment (ERA) could result in regulations found to be in compliance with federal law and other Pennsylvania executive and legislative actions, but nonetheless violate the ERA. In such cases, Pennsylvania regulations may be required to be more stringent than federal law in order to be constitutionally sound. There is no guarantee that any of these regulations will exist in the form reviewed here in the future.

The preeminent federal laws and regulations addressing environmental protection and pollution control involve the Clean Air Act and the Clean Water Act. Separate chapters have been dedicated to these topics. Later chapters address specific areas of environmental laws affecting air, water and land pollution, such as natural resource conservation and development, waste management, and disposal of hazardous materials.

Clean Air

The federal Clean Air Act effectively governs air pollution in Pennsylvania, and the Commonwealth has incorporated the federal standards into Pennsylvania law and regulations via the Pennsylvania Air Pollution Control Act. As a general rule, air pollution standards in Pennsylvania are statutorily required to be no less stringent than federal law. Pennsylvania's air quality standards incorporate the federal regulations, and thus are no more stringent that the federal requirements. There are a few exceptions, however, where Pennsylvania imposes more stringent air pollution standards. If the Environmental Protection Agency does not promulgate a standard to control emissions for hazardous air pollutants from a category of major sources, state law permits establishment by the Department of Environmental Protection on a case-by-case basis.

Pennsylvania is required by the U.S. Environmental Protection Agency (EPA) to be part of the Northeast Region Ozone Transport Commission, and as such, must implement reasonably available control technology for all sources of volatile organic compounds (precursors to ground-level ozone) for which the EPA has published Control Techniques Guidelines. Pennsylvania has adopted about a dozen of the CTGs, of which approximately half are more stringent than the federal guidance. Pennsylvania's regulations governing fine particulate matter are also more stringent than the federal requirements.

While auto emission standards for new vehicles are solely the domain of the federal government, states may choose to comply with the federal minimum standards or the more stringent California standards. Pennsylvania has adopted the California standards. In early April 2018, the EPA announced that it may reconsider the greenhouse gas emissions standards for cars and light trucks for model years 2022-2025, and this could potentially effect Pennsylvania's standards. Additionally, Pennsylvania regulates diesel engine idling and indoor smoking under specific state laws.

Pennsylvania had not yet implemented federal regulations expanding control of greenhouse gas emissions to stationary sources, the Clean Power Plan or the methane reduction rules that were introduced in 2015 and 2016, and as those proposals are now under review by the Trump Administration, Pennsylvania has taken no further steps to implement them.

Clean Water

It is very important to identify which bodies of water are subject to federal law and which fall to Commonwealth supervision. The waters of the United States rule delineates where federal jurisdiction lies, and it is a complicated, evolving definition currently under review by the Trump Administration, and the subject of on-going litigation.

The federal Clean Water Act regulates the discharge of any pollutant into the navigable waters of the United States from point sources. A point source is any single identifiable conveyance, such as a pipe, ditch, channel, tunnel, conduit, well, discrete fissure, container, rolling stock, concentrated animal feeding operation or vessel or other floating craft. Pennsylvania's Clean Streams Law prohibits any person or municipality from putting or placing any substance of any kind or character resulting in pollution into the waters of the Commonwealth. The federal law deals exclusively with surface water, although this distinction is being challenged in many federal district courts; Pennsylvania's Clean Streams Law addresses both surface and groundwater. Additionally, the federal law generally ignores nonpoint source pollution, while the Commonwealth addresses many aspects of nonpoint source pollution.

Pennsylvania administers the National Pollutant Discharge Elimination System for the EPA, and the Commonwealth's water quality standards have been approved by the EPA. Pennsylvania's Clean Streams Law authorizes DEP to regulate any activities not subject to the NPDES permitting process that create a "danger of pollution" of the waters of the Commonwealth. This is a much broader prescription than the Clean Water Act, as it permits the regulation of activities which merely present a possibility of pollution, and is where DEP obtains its authority to regulate many water-impacting activities which are not specifically enumerated by the CSL.

The EPA regulates two point sources of pollution that Pennsylvania further regulates. Federal rules govern pretreatment of industrial discharges to publicly owned treatment works *(i.e.*, municipal liquid sewage and industrial waste plants). The federal regulations create a "floor," and each publicly owned facility sets its own pretreatment requirements based on their technological capacity. These local rules can vary from municipality to municipality and may exceed the federal minimum requirements. Additionally, small municipal separate storm systems (MS4s) are governed by federal regulations generally, but Pennsylvania imposes additional requirements relative to discharges within the Chesapeake Bay watershed. Watersheds and wetlands in general are subject to both federal and state regulation based on which level of government the waters belong to. Pennsylvania's law regarding dam safety and encroachments adds to wetlands' regulation.

Pennsylvania regulates a number of activities related to erosion and sediment control that are not addressed federally. These include agricultural activities, riparian buffers, dirt and gravel roads, and nutrient and odor management. Pennsylvania's regulations regarding bluff setbacks over coastal waters (*e.g.*, Lake Erie) are more stringent that the federal standards. Under federal encouragement, local flood management plans are more restrictive than the federal baseline. Pennsylvania's safe drinking water

regulations are more stringent in a number of areas, including the lead plumbing ban, the lead and copper rule, the total coliform rule (bacteria levels), treatment techniques, and public notification requirements.

Natural Resource Use and Conservation

Most of Pennsylvania's laws regarding natural resource use and conservation are unique to Pennsylvania and do not have overlaying federal regulations. Additionally, there are federal laws and regulations that function parallel to Pennsylvania's approach, such as the designation of national forests, wild and scenic rivers and the like, and Pennsylvania state forests and scenic rivers.

Federal law addresses surface coal mining and the surface effects of underground mining operations from a conservation and reclamation perspective. The federal law was intended to be a stop-gap measure until states could enact their own regulatory programs. Pennsylvania has achieved this goal, and the federal Office of Surface Mining Reclamation and Enforcement (OSMRE) provides oversight. Pennsylvania's program is more extensive that the federal baseline, which was anticipated and encouraged by Congress.

Pennsylvania has specific laws and regulations regarding mine subsidence, anthracite mine drainage, coal refuse disposal, noncoal mining, and oil and gas development that regulate mineral extraction in areas that have no federal government counterpart for private or Commonwealth property.

Pennsylvania's statutes governing water rights and resource planning, river commissions, interstate river compacts, wild and scenic rivers, public land preservation, and farmland preservation are specific to the Commonwealth, although the federal government has parallel statutes governing similar federal assets. Pennsylvania's regulations governing endangered species follow the federal guidelines.

Waste Management and Recycling

Solid waste disposal is regulated federally and Pennsylvania implements its permitting program under the approval of the EPA. Pennsylvania has incorporated by reference the federal regulations governing hazardous waste as part of its EPA approval hazardous waste program. Pennsylvania has a few supplemental regulations that are more stringent than the federal standards with respect to in-transit storage, use of municipal landfills, recycling of hazardous materials, waste oil disposal, and municipal waste planning, recycling and reduction. Sewage facilities are generally regulated under Pennsylvania law only, except as to issues regarding clean water. The federal Safe Drinking Water act requires states to maintain a certification program for operators of public drinking water systems. Pennsylvania's statute is broader, as it requires certification of wastewater system operators as well.

Household waste is another area where Pennsylvania's regulations are not paralleled by the federal government, as are its waste tire and covered device (*i.e.*, electronic devices such as computers, printers, *et al*.) recycling programs.

Safe Handling of Hazardous Materials

The federal Superfund law and Pennsylvania's hazardous sites cleanup law work in conjunction with one another. Hazardous sites in Pennsylvania that do not qualify for Superfund cleanup status become the responsibility of DEP. The programs are not identical, and differ in areas such as how restrictions on land use following cleanup are determined and the means to recoup expenditures for cleanup. Additionally, under the Superfund law, only owners and operators at the time of the hazardous materials release or threat of release, or owners or operators at the time of disposal are liable. Pennsylvania's definition of a responsible person is broader and can include anyone who causes or allows a release of a hazardous substance to be held liable for cleanup costs.

Brownfields, defined as previously developed industrial or urban sites currently not in use that do not meet the standards of Pennsylvania's hazardous site cleanup law are covered under Pennsylvania's land recycling and environmental remediation standards. The EPA's Brownfields Development Program provides grants and guidance for federal assistance in reclamation of brownfields.

The federal Community Right-to-Know Act requires reporting of information on hazardous or toxic chemicals and substances by businesses and government agencies that produce, process, use or store them. The EPA is currently drafting guidance for farming operations to come under the purview of this reporting requirement, as a result of a lawsuit challenging the EPA's former exemption for most farming operations from this act. Pennsylvania's Worker and Community Right-to-Know Act requires Pennsylvania employers to inform their employees about hazardous chemicals in the workplace. The statute states that it is to be read in conjunction with the federal law and intended to supplement the federal regulations, potentially making its application broader than the federal standard.

Pennsylvania's rules on the use of storage tanks for hazardous substances is broader than the federal requirement primarily because the federal law only governs underground storage tanks while Pennsylvania's law includes them and aboveground storage tanks. Pennsylvania implements the federal underground storage tank regulations and its program has been approved by the EPA, so that its requirements are no less stringent that the federal rules. Pennsylvania essentially copied the federal regulations on underground storage tanks but provided more specificity in a few technical areas and in the frequency of inspections.

Transportation of hazardous materials is principally governed at the federal level, as it usually involves interstate transport. Pennsylvania has adopted its own law on the intrastate transportation of hazardous materials and it is designed to mirror the federal regulations to avoid conflicting and duplication regulations. Pennsylvania has a few supplemental regulations that are not addressed by federal rules.

Pennsylvania has statutorily adopted federal laws and regulations governing gas and hazardous liquid pipeline safety and do not impose any requirements not established federally.

The federal Toxic Substances Control Act governs most other hazardous materials. Pennsylvania's asbestos standards are mandated to be consistent with EPA rules, and Pennsylvania has not added any further regulations to the federal rules governing PCBs.

Radon is not federally regulated, although guidance is available and a grant program in place. Pennsylvania's certification program for radon consultants is specific to Pennsylvania. DEP has been directed to work with the EPA and private industry to develop remediation plans.

The Radiation Protection Act in Pennsylvania is designed to supplement federal laws governing radioactive materials and has incorporated by reference nearly all of the Nuclear Regulatory Commission's regulations, including those governing the standards for protection against radiation. Pennsylvania has made very small additions to these regulations. Although Pennsylvania has a regulatory scheme in place for the siting of a low-level radioactive waste disposal facility, no such facilities are found in Pennsylvania.

Pennsylvania has an EPA-approved program regarding lead paint and dust, and has its own statute governing certification of persons involved in lead-based activities such as remediation and abatement. The EPA's standards are expected to be updated in 2018 and Pennsylvania's regulations will need to be amended to remain in compliance.

Pesticides are governed at the federal and Commonwealth level. The federal law creates a regulatory framework, but states have primary enforcement authority and DEP has authority to regulation pesticides consistent with the EPA's regulations. Pennsylvania's definition of pest is broader than the federal rules, and DEP has additional licensure requirements. DEP may not impose labeling or packaging requirements that are in addition to or different from the federal requirements.

Laws governing safe packaging materials and phosphate detergents are Pennsylvania initiatives and have no federal counterpart.

To summarize, most of Pennsylvania's environmental law statutes adhere to the federal regulations and are generally no more stringent than their federal counterparts. Where additional regulations have been made, it is generally justified as a compelling and articulable Pennsylvania interest and addresses definable public health, safety or environmental risks. The area of greatest deviation involves differences between the federal Clean Water Act and the Clean Streams Law. Other more stringent regulations are found in the areas of safe drinking water, the handling of hazardous materials, and mineral extraction. In some instances, Pennsylvania regulations build upon and supplement federal law; in others, Pennsylvania has acted in areas not regulated by the federal government.

INTRODUCTION

Human society has developed and grown by using and consuming natural resources. An inevitable by-product of that evolution is pollution. Traces of the effects of human activity have been found in ancients human remains, and were recorded as early as first century C.E. Rome. However, it was the burgeoning inventiveness of the Industrial Revolution in the 18th & 19th centuries that saw the exploitation of natural resources at an unprecedented rate.[4] At the dawn of the 20th century, it was becoming apparent at all levels of government that controlled management of both exhaustible and renewable natural resources was necessary to ensure further societal growth and development in the United States.

President Theodore Roosevelt led the charge, not only at San Juan Hill, but also in steering the United States to continue its industrial progress while balancing its need for resource protection and preservation. President Roosevelt, addressing the Governors of the several States at the Opening of the Conference on the Conservation of Natural Resources at the White House on May 13, 1908 observed:

> *We have become great because of the lavish use of our resources and we have just reason to be proud of our growth. But the time has come to inquire seriously what will happen when our forests are gone, when the coal, the iron, the oil, and the gas are exhausted, when the soils shall have been still further impoverished and washed into the streams, polluting the rivers, denuding the fields, and obstructing navigation. These questions do not relate only to the next century or to the next generation. It is time for us now as a Nation to exercise the same reasonable foresight in dealing with our great natural resources that would be shown by any prudent man in conserving and wisely using the property which contains the assurance of well-being for himself and his children.*[5]

The concept of federalism is embodied in the United States Constitution. Since its adoption in 1787, debate has continued regarding the relative authority of the federal government and the individual states' government. Historically, the 19th century in America has been deemed a period of "dual federalism," in which federal and state

[4] Jim Morrison. "Air Pollution Goes Back Way Further Than You Think." The Age of Humans: Living in the Anthropocene, *Smithsonian.com*. (January 11, 2016). https://www.smithsonianmag.com/science-nature/air-pollution-goes-back-way-further-you-think-180957716/.

[5] Theodore Roosevelt. "Conservation As A National Duty". (May 13, 1908). *Voices of Democracy: The U.S. Oratory Project,* University of Maryland. http://voicesofdemocracy.umd.edu/theodore-roosevelt-conservation-as-a-national-duty-speech-text/.

government regulation was treated as essentially separate but equal powers. Following the U.S. Civil War, reconstruction era amendments to the U.S. Constitution gave the federal government more authority over civil rights. The growth of railroad and other economic monopolies brought the federal government into the economic arena with the adoption of the Interstate Commerce Act in 1887 and the Sherman Anti-Trust Act of 1890.[6]

In acknowledging a national need for resource conservation by his prolific designation of national parks, national monuments and wildlife refuges,[7] Roosevelt joined a movement away from dual federalism, arguing for the supremacy of the national government over individual state governments in matters of national interest or impact. In the first half of the 20th century, particularly through the Great Depression, New Deal and World War II, the federal government began taking a larger role, known as "cooperative federalism." Federal, state, and local governments working in cooperation and partnership to address issues of both state and national importance is a hallmark of cooperative federalism.

A proliferation of inventions and discoveries in the 20th century, including airplanes, synthetic plastic, cellophane, neon lamps, radio tuners, stainless steel, magnetic tape, photocopiers, jet engines, Telfon, helicopters and nuclear fission, all of which created waste products in their production, lead to an exponential growth in energy, manufacturing, and waste disposal regulations at both the state and Federal level. The popularization of the automobile as means of individual transportation also played a pivotal role.[8] While the U.S. Department of the Interior was established in 1849 to manage the internal affairs of the country, including responsibility for public lands, it was the 20th century that saw the establishment of the Nuclear Regulatory Commission, the Environmental Protection Agency, the National Park Service, the Bureau of Mines, the U.S. Fish and Wildlife Service and the Bureau of Land Management.

A number of broad-reaching federal environmental laws were enacted in the 20th century as well, especially during the 1970s. From the inception of these laws in the 1970s, they have been considered an example of cooperative federalism.

> Under this tenet, the U.S. Congress establishes the law, the federal government implements the law through national minimum standards for the media/pollutant in question, and states can seek authorization or delegation to implement the programs needed to achieve these standards. Generally, states may develop programs to go beyond these standards if a state chooses to do so.[9]

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[6] Act of February 4, 1887 (Interstate Commerce Act), Pub.L. 49-41, 24 Stat. 379, 49 U.S.C. § 1 et seq.; Act of July 2, 1890 (Sherman Anti-Trust Act), 26 Stat. 209, 15 U.S.C. §§ 1–7.

[7] Theodore Roosevelt and Conservation." U.S. National Park Service. https://www.nps.gov/thro/learn/historyculture/theodore-roosevelt-and-conservation.htm.

[8] 20th Century Timeline 1900-1999. https://www.thoughtco.com/20th-century-timeline-1992486.

[9] Environmental Council of the States. "Cooperative Federalism 2.0: Achieving and Maintaining a Clean Environment and Protecting Public Health." (June 2017). Washington, DC. https://www.ecos.org/wp-content/uploads/2017/06/ECOS-Cooperative-Federalism-2.0-June-17-FINAL.pdf.

There are a dozen or more major federal environmental laws under the administration of the Environmental Protection Agency (EPA), with another 20 or so narrowly crafted ones. In Pennsylvania, the Department of Environmental Protection (DEP) oversees approximately 40 state environmental statutes. While the EPA and DEP are responsible for most environmental laws and regulations, the U.S. Fish and Wildlife Service, U.S. Forestry Service, the Pennsylvania Department of Conservation of Natural Resources, the federal Office of Safety and Health Administration (OSHA), the Pennsylvania Department of Labor and Industry, and the U.S. and Pennsylvania Departments of Agriculture also play a role in environmental protection.

Federal Environmental Policy

Congress has enacted numerous statutes generally aimed at protecting public health and the environment. These statutes include the National Environmental Policy Act of 1969 (NEPA), the Clean Air Act of 1970 (CAA), the Clean Water Act of 1972 (CWA), the Endangered Species Act of 1973, the Safe Drinking Water Act of 1974 (SDWA), the Resource Conservation and Recovery Act of 1976 (RCRA), the Toxic Substances Control Act of 1976 (TSCA), the Comprehensive Environmental Response, Compensation and Liability Act of 1980 (CERCLA), and the Emergency Planning And Community Right-to-know Act of 1986 (EPCRA).

The EPA has jurisdiction over most federal environmental laws and regulations. Established in 1970 by President Nixon, the EPA was assembled from the parts of three federal Departments, three Bureaus, three Administrations, two Councils, one Commission, one Service, and many diverse offices with the mission to establish and enforce environmental protection standards, conduct environmental research, provide assistance to others combatting environmental pollution, and assist the Council on Environmental Quality in developing and recommending to the President new policies for environmental protection.[10] The EPA is responsible for enforcement of environmental laws as applied to federal agencies, as well as those federal environmental laws that are applicable to the states.

Preemption

Federal and state statutes may cover the same area: some federal statutes completely preempt an area of regulation, *i.e.*, the federal statute is the only law governing the area and states' may not regulate the topic in any way. Other federal statutes only partly preempt an area, in which case the federal law provides a baseline, but states may regulate further with more, but not less, stringent laws and regulations. Some states have laws that specifically limit or restrict the ability of the state environmental agencies from imposing stricter regulations. Pennsylvania has taken this approach, with the issuance by Governor

[10] Jack Lewis. "The Birth of the EPA." *EPA Journal* (November 1985). https://archive.epa.gov/epa/aboutepa/birth-epa.html.

Thomas J. Ridge of Executive Order 1996-1, which states "Where federal regulations exist, Pennsylvania's regulations shall not exceed federal standards unless justified by a compelling and articulable Pennsylvania interest or required by state law."[11] Some areas of environmental law are not regulated by the federal government at all, but left to the states to regulate, if at all, as they see fit. Executive Order 1996-1 also addresses regulations in this area, requiring them to address a "compelling public interest" and "definable public health, safety, or environmental risks."[12] An additional twist is that some federal laws govern a topic area, but enforcement is delegated to the states.[13]

The Supremacy Clause

Constitutional issues also play a role in the ability of the federal government and state governments to simultaneously regulate the same legal area. Article VI, Clause 2 of the United States Constitution provides that

> This Constitution, and the laws of the United States which shall be made in pursuance thereof; and all Treaties made, or which shall be made, under the Authority of the United States, shall be the supreme Law of the Land; and the Judges in every State shall be bound thereby, any Thing in the Constitution or Laws of any State to the Contrary notwithstanding.

This provision, known as the Supremacy Clause, reflects the concept of federal preemption whereby state laws are invalidated that interfere with or are contrary to federal law. State health and safety regulations generally are protected from preemption. The presumption is "that state or local regulation of matters related to health and safety [are] not invalidated under the Supremacy Clause." Additionally, a person challenging a state safety regulation under the Supremacy Clause must

> present a showing of implicit preemption of the whole field, or of a conflict between a particular local provision and the federal scheme, that is strong enough to overcome the presumption that state and local regulation of health and safety matters can constitutionally exist with federal regulation.[14]

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[11] Commonwealth of Pennsylvania, Governor's Office. "Regulatory Review and Promulgation." Executive Order 1996-1 at 2 (February 6, 1996).
[12] *Id.*, at 1-2.
[13] Jerome M. Organ. "Limitations on State Agency Authority to Adopt Environmental Standards More Stringent than Federal Standards: Policy Considerations and Interpretative Problems" 54 Md. L. Rev. 1437 (1995).
[14] *Hillsborough County v. Automated Med. Laboratories, Inc*. 471 U.S. 707, 715, 716 (1985).

Interstate Commerce

Article I, Section 8, Clause 3 of the United States Constitution provides that "The Congress shall have power: To regulate Commerce with foreign Nations, and among the several States..." A negative or "dormant" Commerce Clause has been described as the converse of the power granted in Article I, Section 8, Clause 3, to the effect that it limits the power of states to regulate interstate trade by discriminating against or unjustifiably burdening interstate commerce.

This dormant Commerce Clause uses a strict scrutiny test and a balancing test. Strict scrutiny applies if a statute or regulation facially discriminates against interstate commerce by creating local economic protectionism. Under this test, simple economic protectionism is subject to a virtually per se rule of invalidity under the Commerce Clause, unless the state or local government can prove that the statute or regulation advances a legitimate local public purpose and that there are no discriminatory alternatives available to adequately meet the local need. Under the balancing test, where a statute does not discriminate against interstate commerce on its face or in its practical application, it is intended to effectuate a legitimate local public interest, and its effect on interstate commerce is incidental, the statute will be considered constitutional unless the burden imposed on interstate commerce is clearly excessive in relation to the putative local benefits. Several Pennsylvania cases have summarized this analysis of the dormant Commerce Clause and the strict scrutiny and balancing tests, and their application in particular situations.[15]

A large number of commerce clause challenges to state and local laws involve efforts to promote local health and safety under the police powers of the state. Statutes purporting to protect the health and safety of a state's citizens usually pass constitutional muster. However, the U.S. Supreme Court has held that "the incantation of a purpose to promote the public health or safety does not insulate a state law from Commerce Clause attack. Regulations designed for that salutary purpose nevertheless may further the purpose so marginally, and interfere with commerce so substantially, as to be invalid under the Commerce Clause."[16] In a case involving regulation of hazardous waste transportation, the Pennsylvania Commonwealth Court stated "Where, as here, a state's attempt to regulate in the field of health and safety allegedly creates an impact on interstate commerce, we must balance the purpose to be served by the regulation against the type and the force of its impact on interstate commerce."[17]

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[15] *Cloverland-Green Spring Dairies v. Pa. Milk Marketing Bd*., 462 F.3rd 249 (C.A. 3rd, 2006); *Kerbeck Cadillac Pontiac, Inc.v State Bd. of Vehicle Manufacturers, Dealers and Salespersons,* 854 A.2d 663 (Pa. Commw. Ct. 2004); *Crown, Cork & Seal: in re: Asbestos Litigation,* 2002 WL 1305991 (Pa. Com. Pl.), 59 Pa. D&C 4th 62, *Annenberg v. Commonwealth,* 757 A.2d 333 (Pa. 1998); *Indianapolis Power & Light Co. v. Pennsylvania Public Utility Commn.,* 711 A.2d 1071 (Pa. Commw. Ct. 1998); *Empire Sanitary Landfill, Inc. v. Pennsylvania Dept. of Envtl.Res.*, 684 A. 2d 1047 (Pa. 1996); and *Philadelphia Sch. Dist. v. Pennsylvania Milk Marketing Bd.,* 683 A.2d 972 (Pa. Commw. Ct. 1996).

[16] *Kassel v. Consolidated Freightways Corp. of Del.*, 450 U.S. 662, 670 (1981). (Case involved Iowa statute regulating double tractor-trailers). See also *U.S. v. Manning*, 434 F.Supp.2nd 988 (E.D. Wash. 2006).

[17] *Chemclene Corp. v.Pennyslvania Dept. of Environmentl Resources,* 497 A.2d 268, 274 (Pa. Commw. Ct. 1985).

Pennsylvania Environmental Policy

Pennsylvania enacted some of its most significant environmental laws and municipal ordinances before the federal government became involved in environmental protection. To the extent required by federal law, Pennsylvania has amended its statutes to come into compliance. In some instances, Pennsylvania has adopted regulations that are more stringent than federal standards as well as regulations in areas that are not covered by federal law or regulations. These are usually justified by the unique geology, topography, and hydrology of Pennsylvania. In some instances, Pennsylvania has acted at the state level and preempted municipal regulation; in others, more stringent municipal ordinances are permitted and/or encouraged.

In 1996, Governor Thomas J. Ridge issued an executive order that provides that state agencies may not exceed federal standards unless "justified by a compelling and articulable Pennsylvania interest or required by state law," and must address "definable public health, safety, or environmental risks."[18] While as a general rule, Executive Order 1996-1 applies to all administrative regulations, this restriction can come into conflict with the recently reinvigorated Environment Rights Amendment (ERA) to the Pennsylvania Constitution. This new interpretation of the ERA could result in regulations that are in compliance with federal law and Governor Ridge's order yet fail to meet constitutional muster. In such cases, Pennsylvania regulations will be required to be more stringent than federal law in order to be constitutionally sound.

The Environmental Rights Amendment

Article 1, Section 27 of the Pennsylvania Constitution is known as the Environmental Rights Amendment (ERA). On May 18, 1971, the citizens of the Commonwealth chose to ratify an amendment to the Pennsylvania Constitution recognizing their environmental rights as equal to their most sacrosanct individual and political rights, by a margin of nearly four to one.[19]

> The people have a right to clean air, pure water, and to the preservation of the natural, scenic, historic and esthetic values of the environment. Pennsylvania's public natural resources are the common property of all the people, including generations yet to come. As trustee of these resources, the Commonwealth shall conserve and maintain them for the benefit of all the people.[20]

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[18] *Supra*, note 11.

[19] *Pa. Environmental Defense Fund v. Commonwealth (PEDF)*, 161 A.3d 911, 916 (2017). The ERA received 1,021,342 votes in favor and 259,979 opposed.

[20] Pa. Const. art. 1, § 27.

The drafters of Section 27 recognized the Commonwealth's history and acknowledged the impacts of industry on our environment and quality of life when debating its passage through the General Assembly:

> We seared and scarred our once green and pleasant land with mining operations. We polluted our rivers and streams with acid mine drainage, with industrial waste, with sewage. We poisoned our 'delicate, pleasant and wholesome' air with the smoke of steel mills and coke ovens and with the fumes of millions of automobiles. We smashed our highways through fertile fields and thriving city neighborhoods. We cut down our trees and erected eyesores along our roads. We uglified our land and we called it progress.[21]

The draft ERA was adopted by the General Assembly in the 1969-70, and 1971-72 legislative sessions before its ratification.[22] Montana and Rhode Island are the only other states in the Union to affirm the people's environmental rights in a Declaration or Bill of Rights.[23] Other states, including Hawaii and Massachusetts, express an interest in protecting the environmental rights of citizens through separate articles of their charters, and require further legislative action to defend the rights of the people.[24]

As early as 1973, only two years after its adoption, Commonwealth Court was faced with deciding the first significant case pertaining to Section 27, *Commonwealth v. National Gettysburg Battlefield Tower, Inc.* (*Gettysburg Tower*). *Gettysburg Tower* involved the erection of an observation tower on privately owned land near Gettysburg Battlefield National Park. The state's position on the tower was one analogous to nuisance, arguing under the ERA's first clause the towers' visibility would impair the public's right to preserve the esthetic, natural, scenic, and historic values of that environment.[25] Although the state's argument was unsuccessful, the trial court held provisions of Section 27 are self-executing, requiring no legislative action to confer to citizens.[26] Article I, Section 25 of the Pennsylvania Constitution provides "the rights

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[21] 1970 Pa. Legislative Journal-House at 2270 (quoting anonymous 1698 description of Penn's Woods air).
[22] The adoption of this section was proposed by Joint Resolution No. 4, 1970, (P.L. 970, H.B. No. 958), and Joint Resolution No. 3, 1971 (P.L. 769, H.B. No. 31).
[23] *PEDF*, 61 A.3d at 918; Mt. Const. art. II, § 3 (1889); R.I. Const. art. I, § 17 (1970). Montana's Constitution was amended in 1972. Of particular importance, Montana's preamble announces a strong language towards environmental protection. Additionally, Article II, Section III of Montana's Constitution (Article II is called Montana's "Declaration of Rights") includes a "right to clean and healthful environment and the rights of pursuing life's basic necessities…" Similarly, Rhode Island amended its constitution in 1987 to add Article I, Section 17 to its Declaration of Rights and Privileges calling for an encompassing provision on fishery rights, shore privileges, and preservation of natural resources.
[24] *PEDF*, 161 A.3d at 918; Haw. Const. art. XI; Mass. Const. art. XCVII. In 1978, Hawaii amended their constitution to add Article 11, which echo's the intent and language of Pennsylvania's Section 27. Massachusetts, in 1972, chose to amend their constitution in a similar fashion, adding Article 97 to their constitution, which borrows heavily from the language of the ERA while adding language covering utilization and conservation of agriculture, mineral and other resources.
[25] *Commonwealth v. National Gettysburg Battlefield Tower, Inc.*, 302 A.2d 886, 888 (1973).
[26] *Id*., at 892.

described in Article I should remain 'inviolate'."[27] As such, Commonwealth Court found Section 27 established something more than rights not to be denied by government, identifying specific rights to be protected requiring the government to act in the peoples' interest.[28] On appeal, the Pennsylvania Supreme Court held the ERA was not self-executing, and the Commonwealth could not bring action under the amendment absent supplemental legislation and procedures defining the values Section 27 protects.[29]

The court's early interpretations of Section 27 immediately following its implementation culminated in 1973 with the Commonwealth Court's decision in *Payne v. Kassab*. In *Payne*, an action was brought against state and municipal officials to enjoin a street widening project. The proposed project would require the taking of approximately one-half acre of the River Common in the City of Wilkes-Barre, Pennsylvania.[30] The court concluded "section 27 was intended to allow the normal development of property in the Commonwealth, while at the same time constitutionally affixing a public trust concept to the management of public natural resources in Pennsylvania." The court developed a three part balancing test in which courts must review the following:

1) Was there compliance with all applicable standards and regulations relevant to the protection of the Commonwealth's public natural resources?

2) Does the record demonstrate a reasonable effort to reduce the environmental incursion to a minimum?

3) Does the environmental harm which will result from the challenged decision or action so clearly outweigh the benefits to be derived therefrom that to proceed further would be an abuse of discretion?[31]

The Pennsylvania Supreme Court affirmed in 1976.[32]

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[27] *Id*., The Court stated there "need be no more reason to hold Section 27 needs legislative definition than that the people's freedoms of religion and speech should wait upon the pleasure of the General Assembly."
[28] *Id*.
[29] *Commonwealth v. National Gettysburg Battlefield Tower, Inc*., 311 A.2d 588 (1973). The Court, in establishing whether a constitutional provision is self-executing, stated "'A Constitution is primarily a declaration of principles of the fundamental law. Its provisions are usually only commands to the legislature to enact laws to carry out the purposes of the framers of the Constitution, or mere restrictions upon the power of the legislature to pass laws, yet it is entirely within the power of those who establish and adopt the Constitution to make any of its provisions self-executing'" *Id*. at 591. The Supreme Court has held "[w]here a constitutional provision is complete in itself it needs no further legislation to put it in force. When it lays down certain general principles, as to enact laws upon a certain subject…it may need more specific legislation to make it operative. In other words, it is self-executing only so far as it is susceptible of execution" *Davis v. Burke*, 179 U.S. 399, 403 (1900).
[30] *Payne v. Kassab*, 312 A.2d 86, 87 (1973).
[31] *Payne*, 312 A.2d at 94. The result of this holding was to promote a controlled development of resources, rather than an outright ban on all development in the face of potential environmental impacts.
[32] *Payne v. Kassab (Payne II)*, 361 A.2d 263 (1976).

For all intents and purposes, the three part *Payne* test would remain the determinative test for Section 27 for more than four decades. Environmentalists and advocates alike would refer to the *Payne* test as a legal nonstarter stating the Court abandoned the ERA with the creation of the three-part test.[33] No substantive challenge to the *Payne* test would surface until the General Assembly passed Act 13 in 2012. Act 13 was the General Assembly's effort to amend Pennsylvania's 1984 Oil and Gas Act, which was not drafted to cover unconventional gas production. The Marcellus Shale Formation is a natural gas formation known to exist for more than 75 years.[34] Early drilling methods to capture natural gas did not involve the technique of hydraulic fracturing, thus drillers could not capture gas contained within "pockets" not directly below their drills. Nonetheless, geological surveys conducted in the 1970's showed the Marcellus Shale Formation to be productive if and when capture technology could be cost effective. In 2003, the first drilling was conducted in the Marcellus Formation, resulting in the first producing wells in 2005.[35]

In 2012, Governor Tom Corbett signed Act 13 into law, which created a regulatory structure intended to encourage drilling by horizontal hydraulic fracturing in municipalities throughout Pennsylvania by, among other things, overlaying state-wide regulations "for the siting of pipelines and wells," overriding municipal standards entirely.[36] Act 13 repealed portions of the existing 1984 Oil and Gas Act, and added provisions re-codified into six new chapters in Title 58 of the Pennsylvania Consolidated Statutes.[37] Act 13 limited municipalities from enacting ordinances relating to oil and gas operations to only those pursuant to the Municipalities Planning Code, the 2nd Class City Zoning Law, or the Flood Plain Management Act.[38] Additionally, local ordinances were required to provide for the reasonable development of minerals within their local government, and not inhibit or attempt to impose limitations on subterranean operations or hours of operations.[39]

Act 13 was challenged in 2013 in the case of *Robinson Township v. Commonwealth of Pennsylvania*, in which Robinson Township, a group of landowners, medical professionals, and local municipal officials brought suit claiming adverse effects to their property values, aesthetic values, and other environmental factors.[40] Chief Justice Castille, writing for the three justice plurality of the Pennsylvania Supreme Court, provided a new interpretation of Article I, Section 27 based on the text of the ERA, rather than the three part *Payne* test.[41] Critically, the plurality identified two specific sets of fundamental rights, vested in the people, the first of which contains the right to "clean air, pure water, and to

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[33] Margaret J. Fried and Monique J. Van Damme. "Environmental Protection in a Constitutional Setting," 68 Temp. L. Rev. 1369, 1389-90 (1995).
[34] John A. Harper. "The Marcellus Shale—An Old 'New' Gas Reservoir in Pennsylvania, Pennsylvania" *Geology*, Vol. 38, No. 1, at 2-3 (Spring 2008).
[35] *Id*., at 9.
[36] Erin Daly and James R. May. "*Robinson Township v. Pennsylvania:* A Model for Environmental Constitutionalism," 21 Widener L. Rev. 151, 152 (2015) (discussing the intent of Act 13 of 2012).
[37] *Robinson Township v. Commonwealth*, 83 A.3d 901, 915 (2013) (plurality).
[38] 58 Pa.C.S. §§ 2301-3504 (§ 3302 (state preemption of local ordinances relating to oil and gas operations) found unconstitutional in *Robinson Township*.)
[39] *Id*.
[40] *Robinson Twp.*, 83 A.3d at 976.
[41] Kenneth T. Kristl. "The Devil is in the Details," 28 Georgetown Envtl L. Rev. 589, 592 (2016).

the preservation of natural, scenic, historic and esthetic values of the environment;" the second "arises out of the status of citizens as beneficiaries of a public trust over public natural resources."[42]

Additionally, the plurality held the obligations of Section 27 extend to all levels of government in the Commonwealth, local and state alike.[43] *Robinson Township* marked the first time any Pennsylvania court used Section 27 to hold legislation unconstitutional.[44] Further litigation in the Commonwealth Court (*Robinson III*) and the Pennsylvania Supreme Court (*Robinson IV)* found additional provisions of Act 13 to be unconstitutional. Specifically, the provision requiring notice to be given after a spill from drilling operations to public water systems was found to be constitutionally forbidden special law and a denial of equal protection because it does not provide such notice to private water system. A 180 stay of the ruling was instituted in order to give the General Assembly sufficient time to enact remedial legislation.[45]

Midyear 2016, Commonwealth Court heard the case of *Funk v. Wolf* where an interest group and other parties brought action for declaratory and mandamus relief against the Public Utility Commission, its Chairperson, and Governor Wolf in his official capacity as Governor of Pennsylvania.[46] A unique case in its own right, the petitioners sought various forms of relief with the "goal of requiring PUC and Executive Branch Respondents 'to develop a comprehensive plan' and to regulate 'Pennsylvania's emissions of carbon dioxide ('CO2') and other greenhouse gases (GHG's)'…'consistent with and in furtherance of the Commonwealth's duties and obligations under Article I, Section 27' of the Pennsylvania Constitution."[47] Petitioners alleged the Commonwealth's failure to "develop and implement a comprehensive plan to regulate CO2 and GHGs in light of the present and projected deleterious effects of global climate change" resulted in a failure to fulfill the Commonwealth's duty not to infringe on individual constitutional rights granted to the people by Article I, Section 27.[48]

Initially, the Court determined petitioners had standing to sue, affirming precedential standing for environmental plaintiffs who allege "injury in fact, when they aver that they use the affected area and are persons for whom the aesthetic and recreational values of the area will be lessened by the challenged activity." [49] Here, petitioners suffering from asthma and pollen allergies, experiencing restrictions on recreational interests and activities and citing general concerns about climate change, were sufficient to satisfy this

[42] *Id.*, Justice Castille's plurality decision was regarded as a landmark decision because it breathed new breath into the largely considered dormant ERA.
[43] *Id*.
[44] John C. Dernbach. "The Potential Meanings of a Constitutional Public Trust," 45 Envtl. L. 463, 464 (2015). The plurality applied basic statutory interpretive methods to determine their rationale. Additionally, the plurality placed emphasis on the location of Section 27, being in Article I (Declaration of Rights) of the Pennsylvania Constitution, as equivalent location to the U.S. Constitution Bill of Rights.
[45] 58 Pa.C.S. § 3218.1. *Robinson Township v. Commonwealth (Robinson IV),* Pa. Supreme Court, No. 104 MAP 2014 (September 28, 2016).
[46] *Funk v. Wolf*, 144 A.3d 228 (2016).
[47] *Id*., at 232.
[48] *Id*., at 233.
[49] *Id*., at 245.

burden. The Court emphasized the difficulty Section 27 places on lawmakers, stating the ERA places the legislature "in the 'constant and difficult' position of 'weighing conflicting environmental and social concerns' and 'in arriving at a course of action that will be expedient as well as reflective of the high priority which constitutionally has been placed on the conservation of our natural, scenic, esthetic and historical resources.'"[50] Ultimately, the Court concluded the petitioners lack the clear right to compel the respondents to conduct the requested activities, regulations, or implement executive orders.

Despite the Court's holding that petitioners lack the legal remedy to force the Commonwealth to enact a stricter climate change agenda, the Court recognized Section 27's "zone of interest…is the rights of all the people of the Commonwealth, including future generations."[51] Additionally, like the petitioners in *Robinson Township* whom the Pennsylvania Supreme Court concluded had "immediate interests in the litigation based on allegations of likely harms," petitioners in *Funk*, with concerns over climate change, "presented both present and likely future harms."[52]

Within a year of the Commonwealth Court's decision in *Funk v. Wolf*, the Pennsylvania Supreme Court upended environmental precedent. In *Pennsylvania Environmental Defense Foundation v. Commonwealth* (*PEDF*), the Court rejected the three part test set forth under *Payne*, finding the test to be "unrelated to the text of Section 27 and the trust principles animating it, [and] strips the constitutional provision of its meaning." [53] Accordingly, the Supreme Court rejected the *Payne* test. Instead, the Court implemented a standard of review requiring an examination of the text of Section 27, as well as the central principles of Pennsylvania trust law in effect at the time of the ERA's enactment.[54]

The contours of Section 27, examined through the Court's holding in *PEDF*, begin from the General Assembly's Article III "broad and flexible powers to enact laws for the purpose of promoting public health, safety, morals, and the general welfare."[55] Limiting this power however, the enumerated fundamental rights of Article I of the Pennsylvania Constitution affirm, "among other things, that all citizens 'have certain inherent and indefeasible rights.'"[56] Article I, Section 25 pronounces the rights contained in Article I "shall remain forever inviolate" and are "excepted out of the general power of government."[57]

Article I, Section 27 grants two separate rights reserved by the people of the Commonwealth, and one benefit under which the Commonwealth is trustee.[58] The first right created by the ERA is contained within its first sentence, "the people have a right to

[50] *Funk v. Wolf*, 144 A.3d at 245-46.
[51] *Id*., at 248.
[52] *Id*.
[53] *PEDF*, 161 A.3d at 930.
[54] *Id*.
[55] *Id*.
[56] *Id*., at 931.
[57] Pa. Const. art. I, § 1.
[58] *PEDF*, 161 A.3d at 931.

clean air, pure water, and to the preservation of the natural, scenic, historic and esthetic values of the environment."[59] The Court in *PEDF* determined this right to be a prohibitory clause placing a limitation on the Commonwealth's ability to act contrary to this right; only reasonable limitations will be upheld in light of the subject of this right.[60] The second right created by the ERA pertains to common ownership, and is contained within the second sentence of Section 27: "Pennsylvania's public natural resources are the common property of all the people, including generations yet to come."[61] The public natural resources include state forests, park lands, air, water, fish and wildlife, and other publically held natural resources, including public "lands leased for oil and gas exploration and…the oil and gas themselves."[62]

The third and final sentence of Section 27 confers upon the Commonwealth the responsibility "as trustee of these resources…shall conserve and maintain them for the benefit of all the people."[63] Critically, the terms "trustee" and "trust" in the text of Section 27 include within the meaning of the ERA their legal consequences under Pennsylvania law at the time the amendment was adopted. Under Pennsylvania law, the corpus of the trust is composed of the natural resources of the Commonwealth, the people are the beneficiaries.[64] Inclusion of the precise language of "trustee" was specifically intended:

> As a trustee, the Commonwealth must deal 'with its citizens as a fiduciary, measuring its success by the benefits it bestows upon all its citizens in their utilization of natural resources under law.' Under Section 27, the Commonwealth may not act as a mere proprietor, pursuant to which it 'deals at arm's length with its citizens, measuring its gains by the balance sheet profits and appreciation it realizes from its resources operations.'"[65]

Pennsylvania's environmental trust imposes two duties upon the Commonwealth as trustee: (1) the duty to "prohibit the degradation, diminution, and depletion of our public natural resources, whether these harms might result from direct state action or from the actions of private parties" and (2) "the Commonwealth must act affirmatively via

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[59] Pa. Const. art. I, § 27.
[60] *PEDF*, 161 A.3d at 931.
[61] Pa. Const. art. I, § 27.
[62] *PEDF*, 161 A.3d at 931. The ERA was initially drafted to include an enumerated list of public natural resources, but was later amended to exclude the enumerated list due to concerns of potential limitations to the scope of public natural resources to those specifically listed. *Id*.
[63] Pa. Const. art. I, § 27.
[64] *PEDF*, 161 A.3d at 931-32.
[65] *Id*., at 932. Under Pennsylvania trust law, several duties are imposed upon the trustee of the trust, notwithstanding the duties of prudence, loyalty, and impartiality. *Id*. at 932-33. The duty of prudence requires the trustee to "'exercise such care and skill as a man of ordinary prudence would exercise in dealing with his own property.'" *Id*. at 932. The duty of loyalty obligates the trustee to account for the corpus of the trust to as to achieve the trust's purpose for the advantage of the beneficiary. *Id*. The duty of impartiality requires the beneficiary to receive due regard for their interest in lieu of the trust's purpose. *Id*. at 933.

legislative action to protect the environment."[66] The phrase "for the benefit of all the people," the Court stated, clearly means the Commonwealth, as trustee, must use the assets of the trust for conservation and maintenance purposes.[67]

The plurality decision in *Robinson Township* did not tackle the decision of whether the ERA requires implementing legislation or whether its language is self-executing.[68] Not since *Gettysburg Tower* and *Payne II* has the court seriously faced this issue.[69] The Pennsylvania Supreme Court, in *Payne II*, held the "trust provisions in the second and third sentences of Section 27 do not require legislative action in order to be enforced against the Commonwealth in regard to public property."[70] In *Payne II*, the Court held:

> There can be no question that the Amendment itself declares and creates a public trust of public natural resources for the benefit of all the people (including future generations as yet unborn) and that the Commonwealth is made the trustee of said resources, commanded to conserve and maintain them. No implementing legislation is needed to enunciate these broad purposes and establish these relationships; the Amendment does so by its own language.[71]

Former Chief Justice Castille, writing for the *Robinson Township* plurality, echoed this rationale in concluding the Commonwealth's obligations as trustee create a right, vested in the people, to seek to enforce the trust obligations created by Section 27. As such, the Court in *PEDF* re-affirmed their previous decision that the public trust provisions of the ERA are self-executing.[72] *PEDF* signals a return to the text of Section 27 and legal enforcement of the rights and duties contained within its language.

Despite expansive language and breadth to which it has been applied, Section 27 was not intended to be read in "absolutist terms so as to prohibit development that enhances the economic opportunities and welfare of people currently living in Pennsylvania."[73]

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[66] *Id*., at 933. Although the trustee has discretion over the corpus of the trust, discretion is limited by the purpose of the trust and the trustee's fiduciary duties. *Id*. Similarly, the trustee may only use the assets of the trust for the purposes necessary for preservation of the trust; "proceeds from the sale of trust assets are part of the corpus of the trust." *Id*., *McKeown's Estate*, 106 A. 189, 190 (1919).

[67] *Id*., at 934-35. In terms of leases and contracts, the Court in *PEDF* stated "the Commonwealth, as trustee, has a constitutional obligation to negotiate and structure [these documents] in a manner consistent with Article I, Section 27 duties." *Id*. at 936.

[68] *PEDF*, 161 A.3d at 936.

[69] *National Gettysburg Battlefield Tower, Inc*., 311 A.2d at 595; *PEDF*, 161 A.3d at 927. *Payne v. Kassab*, 361 A.2d 263, 273 (1976) (*Payne II*). The Pennsylvania Supreme Court, in its decision in *Payne II*, affirmed the judgment in *Payne I*, without adopting the three-part test used for determining ERA applicability. However, the Court did conclude the "elaborate safeguards" contained within the challenged statute did provide adequate safeguards such that breach of the trust contained within the language of the ERA would not occur.

[70] *PEDF*, 161 A.3d at 937.

[71] *Payne II*, 361 A.2d at 272.

[72] *PEDF*, 161 A.3d at 937.

[73] *Funk v. Wolf*, 144 A.3d at 233.

Commonwealth Court described Section 27 as a '"a thumb on the scale, giving greater weight to the environmental concerns in the decision-making process' when 'environmental concerns of development are juxtapose with economic benefits of development."'[74]

PEDF did not address the applicability of Section 27 challenges to actions on private land conducted with government approval. Following the Court's decision in *PEDF*, it is not outside the bounds of conception that private actions could also fall within the umbrella coverage of Section 27, addressing resources or implicating the right to "clear air, pure water, and…the preservation of natural, scenic, historic, and esthetic values of the environment."[75] In those cases, the intersection of privately protected property rights seemingly conflict with the enumerated rights of Section 27, potentially leading to future litigation on the issue as courts attempt to balance private property rights to use and develop land as the owner sees fit and the Commonwealth's obligation to protect the environment. The Court's decision in *PEDF* also suggests greater weight will be given to Section 27 values where environmental harm cannot be avoided. Questions still remain regarding, among other things, the Commonwealth's obligation to address climate change, the subject of *Funk v. Wolf*, where Commonwealth Court declined to invoke mandamus to support broad executive action addressing climate change.

The revitalization of Section 27 by the majority decision in *PEDF* requires government actors, at all levels of Commonwealth governance, to take into account every sentence of the Environmental Rights Amendment when making decisions regarding Pennsylvania's environment. In a recent challenge to the renewal of a landfill permit, the Environmental Hearing Board noted that "in theory, an operation may be compliant with all specific regulatory requirements and yet not be permittable due to the unreasonable degradation it will cause" under Section 27. Additionally, the Environmental Hearing Board discussed the social context of the permitted activity as a possible factor in determining Section 27 violations. In some instances, the magnitude of societal benefit of the activity may outweigh the environmental impact.[76] Because the text of the ERA is the roadmap for its application, in-depth "assessments of environmental effects before actions are taken are key to providing the information critical to discharging the constitution's requirement."[77] What is certain from the holding in *PEDF* is the Commonwealth's astute obligation to approach Pennsylvania's resources as trustee, rather than as proprietor.[78]

[74] *Id*., at 234.
[75] Pa. Const. art. I, § 27.
[76] *Friends of Lackawanna v. Commonwealth of Pennsylvania, Department Of Environmental Protection and Keystone Sanitary Landfill, Inc., Permittee,* EHB Docket No. 2015-063-L, at p. 52 (November 8, 2017).
[77] Kristl, *supra,* note 42 at 635.
[78] *PEDF*, 161 A.3d at 939.

Study Directive

This multi-leveled approach to authority over environmental laws and regulations in Pennsylvania makes it important that the relationship between Federal and State laws be clarified and identified. It was in recognition of this need for enumeration and categorization of Pennsylvania's environmental laws that Senate Resolution 385 of 2015 (Printer's No. 2092) was adopted, directing the Joint State Government Commission to conduct "a study to analyze and identify which environmental laws and regulations of this Commonwealth have more stringent standards than Federal law requires…"

In order to complete this assignment, Joint State Government Commission staff has reviewed the federal laws that impact Pennsylvania to determine the extent of their "reach," *i.e.*, if they preempt state law and to what extent they do so; where states are permitted to impose more stringent standards; and to what extent, if any, Pennsylvania has acted. Comparing Pennsylvania regulations to federal law is complicated by the fact that one regulation can be simultaneously more stringent and less stringent than what the applicable federal law requires. The reasons for this are often highly technical and specific to each regulation. Additionally, there are Pennsylvania statutes that act in areas of environmental law that have not been addressed federally.

This study captures the status of regulations as they existed at the end of 2017/beginning of 2018. As part of the Trump Administration's goal of "rolling back" federal regulations that may impede job growth and energy development, many of the federal regulations that are discussed in this report are in flux. We have described the relationship between the federal and state regulations in terms of stringency, but it must be acknowledged that it is possible that some federal standards will be relaxed or repealed, and thus what once was not a more stringent state regulation may become one. Harvard University and Columbia University have both created databases that track environmental regulatory rollbacks as they develop and can provide up-to-date information on the status these evolving regulations.[79] While intended as a broad, comprehensive review, this report is not exhaustive, and there may be relevant regulations that are not captured herein.

In a very broad sense, all environmental laws affect pollution of air and water in one form or another. For purposes of this study, separate chapters have been dedicated to the overarching statutes in each area – the federal Clean Air Act and its Pennsylvania counterpart, and the federal Clean Water Act and Pennsylvania's Clean Streams Law. Within those chapters, ancillary statutes and regulations are also reviewed. Later chapters address specific areas of environmental laws affecting air, water and land pollution, such as natural resource conservation and development, waste management, and disposal of hazardous materials.

[79] Harvard University, Environmental Law Program, Emmett Clinic Policy Initiative, hppt://environment.law.harvard.edu/policy-initiative/regulatory-rollback-tracker/ and Columbia University, Sabin Center for Climate Change Law, http://columbiaclimatelaw.com/resources/climate-deregulation-tracker/.

Since the discovery of fire, human-generated releases of gases and particulate matter into the air have occurred. Additionally, there are natural events, such as volcanos, earthquakes, hurricanes and tornados, which can cause the release of toxic materials into the air.

Prior to 1960, air pollution controls in Pennsylvania were enforced at the municipal level. The City of Pittsburgh attempted to regulate smoke levels as early as 1868, with an ordinance that applied only to railroads and was not enforced effectively. This ordinance was one of the first five city smoke control ordinances enacted in the country.[80] Ordinances were also passed in 1892, 1895, 1906 and 1907. Pittsburgh's first effective ordinance, No. 257, was approved in 1914.[81] Enforcement was weak, but voluntary compliance added to its efficacy. The City passed a stronger smoke control ordinance in 1941, but its implementation was postponed until October 1, 1946 because of World War II for industrial and commercial establishments; residential areas were given until October 1, 1947. While these regulations were being implemented by the affected parties, the need for this type of regulatory activity became apparent in October 1948 when the town of Donora became "smogged-in" for five days as a result of weather conditions. Donora is located 25 miles south of Pittsburgh in the Monongahela River Valley. The stable weather pattern that developed over the valley prevented the dispersion of the then normal amount of emissions from local steel plants and zinc smelters that contaminated the air with carbon monoxide, sulfur dioxide and metal dust. Twenty people died and about half the town's population became sick. One of the responses to the "first air pollution disaster recorded in the U.S." was the adoption by Allegheny County of a countywide ordinance to control smoke in 1949.[82]

Contemporaneous with Pittsburgh's early 20th century ordinances, Philadelphia passed an ordinance in 1904 to regulate smoke emissions. A city ordinance in 1954 further limited smoke emissions. In 1949 the Division of Air Pollution Control and the Air Pollution Control Board were created. Twenty years later in response to state concerns with some of the city's air pollution control program activities, the city adopted its Air Management Code, administered by the Air Management Services Division in the Department of Public Health.[83]

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[80] Cliff I. Davidson. "Air Pollution in Pittsburgh: A Historical Perspective." *Journal of the Air Pollution Control Association*, 29:10, 1035-1042, 1037, DOI: 10.1080/00022470.1979.10470892.
[81] Davidson, at 1038.
[82] Davidson at 1039; *See also* "Smog Deaths in 1948 Led to Clean Air Laws," *National Public Radio*, All Things Considered. (April 22, 2009). https://www.npr.org/templates/story/story.php?storyId=103359330.
[83] "History of Air Pollution Control in Philadelphia," Philadelphia Air Management Services, http://www.phila.gov/health/pdfs/History_012013.pdf.

The Pennsylvania Air Pollution Control Act

Beginning in 1952, states began enacting statewide air pollution control legislation. Pennsylvania was the 8th state in the country to enact its own law in January 1960, while the remaining 42 states adopted their statutes in the period of 1960-1970.

The Pennsylvania Air Pollution Control Act (APCA) was first passed in 1959 to implement the provisions of the 1955 federal Air Pollution Control Act in the Commonwealth.[84] The federal 1955 act simply provided federal funds for research into air pollution.[85] APCA was later amended to implement compliance with the federal Clean Air Act of 1963 (CAA),[86] which subsumed and expanded the 1955 federal law. "Implementation of the provision of the Clean Air Act in the Commonwealth" is declared to be the policy of the APCA,[87] and "implementing the provisions of the CAA in the Commonwealth" is one of the main duties of DEP under the APCA.[88]

Generally, the APCA restricts air pollution control measures, ambient air quality standards, and hazardous air pollution emission standards to those no more stringent than issued under the CAA, which are incorporated by reference into Pennsylvania's regulations. Section 4.2(a) authorizes regulations needed to implement

> the requirements of section 109 of the Clean Air Act, . . . only those control measures or other requirements which are reasonably required, in accordance with the Clean Air Act deadlines, to achieve and maintain the ambient air quality standards or to satisfy related Clean Air Act requirements, unless otherwise specifically authorized or required by this act or specifically required by the Clean Air Act. [89]

Additionally, Section 4.2(b) dictates that "Control measures or other requirements adopted under subsection (a) of this section shall be no more stringent than those required by the Clean Air Act unless authorized or required by this act or specifically required by the Clean Air Act."

There are, however, several exceptions to this directive. Among them are a federal court order, to prevent sanctions levied by the federal government under the CAA, and "to achieve or maintain ambient air quality standards."[90] The APCA statutorily incorporates by reference all of the "regulations establishing performance or emission standards

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[84] Act of January 8, (1960) 1959 (P.L.2119, No.787) § 12; 35 P.S. § 4012, known as the Air Pollution Control Act (APCA).
[85] Air Pollution Control Act of 1955, Pub.L.. 84–159, ch. 360, 69 Stat. 322 (effective July 14, 1955).
[86] Clean Air Act of 1963, Pub.L.. 88-206, 77 Stat. 392 (effective December 17, 1963).
[87] APCA § 2; 35 P.S. § 4002.
[88] APCA § 4(1); 35 P.S. § 4004(1).
[89] APCA, § 4.2(a); 35 P.S. § 4004.2(a).
[90] APCA § 4.2(b)(1) and (4); 35 P.S. § 4004.2(b)(1) and (4).

promulgated under section 112 [regarding hazardous air pollutants] of the Clean Air Act."[91] If the EPA does not promulgate a standard to control the emissions of hazardous air pollutants for a category of major sources, DEP is authorized to establish such a performance or emission standard on a case-by-case basis for individual sources or a category of sources.[92]

Regarding ambient air quality standards for specific pollutants, Section 2(c) of the APCA states "the board may not by regulation adopt an ambient air quality standard for a specific pollutant which is more stringent than the air quality standard which the EPA has adopted for the specific pollutant."[93]

The APCA however, specifically does not preempt local municipal ordinances that regulation air pollution, such as those promulgated in Pittsburgh and Philadelphia.

> Powers Reserved to Political Subdivisions.--(a) Nothing in this act shall prevent counties, cities, towns, townships or boroughs from enacting ordinances with respect to air pollution which will not be less stringent than the provisions of this act, the Clean Air Act or the rules and regulations promulgated under either this act or the Clean Air Act. This act shall not be construed to repeal existing ordinances, resolutions or regulations of the aforementioned political subdivisions existing at the time of the effective date of this act, except as they may be less stringent than the provisions of this act, the Clean Air Act or the rules or regulations adopted under either this act or the Clean Air Act.[94]

The Federal Clean Air Act

The federal CAA was amended in 1965[95], 1967[96], 1970[97], 1977[98], and 1990[99]. The 1970 amendments created the national ambient air quality standards and set deadlines for states to bring their air pollution levels in line with those standards through the submission of state implementation plans. New source performance standards, limiting air pollution from new sources and the national emission standards for hazardous air pollutants, were also introduced. The 1970 amendments also created the Environmental Protection Agency, greatly expanding enforcement capability.[100]

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[91] APCA § 6.6(a); 35 P.S. § 4006.6(a).
[92] APCA § 6.6(b); 35 P.S. § 4006.6(b).
[93] APCA § 4.2; 35 P.S. § 4004.2(c).
[94] APCA § 12; 35 P.S. § 4012.
[95] Motor Vehicle Air Pollution Control Act aka National Emissions Standards Act, Pub.L.. 89–272, 79 Stat. 992 (1965).
[96] Air Quality Act of 1967, Pub.L.. 90-148, 81 Stat. 485 (1967).
[97] Clean Air Act Amendments of 1970, Pub.L.. 91-604, 84 Stat. 1676 (December 31, 1970).
[98] Clean Air Act Amendments of 1977, Pub.L.. 95-95, 91 Stat. 685 (August 7, 1977).
[99] Clean Air Act Amendments of 1990, Pub.L.. 101-549, 104 Stat. 2399 (November 15, 1990).
[100] *Supra*, note 97.

The CAA was amended again in 1977, this time to create provisions regarding the Prevention of Significant Deterioration (PSD) of air quality in areas that had attained the national ambient air quality standards. Provisions regulating standards that must be met by sources in areas that do not meet the national ambient air quality standards were also added.[101] The 1990 CAA amendments provided specific sections for the control of acid rain, mitigation of stratospheric ozone depletion, and for the issuance of stationary source operating permits.[102]

Currently, the CAA is organized into seven separate subchapters, known as titles, covering different regulatory programs. Title I addresses the national ambient air quality standards, air emission control requirements, and the state implementation plan framework. Title II sets standards for fuel and vehicle emissions. Title III addresses general provisions for administration and enforcement. Title IV deals with noise pollution. Title IV-A establishes a program for the control of acid rain through the regulation of sulfur dioxide emitted from electric generating stations. Title V creates the permit program, which is administered by the states. Title VI administers the national stratospheric ozone protection program.

Under the CAA, the EPA regulates air pollution from both stationary sources (factories, power plants, industrial facilities) and mobile sources (motor vehicles and other modes of transportation). Two major provisions of the CAA include Section 109, which sets primary and secondary national ambient air quality standards, and Section 112, which regulates hazardous air pollution. National ambient air quality standards apply to both stationary and mobile sources under Section 109. Section 112 is applicable to stationary sources only. Other important sections include Section 110 (state implementation plans), Section 111 (standards of performance for new stationary sources), and Section 202 (emissions standards for new vehicles).

National Ambient Air Quality Standards

The EPA sets air quality standards and emissions limitations through the national ambient air quality standards (NAAQS) that pertain to six criteria pollutants.[103] The criteria air pollutants are lead, sulfur dioxide, ground-level ozone (created by emissions of volatile organic compounds), carbon monoxide, nitrogen oxide, and particulate matter.[104] There are two types of NAAQS for each pollutant – primary and secondary. The primary NAAQS are "based on such criteria . . . requisite to protect the public health."[105] The secondary NAAQS are related to protecting the "public welfare."[106] Each of the 12 standards has a specific measurement that cannot be violated within a certain time frame.[107]

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[101] *Supra*, note 98.
[102] *Supra*, note 99.
[103] EPA. "Criteria Air Pollutants." https://www.epa.gov/criteria-air-pollutants; 42 U.S.C. § 7409.
[104] 40 C.F.R. Part 50.
[105] 42 U.S.C. § 7402(b)(1).
[106] 42 U.S.C. § 7402(b)(2).
[107] EPA. "National Ambient Air Quality Standards for Ozone." 80 Fed. Reg. 65292 (December 28, 2015).

The CAA created 275 air quality control regions (AQCRs).[108] Pennsylvania is divided into 6 AQCRs, some of which include portions of other states.[109] The EPA designates them as attainment, non-attainment, or unclassifiable, where non-attainment regions are those that have ambient air quality which does not meet federal standards for at least one pollutant.[110] Attainment designations are based upon measured air quality data.[111] The EPA maintains a list of which air quality control regions are in non-attainment, called the "Green Book."[112] An air quality control region can be in attainment for one pollutant, such as ozone, while being considered non-attainment for another, such as sulfur dioxide. The Commonwealth has adopted by regulation the federal NAAQS.[113] Because the Commonwealth's regulation of air quality standards is simply an adoption of the federal regulation, these standards are not more stringent than the federal standards.[114]

State Implementation Plan

Each state develops what is known as a State Implementation Plan (SIP) to demonstrate how they will comply with the CAA and its regulations.[115] The SIP must be approved by the EPA.[116] A SIP typically includes a narrative, maintenance plans, emissions inventories, monitoring networks, an explanation of state statutory authority, and other documents and materials.[117] If an area is designated non-attainment for one of the criteria air pollutants, the state must work to achieve attainment.[118] For areas designated non-attainment for a primary NAAQS, this must be accomplished as "expeditiously as practicable, but no later than 5 years from the date such area was designated nonattainment."[119] For secondary NAAQS, attainment must be achieved as "expeditiously as practicable."[120] For non-attainment areas, the SIP must "provide for the implementation of all reasonably available control measures," provide for reasonable further progress toward attainment status, an inventory of actual emissions from all sources of the relevant pollutant or pollutants, permits for the construction and operation of new and modified stationary sources, and other enforceable emission limitations.[121]

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[108] 42 U.S.C. § 7407(b); 40 C.F.R. part 81, subpart B.
[109] The ACQRs are: Metropolitan Philadelphia Interstate Air Quality Control Region, 40 C.F.R. §81.15; Southwest Pennsylvania Intrastate Air Quality Control Region, 40 C.F.R. § 81.23; Northeast Pennsylvania-Upper Delaware Valley Interstate Air Quality Control Region, 40 C.F.R. § 81.55; Northwest Pennsylvania-Youngstown Interstate Air Quality Control Region, 40 C.F.R. §81.74; Central Pennsylvania Intrastate Air Quality Control Region, 40 C.F.R. § 81.104; and South Central Pennsylvania Intrastate Air Quality Control Region, 40 C.F.R. § 81.105.
[110] 42 U.S.C. § 7407(d)(1)(A). "Non-attainment" is also defined in 42 U.S.C. § 7501(2) by referring back to §7407.
[111] 40 C.F.R. Part 50 (detailing the standards and how they are to be measured).
[112] EPA. "Nonattainment Areas for Criteria Pollutants (Green Book)." https://www.epa.gov/green-book.
[113] 25 Pa. Code § 131.2.
[114] *Id.*
[115] 42 U.S.C. § 7407.
[116] 42 U.S.C. § 7410.
[117] EPA. "Basic Information About Air Quality SIPs." https://www.epa.gov/sips/basic-information-air-quality-sips.
[118] 42 U.S.C. §§ 7501-7515.
[119] 42 U.S.C. § 7502(a)(2)(A).
[120] 42 U.S.C. § 7502(a)(1)(B).
[121] 42 U.S.C. § 7502(c).

Once approved, the SIP becomes part of the Code of Federal Regulations. Pennsylvania's SIP is found at 40 C.F.R. § 52.2020. SIPs are not carved in stone – they are frequently updated and augmented with what is known as a SIP revision. These revisions reflect changes in regulatory requirements for entities which emit any of the NAAQS criteria air pollutants. There also specific SIP requirements for non-attainment areas for each of the NAAQS criteria air pollutants.[122]

SIP Implementation

After approval by the EPA, the SIP is then incorporated into state law by regulation. The idea behind having a state submit a SIP to the EPA is that the state will have more flexibility in how it complies with the NAAQS. The NAAQS are not emissions standards for individual sources but rather are air quality goals for a broad geographic region. However, federal regulations have begun coloring in how states meet their obligations under the SIPs. For example, in the 1970s, some states permitted the use extremely tall smokestacks to eject pollutants further out into the atmosphere in order to achieve sulfur dioxide levels set by the NAAQS. After rounds of lawsuits and new regulations specifying when increased smokestack height can be used to comply with sulfur dioxide standards, the 1990 Amendments to the CAA changed how sulfur dioxide is measured – from "ground level" to "at the source" – making smokestack height a less important issue.[123]

In some instances, the federal government allows, but does not require, a state to enact regulatory programs. For instance, the CAA also allows, but does not require as a condition of approving a SIP, a state to include an "indirect source review program" in the SIP.[124] DEP does not include an indirect source review program as part of the Commonwealth's SIP.

New major stationary sources of criteria pollutants, or modifications to existing sources, must undergo a pre-construction permitting process to ensure that they conform to federal law before they are built or modified. In attainment and unclassifiable areas, the permitting process is called "prevention of significant deterioration" (PSD).[125] In non-attainment areas, the permitting process is known as "new source review" (NSR).[126] It applies to any of the criteria air pollutants that are in nonattainment in a given air quality control region. The goal is to reduce the aggregate level of pollutants in the nonattainment area by prohibiting the addition of new sources unless their emissions are offset by the closing of, or reduction of emissions from, another existing source.[127] The states conduct the PSD and NSR permitting process.

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[122] 42 U.S. C. §§ 7511-7513.
[123] Arnold W. Reitze. *Stationary Source Air Pollution Law*. (Washington, D.C.: Environmental Law Institute, 2005), 97.
[124] 42 U.S.C. § 7410(a)(5)(A)(1)
[125] 40 C.F.R. § 51.166.
[126] EPA. "New Source Review (NSR) Permitting." https://www.epa.gov/nsr/learn-about-new-source-review. *See also* 42 U.S.C. §§ 7511a-7513b.
[127] 42 U.S.C. § 7503(c).

Although neither federal law nor regulations mention the term "new source review," it is used by the EPA, and Pennsylvania's regulations on the matter are titled "new source review" and specifically manage "construction or modification of an air contamination facility in a nonattainment area or having an impact on a nonattainment area."[128] Pennsylvania has also, by regulation, incorporated by reference the federal standards of performance for new stationary sources.[129] Pennsylvania's regulations on new source review for fine particulate matter are more stringent than the federal standards, a position that is justified by DEP as a necessary for the Commonwealth to meet the federal requirements for NAAQS.

Volatile Organic Compounds

One aspect of the SIP requirements that is unique to Pennsylvania and other northeastern states is that they are required to be a part of the Northeast Region OTC, or Ozone Transport Commission, by virtue of their historically high ozone and volatile organic compound ("VOC," chemicals which are precursors to ground-level ozone) pollution.[130] The goal of the OTC is to address the problem of ozone and VOCs wafting across state borders by requiring the OTC states to collaborate on their ozone and VOC reduction strategies. One of the main requirements of the OTC is that the participating states must implement, and submit or revise a SIP to account for, an "enhanced vehicle inspection and maintenance program" in the metropolitan statistical areas with populations of 100,000 or more.[131] States are also required to implement reasonably available control technology for all sources of VOCs for which the EPA has published Control Technique Guidelines.[132]

Federal law requires states to implement regulations governing VOCs under the NAAQS and provides Control Techniques Guidelines on a source-by-source basis. Pennsylvania has issued regulations relating to several VOC sources. Pennsylvania's regulations on flexible packaging, offset lithographic and letterpress printing presses, adhesives, sealants, primers, solvents, large appliance and metal furniture surface coating processes, consumer products, and architectural and industrial maintenance coatings are more stringent than the federal guidance suggests. Pennsylvania's regulations on vehicle coating operations, metal and plastic parts coating, pleasure craft coating, fiberglass boat manufacturing materials, paper, film and foil surface coatings are not. Proposed regulations addressing VOC emissions from industrial cleaning solvents that are due for final implementation August 2019 are not more stringent than federal guidelines.

[128] 25 Pa. Code § 127.201 *et seq*.
[129] 25 Pa. Code § 122.1 *et seq*.
[130] 42 U.S.C. § 7511c. The states are Connecticut, Delaware, Maine, Maryland, Massachusetts, New Hampshire, New Jersey, New York, Pennsylvania, Rhode Island, Vermont, and the Consolidated Metropolitan Statistical Area that includes the District of Columbia.
[131] 42 U.S.C. § 7511c(b)(1)(A).
[132] 42 U.S.C. § 7511c(b)(1)(B).

The oil and gas extraction industry is a significant source VOCs. The EPA has promulgated regulations under authority of the CAA to regulate emissions of VOCs from specific sources within the oil and natural gas industry;[133] petroleum refineries;[134] petroleum refinery wastewater systems;[135] onshore natural gas processing plants;[136] and storage vessels for volatile organic liquids and petroleum liquids.[137] Emissions of sulfur dioxide (SO2) from onshore natural gas processing plants are also regulated.[138] In the fall of 2016, the EPA released "Final Control Techniques Guidelines for the Oil and Natural Gas Industry" applicable to the OTC states. The new CTGs would address "fugitive emissions" (leaks) as well as emissions from storage tanks, pneumatic controllers and pumps, and compressors. A January 1, 2021 deadline was imposed for implementation of the new CTGs.[139] Following review mandated by the Trump Administration, the EPA issued a "Notice of Proposed Withdrawal of the Control Techniques Guidelines for the Oil and Natural Gas Industry" on March 1, 2018.[140]

Interstate Transport

The total pollution in any area forms from the combination of local and upwind sources. Air transport refers to pollution from upwind emission sources that impact air quality in a given location downwind. Emissions of sulfur dioxide and nitrogen oxides (NOX) can each undergo chemical reactions in the atmosphere to form fine particle (soot) pollution. The transport of these pollutants across state borders, referred to as interstate air pollution transport, makes it difficult for downwind states to meet health-based air quality standards. The CAA requires each state, as part of its SIP to prohibit emissions that will significant contribute to or interfere with maintenance of NAAQs in a downwind state, known as the "good neighbor" provision.[141] Section 126 of the CAA gives a state the authority to ask EPA to set emissions limits for specific sources of air pollution in other states under the interstate air pollution transport rules. In 2016, the State of Connecticut petitioned the EPA to make a finding that emissions from Brunner Island Steam Electric Station in York County, Pennsylvania, significantly contribute to nonattainment and interfere with maintenance NAAQS in Connecticut in violation of the good neighbor provision. This petition was denied on April 6, 2018.[142]

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[133] 40 C.F.R. Pt. 60 Subpt. OOOO.
[134] 40 C.F.R. Pt. 60 Subpts. GGG & GGGa.
[135] 40 C.F.R. Pt. 60 Subpt. QQQ.
[136] 40 C.F.R. Pt. 60 Subpt. KKK.
[137] 40 C.F.R. Pt. 60 Subpts. K, Ka, & Kb.
[138] 40 C.F.R. Pt. 60 Subpt. LLL.
[139] EPA. "Final Control Techniques Guidelines for the Oil and Natural Gas Industry." 81 Fed. Reg. 74798 (October 27, 2016).
[140] EPA. "Notice of Proposed Withdrawal of the Control Techniques Guidelines for the Oil and Natural Gas Industry." 83 Fed. Reg. 10478 (March 9, 2018).
[141] EPA. "Interstate Air Pollution Transport." https://www.epa.gov/airmarkets/interstate-air-pollution-transport.
[142] EPA. EPA-HQ-OAR-2016-0347; FRL-_____, RIN 2060-AT35 "Response to June 1, 2016 Clean Air Act Section 126(b) Petition from Connecticut." https://www.epa.gov/sites/production/files/2018-04/documents/ct_126_petition_notice_of_final_action_4_6_2018_clean.pdf (unofficial citations; not yet published in the Federal Register).

Nitrogen oxide

Nitrogen oxide is considered a precursor to ozone and fine particulate matter pollution (two of the six criteria air pollutants). Under the guidance of the OTC, Pennsylvania has determined that regulation of nitrogen oxide from glass melting furnaces is necessary attain and maintain ozone and particulate matter NAAQS. For similar reasons, Pennsylvania has also issued regulations for the manufacture of cement (cement kilns). As there are no federal regulations for either of the processes, these regulations, by nature of their existence, are more stringent that federal law. Emissions of particulate matter, carbon monoxide (CO), NOX, and SO2 from petroleum refineries are subject to EPA emission rules.[143]

Acid rain

Acid rain is created when SO2 and NOX mix with water, either in the atmosphere or when the pollutants fall to the ground and then interact with rainwater. Acid rain can have negative effects on soil, forests, streams, and lakes.[144] Congress took action to reduce the amount of SO2 and NOX with Title IV of the 1990 CAA Amendments, also known as the acid deposition control program.[145] Congress approached its goal of reducing acid rain by requiring power plants to reduce emissions of SO2 by 10 million tons from its 1980 levels and NOX by 20 million tons from their 1980 levels. Congress implemented the acid deposition control program in a complicated two-phase process. Title IV also seeks to limit emissions of NOX. It mandates that the EPA establish regulations to create annual allowable NOX emissions from utility boilers.

The acid deposition control program is implemented through the permitting process.[146] According to a 2011 report by the United States Geological Survey to Congress, SO2 and NOX emissions are down substantially and the goals of the acid deposition control program have been met.[147]

Hazardous Air Pollution

Hazardous air pollution emissions standards set by the Commonwealth statutorily incorporate by reference the emissions standards promulgated by the federal government under Section 112 of the CAA.[148] Section 112 deals with the regulation of large or major sources of hazardous air pollutants.[149] The EPA regulates 187 hazardous air pollutants,

[143] 40 C.F.R. Pt. 60 Subpts. J & Ja.
[144] EPA. "What is Acid Rain?" https://www.epa.gov/acidrain/what-acid-rain.
[145] Clean Air Act Amendments, Pub. L. 101-549, 104 Stat. 2399. Although acid deposition control was Title IV of the amendments act, there already existed a Title IV of the Clean Air Act. Acid deposition became Title IV-A when it was codified in the United States Code; 42 U.S.C. § 7651. 40 C.F.R. Parts 72-77.
[146] 42 U.S.C. § 7651g; 40 C.F.R. Part 72.
[147] United States Geological Survey. "National Acid Precipitation Assessment Program Report to Congress 2011: An Integrated Assessment."
https://ny.water.usgs.gov/projects/NAPAP/NAPAP_2011_Report_508_Compliant.pdf.
[148] APCA § 6.6(a); 35 P.S. § 4006.6(a).
[149] 42 U.S.C. § 7412 *et seq*.

which are industrial chemicals known to cause cancer and other deleterious health effects.[150]

The Commonwealth's statute prohibits the Environmental Quality Board (EQB) from establishing "a more stringent performance or emission standard for hazardous air pollutant emissions from existing sources" than the standard provided for by federal regulations establishing performance or emissions standards under Section 112 of the CAA.[151] However, subsection (d) of that same statute permits the EQB to disregard this prohibition if doing so is "needed to protect public health, welfare and the environment from emissions of hazardous air pollutants from new and existing sources."[152]

Section 112 saw a major overhaul in 1990. Prior to the 1990 amendments, the EPA "established a risk-based program under which only a few standards were developed."[153] The 1990 amendments tasked the EPA with promulgating new regulations to oversee "major sources" and "area sources," and establish "maximum achievable control technology" (MACT) to limit hazardous air pollution emissions.[154] A "major source" is one stationary source or group of stationary sources which emit "10 tons per year or more of any hazardous air pollutant or 25 tons per year or more of any combination of hazardous air pollutants."[155] An example would be an oil refinery. An "area source" is any emitter that is not a "major source."[156] An example would be a local dry cleaning establishment. The MACT standards, have been incorporated by reference through regulation in the Commonwealth.[157] As with the NAAQS, because the federal MACT standards have simply been adopted by the Commonwealth, they cannot by definition be more stringent than the federal standards.

Vehicle Emissions

Under the CAA, states are prohibited from adopting their own new vehicle emissions standards.[158] However, when Congress passed this statute in 1967, California had already developed its own vehicle emissions standards, which were in effect since 1960.[159] To accommodate California, the statute was amended to permit a waiver for "any state which has adopted standards ... for the control of emissions from new motor vehicles or new motor vehicles engines prior to March 30, 1966…" if such standards are at least as stringent as the federal standards.[160] Only California is permitted to adopt standards that differ from those set by the federal government, as they are the only state that had vehicle

[150] EPA "Hazardous Air Pollutants." https://www.epa.gov/haps/initial-list-hazardous-air-pollutants-modifications; 42 U.S.C. § 7412(b).
[151] APCA § 6.6(a); 35 P.S. § 4006.6(a).
[152] APCA § 6.6(d); 35 P.S. § 4006.6(d).
[153] EPA. "Summary of the Clean Air Act." https://www.epa.gov/laws-regulations/summary-clean-air-act.
[154] *Id.*
[155] 42 U.S.C. § 7412(a)(1).
[156] 42 U.S.C. § 7412(a)(2).
[157] 25 Pa. Code § 127.35; 42 U.S.C. § 7412 and C.F.R. Part 63.
[158] 42 U.S.C. § 7543(a).
[159] Cal. Health & Safety Code § 24378(a).
[160] 42 U.S.C. § 7543(b)(1).

emissions standards prior to March 30, 1966.[161] Other states may adopt either California's standards or the federal standards, but may not set their own rules or regulations concerning vehicle emissions.[162]

As part of the Commonwealth's efforts to reduce the emission of pollutants from passenger vehicles, in 1998 DEP adopted the California Air Resources Board (CARB) emissions requirements for vehicles.[163] Colloquially known as the Pennsylvania Clean Vehicles Program, the regulation adopts and incorporates by reference the entirety of the CARB emissions standards with the exception of the zero emissions vehicle requirement and the California fuel blend.[164] In 2012, this program was added to Pennsylvania's SIP as a SIP revision.[165] In approving the SIP revision, the EPA stated that the adoption of CARB emissions rules "will help Pennsylvania to achieve and maintain attainment of the National Ambient Air Quality Standard (NAAQS) for ozone."[166] By adopting the California emissions standards, Pennsylvania has emissions requirements that are essentially more stringent that the standard requirements under Federal law, but is a federally acceptable alternative to the minimum federal standards. Pennsylvania does not have separate emission control standards, but adopted the Diesel Powered Motor Vehicle Idling Act to minimize carbon dioxide emissions from heavy-duty vehicles and tractor-trailers.[167]

Greenhouse Gas Emissions

One of the difficulties in comparing federal regulation to state regulation on a particular subject is that regulations are subject to change. Congress or the General Assembly may pass legislation that overrides the regulation implemented by an executive agency. The head of the executive branch – the President or the Governor – may direct their executive agencies to interpret a law in a particular manner or regulate in a particular way.[168] Court rulings may also shape the scope or applicability of a regulation.

In 2007, the Supreme Court ruled in *Massachusetts v. EPA* that the EPA was authorized to regulate emissions from motor vehicles that were linked to global warming. The Supreme Court rested its holding on the definition of "any air pollutant" in the relevant statute, noting that it specifically directs the EPA Administrator to "prescribe … standards applicable to the emission of any air pollutant from … new motor vehicles or new motor

[161] 42 U.S.C. § 7543(a).
[162] 42 U.S.C. § 7507.
[163] 25 Pa. Code § 126.411.
[164] *Id.*
[165] EPA. "Approval and Promulgation of Air Quality Implementation Plans; Pennsylvania; Clean Vehicles Program." 77 Fed. Reg. 3386 (Jan. 24, 2012).
[166] *Id.*
[167] Act of October 9, 2008 (P.L.1511, No.124); 35 P.S. § 4601 *et seq*., known as the Diesel Powered Motor Vehicle Idling Act.
[168] Chief executive authority is not absolute and also depends on the language of the statute under which the regulation is enacted. *See e.g.* Christopher D. Ahlers. "Presidential Authority Over EPA Rulemaking Under the Clean Air Act." 44 *Envtl. Law Journal* 31 (2014).

vehicle engines, which in his judgment cause, or contribute to, air pollution which may reasonably be anticipated to endanger public health or welfare."[169]

The Court pointed out that the CAA defines "air pollutant" in part as "any physical, chemical, biological, radioactive … substance or matter which is emitted into or otherwise enters the ambient air."[170] This would include greenhouse gases as they are "chemical … substances." However, the Court did not order the EPA to regulate greenhouse gasses – it simply noted that, pursuant to the clear language of the statute, the EPA was required to exercise its judgement as to whether or not such pollutants contribute to air pollution that endangers public health or welfare.[171] As the court stated, "[w]e hold only that EPA must ground its reasons for action or inaction in the statute."[172]

To comply with the court's order, the EPA was obligated to determine whether or not greenhouse gas emissions (GHGs) endangered public health or welfare. In the first regulation issued pursuant to the *Massachusetts* decision, known as the "endangerment finding," the EPA found "that greenhouse gases in the atmosphere may reasonably be anticipated both to endanger public health and to endanger public welfare."[173] The endangerment finding listed six pollutants – carbon dioxide, methane, nitrous oxide, hydrofluorocarbons, perfluorocarbons, and sulfur hexafluoride – as regulated pollutants, the combined mix of which are "the primary cause of human-induced climate change."[174]

The EPA announced in early April 2018 that the midterm GHG emission standards for cars and light trucks model years 2022-2025 has been completed, and that standards established in 2012 for model years 2017-2025 should be revised. This could have a significant impact on Pennsylvania's auto emissions program.[175]

Expansion of GHG Regulation to Stationary Sources

The *Massachusetts* ruling, and the subsequent endangerment finding, only applied to emissions standards for new motor vehicles and new motor vehicle engines. However, in the opinion of the EPA, the regulation of GHGs from motor vehicles also necessitated regulating GHGs emitted from new stationary sources such as factories and power plants in areas designated as "attainment" or "unclassifiable" under the NAAQS.[176] As discussed in the portion of this report detailing the structure of the CAA, areas of the country that are

[169] *Massachusetts v. EPA*. 549 U.S. 497, 528 (2007).
[170] *Id.*, at 528-529 (citing 42 U.S.C. § 7602(g)).
[171] *Id.*, at 534-535.
[172] *Id.*
[173] EPA. "Endangerment and Cause or Contribute Findings for Greenhouse Gasses Under Section 202(a) of the Clean Air Act." 74 Fed. Reg. 66496, 66497 (Dec. 15, 2009).
[174] *Id.* at 66516-66517.
[175] EPA. "EPA Administrator Pruitt: GHG Emissions Standards for Cars and Light Trucks Should Be Revised." (April 2, 2018) https://www.epa.gov/newsreleases/epa-administrator-pruitt-ghg-emissions-standards-cars-and-light-trucks-should-be.
[176] EPA. "Reconsideration of Interpretation of Regulations That Determine Pollutants Covered by Clean Air Act Permitting Programs." 75 Fed. Reg. 17004, 17009 (April 2, 2010).

designated as "attainment" or "unclassifiable" for at least one of the six NAAQS criteria air pollutants must adhere to the CAA's provisions regarding PSD.[177]

Under the CAA, a "major emitting facility" cannot be constructed or modified in any area where PSD applies unless it has first obtained a permit.[178] To qualify for the permit, the applicant must demonstrate "that emissions from construction or operation of such facility will not cause, or contribute to, air pollution" in excess of the applicable air quality standards.[179] The emitting facility must also comply with the best available control technology (BACT) standard "for each pollutant subject to regulation."[180]

All sources located in an area that is designated as "attainment" or "unclassifiable" for any of the NAAQS criteria air pollutants must comply with the PSD provisions, even if the source does not emit the pollutant for which the area is designated "attainment" or "unclassifiable." Because every area of the country is classified as "attainment" or "unclassifiable" for at least one of the NAAQS criteria air pollutants, every stationary source of air pollution in the country must comply with PSD. Additionally, "major emitting facility" is defined in the CAA as those which have the "potential to emit two hundred and fifty tons per year or more of any air pollutant" or one hundred tons per year for certain listed sources.[181] Further, under Title V of the CAA, it is unlawful to operate a "major source" without an operating permit.[182] The Act defines "major source" as a "major stationary source,"[183] which in turn is defined as "any stationary facility or source of air pollutants which directly emits, or has the potential to emit, 100 tons per year or more of any air pollutant."[184]

The use of the phrase "any air pollutant" was to be accorded the same meaning for PSD and Title V permitting as it had been for vehicle emissions in *Massachusetts*. This interpretation required the EPA to regulate GHGs for major stationary sources as well. However, because GHGs are emitted in larger quantities than other previously regulated air pollutants and emitted by structures such as large office and apartment buildings and other "sources" that had traditionally not been regulated (as they did not "emit" any other previously regulated substance), this interpretation would greatly expand permitting requirements.

According to the EPA, expanding the regulation of GHGs to the PSD and Title V programs would result in "greatly increasing the number of required permits, imposing undue costs on small sources, overwhelming the resources of permitting authorities, and severely impairing the functioning of the programs." This is because the EPA's interpretation would result in millions of "sources" of GHGs being regulated, rather than the thousands of sources of conventional air pollutants the CAA was intended to regulate.

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[177] 42 U.S.C. § 7471.
[178] 42 U.S.C. § 7475(a)(1).
[179] 42 U.S.C. § 7475(a)(3).
[180] 42 U.S.C. § 7475(a)(4).
[181] 42 U.S.C. § 7479(1).
[182] 42 U.S.C. § 7661a(a).
[183] 42 U.S.C. § 7661(2)(B).
[184] 42 U.S.C. § 7602(j).

To mitigate this incongruous result, the EPA decided to only regulate those sources which emit 100,000 tons per year of GHGs – rather than the 100 tons per year threshold provided for by the CAA. This regulation was known as the "tailoring rule." [185]

In response to the endangerment finding and this new regulation, a coalition of industry groups, power generating companies, and states sued the EPA, culminating in another Supreme Court case, *Utility Air Regulatory Group v. EPA*.[186] The EPA argued that the term "any air pollutant was settled by the Court in *Massachusetts*, and had the same meaning through the CAA. However, the Supreme Court found that "air pollutant" had been given a narrower construction in other parts of the CAA when such a construction was compelled by context, and there was no reason for the EPA to interpret the term "air pollutant" in such a broad sense as it applied to PSD and Title V requirements.[187] Further, the Court noted that the "tailoring rule" threshold of 100,000 tons per year directly contradicted the express command of the statute that 100 tons per year is the threshold at which the EPA must regulate.[188]

The Supreme Court did not completely bar the EPA from regulating GHGs. The Court allowed the EPA to require what it labelled "anyway" sources – sources "that would need permits based on their emissions of more conventional pollutants" – to adhere to BACT standards for GHGs.[189] As part of the PSD permitting process, a source is "subject to the best available control technology for each pollutant subject to regulation under this chapter."[190] BACT is defined as "an emission limitation based on the maximum degree of reduction of each pollutant subject to regulation under this chapter …."[191]

The Court exhorted that their ruling was not a green light for an "unreasonable and unanticipated degree of regulation," stating that the ruling's "narrow holding" is simply that "nothing in the statute categorically prohibits EPA from interpreting the BACT provision to apply to greenhouse gases emitted by 'anyway' sources."[192]

The Clean Power Plan

In 2015, the Obama administration devised the Clean Power Plan (CPP), an ambitious regulatory framework that was designed to lower GHGs from electric generating stations by moving the country away from the use of coal as a fuel for generating electricity. The statutory authority cited for the CPP is Section 111(d) of the CAA, which relates to

[185] EPA. "Prevention of Significant Deterioration and Title V Greenhouse Gas Tailoring Rule." 75 Fed. Reg. 31514, 31516 (June 3, 2010).
[186] *Utility Air Regulatory Group v. EPA*, 573 U.S. ___, 134 S. Ct. 2427 (2014).
[187] *Id.*, at 2442.
[188] *Id.*, at 2446.
[189] *Id.*, at 2447.
[190] 42 U.S.C. § 7475(a)(4).
[191] 42 U.S.C. § 7479(3).
[192] *Supra*, note 186 at 2449.

establishing emissions standards from existing sources.[193] The goal of the CPP was to begin "accelerating transition to cleaner power generation."[194]

Section 111(d) requires states to submit to the EPA their plan for establishing standards of performance for existing sources.[195] "Standard of performance" is defined as "a standard for emissions of air pollutants which reflects the degree of emission limitation achievable through the application of the best system of emission reduction."[196] The CPP required states to achieve GHG emissions reductions by 2030 using a combination of four separate "building blocks," which include substituting "increased generation from lower-emitting existing natural gas" power plants and "increased generation from new zero-emitting renewable energy capacity" in place of existing coal-fired electric generating stations, as well as increasing the efficiency of existing coal-fired plants and taking steps to reduce the use of electricity, such as by requiring the installation of more energy efficient light bulbs.[197]

Twenty-nine states, industry groups, and utility companies with interests in coal-fired electric power generating stations challenged the rule in the United States Court of Appeals for the District of Columbia Circuit, requesting that the court stay the enforcement of the CPP. The Circuit Court denied the request, and five separate stay requests were docketed with the Supreme Court in January 2016.[198] The Supreme Court granted the stay in February 2016.[199]

The concerns raised in the application for a stay of the rule filed by Murray Coal Company is illustrative of the legal issues involved, which are primarily issues of statutory interpretation, not whether or how the EPA should approach climate change.

Murray Coal raised several issues in its stay application relating to how Section 111(d) of the CAA should be interpreted. Two important legal arguments were raised that bear mentioning. First, Murray Coal argued that Section 111(d) of the CAA "expressly applies only to a pollutant which is not emitted from a source category which is regulated under section [112] of this title. Coal-fueled power plants are a 'source category' regulated under Section 112."[200]

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[193] 42 U.S.C. § 7411(d).
[194] EPA. "Carbon Pollution Emissions Guidelines for Existing Stationary Sources: Electric Utility Generating Units." 80 Fed. Reg. 64662, 64663 (October 23, 2015).
[195] 42 U.S.C. § 7411(d).
[196] 42 U.S.C. § 7411(a)(1).
[197] *Supra*, note 194 at 64667.
[198] U.S. Chamber of Commerce Litigation Center. "U.S. Chamber of Commerce et al. v. EPA (ESPS Rule – Application for Stay), Procedural History." http://www.chamberlitigation.com/cases/chamber-commerce-et-al-v-epa-esps-rule-application-stay/.
[199] *Chamber of Commerce v. EPA*, order granting stay, No. 15-A787 (U.S. February 9, 2016).
[200] Coal Industry Application for Immediate Stay of Final Agency Action Pending Judicial Review, *Murray Energy Corp. v. EPA*, No. 15-A778 (U.S. January 27, 2016) at 6.

Second, Section 111(d) is limited to requiring "standard of performance for any existing source based on the best system of emission reduction that will assure continuous emission reduction from that type of source" (internal quotes omitted).[201] This meant that there was some technological way to control emissions from a source. However, the CPP essentially requires the shutting of coal-fired electric generating stations and replacing them with natural gas and renewable sources of electricity. In the view of Murray Coal, the "building blocks" scheme is not permitted by the clear language of the CAA and veers into the realm of electric utility regulation.[202]

While the CPP has been put on hold by the Supreme Court, it is facing potential termination by the executive branch as well. In March 2017, President Trump issued Executive Order 13783, ordering the Administrator of the EPA to review the CPP and "if appropriate … publish for notice and comment proposed rules suspending, revising, or rescinding those rules."[203] In response to this, the EPA has proposed to repeal the CPP in its entirety. The basis for the proposed repeal is a change in the way the EPA interprets the language of Section 111(d) of the CAA. Specifically, this section has historically been interpreted by the EPA to require the issuance of regulations for particular sources based on a "best system of emissions reduction" that can be applied to or at a specific source. In the EPA's view, the CPP departed from this understanding by setting carbon dioxide emissions guidelines that cannot reasonably be met by employing measures to or at a particular source. If implemented, the CPP rule "would generally require power generators to change their energy portfolios through … the creation or subsidization of significant amounts of generation from power sources entirely outside the regulated source categories."[204]

Pro-CPP states and municipalities argued that an elimination of the CPP would violate the EPA's "statutory duty to regulate carbon dioxide from existing power plants under the CAA."[205] Another group of litigants asserted that the repeal will violate their Fifth Amendment Due Process rights because the repeal "will cause irreversible and catastrophic harm to the natural systems critical to Plaintiffs' rights to life, liberty, and property."[206]

Under the Pennsylvania Greenhouse Gas Regulation Implementation Act, any plan submitted by DEP for the regulation of greenhouse gas emissions pursuant to the Clean Power Plan must first be sent to the General Assembly for approval before being sent to

[201] *Id.*, (Citing 42 U.S.C § 7411(d)).
[202] *Id.*, at 7.
[203] President Donald Trump. "Presidential Executive Order on Promoting Energy Independence and Economic Growth." Executive Order 13783 (March 28, 2017).
[204] EPA. "Repeal of Carbon Pollution Emission Guidelines for Existing Stationary Sources: Electric Utility Generating Sources." 82 Fed. Reg. 48035, 48036 (October. 16, 2017).
[205] State and Municipal Intervenors' Response to Defendant's Status Report and Request for Indefinite Abeyance, *West Virginia v. EPA*, p. 3, Case No. 15-1363 and consolidated cases, U.S. Court of Appeals for the District of Columbia Circuit (October 17, 2017).
[206] Complaint for Declaratory Relief, *S.B. v. United States*, p. 57, Case No. 2:17-cv-04977-PD. (E.D. Pa. November 6, 2017).

the EPA for implementation.[207] This law was amended to direct DEP not to submit any such plans to the EPA until after the Supreme Court lifts the stay of the CPP.[208]

It seems likely that the CPP will be repealed and replaced with a more narrowly drawn program. In October 2017, the EPA issued a notice of proposed repeal of the CPP, and at the end of 2017, issued an Advanced Notice of Proposed Rulemaking, soliciting "information on multiple aspects of a potential rule that would establish emission guidelines for States to establish performance standards for GHC emissions from existing EGUs" (electric utility generating units).[209]

Methane Reduction

Methane is the primary component of natural gas. Methane is also a major greenhouse gas if it is emitted into the atmosphere. In 2015, the EPA estimated that 31 percent of all atmospheric methane emitted in the United States comes from oil and gas extraction and transportation activity.[210] In 2016, the EPA proposed new source performance standards to regulate methane emissions from oil and gas extraction and transportation activities (referred to as the "methane rule").[211] The EPA's stated authority for the rule was that, in 2009, it had found that greenhouse gases (which include methane) endangered public health and public welfare by causing or contributing to climate change.[212] Under the CAA, the EPA is required to publish and revise a list of categories of stationary sources and must include on that list a category of sources if, in the EPA's judgement, it causes or contributes to "air pollution which may reasonably be anticipated to endanger public health or welfare."[213] The EPA is required to devise regulations establishing federal standards of performance for new sources within each category.[214]

The specific emissions sources that are subject to the new methane rule include sources that were previously unregulated, such as hydraulically fractured oil well completions, pneumatic pumps, and fugitive emissions from well sites and compressor stations.[215] Sources that were previously regulated for VOCs but would now be regulated for GHGs include hydraulically fractured gas well completions and equipment leaks at

[207] Act of October 22, 2014 (P.L.2873, No.175); 71 P.S. § 1362.1 *et seq*., known as the Pennsylvania Greenhouse Gas Regulation Implementation Act.
[208] Act of June 23, 2016 (P.L.393, No.57).
[209] EPA. "State Guidelines of Greenhouse Gas Emissions for Existing Electric Utility Generating Units, Advance Notice of Proposed Rulemaking." 82 Fed. Reg. 61507, 61510-61511 (December 28, 2017).
[210] EPA. "Greenhouse Gas Emissions – Methane Emissions." https://www.epa.gov/ghgemissions/overview-greenhouse-gases#methane.
[211] EPA. "Oil and Natural Gas Sector: Emissions Standards for New, Reconstructed, and Modified Sources." 81 Fed. Reg. 35824 (June 3, 2016).
[212] *Id.*
[213] 42 U.S.C. § 7411(b)(1)(A).
[214] 42 U.S.C. § 7411(b)(1)(B).
[215] *Supra*, note 211 at 35825.

natural gas processing plants.[216] The EPA has listed the "oil and natural gas industry" broadly as a source category since 1979.[217]

One aspect of this new rule, as it applies to sources within the Commonwealth, is that the EPA would allow owners and operators of regulated sources to comply with state regulations on fugitive methane emissions from oil and natural gas sources. Known as the "alternative means of emissions limitations," or (AMEL), the EPA would allow "owners and operators … [to] submit an application requesting that the EPA approve certain state requirement[s]" so long as it could be demonstrated that the application of the state requirements would result in the same or greater amount of methane emission reduction as would be achieved under the federal regulation.[218]

On June 5, 2017, the EPA proposed a 90-day stay of the methane rule pending reconsideration.[219] Then, on June 16, 2017, the EPA proposed a longer, 2-year stay of the methane rule, in order to propose, take comment, and issue final agency action on the aspects of the methane rule that the EPA was reconsidering under the 90-day stay.[220] Although the original 90-day stay was vacated by the United States Court of Appeals for the District of Columbia Circuit on procedural grounds, the 2-year stay was not addressed by the court and remains in place.[221] One of the reasons the EPA chose to stay the methane rule was that the "process and criteria for requesting and receiving approval for the use of an AMEL for the fugitive emissions requirements" was unclear and unworkable.[222]

On August 29, 2016, EPA announced final updates to its New Source Performance Standards (NSPS) to reduce emissions of methane-rich landfill gas from new, modified and reconstructed municipal solid waste (MSW) landfills. In a separate action, EPA also issued guidelines for reducing emissions from existing MSW landfills.[223]

In May 2017, the EPA announced that it was reconsidering the 2016 final rules for Municipal Solid Waste Landfills New Source Performance Standards and Emission Guidelines. On May 31, 2017, the EPA issued a 90-day stay on the final rules. The 90-stay expired on August 29, 2017, so the 2016 rules are currently in effect. The EPA has announced that it still intends to complete the reconsideration process.

While the new methane regulations are under review, the EPA continues to administer the Coalbed Methane Outreach Program, and the Landfill Methane Outreach Program to help identify and implement methods to recover and use coalmine and landfill

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[216] *Id.*
[217] *Id.*, at 35874.
[218] *Id.*, at 35871.
[219] EPA. "Oil and Natural Gas Sector: Emission Standards for New, Reconstructed, and Modified Sources; Grant of Reconsideration and Partial Stay." 82 Fed. Reg. 25730 (June 5, 2017).
[220] EPA. "Oil and Natural Gas Sector: Emission Standards for New, Reconstructed, and Modified Sources: Stay of Certain Requirements." 82 Fed. Reg. 25645 (June 17, 2017).
[221] *Clean Air Council v. Pruitt*, 862 F.3d 1 (D.C. Cir. 2017).
[222] *Supra*, note 220 at 25646.
[223] EPA. "Standards of Performance for Municipal Solid Waste Landfills." 81 Fed. Reg. 59332 (August 29, 2016).

methane instead of emitting it to the atmosphere.[224] The EPA has also established voluntary partnerships with oil and natural gas companies to reduce methane emissions.[225]

Indoor Air Quality

The federal CAA and Pennsylvania's Air Pollution Control Act regulate pollutants in the outdoor air. Indoor air pollutants are regulated through various disparate statutes and regulations which tend to focus on a particular contaminant (for instance, radon or mold) or a particular location (OSHA regulations, which only apply in workplaces). One of the ways the Commonwealth regulates indoor air pollution is through the Clean Indoor Air Act.[226] This act prohibits smoking in public places with the exception of private homes and vehicles, residential facilities, certain designated quarters, a tobacco shop or cigar bar, a drinking establishment (which is defined to exclude establishments where food constitutes more than 20 percent of gross sales), or gaming floors.[227] There is no comparable federal law.

The federal Occupational Health and Safety Administration (OSHA) does not currently have any regulatory mandates for indoor air quality, although it does provide several guidelines for employers to follow. According to OSHA, the most common causes of indoor air quality problems are caused by a lack of ventilation, poor upkeep of ventilation or heating and cooling systems, moisture due to leaks, flooding, high humidity, construction or remodeling activities, and poor quality outdoor air.[228] Under the Occupational Safety and Health Act, employers are required to provide their employees with a place of employment that is free from recognized hazards that are causing or are likely to cause death or serious physical harm to the employees.[229] Additionally, OSHA maintains standards related to ventilation and certain air contaminants that have an impact on indoor air quality.[230]

The Commonwealth also has numerous labor and industry codes that require ventilation of indoor air or enclosed spaces. Examples of ventilation requirements include buildings used for manufacturing, assembling, warehousing, sale, or storage of combustible but not highly flammable products[231] and brass foundries.[232] The

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[224] EPA. "Coalbed Methane Outreach Program (CMOP)." (February 14, 2018) https://www.epa.gov/cmop), *and* EPA. "Landfill Methane Outreach Program (LMOP)." (February 6, 2018) https://www.epa.gov/lmop.
[225] EPA. "EPA's Voluntary Methane Programs for the Oil and Natural Gas Industry."(January 31, 2018) https://www.epa.gov/natural-gas-star-program.
[226] Act of June 13, 2008 (P.L.182, No.27); 35 P.S. § 637.1 *et seq*., known as the Clean Indoor Air Act.
[227] *Id.*, at § 3; 35 P.S. § 637.3.
[228] United States Department of Labor, Occupational Safety and Health Administration, "Indoor Air Quality –Overview." https://www.osha.gov/SLTC/indoorairquality/index.html.
[229] 29 U.S.C. § 654(a)(1).
[230] 29 C.F.R. § 1910.94 *et seq*., (ventilation regulations); 29 C.F.R. §1910 Subpart Z (regulations of toxic and hazardous substances).
[231] 34 Pa. Code § 58.81.
[232] 34 Pa. Code § 47.861.

Commonwealth's labor and industry regulations are generally in addition to any OSHA regulations, as OSHA directly enforces its regulations.

The federal Department of Housing and Urban Development released a rule prohibiting smoking in public housing in December 2016,[233] but it is currently in limbo under the Trump Administration freeze on new regulations.[234]

[233] U.S. Department of Housing and Urban Development. "Instituting Smoke-Free Public Housing." 81 Fed. Reg. 87430 (December 5, 2016).
[234] U.S. Office of Management and Budget. "Memorandum for the Heads of Executive Departments and Agencies; Regulatory Freeze Pending Review." 82 Fed. Reg. 8346 (January 20, 2017).

Determining who has the right to the use and enjoyment of water resources evolved along with the development of agriculture and commerce. The need to water crops and livestock, transport merchandise, power industries, harness hydraulic energy, and access potable drinking water have led to a myriad of laws and regulations governing water resources. The first determinant in any question relating to the use of water is who "owns" the water and can regulate its use. In the most simplistic terms, the federal government regulates surface water that is involved in interstate navigation or commerce. Pennsylvania regulates both surface and ground waters of the Commonwealth.

The first iteration of The Pennsylvania Clean Streams Law (CSL) was passed in 1937 to ensure that the Commonwealth's waters would be maintained pollution-free.[235] The Pennsylvania statute predates the first federal statute on the subject, the Water Pollution Control Act of 1948. The federal Water Pollution Control Act was amended in 1972 and became known as the Clean Water Act (CWA), with the primary goal of abating pollution in the nation's rivers and lakes.[236] Although the CSL and the federal CWA are two separate statutory bodies, the Commonwealth Court has found it "appropriate to consider the Federal Courts' interpretation of the CWA for guidance in ascertaining our General Assembly's intent" when interpreting the CSL.[237]

"Clean, unpolluted streams are absolutely essential if Pennsylvania is to attract new manufacturing industries and to develop Pennsylvania's full share of the tourist industry." So begins the declaration of policy of the CSL.[238] The policy further states that "the achievement of the objective herein set forth requires a comprehensive program of watershed management and control."[239] Perhaps this emphasis on watershed management explains why the CSL diverges from the federal CWA in one major respect – while the CWA only applies to surface water bodies, the General Assembly has defined "waters of the Commonwealth" to include all "bodies or channels of conveyance of surface and underground water."[240]

[235] Act of June 22, 1937 (P.L.1987, No.394); 35 P.S. § 691.1 *et seq*., known as the Clean Streams Law (CSL).
[236] EPA. Laws & Regulations. "History of the Clean Water Act." https://www.epa.gov/laws-regulations/history-clean-water-act.
[237] *Com., Dep't of Environmental Resources v. PBS Coal, Inc.*, 677 A.2d 868, 873-874 (Pa. Commw. 1996).
[238] CSL § 4; 35 P.S. § 691.4.
[239] *Id.*
[240] CSL § 1; 35 P.S. § 691.1.

Waters of the United States Rule

The "waters of the United States rule," also known as the "clean water rule," sets the parameters for which bodies of water fall under CWA regulation and therefore EPA jurisdiction. Congress gave EPA the authority to regulate "navigable waters," which was further defined in the statute as simply "waters of the United States."[241] Because "waters of the United States" is itself a very vague description of which bodies of water fall under the purview of the CWA, the EPA had room to design, by way of regulation, exactly what it regulated.

The definition currently published in the Code of Federal Regulations includes all "waters which are currently used, or were used in the past, or may be susceptible to use in interstate or foreign commerce," "interstate waters," the tributaries of such bodies of water, and any water that has a "significant nexus" to any of the above-described waters.[242] The definition also includes waters that are "adjacent to" the waters more specifically identified in the regulation.[243] The definition exempted those water bodies (including wetlands) that had been, prior to the enactment of the definition, converted to cropland.[244] However, the EPA reserves for itself the authority to determine which prior converted croplands had in fact been converted prior to the enactment of the definition.[245]

In 2006, the Supreme Court heard *Rapanos v. United States* and *Carabell v. United States* to determine the extent of the CWA's jurisdiction, specifically by determining when a wetland or tributary is a "water of the United States."[246] Five separate opinions were written and both cases were sent back down to their respective federal district courts for additional proceedings.[247] The plurality opinion, written by the late Justice Scalia and joined by three other justices, concluded that the EPA's regulatory authority extended only to "relatively permanent, standing or continuously flowing bodies of water"[248] connected to traditional navigable waters, and to "wetlands with a continuous surface connection to" such relatively permanent waters.[249]

The plurality noted that there must be some limit to the reach of the "waters of the United States," stating that "the entire land area of the United States lies in some drainage basin, and an endless network of visible channels furrows the entire surface, containing water ephemerally wherever the rain falls. Any plot of land containing such a channel may potentially be regulated as a 'water of the United States.'"[250]

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[241] 33 U.S.C. § 1311(a); 33 U.S.C § 1362(12); 33 U.S.C § 1362(7).
[242] 40 C.F.R. 230.3(o)(1)(i)-(v), (vii).
[243] 40 C.F.R. 230.3(o)(1)(vi).
[244] *Id*.
[245] 40 C.F.R. § 230.3(o)(2)(ii).
[246] *Rapanos v. United States*, 547 U.S. 715, 742 (2006). This case was a consolidation of two separate lower court cases that both presented the same legal issue before the Supreme Court.
[247] *Id.*, at 757.
[248] *Id.*, at 733.
[249] *Id.*, 547 U.S. at 742.
[250] *Id.*, at 722.

The plurality further noted that drainage ditches and other intermittently wet land features that the EPA and Army Corps of Engineers claim to be "waters of the United States" are separately defined in the statute as "point sources." "'Discharge of a pollutant' is also defined as any addition of any pollutant **to** navigable waters **from** any point source." Given this juxtaposition of definitions, it was clear to the plurality that Congress conceived of "point sources" and "navigable waters" as two distinct categories, and that the definition of "discharge" "would make little sense if the two categories were significantly overlapping."[251] Thus, the definition of "waters of the United States" does not encompass "watercourses through which **intermittent** waters typically flow."[252]

The plurality responded to the EPA's and Army Corps of Engineers' concern that a discharger could avoid the strictures of the CWA by simply discharging waste water into a ditch upstream of any regulated body of water by stating that such a work-around would not be permissible under the Act, as the ditch itself would be considered a point source requiring an NPDES permit. The plurality pointed out that lower courts have observed the same.[253]

The *Rapanos* decision did not bring the clarity that many had hoped for to the CWA. First, the rationale of the Court was formulated by plurality opinion – meaning that the opinion delivered had the most adherents, but not a majority of justices. Second, the plurality opinion noted that "[i]t does not appear, therefore, that the interpretation we adopt today significantly reduces the scope of" the section of the Act dealing with NPDES permitting. This is because the cases[254] being resolved by the court involved back-filling wetlands, which is covered by the "dredge and fill" permits covered by another section of the act, and once they are filled they become a solid piece of ground and therefore do not require an NPDES permit.[255]

Justice Kennedy, concurring in the judgment but not the opinion, issued his own standard to gauge when a wetland constituted a "water of the United States." In his view, two previous rulings should guide the Court. In these prior two cases, the Supreme Court used a "significant nexus" test to determine whether a wetlands was a "water of the United States." In Justice Kennedy's words, "the Corps' jurisdiction over wetlands depends upon the existence of a significant nexus between the wetlands in question and navigable waters in the traditional sense."[256]

Justice Kennedy further elaborated that he viewed the plurality's rationale that point sources cannot also be "waters of the United States" as incorrect, and that the plurality puts too much emphasis on the word "intermittent" in the definition of point source, noting that

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[251] *Id.*, at 735.
[252] *Id.*, at 736.
[253] *Id.*, at 743 (stating "many courts have held that such upstream, intermittently flowing channels themselves constitute 'point sources' under the Act.").
[254] The *Rapanos* case was two cases consolidated into one; the factual background of both cases involved backfilling wetlands to create permanently dry ground for development projects.
[255] *Rapanos*, 547 U.S. at 774-745.
[256] *Id.*, at 779 (Kennedy, J.).

a wastewater treatment facility is a point source despite the fact that its discharges are not intermittent but continuous.

As a result of the *Rapanos* decision, in 2008 the EPA and the U.S. Army Corps of Engineers issued a joint policy guidance memorandum indicating that it would assert regulatory jurisdiction under the CWA if either the plurality's or Justice Kennedy's standard is satisfied.[257] The guidance memorandum broke down wetlands into three types: traditional navigable waters and their adjacent wetlands, "relatively permanent non-navigable tributaries of traditional navigable waters and wetlands with a continuous surface connection with such tributaries," and "certain adjacent wetlands and non-navigable tributaries that are not relatively permanent."[258]

If a given body of water falls under EPA or Corps' jurisdiction under the plurality's test in *Rapanos*, the analysis ends there. This would be the first two types of wetlands. If the EPA or the Corps decided that they did not have jurisdiction under the plurality opinion, they would analyze the wetland under a three-part "significant nexus" test that they devised in accordance with Justice Kennedy's opinion. This "significant nexus" test was generally used for wetlands of the third type described above.[259]

However, in 2015 President Obama's administration set out to clarify the "waters of the United States" definition. The EPA explained "[m]any waters are currently subject to case-specific jurisdictional analysis to determine whether a 'significant nexus' exists, and this time and resource intensive process can result in inconsistent interpretation of CWA jurisdiction and perpetuate ambiguity over where the CWA applies."[260]

The EPA's notice of final regulation, published in the Federal Register, stated that "adjacent waters" with a "significant nexus" to traditional navigable waters included those that were "bordering, contiguous, or neighboring, including waters separated from other 'waters of the United States' by constructed dikes or barriers, natural river berms, beach dunes and the like."[261] The EPA also categorically stated that "ditches with ephemeral flow that are not a relocated tributary or excavated in a tributary, and ditches with intermittent flow that are not a relocated tributary, or excavated in a tributary, or drain wetlands" would not be considered to fall within the definition of "waters of the United States." Also excluded were "stormwater control features constructed to convey, treat, or store stormwater, and cooling ponds that are created in dry land."[262]

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[257] EPA and U.S. Army Corps of Engineers Joint Memorandum, "Clean Water Act Jurisdiction Following the U.S. Supreme Court's Decision in *Rapanos v. United States & Carabell v. United States.*" (June 2, 2008) https://www.epa.gov/sites/production/files/2016-02/documents/cwa_jurisdiction_following_rapanos120208.pdf.

[258] *Id.*, at 4, 6, and 8.

[259] *Id.*, at 8-12.

[260] EPA. "Clean Water Rule: Definition of Waters of the United States." 80 Fed. Reg. 37054-01 (June 29, 2015).

[261] *Id.*

[262] *Id.*

The proponents of the rule change maintain that such a change is permitted by the Court in *Rapanos* and is necessary to both clarify the definition and protect clean water. However, as soon as the rule change was published in the Federal Register, eighteen states sued the U.S. Army Corps of Engineers and the EPA, alleging that the rule change was not consistent with Supreme Court precedent and that the EPA adopted the rule outside of the rulemaking requirements of the Administrative Procedures Act.[263]

The states requested that the federal Sixth Circuit Court of Appeals, which was hearing the case as it had original jurisdiction under the CWA's judicial review section,[264] to stay enforcement of the rule until a hearing and determination on the merits could be held.[265] The Sixth Circuit granted the stay on October 9, 2015.[266] However, the states and the EPA also disagreed about whether the circuit courts have original jurisdiction to hear the case, adding jurisdictional issues to the challenge to the waters of the United States rule change. In *In re U.S. Department of Defense*, the Sixth Circuit ruled that it – and not the federal district courts – did, in fact, have original jurisdiction to hear a challenge to the rule.[267] The issue of jurisdiction in this case – not its merits – is now pending before the Supreme Court.[268]

On February 28, 2017, President Trump issued an Executive Order directing the EPA and the Army Corps of Engineers to "consider interpreting the term 'navigable waters' … in a manner consistent with the opinion of Justice Antonin Scalia in *Rapanos v. United States*."[269] In response, the EPA proposed a new regulation to "replace [the 2015 rule change] with a recodification of the regulatory text that governed the legal regime prior to the 2015 Clean Water Rule [which] the agencies are currently implementing under the court stay."[270] In February 2018, the EPA announced an amendment to the 2015 rule that delays its effective date until February 6, 2020 to allow for resolution of ongoing litigation.[271]

An added twist to determining jurisdiction over water pollution sources has begun to appear in federal courts around the country. Several courts in the last couple of years have found that groundwater can be covered by the CWA in certain circumstances, including Virginia, North Carolina and Tennessee. Three courts in the 3rd Circuit (which includes Pennsylvania) have all held that groundwater is not subject to the CWA in these circumstances. Courts in Connecticut, South Carolina and Kentucky have agreed with the

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[263] *In re EPA*, 803 F.3d 804, 806 (6th Cir. 2015).
[264] 33 U.S.C. § 1369(b)(1).
[265] *In re EPA* at 806.
[266] *Id.*, at 809.
[267] *In re U.S. Department of Defense*, 817, F.3d 261 (6th Cir. 2016).
[268] *National Ass'n of Manufacturers v. Department of Defense*, 137 S. Ct. 811 (Mem. January 13, 2017).
[269] "Presidential Executive Order on Restoring the Rule of Law, Federalism, and Economic Growth by Reviewing the 'Waters of the United States" Rule.'" (February 28, 2017) https://www.whitehouse.gov/the-press-office/2017/02/28/presidential-executive-order-restoring-rule-law-federalism-and-economic.
[270] EPA. "Definition of 'Waters of the United States' – Recodification of Pre-Existing Rules." 82 Fed. Reg. 34899. (July 27, 2017).
[271] EPA. "Final Rule: Definition of "Waters of the United States" – Addition of Applicability Date to 2015 Clean Water Rule." https://www.epa.gov/wotus-rule/final-rule-definition-waters-united-states-addition-applicability-date-2015-clean-water.

3rd Circuit decisions. This split in the circuits is the type of situation that may invoke U.S. Supreme Court action to establish a national interpretation.[272]

Additionally, in February, the EPA requested comments on whether pollutant discharges from point sources that reach jurisdictional surface waters via groundwater or other subsurface flow that has a direct hydrologic connection to the jurisdictional surface water may be subject to CWA regulation. The comment period ends May 21, 2018.[273] This split may have the most impact on the mining and oil and gas drilling industries, and the energy industry at large, as several of the cases finding a connection between groundwater and navigable water involved leaking from wastewater impoundments, coal ash, and injection wells.

The Federal Clean Water Act

The federal Clean Water Act prohibits "the discharge of any pollutant"[274] into "navigable waters" from "any point source"[275] without first obtaining a permit. By requiring a permit to be issued to the CWA created a framework for regulating pollution discharges into the "navigable waters" of the United States.[276] "Navigable waters" are further defined as the "waters of the United States, including the territorial seas," an ever-changing definition remade and refined by successive regulation, executive orders, and litigation, as discussed above.[277]

The CWA divides sources of pollution into two categories – point sources and nonpoint sources. This distinction is important, as sources of pollution are regulated differently depending on a particular source is a point source or a nonpoint source. A "point source" is statutorily defined as "any discernible, confined, and discrete conveyance, including but not limited to any pipe, ditch, channel, tunnel, conduit, well, discrete fissure, container, rolling stock, concentrated animal feeding operation, or vessel or other floating craft, from which pollutants are or may be discharged."[278]

The contours of what exactly constitutes a point source has been shaped by the federal courts, but generally a point source is any single identifiable source of pollutants, as opposed to an aggregation of pollutants over a widespread area caused by many disparate activities. Nonpoint sources are anything that is not a point source or associated

[272] Pennsylvania Bar Institute, Environmental Forum, Harrisburg, Pennsylvania. April 11-12, 2018.
[273] EPA. "Clean Water Act Coverage of 'Discharges of Pollutants' via a Direct Hydrologic Connection to Surface Water." 83 Fed. Reg. 7126 (February 20, 2018).
[274] 33 U.S.C. § 1311(a).
[275] 33 U.S.C. § 1362(12).
[276] 33 U.S.C. § 1341(a)(1).
[277] 33 U.S.C. § 1362(7).
[278] 33 U.S.C. § 1362(14).

with a discrete point of discharge. Reducing nonpoint source pollution necessitates regulating land use activities, and as such regulation is largely left up to the states.[279]

The enforcement of the CWA is accomplished through the National Pollutant Discharge Elimination System (NPDES). In passing the CWA, Congress explicitly recognized the states' "right and responsibility" to "prevent, reduce, and eliminate pollution, [and] to plan the development and use (including restoration, preservation, and enhancement) of land and water resources."[280] In order for a state to be the permit-issuing governing body, the state must submit to the EPA a plan on how it proposes to administer its permit program. If the plan is approved by the EPA, the state then becomes the permit-issuer.[281] If the EPA does not approve a state's plan, the EPA is the permit-issuing body.

Pennsylvania sought and received control over the NPDES permitting program in 1978, with the exception of permits relating to the industrial pretreatment program. Industrial pretreatment permits are for industrial wastewater discharges into public sewer systems. This aspect of NPDES continues to be under the control of the EPA.

Pennsylvania's Administration of the NPDES Program

By way of regulation, the Commonwealth prohibits discharging without an NPDES permit.[282] The Commonwealth also incorporates by reference the federal regulations relating to permitting, criteria and standards for imposing technology-based treatment requirements, and several other federal regulatory provisions relating to standards and criteria.[283] The Commonwealth also incorporates by reference all federal regulations "establishing limitations, standards, and other permit conditions" promulgated by the EPA.[284]

However, there is one important instance where Pennsylvania regulation could be considered to be more stringent than the comparable federal regulations. Pennsylvania explicitly excludes any incorporation by regulation of any amendment promulgated after 2000 to any federal regulation that "creates a variance to existing NPDES permitting requirements."[285] It is debatable whether Pennsylvania's prohibition on wholesale adoption of new NPDES variances after 2000 could be considered "more stringent." As a practical matter, the EPA Regional Director is the party who "may grant or deny requests" for most of the variances. The state director (in the Commonwealth, the Secretary of DEP) may either deny a variance or submit the variance "with concurrence" for approval by the

[279] Neither the Clean Water Act nor its implementing regulations contain a definition of nonpoint sources, and the CWA does not contain any direct prohibitions on discharges from nonpoint sources, although they are secondarily regulated through water quality standards.
[280] 33 U.S.C. § 1251(b).
[281] 33 U.S.C. § 1342(b).
[282] 25 Pa. Code § 92a.1(b). *See also,* CSL § 307(a), 35 P.S. § 691.307(a) (prohibiting discharges unless "authorized by the rules or regulations of the department . . .").
[283] 25 Pa. Code § 92a.3.
[284] 25 Pa. Code § 92a.44 (incorporating by reference 40 C.F.R. 122.44 and 123.25).
[285] 25 Pa. Code § 92a.52.

EPA Regional Director for selected variances.[286] Effectively, it is the EPA that determines whether to grant a variance, and their decision-making process is not transparent.

Effluent Limitations and Water Quality

In addition to technology-based restrictions, there are also water quality-based limitations. Under Pennsylvania and federal law, the more stringent of the technology-based limitations or water-quality based limitations must be adhered to.[287] The water quality criteria are developed to prevent point and nonpoint discharges in "amounts sufficient to be inimical or harmful to the water uses to be protected or to human, animal, plant or aquatic life."[288] Even if the discharger meets all technology-based requirements, if their discharge causes the receiving body of water to exceed levels of certain pollutants or otherwise degrade the water's quality, the discharger will be in violation of their permit requirements.

The water-quality standards are complex and highly technical. They are created by the state and submitted to the EPA for approval.[289] In order to set a water quality standard, regulators must look at what is being discharged, how polluted the receiving body of water was before the discharge, what the body of water is used for, who else is discharging and what they are discharging, and the pollution level of any downstream bodies of water. A major concept governing how water quality standards are devised and implemented is known as "antidegradation" and its precepts are mandated by the EPA[290] and discussed in more depth below.

The first step in ensuring water quality in the Commonwealth is determining the use of each body of water. There are two types of uses: "designated" uses and "existing" uses. Every stream in Pennsylvania has been given a "designated use" by DEP. Each designated use is described by regulation.[291] The designated uses are tiered such that certain designated uses have more stringent restrictions on discharges. A given designated use covers all less stringent designated uses. The designated use of a stream is subject to change, which must be made by way of regulation and published in the Pennsylvania Code.[292] Anyone may file a petition with the Environmental Quality Board to alter the designated use of a water body.[293]

In addition to the "designated use," each stream is assigned an "existing use," which is defined in the regulation as "uses actually attained in the water body on or after November 28, 1975, whether or not they are included in the water quality standards."[294]

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[286] 33 U.S.C § 1312 and 40 C.F.R. 124.62.
[287] 25 Pa. Code § 92a.44 (incorporating by reference 40 C.F.R. §122.44).
[288] 25 Pa. Code § 93.6.
[289] 33 U.S.C. § 1313.
[290] 40 C.F.R. § 131.12.
[291] 25 Pa. Code § 93.3.
[292] 25 Pa. Code § 93.4d (setting forth the procedure for stream re-designation).
[293] *Id. See also* 25 Pa. Code § 23.1(a)(5).
[294] 25 Pa. Code § 93.1.

DEP makes a determination of an existing use of a body of water on a case-by-case basis during the permitting process.[295] All existing uses and the level of water quality required to continue those uses must be maintained for every body of water in the Commonwealth.[296] Streams may also be downgraded to a less restrictive use if naturally occurring pollutant concentrations prevent the attainment of the designated use, or if human-caused conditions that cannot be remedied prevent the attainment of the use.[297]

There are two important classifications of streams in the Commonwealth – High Quality (HQ) waters and Exceptional Value (EV) waters. These two classifications are mandated by the federal antidegradation regulation.[298] HQ waters are defined as surface waters "which exceed levels necessary to support the propagation of fish, shellfish and wildlife and recreation in and on the water."[299] EV waters are "an outstanding National, State, regional or local resource water" or are located in a national or state park or other protected area.[300]

A discharger will not be able to obtain an NPDES permit if their discharge would adversely affect or alter an HQ or EV body of water.[301] Further, if the discharger can take an alternative measure other than discharging into an HQ or EV water, it must do so.[302] The discharger is allowed to take cost into consideration when performing the non-discharge alternatives analysis.[303] There is an exception to the rule – if it can be established that there is a social or economic justification for lower water quality and the water quality will still support the existing and designated uses for the water, then discharges into HQ (but not EV) waters can obtain a "social or economic justification" exception.[304]

The second step in ensuring water quality in the Commonwealth is to establish the measurable criteria by which the DEP determines whether the waters are clean enough to maintain their existing and designated uses. Pennsylvania has delineated three types of criteria – narrative criteria,[305] specific criteria (a table of pollutants and the maximum concentrations at which they are permitted in the Commonwealth's surface waters),[306] and toxic substances.[307]

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[295] 25 Pa. Code § 93.4c(a)(1)(iv).
[296] 25 Pa. Code § 93.4a(b). This requirement is mandated by federal regulation. 40 C.F.R. §131.12.
[297] 25 Pa. Code § 93.4(b).
[298] 40 C.F.R. § 131.12.
[299] 25 Pa. Code § 93.4b(a). This definition is from the federal antidegradation regulation, 40 C.F.R. §131.12.
[300] 25 Pa. Code § 93.4b(b). This definition is from the federal antidegradation regulation, 40 C.F.R. §131.12.
[301] 25 Pa. Code § 93.4(b)(1)(i)(B).
[302] 25 Pa. Code § 93.4c(b)(1)(i)(A).
[303] *Id*.
[304] 25 Pa. Code § 93.4c(b)(1)(iii).
[305] 25 Pa. Code § 93.6(b) (These criteria "include, but are not limited to, floating materials, oil, grease, scum and substances that produce color, tastes, odors, turbidity or settle to form deposits.").
[306] 25 Pa. Code § 93.7.
[307] 25 Pa. Code § 93.8a.

To ensure that the water quality standards for toxic substances are enforceable, toxic pollutant criteria have been established for the protection of aquatic life and human health.[308] Each aquatic life criterion consists of two measures, acute or short-term criteria and chronic or long-term criteria.[309] These criteria inform the development of the total maximum daily load measures, discussed below, and the effluent limitations in the NPDES permit.

The CWA mandates that the states develop a total maximum daily load, (TMDL) for each body of water that does not meet water quality standards.[310] TMDL is defined as "[t]he sum of individual waste load allocations for point sources, load allocations for nonpoint sources and natural quality and a margin of safety expressed in terms of mass per time, toxicity or other appropriate measures."[311] In other words, a TMDL is an accounting of all pollutant sources, point and nonpoint, for a particular body of water and a calculation of the total amount of pollutants the water body can absorb while still meeting the applicable water quality standards.

States are required by the CWA to identify waters for which technology-based effluent limitations are not sufficient to implement the water quality standard applicable to that body of water, as well as create a priority ranking for such waters.[312] The state must then submit this ranked list to the EPA for approval.[313] The TMDLs are an important piece of information for the NPDES permitting process, as they guide the limits on pollutants for individual dischargers.

Pennsylvania regulations defining TMDL address the contribution of nonpoint sources to impaired waters. To mitigate the effects of nonpoint sources, the Commonwealth's TMDL regulations mandate reduction of pollution from nonpoint sources through development and implementation of nonpoint source restoration plans.[314] If the water body being protected is designated as an EV or HQ water, the DEP requires that reasonable best management practices be adopted for nonpoint source control.[315]

Under the authority of the CWA, the EPA has promulgated effluent guidelines specific to oil and gas extraction operations and petroleum refining operations, which are incorporated into the NPDES permits for such operations.[316]

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[308] 25 Pa. Code § 93.8c (Listed in Table 5 of the regulation). *See also*, 25 Pa. Code § 16.51.
[309] 25 Pa. Code § 16.21.
[310] 33 U.S.C. § 1313(d).
[311] 25 Pa. Code § 96.1.
[312] 33 U.S.C. § 1313(d)(1).
[313] 33 U.S.C. § 1313(d)(2).
[314] 25 Pa. Code § 96.4(d).
[315] 25 Pa. Code § 93.4c(b)(2).
[316] EPA. "Effluent Guidelines: Oil and Gas Extraction Effluent Guidelines." (June 28, 2017) https://www.epa.gov/eg/oil-and-gas-extraction-effluent-guidelines; EPA. "Effluent Guidelines: Petroleum Refining Effluent Guidelines." (October 26, 2017) https://www.epa.gov/eg/petroleum-refining-effluent-guidelines.

The CWA does not set nationwide water quality standards. The water quality standards are determined by the state's classification of the designated and existing uses of the receiving body of water, each water body's TMDL (if it is subject to one), and the number of dischargers releasing water into the receiving body. The water quality standards set a floor below which water quality cannot drop. The technology-based standards set a goal of reducing or eliminating pollution at the source.

Pretreatment of Industrial Discharges to Publicly Owned Treatment Works

Many dischargers of liquid pollutants do not directly discharge them into a water of the United States – they instead send their waste to a nearby publicly owned treatment works. A publicly owned treatment work (POTW) is defined by the CWA as "any devices and systems used in the storage, treatment, recycling, and reclamation of municipal sewage or industrial wastes of a liquid nature."[317] POTWs are unique in that they both clean wastewater and discharge pollutants and are considered to be point source dischargers requiring an NPDES permit.

In order to better regulate industrial discharges to POTWs, the CWA requires that dischargers reduce or eliminate certain pollutants before discharging waste water to the POTW. To that end, Congress directed the EPA to develop pretreatment standards for the introduction of pollution to a POTW "for those pollutants which are determined not to be susceptible to treatment by such treatment works or which would interfere with the operation of such treatment works."[318]

Generally speaking, each POTW sets its own limits on the quality of discharge that it will accept from an industrial source based on its technical ability to treat the discharge.[319] The receiving POTW's ability to handle the discharge informs the pretreatment requirements of the industrial discharger. These requirements are set locally, on a POTW-by-POTW basis. However, there are also federal requirements that must be followed for the pretreatment of industrial discharges to POTWs.[320] Because Pennsylvania has not been delegated the authority to run the pretreatment program, the EPA oversees both the pretreatment program of the industrial discharger and the POTW.

The federal regulations provide that pollutants may not be discharged to the POTW if the pollutants "pass through" the POTW – meaning they will simply be discharged in quantities sufficient to violate the POTW's NPDES permit – or if they cause interference with the operation or performance of the POTW.[321] Discharges of pollutants that can cause fire, explosion, clogging of sewers, or corrosion of pipes are also prohibited.[322] These regulations also include pretreatment standards for oil and gas extraction operations that

[317] 33 U.S.C. § 1292(2)(A).
[318] 33 U.S.C. § 1317(b).
[319] POTWs are mandated to develop local limits by federal regulation. 40 C.F.R. § 403.8(f)(4).
[320] 40 C.F.R. Part 403.
[321] 40 C.F.R. § 403.5(a)(1).
[322] 40 C.F.R. § 403.5(b).

prohibit the disposal of waste water from hydraulic fracturing into publicly owned treatment works without an NPDES permit.[323]

In the sense that local POTWs can have stricter requirements for discharges to its facilities than the federal regulations require for a given industrial category, it can be said that such requirements are "more stringent" than federal regulations.[324] However, these restrictions are driven by the individual POTW's technical ability to handle discharges, as well as the requirement that the POTW adhere to its own NPDES permit obligations. Further, the stricter standards are set by the local POTWs themselves, not by the Commonwealth.

One issue with regulating the POTWs is that the federal government is not in a position to penalize them for non-compliance. This is because they are needed to clean the pretreated industrial waste (as well as the municipal waste they handle). To encourage POTWs to comply with federal regulations, Congress developed the State Revolving Fund grant program.[325]

The State Revolving Fund provides money to the states to develop a wide range of water-related infrastructure projects, such as new treatment facilities or sewer systems. States must contribute 20 percent of the amount they receive as part of the State Revolving Fund grants from the federal government. The state oversees the Fund, and the funds function like environmental infrastructure banks by providing loans to the infrastructure projects then using any interest proceeds from those loans to finance other projects.[326] Pennsylvania participates in the State Revolving Fund program, and it is managed by the Pennsylvania Infrastructure Investment Authority.[327]

Municipal Separate Storm Systems

The federal government, through the CWA, also regulates what it terms municipal separate storm systems, or "MS4." An MS4 is a system of sewers that are: not part of the publicly owned treatment works (*i.e.*, not for sewage or industrial waste); owned by a state, county, city, or municipality that discharges into a water of the United States; designed or used to convey stormwater runoff; and are not part of a combined sewer overflow (a sewer that handles both stormwater runoff and sewage).[328]

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[323] *See*, 40 C.F.R. Pt. 435.

[324] 33 U.S.C. § 1317(b)(4) (The federal pretreatment standards codified in the C.F.R. are essentially a floor, with the Act stating "nothing in this subsection shall affect any pretreatment requirement established by any State or local law not in conflict with any pretreatment standard established under this subsection.").

[325] 33 U.S.C. § 1383.

[326] EPA. "Learn About the Clean Water State Revolving Fund." https://www.epa.gov/cwsrf/learn-about-clean-water-state-revolving-fund-cwsrf.

[327] Pennsylvania Infrastructure Investment Authority. "Clean Water State Revolving Fund." http://www.pennvest.pa.gov/Information/Funding-Programs/Pages/Clean-Water-State-Revolving-Fund.aspx.

[328] 40 C.F.R. § 122.26(b)(8).

To better regulate stormwater runoff, in 1987 Congress amended the CWA to statutorily define MS4s as a "point source" requiring an NPDES permit.[329] NPDES permits for MS4s differ from the permits issued to other point sources in that they generally do not contain effluent limitations. Rather, the permits seeks to limit pollution by mitigating the impact of stormwater runoff through the use of Minimum Control Measures (MCM) and best management practices (BMPs). Small MS4s and other systems designated by the EPA or DEP, while required to have coverage under an NPDES permit, were allowed to be covered by a state-wide general permit. Pennsylvania covers small MS4s under PAG-13, which was most recently extended through March 15, 2018.[330]

Pennsylvania has, by way of regulation, incorporated all of the federal MS4 program by reference.[331] For small MS4s, the general permit operated under must "include permit terms and conditions to reduce the discharge of pollutants from the MS4 to the maximum extent practicable (MEP)…."[332] There are six MCMs that the small MS4s must satisfy: public education and outreach; public participation and involvement; illicit discharge detection and elimination; construction site runoff control; post-construction stormwater management in new developments; and pollution prevention and good housekeeping for municipal operations.[333] The stormwater management plan for each permitted MS4 must contain BMPs that satisfy each of the six MCMs.[334]

Unlike permits for other point source discharges, NPDES permits issued to MS4s only "require controls to reduce the discharge of pollutants to the maximum extent practicable ... and such other provisions as the Administrator or the State determines appropriate for the control of such pollutants."[335] As such, an MS4 is not required to meet all the technology-based and water quality-based requirements of the CWA. However, in 2002 the EPA determined that MS4s are still subject to the total maximum daily load limits of their respective receiving bodies of water.[336] If the MS4 discharges into an impaired body of water, or anywhere within the Chesapeake Bay watershed, the MS4 is subject to heightened water quality standards. If the MS4 discharges into a body of water that is impaired and subject to a TMDL, it must develop and, after approval by the DEP, implement a TMDL plan geared toward achieving the required reductions. This is what is known as a "wasteload allocation."[337] If the MS4 discharges into an impaired body of water that is not subject to a TMDL, the MS4 must still implement BMPs to ensure that the discharge does not contribute to the impairment.[338]

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[329] Water Quality Act of 1987, Pub.L.. 100-4, 101 Stat. 7; 33 U.S.C. § 1342(p).
[330] Extension of the Current Pennsylvania National Pollutant Discharge Elimination System General Permit for Stormwater Discharges from Municipal Separate Storm Sewer Systems (PAG-13), 41 Pa. B. 5041. (September 17, 2011).
[331] 25 Pa. Code § 92a.32(c).
[332] 40 C.F.R. § 122.34.
[333] *Id.*
[334] *Id.*
[335] 33 U.S.C. § 1342(p)(3)(B)(iii).
[336] EPA. Memorandum. "Establishing Total Maximum Daily Load (TMDL) Wasteload Allocations (WLAs) for Storm Water Sources and NPDES Permit Requirements Based on Those WLAs." (Nov. 22, 2002). https://www.epa.gov/npdes/pubs/final-wwtmdl.pdf.
[337] 40 C.F.R. § 130.2(h).
[338] EPA. Memorandum, n, 336.

Additionally, all regulated small MS4s discharging within the Chesapeake Bay watershed must develop and, after approval by the DEP, implement a Chesapeake Bay pollutant reduction plan to reduce nitrogen, phosphorus, and sediment from the discharged stormwater. This is not a requirement of the federal government, but of DEP pursuant to the PAG-13 general permit.[339]

Waste Treatment Management Plans

Although the CWA leaves the regulation of nonpoint source pollution to the states, there are aspects of the CWA that to nonpoint sources. The CWA requires states to develop "areawide waste treatment management plans."[340] Each state is required to identify each area within the state having a substantial water quality control problem.[341] Then, the governor of the state designates the boundaries of each area identified and designates a single representative organization to develop effective area-wide waste treatment management plans for each area.[342]

The representative organization is responsible for creating, updating, and implementing the area-wide waste treatment management plans for the state. The plan must include identification of nonpoint sources of pollution, a process to control the disposal of pollutants on land, and a process to control agricultural and silvi-cultural (the practice of growing and managing forests) sources of pollution.[343] The plan must be certified by the state's governor, and then approved by the Administrator of the EPA.[344]

The CWA also contains a provision known as the nonpoint source management program. Created with the 1987 amendments to the act, it recognizes "the need for greater federal leadership to help focus state and local nonpoint source efforts."[345] The nonpoint source management program works by providing grant money to states, territories, and Indian tribes and "supports a wide variety of activities including technical assistance, financial assistance, education, training, technology transfer, demonstration projects and monitoring …."[346] Pennsylvania participates in the grant program, and has had numerous EPA-approved nonpoint source management programs.[347]

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[339] PAG-13, n. 330.
[340] 33 U.S.C § 1288.
[341] 33 U.S.C. § 1288(a)(2).
[342] *Id.*
[343] 40 C.F.R. § 130.6(c)(4).
[344] 33 U.S.C. § 1288(b)(3).
[345] EPA. "Clean Water Act Section 319." https://www.epa.gov/lakes/clean-water-act-section-319.
[346] *Id.*
[347] EPA. "Nonpoint Source Success Stories." https://www.epa.gov/nps/nonpoint-source-success-stories.

Pennsylvania's Clean Streams Law

Because it covers groundwater in addition to surface waters, the Cleans Streams Law is more expansive than the CWA. The CSL covers activities that would not fall under the jurisdiction of the CWA. For instance, the Commonwealth's statute has been used to levy penalties against dairy farmers for an unknowing and accidental discharge of silage leachate into the ground, which contaminated their neighbor's well water.[348] In another case, an elevator manufacturing facility owned by Westinghouse was fined $3,200,000 in fines as a result of years of leaking drums of chlorinated solvents, one instance of workers dumping the solvents onto the grass, and one instance of discharging solvents into a storm drain.[349]

The CSL prohibits all persons or municipalities from discharging industrial wastes "directly or indirectly" into any waters of the Commonwealth, which specifically includes any discharge into a sewer system or POTW.[350] Another section of the CSL prohibits the discharge of sewage into the waters of the Commonwealth, unless in conformity with the rules and regulations of the DEP.[351]

Section 401 of the CSL also prohibits any person or municipality from putting or placing into any of the waters of the Commonwealth "any substance of any kind or character resulting in pollution."[352] Additionally, Section 402 of the CSL states that if an activity is "not otherwise requiring a permit under this act, including but not limited to the impounding, handling, storage, transportation, processing … of materials or substances, creates a danger of pollution of the waters of the Commonwealth …" DEP may require such an activity to have a permit.[353] This is a much broader proscription than the CWA, as it permits the regulation of activities that present a possibility of pollution, and where DEP obtains its authority to regulate many water-impacting activities that are not specifically enumerated by the CSL.[354]

The CSL imposes an affirmative responsibility on individuals, industries, and municipalities to not discharge into waters of the Commonwealth. Anyone engaged in an activity involving polluting substances must take care to prevent the substances from reaching waters of the Commonwealth.[355] If there is an unauthorized discharge of a pollutant into the waters of the Commonwealth, the discharger must immediately notify DEP and, if possible, notify downstream users of the water.[356] Additionally, the discharger must take all necessary steps to mitigate the harm from the discharge.[357] The authority of

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[348] *Stambaugh v. DEP*, 11 A.3d 30 (Pa. Commw. 2010).
[349] *Westinghouse Electric Corp. v. DEP*, 745 A.2d 1277 (Pa. Commw. 2000).
[350] CSL § 307; 35 P.S. § 691.307.
[351] CSL § 201-202; 35 P.S. § 691.201-202.
[352] CSL § 401; 35 P.S. § 691.401.
[353] CSL §402; 35 P.S. §691.402(a).
[354] *E.g.* 25 Pa. Code §102 *et seq*., (erosion and sediment control).
[355] 25 Pa. Code § 91.34.
[356] 25 Pa. Code § 91.33(a).
[357] 25 Pa. Code § 91.33(b).

DEP to regulate the potential to cause water pollution has also led it to impose conditions and requirements on, but not require a permit for, activities such as the use of animal manure in agricultural operations[358] and the construction of small wastewater impoundments.[359] While the CSL provides specifically for mines, the definitions of "industrial waste" and "pollution" clearly apply to oil and gas extraction as well. Therefore, the general requirements for permits, the notice requirements and the administrative procedures, and the penalties also apply.

DEP also has broad authority to levy penalties under the CSL. DEP can seek to impose criminal fines and civil penalties."[360] Further, DEP can modify, suspend, or revoke a permit, or order persons or municipalities to cease operations if they are in violation of any provision of the CSL.[361] The Environmental Hearing Board, an administrative law court that is independent of DEP, assesses the fine.[362]

Pennsylvania's Nonpoint Source Regulations

According to the EPA, nonpoint source pollution is responsible for the majority of water pollution throughout the nation's waters.[363] Runoff from agricultural areas constitutes a majority of the nonpoint source pollution.[364] In Pennsylvania, abandoned mine drainage is a major contributor.[365] Urban stormwater runoff is also a source of nonpoint source pollution. The Commonwealth has devised several regulations to help combat nonpoint source pollution.

The EPA provides guidance via the Section 319 Nonpoint Source Management Program and Nonpoint Source Watershed Implementation Plans.[366] In accordance with this federal guidance, the Commonwealth now implements what is known as a "watershed approach" to addressing nonpoint source pollution. Under this approach, DEP focuses on entire drainage areas or watersheds rather than simply looking at individual streams. DEP currently has water implementation plans for 28 different watersheds throughout the state.[367]

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[358] 25 Pa. Code § 91.36.
[359] 25 Pa. Code § 91.35.
[360] CSL § 605(a); 35 P.S. § 691.605(a).
[361] CSL § 610; 35 P.S. § 691.610.
[362] Act of July 13, 1988 (P.L.530, No.94) § 4; 35 P.S. §7514, known as the Environmental Hearing Board Act.
[363] EPA. "What is Non-Point Source?" https://www.epa.gov/nps/what-nonpoint-source.
[364] EPA. "Nonpoint Source: Agriculture." https://www.epa.gov/nps/nonpoint-source-agriculture.
[365] EPA. "Abandoned Mine Drainage." https://www.epa.gov/nps/abandoned-mine-drainage.
[366] 33 U.S.C. § 1329.
[367] EPA. "Implementation Plans," http://www.dep.pa.gov/Business/Water/PlanningConservation/NonpointSource/Pages/Plans.aspx.

Erosion and Sediment Control

One main regulatory structure to combat nonpoint source pollution is the erosion and sediment control rules. Pennsylvania's regulations governing erosion and sediment control are more stringent than the federal standards because agricultural activities (with the exception of concentrated animal feedlots) are not regulated by the federal NPDES regulations, whereas the Commonwealth does regulate agricultural activities (such as plowing and tilling) under the Pennsylvania CSL.[368]

Both agricultural and non-agricultural earth disturbance activities are regulated by requiring persons to develop, implement, and maintain best management practices to minimize accelerated erosion and sedimentation. Any "earth disturbance activity" in an area one acre or greater is considered to be a point source requiring an NPDES permit.[369] Earth disturbance activity is very broadly defined in the Pennsylvania Code, and encompasses nearly anything that disturbs the surface of the land or deposits earthen materials on it, including agricultural and mining activities.[370] Because this rule would make many nonpoint sources, including farms, *de jure* point sources required to comply with the NPDES permitting rules, there are numerous exceptions and carve-outs.

"Agricultural plowing or tilling activities, animal heavy use areas, timber harvesting activities or road maintenance activities" are all exempted from the requirement to obtain NPDES permits, but are subject to other erosion and sediment control rules.[371] Timber harvesting or road maintenance activities "involving 25 acres or more," while not designated as point sources requiring an NPDES permit, are required to obtain a separate erosion and sediment control (E&S) permit,[372] as do oil and gas activities involving five acres or more over the life of the project.[373]

Any other earth disturbance activities involving five acres or more over the life of the project not otherwise covered by the erosion and sediment control rule (with the exception of agricultural plowing and tilling) need an E&S permit.[374] Anyone possessing a dredge and fill permit pursuant to Section 404 of the CWA does not need to obtain a separate E&S permit.[375] Although the regulation specifically states "agricultural plowing or tilling activities or animal heavy use areas" are exempt from any requirement to obtain an E&S or NPDES permit,[376] anyone who "plows or tills" land for agricultural purposes must have a written E&S plan, available to regulators for inspection.[377] Further, the plan must be "prepared by a person trained and experienced in E&S control methods and

[368] CSL § 1; 35 P.S. § 691.1.
[369] 25 Pa. Code § 102.5(a).
[370] 25 Pa. Code § 102.1.
[371] *Id.*
[372] 25 Pa. Code § 102.5(b).
[373] 25 Pa. Code § 102.5(c); 25 Pa. Code § 78.53.
[374] 25 Pa. Code § 102.5(d).
[375] 25 Pa. Code § 102.5(i).
[376] 25 Pa. Code § 102.5(j).
[377] 25 Pa. Code § 102.4.

techniques."[378] This E&S plan rule applies to any tilling and plowing or animal heavy use areas of 5,000 square feet or more.[379]

If the earth disturbance activity impacts any water designated as EV or HQ, a written E&S plan is needed, regardless of the size of the earth disturbance activity.[380] Where an earth disturbance activity could result in a discharge to an EV or HQ water, the person writing the plan must consider the use of non-discharge alternatives.[381] If non-discharge alternatives are not available, the plan writer must include within their E&S plan "anti-degradation best available combination of technologies."[382]

Mineral extraction is included in the definition of earth disturbance activity,[383] and the CSL provides the general requirements and process for a permit to operate a mine. A requirement specific to Pennsylvania is:

> A determination of the probable hydrologic consequences of the operation, both on and off the site of the operation, with respect to the hydrologic regime, quantity and quality of water in surface and ground water systems including the dissolved and suspended solids under seasonal flow conditions and the collection of sufficient data for the site of the operations and surrounding areas so that an assessment can be made by the department of the probable cumulative impacts of all anticipated mining in the area upon the hydrology of the area and particularly upon water availability..."[384]

In 1983, the EPA enacted the "stream buffer zone" rule that in its most simplistic form, required that the impacts of mining be kept at least 100 feet from a stream.[385] The stream buffer rule has been the subject of much debate and study. The EPA issued an Environmental Impact Statement pursuant to NEPA on the impacts of surface coal mining and valley fills in 2016.[386] As a result of concerns regarding the rule's ability to balance environmental concerns and energy needs, it was revised in 2015 and 2016 and became the "stream protection rule," one of the last environmental protection regulations enacted under the Obama Administration. It imposed restrictions on the ability of coal companies to expand or start new mines, and in particular, imposed a stricter limit on dumping waste and

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[378] 25 Pa. Code § 102.4(a)(3).
[379] 25 Pa. Code § 102.4(a)(2).
[380] 25 Pa. Code § 102.4(b)(2)(iii).
[381] 25 Pa. Code § 102.4(b)(6)(i).
[382] 25 Pa. Code § 102.4(b)(6)(ii).
[383] 25 Pa. Code § 102.1.
[384] CSL at § 315(c); 35 P.S. § 691.315(c).
[385] 30 C.F.R. 816.57 and 817.57. *See also,* Statement of Joseph G. Pizarchik, Director, Office of Surface Mining Reclamation and Enforcement, U.S. Department Of The Interior Before the Committee on Environment and Public Works, U.S. Senate, On the Implications of the Proposed Stream Protection Rule." February 3, 2016. https://www.doi.gov/ocl/stream-protection-rule-1.
[386] EPA. "What EPA is Doing to Reduce the Adverse Impacts of Surface Coal Mining in Appalachia." (October 6, 2016). https://www.epa.gov/sc-mining/what-epa-doing-reduce-adverse-impacts-surface-coal-mining-appalachia.

debris into surrounding ecosystems, a common practice in mountaintop mining that can result in streams in the valleys surrounding the mountaintop mines being filled with debris.

> This final rule will better protect water supplies, surface water and groundwater quality, streams, fish, wildlife, and related environmental values from the adverse impacts of surface coal mining operations and provide mine operators with a regulatory framework to avoid water pollution and the long-term costs associated with water treatment. We have revised our regulations to define "material damage to the hydrologic balance outside the permit area" and require that each permit specify the point at which adverse mining-related impacts on groundwater and surface water would reach that level of damage; collect adequate premining data about the site of the proposed mining operation and adjacent areas to establish an adequate baseline for evaluation of the impacts of mining and the effectiveness of reclamation; adjust monitoring requirements to enable timely detection and correction of any adverse trends in the quality or quantity of surface water and groundwater or the biological condition of streams; ensure protection or restoration of perennial and intermittent streams and related resources; ensure that permittees and regulatory authorities make use of advances in science and technology; ensure that land disturbed by mining operations is restored to a condition capable of supporting the uses that it was capable of supporting before mining; and update and codify the requirements and procedures for protection of threatened or endangered species and designated critical habitat.[387]

This rule was repealed by Congress under the Trump Administration.[388] The stream protection rule, in its final form, was very similar to the permitting requirements found in Section 315 of the Pennsylvania CSL. Had the stream protection rule stood, Pennsylvania's law would in many ways be equivalent to the federal law. With the repeal of the rule, Pennsylvania's statute imposes a more stringent standard than that of the federal government.

The CSL generally prohibits mining in certain areas (unless jointly authorized by federal, State, and local authorities and any private owners), such as otherwise prohibited federal lands, publicly owned parks or historic sites, near public roads, and near occupied dwellings, public buildings, schools, churches, and cemeteries.[389] If DEP reviews a mining permit application and finds that reclamation of the property after conclusion of mining operations is not technologically or economically feasible, it may designate an area as

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[387] Surface Mining Reclamation and Enforcement Office. "Stream Protection Rule." 81 Fed. Reg. 93066 (December 20, 2016). Rule scheduled to be effective January 19, 2017. https://www.federalregister.gov/documents/2016/12/20/2016-29958/stream-protection-rule.

[388] Hiroko Tabuchi, "Republicans Move to Block Rule on Coal Mining Near Streams," *The New York Times*, (February 2, 2017) and Brad Plumer, "Why Trump just killed a rule restricting coal companies from dumping waste into streams," *Vox*, (February 16, 2017).

[389] CSL § 315(o); 35 P.S. § 691.315(o).

unsuitable for all or certain types of surface mining operations.[390] Such a designation may be appropriate if mining operations will:

- Be incompatible with existing State or local land use plans or programs;

- Affect fragile or historic lands in which such operations could result in significant damage to important historic, cultural, scientific and esthetic values and natural systems;

- Affect renewable resource lands in which such operations could result in a substantial loss or reduction of long-range productivity of water supply or of food or fiber products, and such lands to include aquifers and aquifer recharge areas; or

- Affect natural hazard lands in which such operations could substantially endanger life and property, such lands to include areas subject to frequent flooding and areas of unstable geology.[391]

In addition, any person whose interests are, or may be, adversely affected has the right to petition DEP to have an area designated as unsuitable for mining operations, or to have such a designation terminated.[392]

The litigation surrounding the Bailey mine operation and its impact on Ryerson Station State Park in Greene County is an example of the interaction of earth disturbance activities, subsidence, and hydrological impacts and plans. The Bailey Mine is part of the Pennsylvania Mining Complex, located in Greene and Washington counties, and is the largest underground coal mine complex in North America.[393] The Bailey mine began longwall mining in 1984.[394] The roofs of longwall mines are designed to collapse following coal extraction, with the surface above subsiding.[395]

> In the flat-lying sedimentary rocks of southwestern Pennsylvania, underground mining is routinely accompanied by rock fracturing, dilation of joints, and separation along bedding planes. Rock movements occur vertically above the mine workings and at an angle projected away from the mined-out area. Mining-induced fracturing within this angle can result in hydrologic impacts beyond the margins of the mine workings.[396]

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[390] CSL § 315(h); 35 P.S. § 691.315(h).
[391] CSL § 315(i); 35 P.S. § 691.315(i).
[392] CSL § 315(m); 35 P.S. § 691.315(m).
[393] Consol Energy. Pennsylvania Mining Complex. http://www.consolenergy.com/operations/pennsylvania-mining-complex.
[394] *Id.*
[395] DEP. "Technical Guide to Mine Subsidence." http://www.dep.state.pa.us/msi/technicalguidetoms.html
[396] *Id.*

This type of impact appears to have occurred with the Bailey mine in 2005.

> After cracks appeared in the 45-year-old Duke Lake Dam in April 2005, the lake was drained and three months later the dam was breached by DCNR for safety reasons. In February 2010, a state investigation determined that the 515-foot-long concrete dam was damaged due to subsidence caused by Consol Energy's Bailey longwall coal mine.
>
> In April 2013, the DCNR and Consol reached a settlement in which the company admitted no fault but paid $36 million to replace the dam. Some of that money will be used to build new park facilities….[397]

Consol Pennsylvania Coal Company also sought two permits to longwall mine in areas that could potentially affect streams, including Polen Run, a stream within Ryerson Station. Ensuing appeals before the Environmental Hearing Board resulted in a confirmation of one permit and a confirmation of the appeal in the second.[398] DEP issued a permit on March 7, 2018 to Consol to conduct longwall mining operations under a portion of Polen Run, which was appealed on March 21, 2018.[399] There have been settlements, appeals, counterappeals, and dropped appeals as part of this ongoing struggle. An additional layer to this conflict occurred by a 2017 amendment to the 1996 mine subsidence law. This amendment is referred to as Act 32 and addresses the interpretation of planned subsidence in determining if the proposed bituminous coal operations have the potential to cause pollution as defined in the CSL.[400] DEP and the Environmental Hearing Board have concluded that Act 32 is not operable until approved by the U.S. Department of the Interior Office of Surface Mining Reclamation and Enforcement.[401]

Riparian Buffers

Although not mandated by federal law or regulation, Pennsylvania maintains extensive regulations on using riparian buffers to impede any excess water, dirt, pesticides, or fertilizer from washing into the Commonwealth's streams, lakes, and rivers under the authority of the CSL.[402] This regulation is applicable whenever an E&S permit is required.

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[397] Don Hopey, "Greene County's Duke Lake will not be refilled, state says." *The Pittsburgh Post-Gazette*, (July 25, 2015). http://www.post-gazette.com/local/south/2015/07/25/Greene-County-s-Duke-Lake-will-not-be-refilled-state-says/stories/201507250058.

[398] *Center for Coalfield Justice and the Sierra Club v. Commonwealth of Pennsylvania, Department of Environmental Protection and Consol Pennsylvania Coal Company, LLC.* EHB Docket No. 2014-072-B (August 15, 2017).

[399] Bob Niedbala. "Two environmental groups appeal Bailey Mine permit in Ryerson." *The Observer-Reporter*. (March 23, 2018). https://observer-reporter.com/news/two-environmental-groups-appeal-bailey-mine-permit-in-ryerson/article_9f23ea80-2ed7-11e8-aff7-771d1ec0f06d.html.

[400] Act of July 21, 2017 (P.L.345, No.32), amending § 5 of the Bituminous Mine Subsidence and Land Conservation Act.

[401] *Supra*, note 398.

[402] 25 Pa. Code § 102.14.

Generally, a riparian buffer is simply a strip of trees and bushes between a stream, lake, or river and an earth disturbance activity.[403]

Amendments to the CSL in 2014 allow developers to use alternative means other than riparian buffers to comply with regulations of earth disturbance activities near specially protected waters. Generally, this is activity occurring within 150 feet of a HQ or EV river, stream, creek, lake, pond or reservoir. Under this law, an alternative method can be used if the proponent can show that it is at least as effective as a buffer. In some circumstances, an offset requirement is triggered.[404]

Bluff Recession and Setbacks

The National Oceanic and Atmospheric Administration (NOAA) is responsible for implementing the federal Coastal Zone Management Act[405] designed to encourage coastal states to develop coastal zone management plans. Pennsylvania is a coastal state by virtue of its lands along Lake Erie and the Delaware Estuary. Pennsylvania's coastal resources management program was approved in 1980.[406] This federal program provides grants and guidance to coastal states but does not prescribe methods to be used. The Pennsylvania program also has a federally approved program for controlling coastal nonpoint source pollution.

Bluffs, defined as "any high bank or bold headland with a broad, precipitous cliff face, overlooking a lake" are subject to regulation by DEP under the Bluff Recession and Setback Act.[407] A lake under this statute is one of at least 9,000 square miles, which makes this statute applicable only to Lake Erie.[408] Under the statute, DEP establishes minimum setback requirements to protect bluff areas from unregulated development, preserve and restore natural ecological systems, and prevent destruction of private property. The statute specifically references the role of the Commonwealth as a "trustee of natural resources" and "the people's constitutional right to the preservation of the natural, scenic, aesthetic and historic values of the environment."[409] DEP's regulations are the minimum required; municipalities in a designated bluff recession hazard area may adopt more stringent ordinances for their communities.[410]

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[403] 25 Pa. Code § 102.14(b).
[404] Act of Oct. 22, 2014 (P.L.2600, No.162), amending the CSL.
[405] The Coastal Zone Management Act of 1972, Pub.L.. 92–583, 86 Stat. 1280, enacted October 27, 1972, 16 U.S.C. §§ 1451–1464, Chapter 33.
[406] DEP. Coastal Resources Management Plan. http://www.dep.pa.gov/Business/Water/Compacts%20and%20Commissions/Coastal%20Resources%20Management%20Program/Pages/About-the-Program.aspx.
[407] Act of May 13, 1980 (P.L.122, No.48); 32 P.S. §§ 5201-5215, known as the Bluff Recession and Setback Act.
[408] U.S. Census Bureau, Statistical Abstract of the United States, 2011, p. 222.
[409] *Supra*, note 407 at § 2(6); 32 P.S. § 5202(b).
[410] 25 Pa. Code Ch. 85.

Dirt and Gravel Road Maintenance

Pennsylvania has over 20,000 miles of publicly owned unpaved roads. These can be nonpoint sources of dust and sediment pollution from dirt and gravel road maintenance practices.[411] In 1997, Pennsylvania established a grant program to aid county conservation districts, known as the Pennsylvania Dirt, Gravel and Low Volume Road Maintenance Program.[412] Originally intended to apply to dirt and gravel roads only, the act was amended in 2013 to add low-volume (average daily traffic count of 500 vehicles or less) paved State and municipal roads to the program.[413] The State Conservation Commission administers the program and grants aid based on written criteria to priorities on preventing dirt and sediment pollution. Quality Assurance Boards in each conservation district are charged with administering the funding to include criteria to specify project priorities, incentives for training road managers and equipment operators, and adoption of standards that prohibit the use of materials or practices that are environmentally harmful.[414]

Flood Plain Management

Floods not only can cause loss of life and property damage, but they can also be a major source of pollution. During Tropical Storm Agnes, which struck Pennsylvania in June 1972, an estimated 2,700 graves in the historic cemetery in Forty Fort, Luzerne County, were swept into the Susquehanna River. Of those, "1,410 individual remains, caskets and burial vaults were recovered." The rest are lost, buried in the river or in the sediment left behind when the floodwaters receded.[415] Tropical Storm Lee, in September 2011, also struck the Wyoming Valley area. The Susquehanna River submerged a sewage plant in Duryea and "untreated sewage had to be diverted into the Lackawanna River."[416] In Dauphin County, the Swatara Creek crested nearly 20 feet above flood stage, destroying homes, restaurants and businesses, obliterating roads and sweeping all types of debris throughout the towns of Hershey, Hummelstown, and Middletown.[417]

Disaster recovery is expensive and consumes huge amounts of time and resources. During the 1950s and 60s, the federal government tried to encourage the development of flood insurance. In 1968, the National Flood Insurance Act[418] was adopted to supplement private flood insurance market by:

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[411] Pennsylvania State University. Center for Dirt and Gravel Road Studies. State Conservation Commission Program. "Program History". https://www.dirtandgravel.psu.edu/pa-program-resources/scc-program-overview/program-history.
[412] 75 Pa.C.S. § 9106, added by the act of April 17, 1997 (P.L.6, No.3).
[413] Section 41 of the act of Nov. 25, 2013 (P.L.974, No.89).
[414] *Supra*, note 411.
[415] Forty Fort Meeting House and Cemetery, Forty Fort Cemetery, Flood of 1972. fortyfortmeetinghouse.org/cemetery.html and www.fortyfortmeetinghouse.org/flood1972.html.
[416] Steve McConnell. "Flood's toxic threat looms." *The Times-Tribune*, September 13, 2011. http://thetimes-tribune.com/flood-s-toxic-threat-looms-1.1202313.
[417] George A. Ginter, "Tropical Storm Lee dumped more than 13 inches of rain in some central Pennsylvania towns," *The Patriot-News*. (September 12, 2011). http://www.pennlive.com/midstate/index.ssf/2011/09/tropical_storm_lee_dumped_more.html.
[418] Pub.L. 90–448, title XIII, § 1377, Aug. 1, 1968, 82 Stat. 589, 42 U.S.C. § 4001 *et seq*.

- transferring the costs of private property losses from taxpayers to private floodplain property owners,

- providing financial aid in situations that did not merit a federal disaster declaration,

- guiding development away from flood hazard areas, and

- requiring new or substantially improved buildings be constructed in ways to minimize or prevent flood damage.[419]

The National Flood Insurance Program (NFIP) as conceived in 1968 was a strictly voluntary program, and by the time Tropical Storm Agnes had arrived, "fewer than 100,000 flood insurance policies were in force nationwide." [420] The massive disaster assistance costs triggered by Agnes led to a Congressional reconsideration of how flood relief and disaster assistance should be managed. Accordingly, Congress passed the Flood Disaster Protection Act in 1973, amending the 1968 act in several significant ways.[421] Further amendments refined the additions under the 1968 act. The program was originally administered by the U.S. Department of Housing and Urban Development, but is currently administered by the Federal Emergency Management Agency (FEMA), under the jurisdiction of the Department of Homeland Security. FEMA can only make flood insurance available in those communities that agree to regulate future development in the flood plain. Communities must adopt and submit a flood plain ordinance in order for individuals in the community to be eligible to purchase flood insurance.[422]

While participation in the NFIP is technically still voluntary, failure of state and local governments to participate in the plan when there are flood hazard areas in the community, will result in ineligibility for:

- federal grants or loans to build or acquire buildings under programs administered by the Housing and Urban Development, the EPA, and the Small Business Administration;

- federal disaster assistance to repair insurable buildings;

- federal mortgage insurance or loan guarantees such as Farm Home Administration, Veterans' Affairs and others; and

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[419] Federal Emergency Management Agency (FEMA), National Flood Insurance Program (NFIP), Floodplain Management Requirements, "A Study Guide and Desk Reference for Local Officials" FEMA Doc. No. 480 (February 2005) at 2-3. https://www.fema.gov/media-library-data/1481032638839-48ec3cc10cf62a791ab44ecc0d49006e/FEMA_480_Complete_reduced_v7.pdf.
[420] *Id.*, at 2-4.
[421] Pub.L. 93–234, § 3, Dec. 31, 1973, 87 Stat. 976; 42 U.S.C. § 4001 *et seq*.
[422] *Supra*, note 419 (Guide) at 2-12.

- federally insured or regulated lending institutions must notify applicants seeking loans for insurable buildings that there is a flood hazard and the property is not eligible for Federal disaster relief.[423]

FEMA has issued minimum criteria that must be met for the adoption of flood plain management regulations by flood-prone, mudslide-prone and flood-related erosion-prone communities. Special flood hazard area designations and water surface elevations furnished by FEMA are applicable when supplied. Regulations include location, elevation, construction materials, structural design, backup water and sewage systems.[424] The purpose and goal of the NFIP is to encourage state and local governments to go beyond the minimum criteria to address unique aspects of flood hazard areas within their jurisdiction. FEMA's Community Rating System rewards communities for exceeding the minimum standards by reducing flood insurance premium rates for policyholders up to 45 percent.[425] "Any flood plain management regulations adopted by a state or community which are more restrictive than the criteria set forth in this part are encouraged and shall take precedence."[426]

Pennsylvania adopted is own Flood Plain Management Act (FPMA) in 1978.[427] Unlike the NFIP, Pennsylvania mandates that "Each municipality which has been notified by the United States Department of Housing and Urban Development [now FEMA] that it has been identified as having an area or areas which are subject to flooding shall participate in the National Flood Insurance Program."[428] Regulations implementing the FPMA establish their own minimum standards for municipal ordinances that are more restrictive than the federal minimum standards in regulating the construction or substantial improvement of structures designed for production or storage of specific identified materials and substances that may endanger human life, regulating obstructions, and including lands adjacent to flood hazard areas to the property included.[429] As with the federal law, Pennsylvania declared the NFIP criteria to be minimum standards, and that "no provision of this act shall be construed in any way limiting the power of any municipality to adopt more restrictive ordinances, codes or regulations for the management of flood plains."[430]

Stormwater Management Plans

Stormwater runoff can contain road debris, trash, salt from winter weather treatment, as well as chemicals and fertilizer. In 1978, Pennsylvania enacted the Stormwater Management Act with the goal of preventing or mitigating the effects of

[423] *Id.*, at 2-15.
[424] 44 C.F.R. § 60.1 *et seq*.
[425] FEMA. https://www.fema.gov/community-rating-system.
[426] 44 C.F.R. § 60.1(d).
[427] Act of October 4, 1978 (P.L.851, No.166); 32 P.S. §§ 679.101 to 679.601, known as the Flood Plain Management Act (FPMA).
[428] FPMA § 201(a); 32 P.S. § 679.201(a).
[429] 25 Pa. Code Ch. 113 (Floodplain Management).
[430] FPMA § 204; 32 P.S. § 679.204.

stormwater runoff.[431] Known as Act 167, it requires counties, in consultation with its municipalities, to create watershed-based stormwater management plans.[432]

Fertilizers

The Nutrient and Odor Management Act is a Pennsylvania law pertaining to nonpoint source pollution that has no federal counterpart. [433] The General Assembly declared the law's purpose, in part, to be "proper utilization and management of nutrients on farms to prevent the pollution of surface water and groundwater."[434] The law requires concentrated animal operations to devise a nutrient management plan in order to control the runoff of animal waste.[435] This law also prohibits farmers from mechanically applying manure fertilizer to their fields within 100 feet of a surface body of water, unless there is a vegetated buffer of at least 35 feet in width between the water and the fertilized field.[436] For the purpose of this law, surface water includes "a perennial or intermittent stream with a defined bed and bank, a lake or pond."[437]

Federal and State Regulation of Wetlands

Wetlands are important ecological features that have historically been seen as impediments to agriculture, travel, development, and vectors for disease. From colonial times, many were drained to make way for farmland.[438] According to the United States Geological Survey, Pennsylvania has lost half of its wetlands in the last 200 years.[439] Wetlands have become a flashpoint for the dispute over the scope of the EPA's regulatory authority under the CWA.

To protect wetlands and other waterways, Congress made it unlawful to discharge dredge or fill material into the waters of the United States without a permit.[440] These permits are known as Section 404 permits. The Army Corps of Engineers has jurisdiction over "all wetlands adjacent to navigable or interstate waters and their tributaries"[441] and is the government agency that issues Section 404 permits.[442] However, the EPA can step in

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[431] Act of October 4, 1978 (P.L.167, No.864); 32 P.S. § 680.1 *et seq.*, known as the Stormwater Management Act (SMA).
[432] *Id.*, § 5; 32 P.S. § 680.5.
[433] 3 Pa.C.S. §§ 501 – 522, known as the Nutrient and Odor Management Act.
[434] 3 Pa.C.S. § 502(2).
[435] 3 Pa.C S. § 506.
[436] 3 Pa.C.S. § 507(a).
[437] 3 Pa.C.S. § 507(b).
[438] United States Geological Survey. "Technical Aspects of Wetlands: History of Wetlands in the Coterminous United States." https://water.usgs.gov/nwsum/WSP2425/history.html.
[439] United States Geological Survey. "State Summary Highlights." https://water.usgs.gov/nwsum/WSP2425/state_highlights_summary.html.
[440] 33 U.S.C. §1344 (Permits for dredged or fill material).
[441] *U.S. v. Riverside Bayview Homes, Inc.*, 474 U.S. 121, 129 (1985).
[442] 33 U.S.C. § 1344(a).

to override the Corps' approval if, in the judgment of the EPA, allowing the permitted activity "will have an unacceptable adverse effect on municipal water supplies, shellfish beds and fishery areas (including spawning and breeding areas), wildlife, or recreational areas."[443] At least one federal appeals court has held that this is a broad veto-like power that can be used to revoke permits that have already been issued.[444]

Both the EPA and the Army Corps of Engineers define a wetland as "areas that are inundated or saturated by surface or ground water at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions."[445] "Dredge material" is defined as any material dredged or excavated from the waters of the United States.[446] "Fill material" is defined as "material placed in waters of the United States where the material has the effect of: (i) replacing any portion of a water of the United States with dry land; or (ii) [c]hanging the bottom elevation of any portion of a water of the United States."[447] The discharge of fill material is defined to include such things as seawalls and dams, but explicitly excludes "plowing, cultivating, seeding and harvesting for the production of food, fiber, and forest products."[448]

The term "discharge" has the same meaning in relation to Section 404 permits as it does in the rest of the CWA: "any addition of any pollutant to navigable waters from any point source." Although the U.S. Army Corps of Engineers is the governmental body that approves Section 404 permits, pursuant to another subsection of the CWA an applicant for this type of permit must also obtain certification from the state in order for the U.S. Army Corps of Engineers to approve their permit.[449] The CWA allows DEP to deny certification to an applicant if the project will cause a discharge that will not be in compliance with the state's water quality standards,[450] and may condition its grant of certification on compliance with "any other appropriate requirement of State law."[451] The term "any other appropriate requirement" has been accorded broad meaning by the United States Supreme Court.[452]

Disturbing dredge or fill material in place is still considered a discharge requiring a Section 404 permit. The case of *Borden Ranch Partnership v. U.S. Army Corps of Engineers* is illustrative of this important principle. In *Borden Ranch*, a farmer "deep ripping" a wetland in preparation to plant an orchard and a vineyard was held to have

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[443] 33 U.S.C. § 1344(c).
[444] *Mingo Logan Coal Co. v. EPA*, 714 F.3d 608 (D.C. Cir. 2013) (holding that the EPA had authority under §1344(c) to revoke permit of coal company to discharge fill material into a stream four years after permit was issued.).
[445] 40 C.F.R. § 230.41(a)(1); 40 C.F.R. 230.3(o)(3)(iv); 33 C.F.R. 328.3(c)(4).
[446] 33 C.F.R. § 323(c).
[447] 33 C.F.R. § 323(e)(i)-(ii).
[448] 33 C.F.R. § 323(f).
[449] 33 U.S.C. § 1341(a)(1).
[450] *Id.*
[451] 33 U.S.C. § 1341(d).
[452] *PUD No. 1 of Jefferson County v. Washington Dept. of Ecology*, 511 U.S. 700 (1994) (holding that a stream flow requirement on a dam was an "appropriate requirement" of state water quality standards, as the stream's designated use was as a salmon fishery, for purposes of Clean Water Act certification).

discharged fill material into a wetland (and was required to have a permit) despite the fact that he was not removing anything from or adding anything to the wetland but rather churning and gouging the soil.[453] The Ninth Circuit Court of Appeals in that case stated that to hold otherwise would be inconsistent with Ninth Circuit and other Circuit Court case law, which "squarely hold that redeposits of materials can constitute an 'addition of a pollutant' under the CWA."[454]

In another case, on which the court in *Borden Ranch* relied for authority, the court held that placer mining activities required a Section 404 permit, as "removing material from a stream bed, sifting out the gold, and returning the material to the stream bed was an 'addition' of a 'pollutant.'"[455] Effectively, whenever dirt and vegetative material in a wetland is turned up and then re-deposited in a wetland, it becomes a pollutant for purposes of the CWA.

The Ninth Circuit also held that deep ripping was not covered by the farming exception under §1344(f). Under that specific subsection, "normal farming, silviculture, and ranching activities" are exempt from Section 404 permitting requirements.[456] However, §1344(f) also instructs that this exception is not applicable if such an activity has "as its purpose bringing an area of the navigable waters into a use to which it was not previously subject."[457] In such cases, the agricultural activity would require a Section 404 permit.

The court in *Borden Ranch* found that, in this case, the normal farming exception was not applicable for two reasons. First, the court reasoned that "converting ranch land to orchards and vineyards is clearly bringing the land 'into a use to which it was not previously subject.'"[458] Second, the agricultural practice at issue altered the hydrology of the wetland by gouging and turning up the wetland. The court explained that "the intent of Congress in enacting the Act was to prevent conversion of wetlands to dry lands," and anything altering a wetland's hydrology would require a Section 404 permit issued by the Army Corps of Engineers.[459]

This provision of the CWA principally affects wetlands because in order to develop them, they must be drained and backfilled to create solid land. Further, if "a practicable alternative exists that is less damaging to the aquatic environment," then the U.S. Army Corps of Engineers may refuse to issue a Section 404 permit.[460] The landowner or developer may be required to create or restore a comparable number of acres of wetland elsewhere. If the U.S. Army Corps of Engineers denies a permit, and such denial renders

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[453] *Borden Ranch Partnership v. U.S. Army Corps of Engineers*, 261 F.3d 810 (9th Cir. 2001).
[454] *Id*., at 814
[455] *Rybachek v. EPA*, 904 F.2d 1276, 1285 (9th Cir. 1990).
[456] 33 U.S.C. § 1344(f)(1)(A); 33 C.F.R. § 323.4(a)(1); 40 C.F.R. § 232.3(c)(1).
[457] 33 U.S.C. § 1344(f)(2).
[458] *Borden Ranch*, 261 F.3d at 815.
[459] *Id.*, at 816 (citing *United States v. Akers*, 785 F.2d 814, 820, 822 (9th Cir. 1986)).
[460] EPA. "Section 404 Permit Program." https://www.epa.gov/cwa-404/section-404-permit-program.

the property with no valuable use, the government may be required to pay compensation under the Takings Clause of the Fifth Amendment to the Constitution.[461]

Pennsylvania has its own statutory and regulatory framework regarding wetlands. In addition to the Section 404 permit required by federal law, Pennsylvania regulates activities affecting wetlands through the 1978 Dam Safety and Encroachments Act.[462] This statute provides, in relevant part, that "[n]o person shall construct, operate, maintain, modify, enlarge, or abandon any dam, water obstruction, or encroachment without the prior written permit of the department."[463] An "encroachment" is defined as "any structure or activity which in any manner changes, expands, or diminishes the course, current, or cross-section of any … body of water."[464] "Body of water" is defined to include wetlands.[465] Thus, under the Dam Safety and Encroachments Act, DEP regulates and requires a permit for any structure built on a wetland or any activity that encroaches on a wetland, including the filling, draining, dredging, or otherwise altering of a wetland.

The definition of "wetlands" used in federal regulations, provided *supra*, is the same as the definition used in the Pennsylvania Code.[466] However, Pennsylvania has a unique hydrology. Although some wetlands may be obvious to the casual or lay observer, others are not and require training and expertise to evaluate the soil and the relevant botanical and hydrological aspects of a piece of land. For this reason, the Army Corps of Engineers devised a technical manual to be used to scientifically determine whether or not an area is a wetland. Pennsylvania has adopted the use of this technical manual by reference.[467]

Under Pennsylvania law, the classification of wetlands is divided between EV wetlands and "other wetlands." Each classification has its own permit requirements. EV wetlands are defined as those that are habitats for threatened or endangered species under the federal Endangered Species Act, wetlands that are a half-mile or otherwise hydrologically connected to those habitat-forming wetlands, wetlands located in or along the floodplain of a wild trout stream, and wetlands "within the corridor of a watercourse or body of water that has been designated as a National wild or scenic river in accordance with the Wild and Scenic Rivers Act of 1968" or "designated as wild or scenic under the Pennsylvania Scenic Rivers Act."[468]

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[461] *Lost Tree Village Corp. v. United States*, 707 F.3d 1286 (Fed. Cir. 2013).
[462] Act of November 26, 1978 (P.L.1375 No.325); 32 P.S. §§ 693.1-693.27, known as the Dam Safety and Encroachments Act (DSEA).
[463] DSEA § 6(a); 32 P.S. § 693.6(a).
[464] DSEA § 3; 32 P.S. § 693.3.
[465] *Id.*
[466] 25 Pa. Code § 105.1.
[467] 25 Pa. Code § 105.451(c) (The regulation states that DEP "adopts and incorporates by reference the 1987 *Corps of Engineers Wetland Delineation Manual (Technical Report Y-87-1)* along with the guidance provided by the United States Army Corps of Engineers, Major General Arthur E. Williams' memorandum dated 6 March 1992, *Clarification and Interpretation of the 1987 Manual* and any subsequent changes as the methodology to be used for identifying and delineating wetlands in this Commonwealth.").
[468] 25 Pa. Code § 105.17.

A "wild trout stream" can be designated by DEP through the existing use classification, or by the Pennsylvania Fish and Boat Commission. EV wetlands also include those located along an existing public or private drinking water supply.[469] DEP does not maintain a list or map of EV wetlands, thus a person proposing a project that requires construction on a wetland may not know which set of regulations – EV or "other wetlands" – to follow until after data has been gathered and submitted to the DEP for a determination.

Unlike the U.S. Army Corps of Engineers, the DEP has laid out by regulation what criteria must be satisfied in order to receive a permit to fill, alter, or otherwise build upon a wetland.[470] As noted above, there are two separate permitting regulations – one for EV, and one for "other wetlands." "Other wetlands" are those wetlands that do not meet the definition of exceptional value wetlands.[471] The requirements for both categorizations are similar, except that to be eligible for a permit for a project encroaching on an EV wetland, the project must be "water-dependent," meaning that the project requires access, proximity, or siting within the wetland to fulfill the basic purpose of the project.[472] For both EV and other wetlands, if wetlands are disturbed, the permit applicant must replace the affected wetland by constructing new wetlands elsewhere.[473]

DEP also provides for waivers from the requirement to obtain a permit for various small projects, many of which are related to dams.[474] A waiver from DEP does not negate the requirement to obtain a Section 404 permit from the U.S. Army Corps of Engineers, if the wetland is considered to be a water of the United States. Additionally, DEP provides several "general permits" that authorize certain specific projects on a regional or statewide basis, such as small road culverts.

Since 1995, the Baltimore, Pittsburgh, and Philadelphia Districts of the U.S. Army Corps of Engineers have issued a general permit known as the Pennsylvania State Programmatic General Permit. This state-wide general permit states that the permit requirements set forth by the regulations promulgated under the Dam Safety and Encroachments Act of 1978 meet the requirements for a Section 404 permit under the CWA. Thus, most projects that receive a permit, general permit, or waiver from the DEP will not be required to obtain a separate permit from the Corps.[475] ‘

DEP also requires an environmental assessment to be undertaken by the person or entity seeking a permit under this statute.[476] An environmental assessment is also required for "structures or activities where water quality certification is required under" the

[469] 25 Pa. Code § 105.17(1)(iv).
[470] 25 Pa. Code § 105.18a.
[471] 25 Pa. Code § 105.17(2).
[472] 25 Pa. Code § 105.18a(a).
[473] *Id.*; 25 Pa. Code § 105.20a.
[474] *See, e.g.,* 25 Pa. Code § 105.12(a)(5) and (6).
[475] *See,* DEP. "Pennsylvania State Programmatic General Permit (PASPGP-5) Fact Sheet." http://www.elibrary.dep.state.pa.us/dsweb/Get/Document-116292/3150-FS-DEP1800.pdf.
[476] 25 Pa. Code § 105.20(a).

CWA.[477] This means that any structure or activity on any body of water which is considered to be a water of the United States and requires certification under Section 401 of the CWA must be accompanied by an environmental assessment.[478]

Safe Drinking Water

Pennsylvania's regulation of drinking water began in 1905,[479] with the passage of the Waterworks Act.[480] This statute served as the basis for regulating drinking water in the Commonwealth until the passage of the federal Safe Drinking Water Act (SDWA) in 1974. Pennsylvania brought its law into compliance with the SDWA in 1984 with the passage of the Pennsylvania Safe Drinking Water Act and assumed primary enforcement responsibility under the federal act.[481] The federal SDWA and the Pennsylvania Safe Drinking Water Act are very similar. The Pennsylvania act states that the Environmental Quality Board "shall adopt maximum contaminant levels and treatment technique requirements no less stringent than those promulgated under the Federal [Safe Drinking Water] act …."[482] However, there are several aspects of Pennsylvania regulation that are considered to be more stringent that the analogous federal regulation.

The SDWA and Pennsylvania's accompanying law apply to public water systems and encompasses setting drinking water standards (setting maximum contaminant levels and treatment technique requirements), monitoring and reporting, record-keeping, public notification requirements, permitting standards for construction, operation, and modifications to public water systems, emergency procedures, standards for certifying water testing laboratories, and compliance procedures.[483]

"Public water system" is defined as "[a] system for the provision to the public of water for human consumption which has at least 15 service connections or regularly serves an average of at least 25 individuals daily at least 60 days out of the year."[484] Public water systems are further broken down into "community" and "noncommunity." A community water service is one "which serves at least 15 service connections used by year-round

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[477] 25 Pa. Code § 105.20(b).
[478] 33 U.S.C. § 1341.
[479] Prior to 1905, state laws were enacted to protect the drinking water supply of the City of Philadelphia and other cities. The act of April 11, 1866 (P.L.635, No.619), 53 P.S. § 16553, prohibited pollution of the source waters of Philadelphia's drinking water system. The act of March 26, 1867 (P.L.547, No.525) created Fairmount Park in the city for the "preservation of the purity of the water supply" of Philadelphia. The act of May 2, 1899 (P.L.176, No.116), 53 P.S. § 14461, authorized the State Board of Health was authorized to test water for domestic uses in Philadelphia to determine whether the water is free from contamination by human excrement. The act of Jun. 24, 1895 (P.L.244, No.151), 9 P.S. § 10, prohibited the creation of a burial ground in the drainage area of any streams feeding into a city water system, that were within a mile of the city.
[480] Act of April 22, 1905 (P.L.260 No.182); 35 P.S. §§ 711-716 [Repealed].
[481] Act of May 1, 1984 (P.L.206, No.43); 35 P.S. §§ 721.1-721.17, known as the Pennsylvania Safe Drinking Water Act (PSDWA).
[482] PSDWA § 4; 35 P.S. § 721.4.
[483] PSDWA § 5(a); 35 P.S. § 721.5(a).
[484] PSDWA § 3; 35 P.S. § 721.3.

residents or regularly serves at least 25 year-round residents." This would include residential units. "Noncommunity water service" is one that is not a community water service. Noncommunity water services typically include places such as hotels, offices, and other nonresidential buildings.[485]

DEP is responsible for issuing permits for the construction and operation of public water systems, and no person can construct, modify, or operate a public water system without having obtained a permit from DEP.[486] Public water systems operating under a permit issued under the Waterworks Act of 1905 are grandfathered in so long as they comply with the other requirements of the act.[487] Noncommunity water systems may also be exempt from permit requirements under certain circumstances.[488]

In addition to permitting, DEP has regulations regarding treatment technique requirements,[489] monitoring requirements,[490] public notification,[491] standards for design and construction,[492] system management responsibilities,[493] and drinking water test laboratory certification.[494]

A concern associated specifically with oil and gas extraction is contamination of underground sources of drinking water, which are protected by the SDWA. The SDWA includes the Underground Injection Control (UIC) program, which provides for regulatory management of the injection of fluids that may result in contamination of underground sources of drinking water.[495] States can retain primacy over their UIC programs if the proposed UIC program is submitted to the EPA for approval and the EPA determines that the program meets the standards provided by the SDWA.[496] Pennsylvania has not established primacy; therefore, EPA implements the UIC program directly.[497]

Under the SDWA and the EPA's regulations, underground injection is defined as the "subsurface emplacement of fluids by well injection."[498] However, following amendment by the Energy Policy Act of 2005, the SDWA specifically excludes the underground injection of fluids or propping agents (other than diesel fuels) associated with hydraulic fracturing operations related to oil, gas, or geothermal production activities.[499]

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[485] *Id.*
[486] 25 Pa. Code § 109.501.
[487] 25 Pa. Code § 109.502.
[488] 25 Pa. Code § 109.505.
[489] 25 Pa. Code § 109.201 *et seq*.
[490] 25 Pa. Code § 109.301 *et seq*.
[491] 25 Pa. Code § 109.401 *et seq*.
[492] 25 Pa. Code § 109.610 *et seq*.
[493] 25 Pa. Code § 109.710 *et seq*.
[494] 25 Pa. Code § 109.810 *et seq*.
[495] EPA. "Underground Injection Control (UIC): Primary Enforcement Authority for the Underground Injection Control Program." (November 27, 2017). https://www.epa.gov/uic/primary-enforcement-authority-underground-injection-control-program.
[496] *Id.*
[497] *Id*.
[498] 42 U.S.C. § 300h(d)(1), 40 C.F.R § 144.3.
[499] 42 U.S.C. § 300h(d).

Drinking Water Standards

The federal SDWA requires that the states must adopt drinking water regulations that are "no less stringent" than the federal drinking water regulations in order to retain primary enforcement authority over their own drinking water, known as "primacy."[500] The EPA also requires that the states adopt all new and revised federal primary drinking water regulations contained in the Code of Federal Regulations Part 141 in order to retain primacy.[501] Additionally, state law requires that DEP adopt and implement a public water supply program necessary to maintain primacy.[502]

Pennsylvania's Safe Drinking Water Act establishes two types of drinking water standards. The first are known as maximum contaminant levels, or MCLs. The MCL standards limit the amount of certain contaminants that can be delivered to the consumer's tap. The contaminants are classified as "primary" MCLs if there are health consequences associated with the contaminant, or "secondary" MCLs if they make the water unsuitable for even laundering or cleaning because of odor or appearance. Pennsylvania has incorporated by reference all federal standards relating to primary and secondary MCLs.[503]

The second type of drinking water standards are known as the treatment technique requirements. The treatment technique requirements are technical standards designed to decrease the risk that certain contaminants may enter the drinking water system. The treatment technique requirements are specific to certain disease vectors, and have been established for various bacteria, viruses, and protozoa.[504] The treatment technique "must provide at least 99.9% removal and inactivation of *Giardia lamblia* cysts, and at least 99.99% removal and inactivation of enteric viruses," as well as 99% removal of all *Cryptosporidium* oocysts.[505] All water systems using surface water sources must provide continuous filtration and disinfection. Groundwater sources that are directly influenced by surface water must also adhere to this rule.[506] The treatment technique requirements also regulate how much disinfectant can be added to the drinking water, known as "maximum residual disinfectant levels."[507]

Pennsylvania also has one provision relating to notice to authorities that is more stringent than what federal regulations require. The revised total coliform rule mandated by the federal government is intended to implement procedures to prevent the spread of coliforms, a type of bacteria which are common in the environment but cause serious illness when they contaminate food or drinking water. DEP adopted the revised total coliform rule, as it was required to do by state law, but altered two provisions. First, the Commonwealth's regulations require a one-hour notification to authorities for violations

[500] 42 U.S.C. § 300g-2a.
[501] 40 C.F.R. § 142.12(a).
[502] Act of May 1, 1984 (P.L.206, No.43); § 5; 35 P.S. § 721.5(a), known as the Pennsylvania Safe Drinking Water Act.
[503] 25 Pa. Code §§ 109.202(a) and (b).
[504] 25 Pa. Code § 109.202(c).
[505] 25 Pa. Code § 109.202(c)(1).
[506] 25 Pa. Code § 109.202(c)(1)(i).
[507] 25 Pa. Code § 109.202(f).

or situations whereas the federal rule does not.[508] Further, the Pennsylvania regulation requires a public water service to consult with DEP within 14 days of receiving a written notification that they have been assessed to be insufficient. The federal rule requires such consultations, but does not set a timetable.[509]

Monitoring Requirements and Public Notification

All public water systems must monitor both the source water they use and the treated water they send out for public consumption.[510] The public water systems "shall monitor for compliance with MCLs [maximum contaminant levels] and MRDLs [maximum residual disinfectant levels] and treatment technique requirements in accordance with the requirements established by the EPA under the National Primary Drinking Water Regulations, 40 C.F.R. Part 141 …."[511] The frequency and scope of the contaminants monitored depends on the type and size of water system, as well as the source of the water being treated.[512] Additionally, DEP may require special monitoring on a case-by-case basis if there is "reason to believe the public water system is not in compliance with the MCL, MRDL or treatment technique requirement for the contaminant," "where a potential health hazard may exist in the water supply and monitoring required under §109.301 may not be adequate to protect the public health," or if DEP has reason to believe an unregulated contaminant is present in the public water system and it presents a health risk.[513]

In addition to the monitoring requirements, public water suppliers are required to provide public notification of any failure to adhere to "an applicable State primary MCL or MRDL," "a prescribed treatment technique requirement," or "failure to perform water quality monitoring," and must also give notification if they are operating "under a variance or an exemption" and if they fail to comply with the terms of the variance or exception. They must also notify the public of any waterborne disease outbreak or any emergency situation, make available unregulated contaminant monitoring data, notify the public when they exceed the "nitrate MCL by noncommunity water systems, when permitted by the Department in writing to exceed the MCL in accordance with 40 C.F.R. 141.11(d)," and any other violation or situation DEP determines requires public notice.[514]

Public notices are divided into three "tiers" to account for the seriousness of the violation or situation. Tier One notices are for those violations or situations "with significant potential to have serious adverse effects on human health as a result of short-term exposure." Tier Two notices are for violations or situations that have "potential to have serious adverse effects on human health." Tier Three is a catchall for any situation

[508] 25 Pa. Code §§ 109.202(c)(4), 109.202(c)(5), and 109.701(a)(3)(iv).
[509] 25 Pa. Code § 109.705(b)(7).
[510] 25 Pa. Code § 109.301(1) and (2).
[511] 25 Pa. Code § 109.301.
[512] *Id*.
[513] 25 Pa. Code § 109.302.
[514] 25 Pa. Code § 109.407(a).

or violation not covered by Tier One or Tier Two.[515] Each tier has its own set of regulations describing when and in what manner notice must be given.[516] For instance, Tier One notification requirements specify that the public water system operator must notify the DEP within one hour of discovery of the violation or situation, and must notify the public no later than 24 hours after discovery.[517] The three-tiered notification structure is generally similar to the notification regulations required by the federal government's regulations.[518]

Lead Plumbing Ban

In 1986, the federal SDWA was amended to prohibit the use of lead in plumbing. In 1989, Pennsylvania enacted the Plumbing System Lead Ban and Notification Act, barring the sale or use of lead-containing pipes, fittings, solder, and flux in plumbing system construction or repair.[519] Pipes and fittings were considered "lead-free" if they were less than 8 percent lead, and flux and solder were considered "lead-free" if they contained less than 0.2 percent lead.[520] This is the same definition as was used federally in the national primary drinking water regulations prior to the federal Reduction of Lead in Drinking Water Act of 2011.[521] This act changed the definition of "lead-free" by lowering the amount of lead that would be permitted to be present in pipes and pipe fittings from 8 percent to 0.25 percent.[522]

One aspect of Pennsylvania's lead plumbing ban that is more stringent than the federal Safe Drinking Water Act requirements is the federal law's exception for pipes used for non-potable water. The SDWA's lead plumbing ban explicitly exempts plumbing material used "exclusively for nonpotable services such as manufacturing, industrial processing, irrigation, outdoor watering, or any other uses where the water is not anticipated to be used for human consumption," or for apparatuses such as "toilets, bidets, urinals, fill valves, flushometer valves, tub fillers, shower valves, [and] fire hydrants…."[523] Pennsylvania law does not contain this exception.

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[515] 25 Pa. Code § 109.407(b).
[516] *See*, 25 Pa. Code §§ 109.408-109.411.
[517] 25 Pa. Code § 109.408(b).
[518] *See*, 40 C.F.R. §§ 141.201-141.210.
[519] Act of July 6, 1989 (P.L.207 No.33); 35 P.S. § 723.1 *et seq*., known as the Plumbing System Lead Ban and Notification Act.
[520] *Id.*, § 3; 35 P.S. § 723.3.
[521] 40 C.F.R. § 141.43(b). The 8 percent rule is still part of the Code of Federal Regulations, although it has been superseded by the Reduction of Lead in Drinking Water Act of 2011 (P.L. 111-380). A proposed rule implementing these changes by the EPA was published January 17, 2017, 82 Fed. Reg. 4805. The public comment period ended on May 17, 2017, but the final regulations have not yet been published.
[522] 42 U.S.C. § 300g-6(d)(1)(B).
[523] 42 U.S.C. § 300g-6(a)(4). These exemptions were added by the Reduction of Lead in Drinking Water Act of 2011 (P.L. 111-380), with the exception of the fire hydrant exemption, which was added by the Community Fire Safety Act of 2013 (P.L. 113-64).

Lead and Copper Rule

In 1991, the EPA introduced the lead and copper rule (LCR) to control the corrosion of pipes used by a public water system.[524] Corrosion of water pipes may cause lead or copper to leach into the drinking water supply. As a result, the EPA established new treatment technique requirements for lead and copper applicable to public water systems. These treatment technique requirements include corrosion control treatments, source water treatment, lead service line replacement, and public education.[525] Pursuant to Section 300g-2a of the SDWA, Pennsylvania adopted its own lead and copper rule. The specific treatment technique required for a given public water service depends on the amount of lead and copper measured at consumer's taps. The lead and copper rule applies to both community water systems and nontransient noncommunity water systems.[526]

Pennsylvania regulations governing how public water systems engage in monitoring water for lead and copper are very specific and detailed.[527] What is important to note, however, is that for testing and monitoring purposes, the regulations divide public water systems further into small, medium, and large systems, which each have their own requisite regulations for the manner of taking samples, the number of samples to be taken, and when remedial action must be implemented.[528]

There is one detail regarding monitoring for lead and copper that Pennsylvania does not follow, but instead uses a more stringent approach. In 2007, the EPA promulgated a revision to the lead and copper rule, known as the "short term revision" to "enhance implementation in the areas of monitoring, treatment, customer awareness, and lead service line replacement."[529] Pennsylvania has adopted the EPA's short term revision to the lead and copper rule, with one exception. This exception is in regards to a rule that involves systems with corrosion control treatment that are on a reduced monitoring frequency.

Under both the federal and Pennsylvania version of the corrosion control treatment rule, if these systems exceed the lead action level without exceeding the copper action level, they are required to resume 6-month monitoring frequency for both lead and copper. If these systems exceed the copper action level without exceeding the lead action level, under the federal rule, they are allowed to remain on a reduced monitoring frequency. However, in the Commonwealth's version of the regulation, if these systems exceed the copper action level without exceeding the lead action level, they are required to resume a 6-month monitoring frequency for both lead and copper.[530] This provision is more stringent than the federal standard.[531] The reason for this deviation from the federal

[524] EPA. "Maximum Contaminant Level Goals and National Primary Drinking Water Regulations for Lead and Copper." 56 Fed. Reg. 26460 (June 7, 1991).
[525] 40 C.F.R. § 141.80 *et seq*.
[526] 25 Pa. Code § 109.1101(b).
[527] *See*, 25 Pa. Code § 109.1103 *et seq.*
[528] *Id.*
[529] EPA. "Drinking Water Requirements for States and Public Water Systems – Lead and Copper Rule." https://www.epa.gov/dwreginfo/lead-and-copper-rule.
[530] 25 Pa. Code § 109.1103(e)(3)(i).
[531] 40 C.F.R. § 141.87.

standard is that both lead and copper in drinking water are usually the result of corrosion in household plumbing. Water suppliers treat for lead and copper by changing the water chemistry to reduce the solubility of lead or copper. The treatment options for lead are often different from the treatment options for copper. As a result, when water suppliers alter the chemistry of the water to reduce the level of lead they may inadvertently increase the level of copper in the water, and vice versa.

A 2016 EPA white paper recommended long-term revisions to the lead and copper rule. These revisions are currently under review by the EPA.[532] DEP also intends to release a proposed rule on corrosion control and pipeline replacement in August 2018.[533]

Additional Pennsylvania Drinking Water Regulations

In 2006, the EPA promulgated the federal Stage 2 disinfectants and disinfectants byproducts rule (DBPR), the long term 2 enhanced surface water treatment rule (LT2ESWTR), and the groundwater rule. Therefore, Pennsylvania was required to adopt its own regulations implementing these federal rules, or risk losing primacy in regulating its own water supply systems. Pennsylvania adopted these rules in 2009, and at that time, the DBPR rules were not more stringent than the federal rules, but aspects of the LT2ESWTR and groundwater rules were.

DEP has a set of changes to these rules that have been approved by IRRC, the House of Representatives and the Senate. The final rule is due for release on April 19, 2018. Once officially released, these amendments will further provide more specificity than the federal standards in all three of the above mentioned drinking water monitoring regulations.[534] The new regulations will raise the disinfectant minimal residual level, provide for monitoring of low flow areas, and require nitrification control plans for systems that use chloromines. Changes are also made to the lead and copper rule.

At the time of the drafting of this report, Pennsylvania's regulations interacted with the federal requirements in a couple of different ways. The federal requirements allow assessment source water sampling at a location after treatment is approved by the state.[535] However, under the Commonwealth's regulatory scheme, this is not permitted.[536] The reason for this is that sampling at a location after treatment could misrepresent source water quality by giving the impression that it is always that clean, as the water would have just been treated.

[532] EPA. "Lead and Copper Rule Long-Term Revisions." https://www.epa.gov/dwstandardsregulations/lead-and-copper-rule-long-term-revisions
[533] Pennsylvania Bar Institute, Environmental Law Forum, Harrisburg, Pennsylvania, April 11-12, 2018.
[534] IRRC Regulatory Analysis Form. IRRC #3136.
http://www.irrc.state.pa.us/docs/3136/AGENCY/3136FF.pdf
[535] 40 C.F.R. § 141.402(b)(5).
[536] 25 Pa. Code § 109.1304(a)(2).

Second, all community water systems with groundwater sources in Pennsylvania must reliably achieve at least 4-log treatment of viruses (this means 99.99% inactivation or removal of viruses).[537] This ensures that groundwater sources will be disinfected properly and continuously. The analogous federal regulation does not require that groundwater sources achieve 4-log treatment of viruses.

Third, until a community water system with a groundwater source can demonstrate that it can reliably achieve at least 4-log treatment of viruses, they must have a minimum free chlorine residual of 0.40 mg/L, or its equivalent.[538] They must maintain this ratio until they successfully demonstrate that an alternative residual other than 0.40 mg/L will provide at least 4-log treatment of viruses. The default residual of 0.40 mg/L was determined using the free chlorine log inactivation tables published by the EPA. However, it is not a federally-required procedure. Therefore, this provision is more stringent than the federal standard.

Fourth, as with LT2ESWTR, a Tier 1 public notice (within 24 hours of the violation) is required for a GWR treatment technique violation resulting from a failure to provide 4-log treatment for viruses.[539] Requiring a Tier 1 public notice is more stringent than the federal regulation, as the federal GWR only requires a Tier 2 (within 30 days) public notice.[540]

[537] 25 Pa. Code § 109.1302(a)(4).
[538] 25 Pa. Code § 109.1302(a)(2).
[539] 25 Pa. Code § 109.1303(h)(3); 25 Pa. Code § 109.408(a).
[540] 40 C.F.R. § 141.404(d); 40 C.F.R. § 141.203.

NATURAL RESOURCE USE AND CONSERVATION

The Department of Conservation and Natural Resources (DCNR) was created to serve as a cabinet-level advocate for state parks, forests, rivers, trails, greenways, community recreation, and heritage conservation programs, and to provide more focused management of the Commonwealth's recreation, natural, and river environments.[541]

The primary mission of DCNR is to maintain, improve and preserve State parks, to manage State forest lands to assure their long-term health, sustainability and economic use, to provide information on Pennsylvania's ecological and geologic resources and to administer grant and technical assistance programs that will benefit rivers conservation, trails and greenways, local recreation, regional heritage conservation and environmental education programs across Pennsylvania.[542]

DCNR has promulgated a number of regulations to implement its primary mission. DCNR has prohibited "damaging, defacing, cutting or removing rock, shale, sand, clay, soil or other mineral product, natural object or material" from state parks without written permission.[543]

DCNR designates areas within state parks "containing outstanding, unique or sensitive resources" as Natural Areas to be set aside for protection to:

- Provide locations for scientific observation of natural systems;
- Protect examples of typical and unique plant and animal communities; and
- Protect outstanding examples of natural interest and beauty.[544]

In these Natural Areas, mineral leases and development are prohibited, as are new rights-of-way.[545]

Similarly, DCNR has prohibited "removing rocks, shale, sand, clay, soil or other mineral products" from state forests without written permission.[546] Within state forests, DCNR designates certain areas of scenic, historic, geologic, or ecological significance as

[541] Act of Jun. 28, 1995 (P.L.89, No.18), § 101(b)(1), 71 P.S. § 1340.101 *et seq.*, known as the Conservation and Natural Resources Act.
[542] *Id.*
[543] 17 Pa. Code § 11.211.
[544] 17 Pa. Code § 17.2.
[545] 17 Pa. Code § 17.4.
[546] 17 Pa. Code § 21.115.

Natural Areas, which remain in an undisturbed state and where development and maintenance are limited to that required for health and safety.[547] Other areas are designated as Wild Areas, where development or disturbance of a permanent nature is prohibited in order to preserve the wild character of the area.[548] To be designated as either of these types of areas, the mineral ownership must be in the Commonwealth.[549] In both Natural Areas and Wild Areas, rights-of-way, leases, and mineral development are prohibited, except that subsurface oil and gas rights may be leased where no surface use or disturbance of any kind will take place.[550]

Conservation

In 1945, Pennsylvania authorized the 67 counties in the Commonwealth to declare themselves, individually, as conservation districts to

> (1) To provide conservation of the soil, water and related resources of this Commonwealth and for the control and prevention of soil erosion, and thereby to preserve natural resources; assist in the control of floods; assist in developing and implementing plans for storm water management; prevent impairment of dams and reservoirs; assist in maintaining the navigability of rivers and harbors; protect air quality; preserve wildlife; preserve the tax base; protect public lands; and protect and promote the health, safety and general welfare of the people of the Commonwealth.
>
> (2) To designate conservation districts as a primary local government unit responsible for the conservation of natural resources in this Commonwealth and to be responsible for implementing programs, projects and activities to quantify, prevent and control nonpoint sources of pollution.[551]

The State Conservation Commission was created under this law, under the concurrent authority of the Pennsylvania Department of Agriculture (PDA) and the Pennsylvania Department of Environmental Resources (now DEP) and implements the law's provisions.

The U.S. Department of Agriculture, through the Natural Resources Conservation Service (NRCS), provides guidance and programs to farmers, ranchers and forest landowners on best practices for good stewardship of the lands they possess. Technical and financial assistance is available in a number of areas, including:

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[547] 17 Pa. Code § 27.2.
[548] *Id.*
[549] *Id.*
[550] 17 Pa. Code §§ 27.3, 27.4.
[551] Act of May 15, 1945 (P.L.547, No.217), § 2, 3 P.S. § 850, known as the Conservation District Law.

- development and implementation of conservation practices (Environmental Quality Incentive Program);

- land management for both agricultural lands and forest lands (Conservation Stewardship Program);

- improving the health of forests and grasslands where public lands are adjacent to private lands (Joint Chief's Landscape Restoration Partnership – NRCS and U.S. Forest Service joint project);

- watershed management, including:

    - Relief from imminent hazards caused by floods, fires, windstorms and other natural disasters (Emergency Watershed Protection Program),

    - Protection and restoration of watersheds (Watershed and Flood Prevention Operations Program),

    - Watershed protection (Watershed Surveys and Planning Program), and

    - Rehabilitation of aging dams (Watershed Rehabilitation Program);

- Improving water quality in streams and rivers (National Water Quality Initiative- NWQI);[552] and

- Agricultural lands and wetlands protection (Agricultural Conservation Program).[553]

It is important to note that these federal programs are voluntary.

Mineral Extraction

Mineral extraction is integral to the history and economy of Pennsylvania. Between Edwin L. Drake's discovery of oil at Titusville, Pennsylvania in 1859, the influx of immigrants to the anthracite and bituminous coal regions beginning in the mid-19th century, and the development of fracking techniques in the 21st century that made it possible to access the natural gas in the Marcellus Shale region, mineral extraction has had a significant impact on Pennsylvania's environment.

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[552] United States Department of Agriculture. Natural Resource Conservation Service. https://www.nrcs.usda.gov/wps/portal/nrcs/main/national/programs/alphabetical/. Three watersheds in Pennsylvania are currently receiving assistance under the NWSI – Beaver Creek, Upper Yellow Creek and Upper Kishacoquillas Creek.

[553] https://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/programs/easements/acep/?cid=stelprdb1242695.

Coal Mining

Pennsylvania has a longer history of regulating coal mining than the federal government, but Pennsylvania's coal mining laws and regulations tend to focus more on miners' workplace safety and mine operations, although a number of laws have been enacted to protect public safety and public and private property by preventing subsidence. The act of removing coal from the earth, in whatever manner used, has environmental impacts in itself, both from the potential changes to the landscape, flora and fauna of an area, to the need to dispose of coal refuse. Further environmental concerns arise from unintended consequences of the coal removal, in the form of events such as subsidence, collapse or cave-ins, fire and flooding. Additional concerns remain when it is no longer viable to remove any more coal from a location and it is abandoned.

Mining for bituminous and anthracite coal has existed in Pennsylvania since the late 1700's.[554] Most of the earliest Pennsylvania mining laws were concerned with subsidence, fire, explosions and collapse. Explosions and fires were responsible for most mining disasters, while industrial accidents involving cage or shaft falls, and injury from "haulage" - the process of moving coal by various means of equipment - claimed most of the remaining lives lost.[555]

Pennsylvania enacted its first mine safety legislation in 1869 that set mine ventilation standards for mines in Schuylkill County.[556] Six months later a ventilation fire suffocated 110 miners at the Avondale Colliery, near Plymouth, Luzerne County, leading to the enactment of a general mine ventilation law in 1870.[557] Additional precautions were added in 1885, 1889 and 1891.[558] By the early 20th century, the state's interests had broadened to the impact of underground mining on the overlying surface, and statutes were enacted regulation mining as it relates to maintaining surface support and avoiding undermining of public byways, homes, schools, churches, cemeteries and other surface activities unrelated to mining.[559]

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[554] DEP. "Coal Mining in Pennsylvania." http://www.dep.pa.gov/Business/Land/Mining/Pages/PA-Mining-History.aspx.

[555] Centers for Disease Control and Prevention. National Institute for Occupational Safety and Health. "All Mining Disasters 1839 to Present" (filtered to reflect only Pennsylvania disasters). https://www.cdc.gov/niosh/mining/statistics/content/allminingdisasters.html.

[556] Act of April 12, 1869 (P.L.852, No.845) [repealed]; *see also,* Explore Pa History, Historical Markers, http://explorepahistory.com/hmarker.php?markerId=1-A-ED.

[557] Act of March 3, 1870 (P.L.3, No.1) [repealed].

[558] Mark Aldrich, "The Perils of Mining Anthracite: Regulation, Technology and safety, 1870-1945," *Pennsylvania History*, vol. 64, no. 3, Summer 1997, pp. 361-383. https://journals.psu.edu/phj/article/download/25393/25162.

[559] *See, e.g.* Act of Jul. 26, 1913 (P.L.1439, No.857), 53 P.S. §§ 5201-5210 regulating mining - Bureau of Mine Inspection and Surface Support in municipalities. Act of May 27, 1921 (P.L.1198, No.445), 52 P.S. § 661 *et seq.*, regulating anthracite coal mining – prohibiting activities that create cave-ins, collapses or subsidence. Act of June 1, 1933 (P.L.1409, No.296), 52 P.S. §§ 1501-1507 regulating subsidence resulting from mining coal under state lands. Act of Jul. 2, 1937 (P.L.2787, No.579) 52 P.S. §§ 1407-1410d regulating mining in second class counties – bituminous coal (same as 1921 act). Act of Aug. 23, 1961 (P.L.1068, No.484), 52 P.S. § 3201 *et seq.*, creating an anthracite and bituminous coal mine subsidence fund. Act of Sep. 20, 1961 (P.L.1538, No.656), 52 P.S. § 672.1 *et seq.*, regulating anthracite coal mining (reenactment of 1921 act). *And see,* 25 Pa. Code Ch. 401 (relating to the mine subsidence fund).

In January of 1959, in violation of requirements to dig no closer to the surface than 35 feet below the riverbed, the operators of the Knox Mine near Port Griffith, Luzerne County, directed their miners to continue to dig out a coal seam under the Susquehanna River. The riverbed collapsed into the mine when digging was within a few feet of it, trapping 74 men, killing 12 and flooding the massive underground mining complex. Coal cars, rail gondolas and other materials were thrown into the breakthrough area, the Susquehanna River was diverted to allow a concrete seal to be installed, and the environmental impact was obvious.[560] This lead to a rapid and definitive clarification of when mining is permitted near rivers and bodies of water with the enactment of new legislation by December.[561]

Perhaps the biggest environmental disaster to result from coal mining in Pennsylvania has resisted efforts at abatement, restoration or reclamation for over 50 years. Generally believed to have started in 1962 as the result of "intentional controlled burning of residential trash in an abandoned strip pit" that spread to nearby coal seams, the Centralia Mine Fire has effectively destroyed the Columbia County town of Centralia. The area is closed to traffic; most of the roads are cracked and prone to collapse, the air is toxic, smoke and steam can be seen escaping from the ground, and the entire area is uninhabitable.[562]

Surface Coal Mining

Act 147 of 1971[563] amended the Bituminous Coal Open Pit Mining Conservation Act of 1945,[564] to rename the act as the Surface Mining Conservation and Reclamation Act (Act 147) and to extend the provisions of the act to the surface mining of anthracite coal and all other metallic and nonmetallic minerals.[565] Surface mining was defined to included strip, drift, and augur mining, dredging, quarrying and leaching. It did not include underground mining operations that occur below the surface by means of shafts, tunnels, or other underground mine openings.[566]

The federal government became involved in surface mining and reclamation in 1977, when Congress enacted the Surface Mining Control and Reclamation Act (SMCRA)

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[560] "Knox Mine Disaster: 50 Years Later," *The Times Leader*, June 20th, 2015, https://www.timesleader.com/archive/265762/stories-knox-mine-disaster-50-years-later113605; Explore Pa History, Historical Markers, explorepahistory.com/hmarker.php?markerId=1-A-C7.

[561] Act of Dec. 22, 1959 (P.L.1994, No.729); 52 P.S. § 3104.

[562] DEP. "Centralia Mine Fire Resources," http://www.dep.pa.gov/BUSINESS/LAND/MINING/ABANDONEDMINERECLAMATION/CENTRALIA/Pages/default.aspx.

[563] Act of November 20, 1971 (P.L.554, No.147); 52 P.S. § 1396.1 *et seq.*, known as Act 147.

[564] The Act of May 31, 1945 (P.L.1198, No.418), known as the Bituminous Coal Open Pit Mining Conservation Act. The act of June 27, 1947 (P.L.1095, No.472), 52 P.S. § 681.1 *et seq.*, known as the Anthracite Strip Mining and Conservation Act, was a parallel act to the original Bituminous Coal Open Pit Mining Conservation Act of 1945. It was repealed insofar as it was inconsistent with the amended 1945 act by the 1971 amendatory act, but remains "on the books."

[565] *See*, Senate Bill 135 of 1971.

[566] Act 147, § 3; 52 P.S. § 1396.3.

to regulate active coal mines and to provide for reclamation of abandoned mine lands.[567] The SMCRA also created the Office of Surface Mining Reclamation and Enforcement (OSMRE), a bureau within the Department of the Interior, to establish a nationwide program to protect society and the environment from the adverse effects of surface coal mining operations.[568] While the title of the act refers to "surface mining," it is applicable to surface mining and the surface effects of underground coal mining operations as well.[569]

The SMCRA balances the need to protect the environment from the adverse effects of surface coal mining with the nation's need for coal, and ensures that coal mining operations are conducted in an environmentally responsible manner such that the land is adequately reclaimed during and following the mining process.[570] Under SMCRA, OSMRE is the primary regulator of coal mining until a state demonstrates that it has developed a regulatory program that meets all of the requirements in the SMCRA and the implementing regulations issued by OSMRE.[571]

The SMCRA and its accompanying regulations establish detailed environmental standards for mining and reclamation operations, permit requirements, inspection requirements, and enforcement measures.[572] To comply with the federal Surface Mining Control and Reclamation Act (SMCRA), DEP promulgated regulations requiring permits for coal mining operations, including surface coal mining, underground coal mining, coal processing, and waste disposal operations, to comply with initial performance standards established by SMCRA and by rules and regulations promulgated by the Department of the Interior.[573]

The federal Surface Mining Control and Reclamation Act was intended to be a temporary measure until states adopted regulatory programs consistent with SMCRA. To achieve primary regulatory responsibility, often referred to as primacy, a state must develop and obtain approval of a program that meets the requirements of SMCRA and that is *no less* effective than the federal regulations in achieving the requirements of SMCRA. The state must also demonstrate that it has the administrative, financial, and legal capabilities to carry out the provisions of SMCRA. Upon approval, the state becomes the primary regulatory authority for coal mining and coal exploration within its borders. Currently, 24 states, including Pennsylvania, have primacy. After a state achieves primacy, OSMRE assumes an oversight role, evaluating and assisting states in the administration, implementation, enforcement, and maintenance of their approved regulatory programs.[574] Therefore, although Pennsylvania's laws and regulations are more specific and protective of the environment than federal law, this is the intent of Congress and the General Assembly.

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[567] 30 U.S.C. Ch. 25.
[568] OSMRE. "About: Who We Are." (August. 10, 2017). https://www.osmre.gov/about.shtm.
[569] 30 U.S.C. § 1266.
[570] OSMRE. "Regulating Coal Mines." (April 24, 2017). https://www.osmre.gov/programs/rcm.shtm.
[571] *Id.*, *See* 30 C.F.R. Ch. VII.
[572] *See* 43 C.F.R. Pts. 3400-3480.
[573] 25 Pa. Code Ch. 13.
[574] *Id.*, OSMRE. "Oversight." (April 24, 2017). https://www.osmre.gov/programs/oversight.shtm.

At a recent Environmental Law Forum held in Harrisburg, DEP staff indicated that a set of proposed regulations updating the surface coal mining provisions of the Pennsylvania Code (Chapters 86-90) are expected to be released in the summer of 2018. These proposed amendments would address several issues. The definition of "surface mining activities" has generated a split in Environmental Hearing Board decisions interpreting the term and the federal definition, and the new proposal will incorporate the federal definition. Additionally, there are differences in Pennsylvania's bituminous mine subsidence and conservation law and Act 147 that need to be reconciled. Also, the technical requirements for a blasting license and explosives storage are out of date and need to be revised or eliminated. Other relative minor discrepancies between Pennsylvania's primacy approval and the federal requirements are also intended to be reconciled in this new proposal.[575]

Act 147, Pennsylvania's Surface Mining Conservation and Reclamation Act in its latest incarnation prohibits mining coal without an operator's license from DEP.[576] In addition, a person must apply for a mining permit for each separate operation.[577] Mining permit applications must include a map and related information showing the location of the tract or tracts of land to be affected by the mining operation, and a complete and detailed reclamation plan.[578] Applicants must give public notice for every application for a permit, and DEP may hold semi-judicial public hearings.[579] Prior to commencing mining operations, permittees must file a bond for the land affected by each operation, payable to the Commonwealth and conditioned that the permittee must faithfully perform all of the requirements of Act 147 and a number of other state laws.[580] However, the act also permits alternative financial assurance mechanisms that achieve the objectives and purposes of the bonding program, such as site-specific trusts or subsidence insurance.[581]

Act 147 empowers DEP to enter and inspect all surface mining operations to determine compliance with the act, and provides for authority to issue notices of violation, to suspend or revoke licenses or permits, and to issue cease and desist orders.[582] The act provides for injunctive relief, remedies for citizens, civil penalties, and criminal penalties.[583] DEP may also designate areas as unsuitable for mining.[584]

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[575] Pennsylvania Bar Institute, Environmental Law Forum, Harrisburg, Pennsylvania, April 11-12, 2018.
[576] Act 147 at § 3.1; 52 P.S. § 1396.3a.
[577] *Id*., at § 4(a); 52 P.S. § 1396.4(a).
[578] *Id.*
[579] *Id.*, at § 4(b); 52 P.S. § 1396.4(b).
[580] *Id*. at § 4(d); 52 P.S. § 1396.4(d).. Specifically, the act of June 22, 1937 (P.L.1987, No.394), known as The Clean Streams Law, the act of January 8, 1960 (1959 P.L.2119, No.787), known as the Air Pollution Control Act, the act of September 24, 1968 (P.L.1040, No.318), known as the Coal Refuse Disposal Control Act, and, where applicable, of the act of July 31, 1968 (P.L.788, No.241), known as the Pennsylvania Solid Waste Management Act, the act of July 7, 1980 (P.L.380, No.97), known as the Solid Waste Management Act, or the act of November 26, 1978 (P.L.1375, No.325), known as the Dam Safety and Encroachments Act.
[581] *Id*., at §§ 4(d.2) and 4(e.1); 35 P.S. §§ 1396.4(d.2) and (e.1).
[582] *Id*., at § 4.3; 35 P.S. § 1396.4c.
[583] *See Id.* at §§ 18.2-18.6; 52 P.S. § 1396.18a-18f.
[584] *Id.*, at § 4.5; 52 P.S. § 1396.4e.

Statutes from 1935 and 1965 still in force in Pennsylvania also address reclamation. In 1935, the General Assembly enacted a law to preserve the purity of the waters of the Commonwealth and to avoid fires by requiring entries and airshafts of abandoned bituminous coal mines to be sealed. The act provides authority for DEP to seal mines when the owner, operator, or lessee fails to do so or is unknown or no longer in existence. The act also allows any individual or political subdivision whose interests are affected by polluted mine water discharge to notify DEP, and for DEP to notify the owner, operator, or lessee, and if the owner, operator, or lessee fails to seal the mine as required by the act, gives DEP authority to do so.[585]

A separate 1965 Pennsylvania statute addressed reclamation of open pit or strip mines. It authorizes DEP to acquire, either amicably or by condemnation, certain lands affected by open pit or strip mines for the purposes of reclamation and subsequent use or disposal.[586] Under this act, the land must:

- After restoration, reclamation, abatement, control or prevention of the adverse effects of past mining practices, serve public recreation or historic purposes, conservation or reclamation purposes, provide open space benefits or serve other public purposes;

- Be necessary for the construction of permanent facilities to restore, reclaim, abate, control or prevent adverse effects of past mining practices, such as a mine drainage treatment plant or a relocated stream channel; or

- Be, in the case of coal refuse disposal sites including all coal refuse thereon, desirable as a source of materials for subsidence control or prevention, or for backfilling mine shafts or that public ownership is necessary to prevent a reoccurrence of the adverse effects of past mining practices.[587]

The act emphasized giving the owners of affected land an opportunity to restore the land according to the guidelines provided by the 1945 Surface Mining Conservation and Reclamation Act before taking further action.[588] The act also encourages amicable purchases of land before relying on condemnation.[589]

The restoration activities permitted under the act are broad.[590] After restoration, the land can be retained by a state department or agency, such as DCNR, the Pennsylvania Game Commission, or the Pennsylvania Fish and Boat Commission, to best utilize the land for public purposes.[591] Alternatively, the land can be sold at public sale to the highest

[585] Act of May 7, 1935 (P.L.141, No.55); 52 P.S. §§ 809-813.
[586] Act of Jul. 19, 1965 (P.L.216, No.117); 52 P.S. § 30.101 *et seq.*
[587] *Id.*
[588] *Id.*, at § 2; 52 P.S. § 30.102.
[589] *Id.*, at § 3; 52 P.S. § 30.103.
[590] *Id.*, at § 5; 52 P.S. § 30.105..
[591] *Id.*, at § 6; 52 P.S. § 30.106.

bidder for a price no less than the current market value or transferred to a county or municipality for public use.[592]

Mine Subsidence

Legislative concerns about mine subsidence led to the enactment in 1966 of the Bituminous Mine Subsidence and Land Conservation Act:

> For the protection of the health, safety and general welfare of the people of the Commonwealth, by providing for the conservation of surface land areas which may be affected in the mining of bituminous coal by methods other than "open pit" or "strip" mining, to aid in the protection of the safety of the public, to enhance the value of such lands for taxation, to aid in the preservation of surface water drainage and public and private water supplies, to provide for the restoration or replacement of water supplies affected by underground mining, to provide for the restoration or replacement of or compensation for surface structures damaged by underground mining and generally to improve the use and enjoyment of such lands and to maintain primary jurisdiction over surface coal mining in Pennsylvania.[593]

The act requires a permit from DEP for each separate bituminous coal mine or mining operation.[594] Further, the act requires any mine operator who, as a result of underground mining operations, affects a public or private water supply by contamination, diminution, or interruption to restore or replace the affected supply with an alternate source that adequately services, in quantity and quality, the premining uses (or any reasonably foreseeable uses) of the supply.[595] The act provides detailed procedures for securing restoration or replacement of affected water supplies, including duties of affected landowners or water users, mine operators, and DEP.[596] The act similarly provides for restoration or compensation for structures damaged by underground mining.[597] DEP may enter and inspect all bituminous coal mines subject to the act, and DEP may issue orders necessary to enforce the act, such as orders modifying, suspending, or revoking permits, and cease and desist order.[598] Specified local public officials may also assist in enforcing the statute. This act is also discussed in the Clean Water chapter.

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[592] *Id*., at § 7; 52 P.S. § 30.107.

[593] Act of Apr. 27, 1966, Special Session 1 (P.L.31, No.1), § 2; 52 P.S. § 1406.1 *et seq.*, known as the Bituminous Mine Subsidence and Land Conservation Act. Anthracite mining laws were consolidated the previous year in the act of November 10, 1965 (P.L.721, No.346), 52 P.S. § 70.101 *et seq.* and include licensure and certification of mine personnel, ventilation, drainage, blasting, shaft location, safety holes and transportation, among other regulatory matters.

[594] *Id*. at § 5(a); 52 P.S. § 1406.5(a).

[595] *Id*. at § 5.1: 52 P.S. § 1406.5a.

[596] *Id*. at § 5.2; 52 P.S. § 1406.5b.

[597] *See Id.*, at §§ 5.4-6; 52 P.S. §§ 1406.5d, 1406.5e, 1406.5f.

[598] *Id*., at § 9; 52 P.S. § 1406.9.

Anthracite Mine Drainage

In 1955, the General Assembly moved to address anthracite mine drainage. In general, the mine drainage law was designed to take advantage of federal funds that were available, on a matching basis, for the control and drainage of water from anthracite coal formations, to seal abandoned coal mines, and to fill voids in abandoned coal mines.[599] However, if DEP determines that water in an abandoned mine threatens the safety of the residents of the area or threatens widespread subsidence and damage to large amounts of property, DEP may act without assistance from federal funds.[600] Such actions could include:

- Drilling boreholes or providing other means of entry into the mine water pools to provide passage of water to the surface;
- Purchasing and installing pumps, pipes, machinery, equipment, and materials for the purpose of pumping water from such abandoned mines;
- Purchasing, constructing, and installing any other facilities deemed appropriate to maintain water levels in such abandoned mines at heights deemed best to avoid or minimize danger of subsidence; and
- Paying for any operating and maintenance costs of such pumping as shall be deemed necessary to maintain water levels to avoid or minimize danger of subsidence.[601]

Coal Refuse Disposal

The Pennsylvania Coal Refuse Disposal Control Act (CRDA), has the stated purpose of:

> Providing for the protection of the safety, health and welfare of the people, property and public roads and highways of the Commonwealth from conditions on coal refuse disposal areas, or parts thereof, which fail to comply with the established rules, regulations or quality standards adopted to avoid air or water pollution or to protect water supplies, and from the danger of slipping, sliding or burning of coal refuse disposal areas, or parts thereof, sometimes caused by the storage of coal refuse.[602]

[599] Act of July 7, 1955 (P.L.258, No.82); 52 P.S. §§ 682-685, known as the Anthracite Mine Drainage Act.
[600] *Id*., at § 2; 52 P.S. § 683.
[601] *Id.*
[602] Act of Sep. 24, 1968 (P.L.1040, No.318); 52 P.S. § 30.51 *et seq*., known as the Coal Refuse Disposal Act.

The CRDA prohibits the establishment or operation of a coal refuse disposal area without a permit from DEP.[603] The act provides guidance for site selection, including preferred sites such as:

- A watershed polluted by acid mine drainage;
- A watershed containing an unreclaimed surface mine that has no mining discharge;
- A watershed containing an unreclaimed surface mine with discharges that could be improved by the proposed coal refuse disposal operation;
- Unreclaimed coal refuse disposal piles that could be improved by the proposed coal refuse disposal operation;
- Other unreclaimed areas previously affected by mining activities; or
- An area adjacent to, or an expansion of, an existing coal refuse disposal site.[604]

The act also prohibits coal refuse disposal on:

- Prime farm lands;
- Sites known to contain federal threatened or endangered plants or animals or state threatened or endangered animals;
- Watersheds designated as exceptional value under 25 Pa. Code Ch. 93 (relating to water quality standards);
- Areas hydrologically connected to, and which contribute at least five per cent of the drainage to, wetlands designated as exceptional value under 25 Pa. Code Ch. 105 (relating to dam safety and waterway management) unless a larger percentage is approved by the department in consultation with the Pennsylvania Fish and Boat Commission; and
- Watersheds less than four square miles in area upstream of the intake of public water supplies or the upstream limit of public recreational impoundments.[605]

[603] *Id*., at § 4; 52 P.S. § 30.54.
[604] *Id*., at § 4.1(a); 52 P.S. § 30.54a(a).
[605] *Id*., at § 4.1(b); 52 P.S. § 30.54a(b).

Applicants must identify alternative sites, the basis for their consideration, the basis for the exclusion of other sites, and must demonstrate that the proposed site is the most suitable on the basis of environmental, economic, technical, transportation, and social factors.[606] In addition to detailed information about the site, applications must include detailed information about the operation, as well as conservation and restoration plans, including for the soil and vegetative cover.[607]

Applications must also set forth the manner in which the operator plans to comply with the requirements of the Air Pollution Control Act, the CSL, the Dam Safety and Encroachments Act, the Surface Mining Conservation and Reclamation Act, and where applicable the Pennsylvania Solid Waste Management Act.

If reclamation is not technologically or economically feasible, DEP may designate an area as unsuitable for all or certain types of coal refuse disposal.[608] Such a designation may be appropriate if such operations will:

- Be incompatible with existing state or local land use plans or programs;

- Affect fragile or historic lands in which such operations could result in significant damage to important historic, cultural, scientific and esthetic values and natural systems;

- Affect renewable resource lands in which such operations could result in a substantial loss or reduction of long-range productivity of water supply or of food or fiber products, and such lands to include aquifers and aquifer recharge areas; or

- Affect natural hazard lands in which such operations could substantially endanger life and property, such lands to include areas subject to frequent flooding and areas of unstable geology.[609]

In addition, any person whose interests are, or may be, adversely affected has the right to petition DEP to have an area designated as unsuitable for mining operations, or to have such a designation terminated.[610]

The act also generally prohibits coal refuse disposal in certain areas (unless jointly authorized by federal, state, and local authorities and any private owners), such as otherwise prohibited federal lands, publicly owned parks or historic sites, near public roads, and near occupied dwellings, public buildings, schools, churches, and cemeteries.[611]

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[606] *Id.*, at §§ 4.1(c) & (d); 52 P.S. § 30.54a(c) and (d).
[607] *Id.*, at § 5; 52 P.S. § 30.55.
[608] *Id.*, at § 6.1; 52 P.S. § 30.56a.
[609] *Id.*
[610] *Id.*
[611] *Id.*

In order to encourage advances in coal refuse disposal practices and advances in technology or practices that will enhance environmental protection with respect to coal refuse disposal activities, the act allows DEP to grant permits approving experimental practices and demonstration projects.[612]

The act empowers DEP to enter and inspect all coal refuse disposal operations to determine compliance with the act, and provides for authority to issue notices of violation, to suspend or revoke licenses or permits, and to issue cease and desist orders.[613] The act provides for injunctive relief, remedies for citizens, civil penalties, and criminal penalties.[614]

Still the law of Pennsylvania, a 1913 water pollution prevention statute regulates the discharge of coal, culm or refuse into streams.[615]

Noncoal Mining

Prior to 1971, quarries were unregulated for mineral removal and environmental purposes in Pennsylvania.[616] In 1984 the Noncoal Surface Mining Conservation and Reclamation Act (NSMCRA),[617] was enacted to:

> Provide for the conservation and improvement of areas of land affected in the surface mining of noncoal minerals, to aid in the protection of birds and wildlife, to enhance the value of the land for taxation, to decrease soil erosion, to aid in the prevention of the pollution of rivers and streams, to protect and maintain water supply, to protect land, to enhance land use management and planning, to prevent and eliminate hazards to health and safety and generally to improve the use and enjoyment of the lands.[618]

The NSMCRA provides broad definitions for "minerals," which include, but are not limited to, limestone and dolomite, sand and gravel, rock and stone, earth, fill, slag, iron ore, zinc ore, vermiculite and clay, and "surface mining," which is defined as:

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[612] *Id.*, at § 6.3; 52 P.S. § 30.56c.
[613] *Id*., at §§ 3.1, 7, 8, and 9; 52 P.S. §§ 50.56c, 50.57, 50.58 and 50.59.
[614] *Id*. at §§ 10-13; 52 P.S. §§ 50.60-50.63.
[615] Act of June 27, 1913 (P.L.640, No.375); 52 P.S. § 631.
[616] DEP. "Noncoal/Industrial Minerals Mining," http://www.dep.pa.gov/Business/Land/Mining/BureauofMiningPrograms/IndustrialMining/Pages/default.aspx. The 1971 statute created the Surface Mining Conservation and Reclamation Act, including quarries and noncoal minerals under its jurisdiction. The Noncoal Surface Mining Conservation and Reclamation Act of 1984 repealed the 1971 statute as it related to minerals other than coal.
[617] Act of December 19, 1984 (P.L.1093, No.219); 52 P.S. § 3301 *et seq.*, known as the Noncoal Surface Mining Conservation and Reclamation Act (NSMCRA).
[618] NSMCRA § 2; 52 P.S. § 3302.

> The extraction of minerals from the earth, from waste or stockpiles or from pits or from banks by removing the strata or material that overlies or is above or between them or otherwise exposing and retrieving them from the surface, including, but not limited to, strip mining, auger mining, dredging, quarrying and leaching and all surface activity connected with surface or underground mining, including, but not limited to, exploration, site preparation, entry, tunnel, drift, slope, shaft and borehole drilling and construction and activities related thereto; but it does not include those mining operations carried out beneath the surface by means of shafts, tunnels or other underground mine openings.[619]

The NSMCRA prohibits the operation of a surface mining operation without a license from DEP.[620] The NSMCRA also provides that no person shall operate a surface mine or allow a discharge from a surface mine unless the person has first obtained a permit from DEP.[621] An application for a permit must include a reclamation plan.[622] The NSMCRA also created a fund to be used by DEP to reclaim land and water supplies affected by surface mining.[623]

Under authority of the NSMCRA and the CSL, DEP has promulgated regulations in the Pennsylvania Code for mining permits.[624] The CSL, includes any clay mine or other facility from which minerals are extracted from the earth in its definition of "mine," and therefore applies to quarrying operations as well.[625]

In addition to the administrative requirements, the regulations provide detailed information relating to the environmental resource information, operation plans, and reclamation plans that must be included in a permit application.[626] The regulations also describe the various environmental protection performance standards applicable to noncoal surface mining operations.[627] DEP administers NPDES permits for mining activities, and permitting of noncoal mining and the associated NPDES permits occurs at district mining offices.[628]

With respect to reclamation obligations of noncoal surface mining operators, a recent Environmental Hearing Board adjudication found that the obligation of an operator to perform reclamation activities, even to the extent that mining operations must be minimized or significantly reduced, is paramount. The Board found that lawful and

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[619] *Id.*, at § 3; 52 P.S. § 3303.
[620] *Id*., at § 5; 52 P.S. § 3305.
[621] *Id*., at § 7; 52 P.S. § 3307.
[622] *Id*., at § 7(c); 52 P.S. § 3307(c).
[623] *Id*., at § 17; 52 P.S. § 3317.
[624] 25 Pa. Code Ch. 77.
[625] CSL, § 1.
[626] *Supra*, note 624 at Subchs. G & H.
[627] *Id*., at Subch. I.
[628] *Supra*, note 620.

objectively reasonable cleanup directives from DEP are to be prioritized, and that the individual circumstances of the operator, including financial limitations, are not relevant.

> "The Department's [DEP] position is that reclamation has priority over mining and that New Hope's mining is more or less incidental to its obligation to reclaim the quarry—some mining can occur but mostly as a way to facilitate the reclamation. [Internal citations omitted]. In the event that New Hope determines that it cannot concurrently mine and reclaim the quarry, the Department expects New Hope to stop mining and conduct reclamation work. [Internal citations omitted]. We find the Department's position to be reasonable. New Hope's obligation to timely abate the nuisance is administratively final. It is up to New Hope to determine the appropriate sequencing for its reclamation, even if that means it will at times need to sacrifice mining."[629]

Oil and Gas

In 1891, the General Assembly enacted a statute requiring abandoned oil and gas wells to be plugged.[630] The purpose of the act was to prevent the pollution of springs, water wells, and streams by water escaping abandoned oil and gas wells.[631] Though not explicitly designed to protect the environment, a 1921 act[632] regulating drilling of oil and gas wells, provides greater detail to the drilling, filling, and capping contemplated in the 1891 act, and provides similar enforcement measures. DEP has a "legacy wells" program designed to plug oil and gas wells where no responsible party is identifiable. The Department of Community and Economic Development administers the Orphan and Abandoned Well Plugging grant program, which targets projects that include well plugging or venting, and the installation of gas migration mitigation systems."[633] The Environmental Good Samaritan Act[634] protects landowners, groups and individuals who volunteer to engage in reclamation of abandoned mineral extraction lands and abate water pollution caused by abandoned mines, and oil and gas wells. DEP began accepting projects for protection under this law in 2017. DEP will administer and review project proposals to determine project eligibility.[635]

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[629] *New Hope Crushed Stone and Lime Company, Commonwealth Of Pennsylvania, Department Of Environmental Protection, Solebury School and Solebury Township, Intervenors*, Pa. Environmental Hearing Board, EHB Docket No. 2016-028-L (September 7, 2017) at 22.
[630] Act of May 26, 1891 (P.L.122, No.114); 58 P.S. §§ 1-3.
[631] *Id*., at § 1.
[632] Act of May 17, 1921 (P.L.912, No.322); 58 P.S. §§ 4-10.
[633] DEP. Abandoned and Orphan Well Program. http://www.dep.pa.gov/Business/Energy/OilandGasPrograms/OilandGasMgmt/Pages/Abandoned-and-Orphan-Well-Program.aspx.
[634] 27 Pa.C.S. Ch. 81.
[635] DEP. Environmental Good Samaritan Fact Sheet. (March, 2017). http://www.depgreenport.state.pa.us/elibrary/GetDocument?docId=4879&DocName=ENVIRONMENTAL%20GOOD%20SAMARITAN%20ACT.PDF%20.

The Coal and Gas Resource Coordination Act primarily addresses the coordination of coal mine and gas well operators and provides for well spacing, but it also provides requirements for the filling and plugging of gas wells, and provides enforcement measures as well.[636]

Enacted the day after the Coal and Gas Resource Coordination Act, the Oil and Gas Act was designed to "Permit the optimal development of the oil and gas resources of Pennsylvania consistent with the protection of the health, safety, environment and property of the citizens of the Commonwealth" and "Protect the natural resources, environmental rights and values secured by the Pennsylvania Constitution."[637]

The 1984 Oil and Gas Act was updated and codified in Title 58 (relating to oil and gas) of the Pennsylvania Consolidated Statutes by Act 13 of 2012. The Coal and Gas Resource Coordination Act was specifically preserved in § 6 of the codification.[638] The constitutional challenges to Act 13 are addressed in the section of this report entitled "*Environmental Rights Amendment*."

Under the authority of Act 13 and the other statutes discussed previously, DEP has promulgated numerous regulations relating to oil and gas extraction. In October 2016, DEP issued new regulations governing unconventional wells under the authority of Act 13. The regulations contain a provision that requires an area review of the impact on public resources on the siting of a well as part of the application process. This provision expands upon the well location restrictions listed in Act 13[639] to include the proposed limit of the disturbance of the well site" if it is located "within 200 feet of common areas of a school's property or a playground." There are also provisions regarding threatened or endangered species and critical habitat.[640] A petition for an injunction to prevent enforcement of these provisions was filed in Commonwealth Court in October 2016, and an injunction was granted with respect to the school property and playgrounds as well as the species of special concern.[641] DEP appealed the injunction to the Pennsylvania Supreme Court, and oral arguments were scheduled for October 18, 2017. No decisions has been rendered yet.[642]

The Treated Mine Water Act[643] was enacted in 2015 to protect a mine operator who provides treated mine water for the development of an oil or gas well from liability for the offsite use of treated mine water and to protect persons who use treated mine water to

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[636] Act of December 18, 1984 (P.L.1069, No.214), § 13; 58 P.S. § 501 *et seq.*, known as the Coal and Gas Resource Coordination Act.

[637] Act of December 19, 1984 (P.L.1140, No.223), known as the Oil and Gas Act, § 102(1) and (4). [Repealed by Act 13 of 2012].

[638] Act of February 14, 2012 (P.L.87, No.13), referred to as Act 13. N.B. Although Title 52 of the Pennsylvania Consolidated Statutes relates to mines and mining, the title has not been implemented and all statutes relating to mines and mining remain uncodified.

[639] 58 Pa.C.S. § 3215.

[640] 25 Pa. Code § 78a.15(d) and (f)

[641] *The Marcellus Shale Coalition, Petitioner v. Department of Environmental Protection of the Commonwealth of Pennsylvania and Environmental Quality Board of the Commonwealth of Pennsylvania, Respondents,* 573 M.D.2016 (Commw. Ct.) (November 8, 2016).

[642] *Marcellus Shale Coalition,* Supreme Court No. 115 MAP 2016.

[643] Act of October 8, 2015 (P.L.186, No.47); 58 P.S. §§ 1101-1105 known as the Treated Mine Water Act.

develop oil and gas wells from liability for the treatment or abatement of mine drainage or mine pool water.[644] The act provides immunity to mine operators so long as the treated mine water is for use outside the boundaries of the permitted mining activity site, the treated mine water is for oil or gas well development, and the mine operator is not the same person using the treated mine water for oil or gas well development.[645] The act does not limit liability for unlawful spills or releases of treated mine water.[646]

In 2016, the General Assembly established the Pennsylvania Grade Crude Development Council to examine and make recommendations for the environmental oversight of the conventional oil and gas industry. Hydraulic fracking is considered unconventional production and regulated elsewhere. The council is charged with:

- Examining and making recommendations regarding existing technical regulations and DEP policies that impact the conventional oil and gas industry; and

- exploring the development of a regulatory scheme that provides for environmental oversight and enforcement specifically applicable to the conventional oil and gas industry.[647]

Water Rights and Resource Planning

The right to use water varies from state to state. Like most states in the Eastern United States, Pennsylvania has historically followed the riparian doctrine. Persons owning property adjacent to a watercourse have the right to make reasonable use of the watercourse.[648] Pennsylvania has moved away from pure riparianism to a regulated form of water resource planning. At least as early as 1923, the Commonwealth instituted a permitting process regulating use of surface waters for water power and water supply purposes.[649] The Water Rights Law further declared that the available water supply needs to be conserved, controlled and used equitably and that supplies need to be developed for both present and future needs and further regulated public water supply agencies acquisition of surface water.[650] These duties were assigned to the Department of Environmental Protection when it was created in 1970.

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[644] *Id.*, § 2(4); 58 P.S. § 1102(4).
[645] *Id*., at § 4(a); 58 P.S. § 1104(a).
[646] *Id*., at § 4(c); 58 P.S. § 1104(c).
[647] Act of Act of June 23, 2016 (P.L.375, No.52) § 4(a); 58 P.S. § 1204(a) known as the Pennsylvania Grade Crude Development Act.
[648] "Water Law: An Overview," The National Agricultural Law Center, http://nationalaglawcenter.org/overview/water-law/.
[649] Act of June 14, 1923 (P.L.704, No.294); 32 P.S. § 591 *et seq.*
[650] Act of June 24, 1939 (P.L.842, No.365); 35 P.S. § 631 *et seq.*

State Water Plan

Under the jurisdiction of DEP, Pennsylvania's state water plan inventories surface and ground water resources, their capacity, and current and future water needs in various regions of the Commonwealth.[651] Specifically, the Environmental Quality Board is directed to establish requirements for registration, periodic report and records of withdrawals by the following:

- Each public water supply agency, irrespective of the amount of withdrawal,
- Each hydropower facility, irrespective of the amount of withdrawal, and
- Each person whose total withdrawal or withdrawal use from one or more points of withdrawal within a watershed operated as a system either concurrently or sequentially exceeds an average rate of 10,000 gallons a day in a 30-day period.

Persons and entities subject to registration are required to monitor, maintain records, and submit to the department periodic reports regarding the source, location and amount of withdrawals or uses or both from surface waters and groundwaters, including the amount of consumptive and nonconsumptive uses, the locations and amounts of any waters returned and discharged and the amounts of water transferred between public water supply agencies via interconnections.[652]

Local municipalities are prohibited from allocating water resources under this law, nor may they regulate the location, amount, timing, terms or conditions of any water withdrawal by any person.[653]

River Commissions and Interstate Compacts

In 1965, Congress established the federal Water Resources Planning Act.[654] The act created the Water Resources Council, which was charged with maintaining an ongoing study and preparing a biennial assessment of the adequacy of supplies of water necessary to meet the water requirements in each water resource region of the United States; coordinate the water and related land resource policies and programs of Federal agencies; and to develop principles, standards and procedures for Federal participants in preparation of comprehensive regional or river basin plans and formulation and development of federal water and related land resources projects.[655] The President is authorized to establish river basin commissions under this act to coordinate Federal, State, interstate, local, and nongovernmental plans to develop water and related land sources in is area and prepare and maintain a comprehensive and coordinated joint plan for such development.[656]

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[651] 27 Pa.C.S. § 3112; 25 Pa. Code Ch. 110 (water resources planning).
[652] 27 Pa.C.S. § 3118(b)(1).
[653] 27 Pa.C.S. § 3136(b).
[654] Pub.L.. 89-79, July 21, 1965, 79 Stat. 244, 42 U.S.C. Ch. 19B, §§ 1962 to 1962d-22.
[655] 42 U.S.C. §§ 1962a-1 and 1962a-2.
[656] 42 U.S.C. § 1962b.

Pennsylvania participates in the Susquehanna River Basin Compact[657] with Maryland and the federal government, the Great Lakes-St. Lawrence River Basin Water Resources Compact[658] with Illinois, Indiana, Michigan, Minnesota, New York, Ohio and Wisconsin, the Delaware River Basin Compact[659] with Delaware, New Jersey, New York and the federal government, and the Chesapeake Bay Commission with Maryland and Virginia.[660]

Wild and Scenic Rivers

Under the National Wild and Scenic Rivers System, certain rivers "with outstanding natural, cultural and recreational values in a free-flowing condition" are preserved. Designation does not prevent development or restrict uses. It does, however, prohibit federal support for dams or other instream activities that would harm the free-flowing condition or water quality of the river.[661] Rivers are designated as wild, scenic, or recreational. The system is administered jointly by the Bureau of Land Management, National Park Service, U.S. Fish and Wildlife Service, and the U.S. Forest Service through the Interagency Wild & Scenic Rivers Coordinating Council.[662] The Allegheny, Clarion, Upper, Middle and Lower Delaware Rivers, and White Clay Creek have been designated national wild and scenic rivers.

Pennsylvania's scenic rivers program has more specific criteria than the federal program and is administered by DCNR.[663] It is not subject to the National Wild and Scenic Rivers Act, although the secretary of DCNR is directed to encourage and assist in any federal studies for inclusion of Pennsylvania rivers in the national system.[664] Rivers and streams are classified as wild, scenic, pastoral, recreational or modified recreational. Restrictions on impoundment, construction of dams and other diversions works and upstream impoundment activities are restricted in varying degrees based upon the classification, with the free-flowing nature of wild rivers given the most protection.[665] Rivers must be recommended for inclusion and subsequently authorized by law. Thirteen Pennsylvania streams have been included in the state program by statute: Schuylkill

[657] Act of July 17 1968 (P.L.368, No. 1818); 32 P.S. § 820.1 *et seq.*, known as the Susquehanna River Basin Compact Law.
[658] Act of July 4, 2008 (P.L.526, No.43); 32 P.S. § 817 *et seq.*
[659] Act of July 7, 1961 (P.L.518 No.628); 32 P.S. § 815.101.
[660] Act of June 25, 1985 (P.L.64, No. 25); 32 P.S. §§ 820.11 and 820.12.
[661] National Wild and Scenic Rivers Act, Pub.L.. 90-542, 16 U.S.C. § 1271 *et seq.*
[662] https://www.rivers.gov/council.php.
[663] Act of December 5, 1972 (P.L.1277, No.283); 32 P.S. §§ 820.22-820.29, known as the Pennsylvania Scenic Rivers Act.
[664] *Id.*, § 8; 32 P.S. § 820.29.
[665] 17 Pa. Code Ch. 41.

River,[666] Stony Creek,[667] Lehigh River,[668] French Creek,[669] Lick Run,[670] Octoraro Creek,[671] Letort Spring Run[672] Tucquan Creek and Bear Run,[673] Lower Brandywine River,[674] Tulpehocken Creek and Yellow Breeches Creek,[675] and Pine Creek.[676]

Endangered Species

The Endangered Species Act of 1973 created a national policy to protect endangered ecosystems, and confirmed the United States pledge to the international community to conserve and protect fish, plant and wildlife species facing extinction.[677] The act encouraged the development of state programs to assist in conserving the ecosystems, developing lists of threatened and endangered species and habitats, and prohibited the unauthorized taking, possession, sale and transportation of endangered species.[678] Additionally, the act requires federal agencies to "insure that any action authorized, funded or carried out by them is not likely to jeopardize the continued existence of listed species or modify their critical habitat." Responsibility for administering the statute falls to either the U.S. Fish and Wildlife Service or NOAA, depending on the species and habitat to be protected. The federal statute completely preempts state law by voiding any state law or regulation with respect to importation, exportation or interstate or foreign commerce in endangered and threatened species that conflicts with the Endangered Species Act. State laws and regulations that are more restrictive regarding the taking of endangered or threatened species are permissible, and the federal law does not preempt other state laws intended to conserve migratory, resident, or introduced fish or wildlife, or to permit or prohibit their sale.[679]

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[666] Act of November 26, 1978 (P.L.1415, No.333); 32 P.S. § 820.31, known as the Schuylkill River Scenic River Act.
[667] Act of March 24, 1980 (P.L.50, No.18); 32 P.S. § 820.41, known as the Stony Creek Wild and Scenic River Act.
[668] Act of April 5, 1982 (P.L.222, No.72); 32 P.S. § 201.61, known as the Lehigh Scenic River Act.
[669] Act of April 29, 1982 (P.L. 351, No.97); 32 P.S. § 820.51, known as the French Creek Scenic Rivers Act.
[670] Act of December 17, 1982 (P.L.1402, No.324), 32 P.S. § 820.71, known as the Lick Run Wild and Scenic River Act.
[671] Act of October 21, 1983 (P.L.171, No.43); 32 P.S. § 820.81, known as the Octoraro Creek Scenic Rivers Act.
[672] Act of March 30, 1988 (P.L.318, No.42); 32 P.S. § 820.101, known as the Letort Spring Run Scenic River Act.
[673] Act of December 19, 1988 (P.L.1286, No. 161); 32 P.S. § 820.11, known as the Tucquan Creek and Bear Run Scenic Rivers Act.
[674] Act of June 16, 1989 (P.L.22, No.7); 32 P.S. § 820.121, known as the Lower Brandywine Scenic Rivers Act.
[675] Act of December 4, 1992 (P.L.767, No.118); 32 P.S. § 820.151, known as the Tulpehocken Creek and Yellow Breeches Creek Scenic River Act.
[676] Act of December 4, 1992 (P.L.784, No.124); 32 P.S. § 820.171, known as the Pine Creek Scenic Rivers Act.
[677] Endangered Species Act of 1973, Pub.L.. 93-205, 87 Stat. 884, 16 U.S.C. §§1531-1544.
[678] Digest of Federal Resource Laws of Interest to the U.S. Fish and Wildlife Service, https://www.fws.gov/laws/lawsdigest/ESACT.html
[679] *Supra*, note 677, § 6(f), 16 U.S.C. § 1535(f).

The Pennsylvania Natural Heritage Program is a partnership between DCNR, the Western Pennsylvania Conservancy, and the Game and Fish Commissions. The Program provides research and information on location and status of ecological resources in the Commonwealth, and works in cooperation with the U.S. Fish and Wildlife Service.[680]

Pennsylvania has established a Wild Resource Conservation Board, which is a collaborative body, with representation from DCNR, the Pennsylvania Fish and Boat Commission, the Pennsylvania Game Commission, the House of Representatives Conservation Committee, and the Senate Environmental Resources and Energy Committee. The Board establishes management projects and programs necessary to preserve and enhance wild resources, defined as all naturally occurring native flora (other than those commonly considered agricultural commodities) and all fauna not commonly pursued, killed, or consumed for sport or profit, but not domestic fauna. Specific provisions are made for wild plant management and sanctuaries. Wild plants are divided into nine different classes that extend beyond endangered and threatened species under the federal law.[681]

DCNR has authorized the issuance of permits to remove, collect, or transplant wild plants classified as Pennsylvania Endangered or Pennsylvania Threatened, from land areas threatened by future land development, surface mining, agricultural encroachment, or other activities into public or private wild plant sanctuaries to help assure their perpetuation as members of ecosystems.[682]

Land Preservation

Environmental regulations governing the use and preservation of land are usually reserved to the state, and the federal government has a limited role, generally restricted to federal agency action.

Public Land Preservation

Pennsylvania recognized the need to preserve lands for public recreation, conservation, and historical uses in 1964, when it authorized the Commonwealth and local governments to acquire such lands before they had been lost to urban development or become prohibitively expensive due to their location.[683] Additional funding for these acquisitions have been established over the years, with the Keystone Recreation, Park and

[680] Pennsylvania Natural Heritage Program. http://www.naturalheritage.state.pa.us/.
[681] Act of June 23, 1982 (P.L.97, No.170); 32 P.S. § 5301 *et seq.*, known as the Wild Resource Conservation Act.
[682] 17 Pa. Code § 45.42.
[683] Act of June 22, 1964, Special Session 1 (P.L.131, No.8); 72 P.S. §§ 3946.1-3946.22, known as the Project 70 Land Acquisition and Borrowing Act.

Conservation Fund,[684] and the Environmental Stewardship Fund the two most current provisions.

Farmland

The Farmland Protection Policy Act, administered by the U.S. Department of Agriculture, through the Natural Resources Conservation Service, is designed to minimize the impact of Federal programs on unnecessary and irreversible conversion of farmland to nonagricultural uses. Activities that may be subject to FPPA are stare highway construction projects performed through the Federal Highway Administration, airport expansions, construction projects involving electric cooperatives, railroads, and telephone companies, reservoir and hydroelectric projects, federal agency projects that convert farmland, and other projects completed with federal assistance. Surface mining is not subject to the act when restoration to agricultural use is planned.[685]

Pennsylvania's efforts to protect and preserve farmland are neither derived from nor subject to federal law and regulations. Article 8, Section 2(b) of the Pennsylvania Constitution states:

> The General Assembly may, by law: (i) Establish standards and qualifications for private forest reserves, agricultural reserves, and land actively devoted to agricultural use, and make special provision for the taxation thereof;

Under this authority, the General Assembly enacted the Agricultural Area Security Law in 1981 to conserve and protect agricultural lands in the Commonwealth by authorizing the county agricultural land preservation programs to purchase conservation easements from farmers.[686]

Pennsylvania has also enacted a preferential tax assessment program that generally values farm and forest land at their current use value, rather than fair market value, which generally results in a lower property tax burden for the landowner and an incentive to continue to use the land for those preferentially treated purposes.[687] An additional measure to protect farmlands can be found in the Office of the Attorney General, where authority rests with the Attorney General to petition in Commonwealth Court to invalidate or enjoin enforcement of a local government unit ordinance that affects normal agricultural operations.[688]

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[684] Act of July 2, 1993 (P.L.359, No.50); 32 P.S. §§ 2011-2024, known as the Keystone Recreation, Park and Conservation Fund Act, and 27 Pa.C.S. Chapter 61, known as the Environmental Stewardship and Watershed Protection Act.

[685] Pub.L. 97-98, subtitle I of Title XV, §§ 1539-1949, 95 Stat. 1341, 7 U.S.C. §§ 4201-4209.

[686] Act of June 20, 1981 (P.L.128, No.43); 3 P.S. § 901 *et seq.*, known as the Agricultural Area Security Law. See 7 Pa. Code Ch. 138e.

[687] Act of Dec. 19, 1974 (P.L. 973, No. 319); 72 P.S. § 5490.1 *et seq*., known as the Pennsylvania Farmland and Forest Land Assessment Act of 1974 (Clean and Green).

[688] 3 Pa.C.S. Chapter 3, added by the act of July 6, 2005 (P.L.112, No.38).

WASTE MANAGEMENT AND RECYCLING

While the EPA has established regulations for the disposal of solid waste, which Pennsylvania has overall incorporated by reference into Pennsylvania's statutes, there are some aspects of Pennsylvania's solid waste management law that are more specific than their federal counterparts.

Resource Conservation and Recovery

The disposal of solid waste is regulated federally by the Resource Conservation and Recovery Act (RCRA).[689] While recognizing that solid waste disposal is a matter that is chiefly handled by the states, Congress determined that "inadequate and environmentally unsound practices for the disposal or use of solid waste have created greater amounts of air and water pollution and other problems for the environment," and thus federal regulation of solid waste was necessary.[690]

RCRA divides waste into two categories: "non-hazardous" and "hazardous" waste. The law requires the EPA to develop and implement criteria for identifying hazardous waste and creating a list of hazardous waste, giving account to the "toxicity, persistence, and degradability in nature, potential for accumulation in tissue, and other related factors such as flammability, corrosiveness, and other hazardous characteristics" of the waste.[691] Waste from the combustion of coal, other fossil fuels, mining, or cement manufacture are explicitly not regulated under RCRA. In 1980, Congress amended RCRA by adding the Bevill exclusion, for "solid waste from the extraction, beneficiation, and processing of ores and minerals."[692] As a result, relatively little mining waste is currently subject to RCRA regulation as hazardous waste.[693] Accordingly, Pennsylvania's Coal Refuse Disposal Act regulates mining waste.[694] The EPA has listed other materials that are not considered to be solid waste under federal law.[695]

[689] Resource Conservation and Recovery Act, Pub.L. 94-580, 90 Stat. 2795, 42 U.S.C. § 6901 *et seq*.
[690] 42 U.S.C. § 6901(b)(3).
[691] 42 U.S.C. § 6921(a).
[692] 42 U.S.C. § 6921(b)(3)(A). EPA. "EPA's National Hardrock Mining Framework." (September 1997) https://www.epa.gov/sites/production/files/2015-10/documents/hardrock_mining_framework_0.pdf at p. 5-6.
[693] *Id.*, at p. 6.
[694] *Supra*, note 602.
[695] 40 C.F.R. § 261.4.

However, RCRA requires the EPA to develop nationwide standards for solid waste disposal activities, including design, operation, groundwater monitoring, and siting.[696] States are required to develop and implement EPA-approved plans to close or upgrade "open dumps," which are banned under RCRA.[697] States are also required to develop a permitting program.[698] If a state fails to adopt a plan that is approved by the EPA, then the EPA has the authority to enforce the federal criteria.[699] The EPA approved Pennsylvania's program in June 1994.[700]

Under RCRA, there are no federal permitting requirements for non-hazardous waste.

Solid Waste Management

The statute governing the disposal of solid waste in the Commonwealth is the Solid Waste Management Act (SWMA). The first iteration of the SWMA was passed by the General Assembly in 1968.[701] In 1980, a major overhaul of the statute was enacted.[702] The SWMA was reorganized to account for three types of waste – municipal, residual, and hazardous – as well as for permitting and enforcement.[703] The SWMA defines "solid waste" as "any waste, including, but not limited to, municipal, residual, or hazardous wastes, including solid, liquid, semisolid, or contained gaseous materials. The term does not include coal ash or drill cuttings."[704] The regulatory provisions governing municipal waste further defines "waste" as "material whose original purpose has been completed and which is directed to a disposal, processing, or beneficial use facility or is otherwise disposed of, processed, or beneficially used." This definition excludes "source separated recyclable materials" as well as the beneficial use of sewage sludge by land application.[705]

Under Pennsylvania's residual and hazardous waste regulations, what constitutes waste depends on the relationship between the material and its intended use. Wastes are materials that are intended by its original user to be abandoned or discarded, including disposal by burning or incineration. Recycled materials are also considered waste if they are used in a manner that constitutes disposal, such as by application to the land, burned to generate energy, or reclaimed. However, materials that are recycled by being used in an

[696] 42 U.S.C. §§ 6944, 6945, 6949(a), and 6907(a).
[697] 42 U.S.C. § 6945.
[698] 42 U.S.C. § 6945(c).
[699] 42 U.S.C. § 6945(c)(2)(A).
[700] Municipal Solid Waste Landfill Permit Programs; Adequacy Determinations: Pennsylvania, 59 Fed. Reg. 29804 (Jun. 9, 1994).
[701] Act of July 31, 1968 (P.L.788, No.241); 35 P.S. §§ 6001-6017 [Repealed].
[702] Act of July 7, 1980 (P.L.380, No.97); 35 P.S. § 6018.101 *et seq*., known as the Solid Waste Management Act (SWMA).
[703] *Id.*, SWMA §§ 201, 301, and 401; 35 P.S. § 6018.201, § 6018.301, and § 6018.401.
[704] *Id.*, SWMA § 103; 35 P.S. § 6018.103.
[705] 25 Pa. Code § 271.1.

industrial process to make a product or used as a substitute for a commercial product are not considered waste.[706] The federal regulation defining "waste" is substantially similar.[707]

Municipal waste is waste that is generated by residential, commercial, municipal, or institutional establishments. These are places like office buildings, restaurants, retail stores, schools, hospitals, and the like.[708] It also includes sewage sludge from sewage treatment facilities. Infectious and chemotherapeutic wastes, as well as other medical wastes, are regulated as municipal wastes because they are generated by sources covered under the municipal waste provision of the SWMA. However, they are also subject to the Infectious and Chemotherapeutic Waste Law.[709] Regulations promulgated under that law set "standards for the collection, transportation, processing, storage, and incineration or other disposal of infectious and chemotherapeutic wastes."[710] Municipal waste disposal is also regulated by the Municipal Waste Planning, Recycling, and Waste Reduction Act, as is discussed in more depth below. This law primarily deals with the authority of counties to plan for the management of municipal waste generated within their boundaries, as well as their responsibilities.[711]

Residual waste comes from an industrial, mining, or agricultural operation, or "sludge from an industrial, mining or agricultural water supply treatment facility, wastewater treatment facility or air pollution control facility," so long as it is not considered a hazardous waste. Coal refuse is not considered to be residual waste and is subject to regulation under separate statutory authority.[712]

Permit requirements and regulations mirror those governing municipal waste.[713] Under the Commonwealth's residual waste regulations, certain materials are always considered to be residual waste, even if they come from sources that generate municipal waste, such as schools or restaurants. These include water supply treatment plant sludges, waste oil other than hazardous waste oil, waste tires and auto fluff (unusable remnants of vehicles after scrapping), contaminated soil, and used asphalt.[714] Conversely, some materials are always considered municipal sources, even if they originate from residual sources, such as leaf litter, grass clippings, construction and demolition waste, and medical and chemotherapeutic waste.[715]

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[706] 25 Pa. Code § 287.1.
[707] 40 C.F.R. § 261.2.
[708] SWMA § 103; 35 P.S. § 6018.103.
[709] Act of July 13, 1988 (P.L.525, No.93); 35 P.S. §§ 6019.1 – 6019.6, known as the Infectious and Chemotherapeutic Waste Law.
[710] *Id.*; 25 Pa. Code §§ 284.1 – 284.734 (Regulated Medical and Chemotherapeutic Waste).
[711] *See infra,* note 726.
[712] 25 Pa. Code § 287.1. *See,* the Coal Refuse and Disposal Act, at note 602.
[713] *See,* 25 Pa. Code §§ 287.101 – 287.154.
[714] 25 Pa. Code § 287.2(c). The act of February 15, 2018 (P.L.19, No.7) amended the SWMA to remove "Current generation blast furnace, iron and steel slag" from the definition of residual waste. Slag is the residue remaining after ore has been smelted.
[715] 25 Pa. Code § 287.2(b).

Because residual waste generators tend to be large industrial or mining sources, the difference between the regulations governing municipal waste and residual waste tend to focus on the generators. A "generator" of waste is a "person or municipality that produces or creates a residual waste."[716] Thus, individual households and most institutions generating municipal waste would not be considered "generators." There are numerous requirements that generators of residual waste must comply with.

With certain exceptions, residual waste processing and disposal facilities are required to obtain a permit from the DEP.[717] The exceptions are for agricultural waste produced in the course of normal farming operations if such waste is not hazardous, food processing waste, the beneficial use of coal ash, the use of clean fill,[718] and the beneficial use of scrap metal.[719] Like with municipal landfill permitting, residual facilities undergo a nearly identical two-phase permitting process.[720]

Under the SWMA, generators of municipal waste cannot transport or permit their waste to be transported to a processing or disposal facility unless that facility has a solid waste permit.[721] If a generator stores its municipal waste, it is subject to the regulations governing storage of waste. However, if the waste is stored by a generator for more than a year it is presumed to have been disposed of, and this presumption subjects the generator to the regulations governing the disposal of municipal waste, including the requirement to obtain a permit.[722] Disposing of waste without a permit is unlawful under the SWMA.[723] Special rules for generators of medical waste are imposed by the Infectious and Chemotherapeutic Waste Law, including the use of a manifest and specific storage requirements.[724] Although, as mentioned above, the term "generator" is defined in reference to residual waste, in this context it is clear that the statute is speaking to the originators of municipal waste.

Transporters of municipal and residual waste do not need a license from the state under the SWMA, but they are required to obtain the written permission of the DEP before using a disposal or processing facility.[725] Further, transporters of municipal waste may be required to be licensed by the county they operate in.[726] Medical waste transporters are

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[716] 25 Pa. Code § 287.1.
[717] 25 Pa. Code § 287.101(a).
[718] Clean fill is uncontaminated, non-water soluble, non-decomposable inert solid material used to level an area or bring the area to grade. The term does not include material placed into or on waters of the Commonwealth. What is permitted to be used as clean fill is determined in accordance with the DEP's Clean Fill Policy, issued in 2010.Pennsylvania Department of Environmental Protection, Bureau of Waste Management, "Management of Fill," Doc. No. 258-2182-773.
http://www.elibrary.dep.state.pa.us/dsweb/Get/Document-81095/258-2182-773PO.pdf.
[719] 25 Pa. Code § 287.101(b).
[720] 25 Pa. Code § 288.101. *cf* 25 Pa. Code §§ 288.111-288.193 and §§ 273.111-273.197.
[721] SWMA § 610; 35 P.S. § 6018.610(6).
[722] SWMA §§ 103 and 501; 35 P.S. § 6018.103, § 6018.510.
[723] SWMA § 610; 35 P.S. § 6018.610(1).
[724] Act of July 13, 1988 (P.L.525, No.93); 35 P.S. §§ 6019.1 – 6019.6.
[725] 27 Pa.C.S. § 6204(a), known as the Waste Transportation Safety Act.
[726] Act of July 28, 1988 (P.L.556, No.101); § 303; 53 P.S. § 4000.303(a)(1), known as the Municipal Waste Planning, Recycling, and Waste Reduction Act. However, the Commonwealth Court has held that the Waste Transportation Safety Act preempts county and municipal ordinances in some instances. *Pennsylvania*

required to be licensed by the DEP.[727] Trucks transporting municipal waste must be labelled describing their contents.[728]

The municipal waste regulations also contain requirements regarding the collection by transporters of municipal waste, which include rules on the frequency of collection, storage of municipal waste by the transporter, requirements of the equipment used to collect and transport the waste, vehicle signage, cleaning of the equipment, spill reporting, and record-keeping.[729]

Storage is the temporary containment of waste in such a manner as not to constitute disposal of such waste.[730] Although there is no permitting requirement for the storage of municipal or residual waste, there are regulations governing the design and operation of storage facilities, including requirements applicable to containers, storage tanks, and impoundments.[731]

The disposal of waste is defined by the SWMA broadly to include "incineration, deposition, injection, dumping, spilling, leaking, or placing of solid waste into or on the land in a manner that the solid waste or a constituent of the solid waste enters the environment…."[732] To operate a municipal waste disposal facility, colloquially known as a landfill, the person or municipality must obtain a permit to operate the landfill, which is obtained through a two-phase application process.[733]

In addition to the permit requirements, there are very specific and technical rules and regulations governing the operation of landfills.[734] Siting regulations prohibit landfills from being located in a wetland, floodplain, a ravine, head of hollow, or valley where the siting could impact a stream, overtop of a coal deposit, overtop of limestone, within 900 feet of an occupied dwelling, within 10,000 feet of an airport used by jet aircraft, within 300 feet of a private water source, or within 300 yards of a park, playground, or school (if the landfill was constructed after September 26, 1988).[735] Waste disposal facilities have periodic reporting requirements, including a requirement that each facility must file annual operating reports with DEP that include information on the type, volume, and origin of waste received, a waste analysis, ownership and compliance, bonding and insurance changes, or changes in ownership.[736]

Independent Haulers Assn. v. County of Northumberland, 885 A.2d 1106 (Pa. Commw. 2005) (municipality cannot levy recycling fee on transporters). *But cf. Kasper Bros. Inc. v. Falls Township*, 672 A.2d 1386 (Pa. Commw. 1996) (can require licensure of transporters operating within its boundaries).

[727] Act of July 13, 1988 (P.L.525, No.93) § 2; 35 P.S. § 6019.2(d), known as the Infectious and Chemotherapeutic Waste Law.

[728] *Supra*, note 722, §1101(e); 53 P.S. § 4000.1101(e).

[729] 25 Pa. Code § 285.101 *et seq*.

[730] SWMA § 103; 35 P.S. § 6018.103.

[731] 25 Pa. Code § 285.

[732] SWMA § 103; 35 P.S. § 6018.103.

[733] 25 Pa. Code § 271.121; 25 Pa. Code § 273.101.

[734] 25 Pa. Code § 273.201 *et seq*. (Operating Requirements).

[735] 25 Pa. Code § 273.202(a).

[736] 25 Pa. Code § 273.313.

Other regulations of these facilities include monitoring, maintenance, security, inspections, emergency planning, insurance and bonding, and personnel training.[737] Other statutes also impact how waste disposal facilities operate. Owners or operators of waste disposal or processing facilities are prohibited from accepting municipal or residual waste from a vehicle that does not have valid authorization from DEP.[738]

Treatment of waste is defined (and regulated) separately from the disposal of waste. "Treatment" is a waste management activity that is only applicable to hazardous waste, and is defined as "any method, technique, or process, including neutralization, designed to change the physical, chemical, or biological character or composition of any waste so as to neutralize such waste or so as to render such waste nonhazardous, safer for transport, suitable for storage, or reduced in volume."[739]

In addition to "disposal" and "treatment" of waste, the SWMA also defines another class of waste management activity – processing. Processing is defined as "any method or technology used for the purpose of reducing the volume or bulk of municipal or residual waste or any method or technology used to convert part or all of such waste materials for off-site reuse."[740] Processing also includes transfer, composting, and resource recovery facilities, but excludes collection and processing facilities for source-separated recyclable materials. Transfer facilities are defined by the SWMA as those facilities which receive and process or temporarily store municipal or residual waste at a location other than the generation site and which facilitates the transport of such waste to another facility for further processing or disposal.[741]

Facilities that process and treat waste – as opposed to "disposing" of it – are also subject to strict permitting requirements. These requirements are similar to those required of landfills, but without the "two phase" permitting process.[742] Transfer facilities and composting facilities do not require a permit.[743] Operating requirements, in addition to the permit requirement, include daily operations rules, soil and water protection, safety, emergency procedures, recordkeeping and reporting, cessation and closure, and recycling and waste removal.[744]

Although "recycling" and "reclamation" are not defined by the SWMA, "beneficial use" is a defined term. "Beneficial use" is the "[u]se or reuse of residual waste or residual material derived from residual waste for commercial, industrial, or governmental purposes … or the use or reuse of processed municipal waste for any purpose, where the use does not harm or threaten public health, safety, welfare, or the environment."[745] The SWMA directs DEP to develop regulations to "encourage the beneficial use or processing of

[737] 25 Pa. Code § 271.1 *et seq*.
[738] 27 Pa. C. S. § 6203(b)(2), known as the Waste Transportation Safety Act.
[739] SWMA § 103; 35 P.S. § 6018.103.
[740] *Id.*
[741] *Id.*
[742] 25 Pa. Code §§ 283.101 – 283.123.
[743] 25 Pa. Code § 283.201(a).
[744] 25 Pa. Code §§ 283.201 – 283.283.
[745] SWMA § 103; 35 P.S. § 6018.103.

municipal waste or residual waste" in instances where DEP determines that such beneficial use would not pose a threat to health, safety, or the environment.[746] Before any waste material can be put to a beneficial use, it must first be approved for that use by DEP. DEP authorizes the blanket use of certain materials for beneficial use with the issuance of general permits.[747] Some materials also have their own regulations regarding their beneficial use, such as coal ash.[748]

Hazardous waste is any kind of waste "which because of its quantity, concentration, or physical, chemical, or infectious characteristics may … cause or significantly contribute to an increase in mortality or an increase in morbidity in either an individual or the total population; or pose a substantial present or potential hazard to human health or the environment when improperly treated, stored, transported, disposed of or otherwise managed."[749]

Pennsylvania, by way of regulation, incorporates by reference the federal regulations governing hazardous waste.[750] Hazardous waste transporters must have a license from DEP[751] and must also be bonded.[752] Additionally, transporters of hazardous waste must comply with the applicable federal regulations regarding hazardous waste transport. These regulations include requiring that the transporter require an EPA manifest form from the generator before accepting the waste for transport[753] and the notice and action requirements in the event of a spill in the course of transporting the waste.[754] The generator of the hazardous waste, however, is generally responsible for ensuring that the waste is properly manifested, packed, labeled, and that the transporting vehicle has identifying markings in conformance with federal Department of Transportation guidelines.[755]

The federal government largely oversees hazardous waste disposal in Pennsylvania. To avoid duplicative regulation at the state and federal levels, the RCRA allows any state with an equivalent and consistent hazardous waste program to petition the EPA to authorize its own state program for hazardous waste disposal.[756] Pennsylvania received final approval for its hazardous waste program in 2009.[757] However, Pennsylvania's hazardous waste management approval does not appear in the Code of Federal Regulations, possibly because the EPA retains the authority to issue, suspend, or revoke permits and enforce

[746] SWMA § 104; 35 P.S. § 6018.104(18).
[747] 25 Pa. Code § 271.811 *et seq*.
[748] 25 Pa. Code § 290.1 *et seq*.
[749] SWMA § 103; 35 P.S. § 6018.103.
[750] 25 Pa. Code § 261a.1; 25 Pa. Code § 262a.10 (standards applicable to generators of hazardous waste); 25 Pa. Code § 263a.10 (transportation of hazardous waste); 25 Pa. Code § 264a.1 (standards for owners and operators of hazardous waste treatment, storage, and disposal facilities).
[751] 25 Pa. Code § 263a.13.
[752] 25 Pa. Code § 263a.32.
[753] 40 C.F.R. § 263.20(a)(1).
[754] 40 C.F.R. § 263.30.
[755] 40 C.F.R. § 262.30 and § 262.33.
[756] 42 U.S.C. § 6926(a).
[757] Pennsylvania: Final Authorization of State Hazardous Waste Management Program Revisions, 74 Fed. Reg. 19453 (April 29, 2009).

RCRA requirements.[758] The federal RCRA requires owners and operators of facilities which treat, store, or dispose of hazardous waste to obtain a permit from the EPA, with some exceptions.[759] Wastewater treatment facilities are exempted from the hazardous waste permitting requirement, for instance.[760]

As previously stated, Pennsylvania has adopted through incorporation by reference the federal regulations regarding hazardous waste. In this regard, Pennsylvania regulations are no more stringent than federal requirements. However, in addition to the federal regulations that Pennsylvania has incorporated by reference, there are several Pennsylvania-specific "supplemental" rules. For instance, transporters who hold hazardous waste for more than three but not more than ten days must prepare an in-transit storage preparedness, prevention, and contingency plan in addition to the general contingency plan that is submitted for licensure. Such an in-transit storage preparedness plan is also required when the transporter transfers hazardous waste from one vehicle to another.[761] Another supplemental regulation that the Commonwealth has adopted is that "conditionally exempt small quantity generators" may not dispose of hazardous waste in municipal or residual landfills within the Commonwealth.[762] Federal requirements for the recycling of hazardous materials are not incorporated by reference, and instead such activity is subject to Pennsylvania's own regulation.[763] Pennsylvania has its own rules regarding waste oil disposal and does not incorporate the federal rules governing this specific material.[764]

Municipal Waste Planning, Recycling, and Waste Reduction

In 1988, the General Assembly passed Act 101 in order to provide for efficient county-based planning of waste removal and disposal.[765] Municipalities other than counties are still responsible for ensuring adequate transportation, collection, and storage of municipal waste generated within their boundaries, and with ensuring adequate capacity for the disposal of such municipal waste.[766] The regulations implemented pursuant to Act 101 describe the "rights and responsibilities for host counties which have municipal waste facilities within their boundaries, and requirements for municipalities and counties for municipal waste planning, recycling and waste reduction."[767] Part of the focus of Act 101 is to "encourage the development of waste reduction and recycling as a means of managing municipal waste."[768] All municipalities with a population greater than 5,000 are required

[758] *Id.*, at 19454. *See also*, 40 C.F.R. § 272.1950–272.1999.
[759] 40 C.F.R. § 270.1(c).
[760] 40 C.F.R. § 270.1(c)(2)(v).
[761] 25 Pa. Code § 263a.13.
[762] 25 Pa. Code § 261a.5.
[763] 25 Pa. Code § 261a.6.
[764] 25 Pa. Code § 298.1 *et seq*. (Management of Waste Oil).
[765] Act of July 28, 1988 (P.L. 556, No. 101); 53 P.S. § 4000.101 *et seq.* known as the Municipal Waste Planning, Recycling and Waste Reduction Act.
[766] Act 101, § 304; 53 P.S. § 4000.304(a).
[767] 25 Pa. Code § 272.1.
[768] Act 101, § 102; 53 P.S. § 4000.102(b)(2).

to have a program for the collection and source-separation of recyclable materials, including glass, aluminum, and plastic.[769]

Under Act 101, each county must submit to the DEP an officially adopted municipal waste management plan.[770] Each county must also submit plan revisions to DEP three years prior to the time all remaining available permitted capacity for the county will be exhausted or when otherwise requested by DEP.[771] All county plans and plan revisions must contain a description of the waste, a description of the facilities where the waste is processed or disposed of, the estimated future capacity of such facilities, a description of recyclable materials, the expected cost and proposed financing of the facilities, the location within the county of any municipal waste processing or disposal facility, appropriate mechanisms for the use of grant moneys by municipalities for purchasing equipment for processing solid waste, the identification of the governmental entity responsible for implementing the plan on behalf of the county, along with several other requirements.[772]

All new contracts for municipal waste processing, collection, or disposal must conform to the county's DEP-approved plan. Applicants for a permit for a municipal waste landfill or resource recovery facility must show that their facility is provided for in the county plan or will not interfere with the county plan, that the facility's location is at least as suitable as alternative locations, and if the county objects to the permit application, the DEP may not issue a permit to the facility unless it independently determines that the proposed facility "complies with the appropriate environmental, public health, and safety requirements."[773]

In addition to the requirement of labelling transport vehicles discussed above, Act 101 contains numerous conditions that focus on the disposal and processing facilities and imposes numerous recycling-related mandates.

Sewage Facilities

The General Assembly enacted the Pennsylvania Sewage Facilities Act (PSFA) in 1965 to develop and implement plans for the sanitary disposal of sewage waste throughout the Commonwealth.[774] The PSFA is principally concerned with the siting of the facilities and the infrastructure surrounding and supporting such facilities. Under the PSFA, each municipality must submit to DEP an officially adopted plan for sewage services for areas within its jurisdiction.[775] Additionally, any person who wishes to construct, install, alter, repair, or connect to an individual sewage system or community sewage system, must first

[769] Act 101, § 1501; 53 P.S. § 4000.1501.
[770] Act 101, § 501(a); 53 P.S. § 4000.501(a).
[771] Act 101, § 501(c); 53 P.S. § 4000.501(c).
[772] Act 101, § 502; 53 P.S. § 4000.502.
[773] Act 101, § 507(a); 53 P.S. § 4000.507(a).
[774] Act of January 24, 1966 (P.L.1535, No.537); 35 P.S. § 750.1 *et seq*., known as the Pennsylvania Sewage Facilities Act.
[775] PSFA § 5(a); 35 P.S. § 750.5(a).

obtain a permit from the "local agency," which is usually the municipality in which the facility is sited.[776] "Individual sewage systems" are those that serve only a "single lot," and are generally limited to septic tanks, while "community sewage systems" are "any system … for the collection of sewage or industrial wastes of a liquid nature from two or more lots."[777] These can include septic tanks that serve multiple lots as well as municipally- or privately-owned treatment facilities.[778]

The Environmental Quality Board (EQB) has broad latitude to develop regulations to ensure implementation of the provisions of the PSFA.[779] Three chapters of the Pennsylvania Code are dedicated to regulating sewage facilities. Chapter 71 governs the administration of the sewage facilities planning program, Chapter 72 governs the permitting of sewage facilities, and Chapter 73 governs standards for on-lot sewage treatment facilities (*i.e.*, sceptic tanks).[780]

A municipality's officially adopted sewage facility plan must describe where the existing community sewage systems are located, delineate areas experiencing problems with sewage disposal and a description of those problems, and identify areas where such systems are planned within the next 10 years.[781] The municipality must also take into consideration any existing state plan affecting the development, use, and protection of water for natural resources.[782] Other components include identifying wetlands in planning areas, identifying sources of water that supply the drinking water systems in the area, including aquifers, and a map and analysis of soils and geological features.[783]

Permits may not be issued for sewage facilities unless planning has been conducted in accordance with the applicable regulations and the proposed system is consistent with the plan. If the municipality is not implementing its official plan in accordance with the schedule approved by the DEP, sewage permits may not be issued. Similarly, if the official plan is deficient, DEP may refuse to approve any revisions for new development connecting to the facility.[784]

Although the EQB develops the oversight regulations, it is the responsibility of the municipalities to enforce and implement the rules governing sewage facilities, and to ensure the facilities comply with the CSL and the regulations promulgated thereunder.[785] The municipality must take steps to ensure "long-term proper operation and maintenance of the proposed sewage facilities."[786] The municipality must also undertake detailed sewage management programs if they authorize subsurface sewage treatment systems. With limited exceptions, a municipality must revise its official plan for each proposed new

[776] PSFA § 7; 35 P.S. § 750.7.
[777] PSFA § 2; 35 P.S. § 750.2.
[778] *Id.*
[779] PSFA § 9; 35 P.S. § 750.9.
[780] 25 Pa. Code Chs. 71, 72, and 73.
[781] PSFA § 5(d)(1); 35 P.S. § 750.5(d)(1).
[782] PSFA § 5(d)(6) ; 35 P.S. §§ 750.5(d)(6).
[783] 25 Pa. Code § 71.21(a)(1).
[784] 25 Pa. Code § 72.23.
[785] 25 Pa. Code 71.73(a).
[786] 25 Pa. Code § 71.72.

development.[787] However, no such revision is necessary if the official plan designates the area where the new development is to take place is an area that will be served by on-lot sewage disposal facilities (*i.e.*, septic tanks), the geology of the area proposed for the use of the sewage systems is not conducive to nitrate-nitrogen groundwater contamination, the area proposed for development is not within a high-quality or exceptional value watershed (as determined by regulations promulgated under the CSL), or if all lots are larger than one acre.[788]

The Pennsylvania Code spells out the specific components of the required revision for new development.[789] The plan revision for new development must contain an "analysis of technically available sewage facilities alternatives."[790] As part of the analysis for alternative sites, the plan revision also must include information regarding the "consistency between the proposed alternative and the objectives and policies of" the CWA, state water plans developed under the Water Resources Planning Act, agricultural land preservation regulations, wetland protection, and the protection of rare, endangered, or threatened plant or animal species.[791]

Under the PSFA's regulatory scheme, each municipality or local agency is required to employ a sewage enforcement officer (SEO). The PSFA created the State Board for Certification of Sewage Enforcement Officers, which administers examinations for certification and generally oversees the certification, revocation, suspension, and reinstatement of certification of the SEOs.[792] It is the responsibility of the SEO is to review and either grant or deny permit applications for all sewage systems within the jurisdiction of his or her municipality or local agency, as well as conduct investigations and inspections as is necessary to implement the act and its rules and regulations.[793]

Sewage facilities not only have to comply with the municipal ordinances, rules, and regulations fashioned under the PSFA – they must also comply with other state and federal environmental regulations. For instance, the CSL requires permits for all discharges into waters of the Commonwealth, and the federal CWA requires NPDES permits for any point source discharging pollutants into any water of the United States. A municipal or local agency's official plan must comply with the Dam Safety and Encroachments Act of 1978, discussed in more depth elsewhere in this report, to ensure the protection of wetlands. Evidence that no wetlands will be adversely affected must be submitted with the official plan, and any required permit to construct a sewage facility in a wetland must be applied for and obtained.[794] Generally, if a sewage facility will impact a "high value" wetland, the permit will not be issued.[795]

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[787] PSFA § 7(b)(5); 35 P.S. § 750.7(b)(5).
[788] PSFA § 7(b)(5); 35 P.S. § 750.7(b)(5); 25 Pa. Code § 71.51(a).
[789] 25 Pa. Code §§ 71.52 - 71.53.
[790] 25 Pa. Code § 71.52(a)(3)
[791] 25 Pa. Code § 71.21(a)(5).
[792] PSFA § 11; 35 P.S. § 750.11.
[793] PSFA § 2; 35 P.S. § 750.2 (defining "sewage enforcement officer").
[794] 25 Pa. Code § 71.21(a)(5)(i)(I).
[795] 25 Pa. Code § 105.18a(a).

Sewage Systems Cleaners

In addition to other statutes and regulations governing sewage systems, the General Assembly enacted the Sewage Systems Cleaner Control Act in 1992 to limit the use of halogenated hydrocarbon and aromatic hydrocarbon chemical cleaners and additives for use in the maintenance of the Commonwealth's sewer systems.[796] The General Assembly found such chemicals to be a significant and unnecessary source of water pollution and ground water contamination within the Commonwealth.[797]

Under this law, manufacturers of sewage system cleaners or additives distributed, sold, or offered for sale within the Commonwealth are obligated to inform the DEP of the chemical components of the products they manufacture, updated on an annual basis, along with a scientific analysis of the known and potential effects of the product on groundwater and surface water.[798] Manufacturers of sewage system cleaners or additives must label their product with its constituent chemicals or ingredients, as well as instructions for use, precautions, and antidotes in case of accidental human exposure.[799]

In addition to these requirements, the act specifically prohibits the sale of any restricted chemical material, as well as their use in any sewage system.[800] Restricted chemical materials are defined to include halogenated hydrocarbon chemicals and aromatic hydrocarbon chemicals including trichloroethane, trichloroethylene, tetrachloroethylene, methylene chloride, halogenated benzenes, carbon tetrachloride, benzene, toluene, naphthalene, any phenol derivative in which a hydroxy group and two or more halogen atoms are bonded directly to a six-carbon aromatic ring, including but not limited to trichlorophenol and pentachlorophenol, acrolein, acrylonitrile, benzidine, and any other similar substance declared to be a restricted chemical material by the DEP.[801]

Any violation of the Sewage Systems Cleaner Control Act is deemed to be a public nuisance, and the solicitors of municipalities, county district attorneys, and the attorney general may bring suit to abate any activity or condition declared by the act to be a nuisance.[802] Additionally, the act provides for civil and criminal penalties for any person who violates any provision of the act.[803]

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[796] Act of May 28, 1992 (P.L.249, No.41); 35 P.S. 770.1 *et seq*., known as the Sewage Systems Cleaner Control Act (SSCCA).
[797] SSCCA § 2; 35 P.S. § 770.2.
[798] SSCCA § 6(a); 35 P.S. § 770.6(a).
[799] SSCCA § 6(b); 35 P.S. § 770.6(b).
[800] SSCCA § 7; 35 P.S. § 770.7.
[801] SSCCA § 3; 35 P.S. § 770.3.
[802] SSCCA §§ 9 and 10; 35 P.S. §§ 770.9 – 770.10.
[803] SSCCA §§ 11 and 12; 35 P.S. §§ 770.11 – 770.12.

Water & Wastewater Systems Operators Certification

Those who operate water or wastewater facilities must be certified by the State Board for Certification of Water and Wastewater Systems Operators. The duties of the Board are to review and act upon applications for certification of water and wastewater systems operators, design requirements for certification, prepare and administer exams for certification, revoke, suspend, modify, or reinstate certifications, and receive and act upon complaints arising under its powers and duties.[804]

Under the federal Safe Drinking Water Act, states are directed to develop certification programs for the individuals who operate public drinking water systems.[805] If a state fails to develop such a certification program, they stand to lose funds allocated to them through the Safe Drinking Water Act's State Revolving Fund.[806] Pennsylvania's Water and Wastewater Systems Operators Certification Act is broader than the federal Safe Drinking Water Act because it also applies to those operate wastewater facilities as well as those who operate public water systems. [807] Wastewater operator certification is mandated on a state-by-state basis and is not a federal requirement.

Household Waste

Pennsylvania's Household Hazardous Waste Funding Act (HHWFA), provides for the collection of hazardous wastes that may be generated by individual households, restaurants, offices, and schools that would otherwise be mixed in with municipal solid waste. The goal of the HHWFA is to prevent these products from entering the municipal waste stream. To that end, private individuals, municipalities, businesses, and corporations are authorized to operate household hazardous waste collection programs, provided they register with DEP and comply with other requirements of the HHWFA. The act also provides for restricted funds appropriated by the General Assembly to be given to municipalities by DEP as grants to implement a household hazardous waste program.[808]

Waste Tire Recycling Act

The General Assembly enacted a special program for the recycling of waste tires with the Waste Tire Recycling Act. This program includes grants for remediation of discarded waste tire piles and sites, reuse of waste tires, limitations on how waste tires may be disposed, provides for the maintenance of a registry of authorized waste tire haulers,

[804] Act of November 18, 1968 (P.L.1052, No.322); 62 P.S. § 1001 *et seq.*, known as the Water and Wastewater Systems Operators Certification Act.
[805] 42 U.S.C. § 300g-8.
[806] 42 U.S.C. § 300j-12(a)(1)(G)(ii).
[807] *Supra*, note 801.
[808] Act of December 27, 1996 (P.L.1346, No.155), known as the Household Hazardous Waste Funding Act.

and prohibits the mixing of waste tires with solid waste for disposal at a landfill.[809] The Act also prohibits any person from establishing "a program for the collection of whole used or waste tires without approval from the department."[810] Additionally, Commonwealth agencies and "State-related universities" are required to give due consideration to construction materials manufactured from recycled waste tires.[811]

Covered Device Recycling Act

In 2010, the General Assembly enacted the Covered Device Recycling Act with the goal of requiring manufacturers to accept responsibility for recycling consumer electronic devices.[812] The act requires, in pertinent part, that each manufacturer "establish, conduct and manage a plan to collect, transport and recycle a quantity of covered devices equal to the manufacturer's market share."[813] The manufacturer's plan must be approved by DEP. Retailers must inform consumers about how they may recycle covered devices.[814] Manufacturers and retailers are also subject to registration and product labeling requirements.[815] Additionally, it is prohibited to dispose of a covered device or its components into municipal solid waste.[816] For most people, this means that old computers, printers, and similar electronic devices cannot be placed in the trash, but must be recycled.

[809] Act of December 19, 1996 (P.L.1478, No.190); 35 P.S. § 6029.101 *et seq.*, known as the Waste Tire Recycling Act (WTRA).
[810] WTRA § 114; 35 P.S. § 6029.114.
[811] WTRA § 113; 35 P.S. § 6029.113.
[812] Act of November 23, 2010 (P.L.1083, No.108); 35 P.S. § 6031.101 *et seq.* known as the Covered Device Recycling Act (CDRA).
[813] CDRA § 305(a); 35 P.S. § 6031.305(a).
[814] CDRA § 505; 35 P.S. § 6031.505.
[815] CDRA §§ 301-306; 35 P.S. §§ 6031.301 – 6031.306.
[816] CDRA § 506(a); 35 P.S. § 6031.506(a).

SAFE HANDLING OF HAZARDOUS MATERIALS

The handling and use of hazardous or toxic materials is highly regulated. This section will survey the state and federal laws pertaining to the handling and use of hazardous substances, as well as those governing the clean-up of accidents involving hazardous or toxic materials.

Cleanup of Hazardous Sites

Superfunds

Originally planned as a canal to provide hydroelectric power in the early 20th century, Love Canal in Niagara Falls, New York, the canal was abandoned and Hooker Chemical & Plastics Corporation used it as a landfill for hazardous chemicals from 1942 to 1953. The landfill was covered in 1953, and the area near it became a residential community, including homes and elementary schools. In the early 1970s, increased rates of cancer and other health problems, along with foul odors and chemical residue oozing from the canal, led to the discovery of a seriously hazardous environmental and health situation. The situation in Love Canal spurred the enactment by Congress in 1980 of the Comprehensive Environmental Response, Compensation, and Liability Act known as CERCLA or the "Superfund," in order to address the cleanup of major hazardous waste sites.[817] CERCLA establishes a revolving fund to pay for the cleanup if the responsible parties cannot be found or otherwise made to pay for the cleanup.[818] In part because of inadequate funding, CERCLA was amended in 1986 by the Superfund Amendments and Reauthorization Act (SARA) which added provisions to prevent the fund from becoming insolvent.[819]

For a contaminated area to be eligible for the superfund, it must undergo a review by the EPA, which uses the Hazard Ranking System (HRS) to determine whether the site presents a danger sufficient to be on the National Priorities List (NPL).[820] The HRS derives

[817] EPA. "Superfund Site: Love Canal, Niagara Falls, New York." https://cumulis.epa.gov/supercpad/SiteProfiles/index.cfm?fuseaction=second.Cleanup&id=0201290#bkground.

[818] 42 U.S.C. § 9601 *et seq*.

[819] Pub.L.. No. 99-499, 100 Stat. 1613.

[820] Within the National Priorities List, the EPA has recently indicated a subset of extremely urgent sites known as the "Superfund Sites Targeted for Immediate, Intense Action." No sites in Pennsylvania are on the 21-site list at the time of its posting on December 8, 2017. https://www.epa.gov/superfund/superfund-sites-targeted-immediate-intense-action. Three sites in Pennsylvania are on the Superfund Redevelopment Focus List, a list of 30 sites on the NPL with the greatest redevelopment and commercial potential. They include the BoRit Asbestos Superfund site in Ambler, Montgomery County, the Metal Bank Superfund site in

from a requirement that the EPA develop criteria for determining priorities among releases or threatened releases of hazardous substances based on the population at risk, the hazard potential of the substance, the potential for contamination of drinking water supplies, the potential for direct human contact, the potential for destruction of sensitive ecosystems, the damage to natural resources that impact the food supply, State preparedness to assume costs and responsibilities of cleanup, and any other appropriate consideration.[821] After weighing these factors, the EPA must then list national priorities among the known or threatened hazardous materials releases.[822]

Not every site contaminated with hazardous waste will be placed on the federal government's NPL. To ensure that hazardous waste sites not eligible for superfund cleanup within their jurisdiction were attended to, some states enacted their own state-level superfund laws. Pennsylvania is one of the states that enacted its own superfund law, known as the Hazardous Sites Cleanup Act (HSCA).[823] Unlike other state environmental laws which are typically designed to obtain enforcement primacy or comply with federal mandates, the HSCA is intended as a supplement to CERCLA. Because the HSCA and CERCLA overlap, much of this subsection will be devoted to detailing HSCA, with mention of significant differences between the HSCA and CERCLA as well as when HSCA is more stringent than CERCLA.

Pursuant to CERCLA, the EPA has designated a number of hazardous substances and radionuclides along with the amount of each substance or radionuclide sufficient to qualify a site for superfund status if the substance or radionuclide contaminates the site in that quantity.[824] Solid waste can also qualify as a hazardous substance in its own right if it displays the characteristics of ignitability, corrosiveness, reactivity, or toxicity, as defined in the federal regulations.[825] Pennsylvania's HSCA also defines "hazardous substance" as anything so defined by CERCLA, as well as any material determined by DEP to be substantially harmful to the public health and safety or the environment based on testing conducted by the DEP.[826] Additionally, the HSCA applies to "contaminants," which is a broader category of materials that include any "element, substance, compound, or mixture which is defined as a pollutant or contaminant pursuant to the Federal Superfund Act."[827]

Unlike CERCLA, the HSCA includes provisions that apply to "public nuisances." A public nuisance under the HSCA is a "release of a hazardous substance or violation of any provision, regulation, order, or response approved by the department under this act …."[828] Although CERCLA and HSCA both exclude petroleum, petroleum products, and

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Philadelphia, and the Crater Resources Superfund site in Upper Merion Township, Montgomery County. EPA. "Superfund Redevelopment Focus List." (January 17, 2018). https://www.epa.gov/superfund-redevelopment-initiative/superfund-redevelopment-focus-list.

[821] 42 U.S.C. § 9605(a)(8)(A).

[822] 42 U.S.C. § 9605(a)(8)(B).

[823] Act of October 18, 1988 (P.L.756, No.108); 35 P.S. § 6020.101 *et seq*., known as the Hazardous Site Cleanup Act (HSCA).

[824] 40 C.F.R. § 302.4.

[825] 40 C.F.R. § 304.2(b); 40 C.F.R. §§ 261.20 – 261.24.

[826] HSCA § 103; 35 P.S. § 6020.103.

[827] *Id.*

[828] HSCA § 1101; 35 P.S. § 6020.1101.

certain natural gas products from the definitions of "contaminants" and "hazardous substances," HSCA also excludes from both definitions certain materials related to the mining and combustion of coal as well.[829]

"Release" is defined by both the HSCA and CERCLA to mean "any spilling, leaking, pumping, pouring, emitting, emptying, discharging, injecting, escaping, leaching, dumping, or disposing into the environment."[830] Under both statutes, exposure to persons within a workplace, vehicle or engine exhaust, nuclear material, and the normal application of fertilizers are excluded from the definition of "release."[831]

Under the HSCA, DEP must investigate any release or any threat of release. After this initial investigation, DEP must contact the owner or operator or any other responsible party, if such party is known, and may either allow them to investigate the release and take an appropriate response or remedial action, or may conduct further investigation or undertake an interim response or remedial action itself in relation to the contaminant or hazardous substance.[832] If the release is related to a naturally occurring substance in its unaltered form or altered solely through natural processes and from a location where it is naturally found, the DEP is not permitted to provide an interim remedial action or response.[833] The same prohibition is in effect for releases from building materials resulting in exposure within residential buildings, releases into drinking water supplies due to deterioration of the system or ordinary use, and releases from coal mining operations.[834]

The HSCA requires DEP to develop, administer, and enforce a program to provide for the investigation, assessment, and cleanup of hazardous sites within the Commonwealth.[835] The DEP is also authorized to cooperate with the federal government and participate in the federal superfund program, administer the fund for the cleanup of hazardous waste sites, and institute court proceedings to compel compliance of third parties with the requirements of HSCA, among other powers and duties.[836]

DEP can respond to a release with an investigation, an interim response, or a remedial response. When conducting an investigation, DEP must give notice to the owner or operator of the location, as well as to any person or institution holding a mortgage on the premises.[837] What exactly constitutes an "interim response" and a "remediation" is not defined statutorily by HSCA, and has been formed by litigation. Under CERCLA, "removal" is roughly the equivalent of the HSCA's "interim response," and it is one that

[829] 42 U.S.C. § 9601(14); HSCA § 103; 35 P.S. § 6020.103.
[830] 42 U.S.C. § 9601(22); HSCA § 103; 35 P.S. § 6020.103.
[831] *Id.*, Pesticides are addresses under specific federal and state law discussed later in this report.
[832] HSCA § 501(a); 35 P.S. § 6020.501(a).
[833] HSCA § 501(c); 35 P.S. § 6020.501(c).
[834] *Id.*
[835] HSCA § 301; 35 P.S. § 6020.301.
[836] *Id.*
[837] HSCA § 501(e); 35 P.S. § 6020.501(e).

is intended to be a short-term cleanup, limited in time, scope, and cost.[838] Under the HSCA, an interim response is one that does not exceed 12 months or $2,000,000 in cost.[839]

CERCLA defines "remediation" as a "permanent remedy taken instead of or in addition to removal actions."[840] The HSCA's "remediation" provision has been similarly interpreted by the Commonwealth Court as a response that is "long-term … more complex, time consuming, and costly" than an interim response.[841] A remedial response under HSCA is designed to result in the final and permanent cleanup of a site. All remedial responses must be based on an administrative record and are limited to sites published on the DEP's priority list.[842]

Like CERCLA, HSCA also mandates that DEP compile a "priorities list" of sites "with releases or threatened releases for the purpose of taking remedial response."[843] DEP must use the EPA's Uncontrolled Hazardous Waste Site Ranking System – the HRS – as the rubric by which it will rank sites.[844] Sites designated by the EPA on the NPL are to be excluded from DEP's priorities list. However, the department may take remedial action on the site only if the federal government has an agreement with DEP assuring that the site qualifies for funding under CERCLA.[845] If a site is listed on the Commonwealth's priorities list, the owner, operator, or other responsible person may voluntarily perform a cleanup of the site, so as to avoid a response action by DEP.[846]

The powers granted to DEP to conduct its investigation are generally the same as those given to the EPA by CERCLA.[847] Remediation responses under the HSCA "shall meet all standards, requirements, criteria, or limitations which are legally applicable or relevant and appropriate."[848] However, DEP can waive or modify these standards and requirements under certain conditions.[849] CERCLA includes a provision further detailing what standards, requirements, and criteria must be set.[850] However, the HSCA does not. Instead, a separate law reviewed in the following section.[851]

Under HSCA, there are restrictions on the use of land that had been contaminated and then cleaned up. Most remedies leave hazardous substances at the site, and such sites may not be put to a use that disturbs the soil or otherwise interferes with the DEP's response

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[838] *United States v. Alcan Aluminum Corp.*, 694 F.2d 252, 259 (3d Cir. 1992); 42 U.S.C. § 9601(23) (defining "removal").
[839] *DER v. Bryner*, 636 A.2d 227 (Pa. Commw. 1993).
[840] 42 U.S.C. § 9601(24).
[841] *Bryner*, 636 A.2d at 230.
[842] HSCA § 505; 35 P.S. §6020.505.
[843] HSCA § 502(a)(1); 35 P.S. § 6020.502(a)(1).
[844] The EPA's Uncontrolled Hazardous Waste Site Ranking System is published at 40 C.F.R. Part 300 Appendix A.
[845] HSCA § 502(e); 35 P.S. § 6020.502(e).
[846] § 502(b); 35 P.S. § 6020.502(b).
[847] *See*, 42 U.S.C. § 9604(e).
[848] HSCA § 504(a); 35 P.S. § 6020.504(a).
[849] HSCA § 504(e); 35 P.S. § 6020.504(e).
[850] 42 U.S.C. § 9621(d).
[851] Act of May 19, 1995 (P.L.4, No.2); 35 P.S. § 6026.101 *et seq*., known as the Land Recycling and Environmental Remediation Standards Act (Act 2).

action.[852] When transferring the property, the grantor must include in the deed's description of the property an acknowledgement of the hazardous substance disposal, which shall include, to the extent that the information is available, the surface area size of the contamination, exact location of the disposed substances, and a description of the hazardous substances that contaminated the property.[853] Transfers of federal property are similar to HSCA. The EPA can take over the cleanup if a responsible party fails to do so Superfund sites are subject to EPA institutional controls, which include limiting land or resource use, such as zoning restrictions. Institutional controls are used when residual contamination remains on site at a level that does not allow for unlimited use and unrestricted exposure. They are intended to supplement engineering controls and the overall goal of the Superfund program is to return the property to productive use.[854]

DEP is authorized to recover the costs of its response action, and may even seek punitive damages and civil fines.[855] Additionally, DEP may acquire the site or any other real property, including through condemnation, that it determines is necessary to conduct a response action.[856] To aid its effort to recoup response costs, EP has the authority to obtain liens against the property where the site is located as well as against any other property owned by the responsible parties.[857] The HSCA also invites some participation by the municipality in which the cleanup site is located. A provision of the HSCA provides for a grant of up to $50,000 to the host municipality to conduct its own technical evaluation of the DEP's proposed remedial responses.[858] CERCLA also authorizes recover of costs of response actions, seek penalties, obtain court orders for cleanup by responsible parties, and enter into settlement agreements.[859]

"Responsible persons" are liable for both interim and remedial responses under the HSCA.[860] A "responsible person" is one who owns or operates the site when a hazardous substance is placed or comes to be located in or on a site, or is located on a site but before it is released, or during the time of the release or threatened release. Responsible persons also include those who generate, own, or possess a hazardous substance and arranges for the disposal, treatment, or transport for disposal or treatment of the hazardous substance.[861] Persons other than "responsible persons" can also be held liable if they "cause" the release or threatened release of a hazardous substance.[862] Further, anyone who "allows" a release of a hazardous substance or commits a violation of HSCA provisions becomes a public nuisance and is liable for response costs.[863] These liability provisions in the HSCA are a

[852] HSCA § 512(a); 35 P.S. § 6020.512(a).
[853] HSCA § 512(b); 35 P.S. § 6020.512(b).
[854] EPA. "Superfund: Institutional Controls." https://www.epa.gov/superfund/superfund-institutional-controls
[855] HSCA § 507; 35 P.S. § 6020.507.
[856] HSCA § 511(a); 35 P.S. § 6020.511(a).
[857] HSCA § 509(a); 35 P.S. § 6020.509(a).
[858] HSCA § 510; 35 P.S. § 6020.510.
[859] EPA. "Superfund Enforcement Authorities." https://www.epa.gov/enforcement/superfund-enforcement-authorities.
[860] HSCA § 507(a); 35 P.S. § 6020.507(a).
[861] HSCA § 701(a); 35 P.S. § 6020.701(a).
[862] HSCA § 507; 35 P.S. § 6020.507(a).
[863] HSCA§1101; 35 P.S. § 6020.1101.

departure from those found in CERCLA. Under the federal statute, only owners and operators at the time of the release or threat of release or owners and operators at the time of disposal are liable.[864] Those associated with releases or threatened releases who do so pursuant to a federal or state permit are exempt from this definition under both the HSCA and CERCLA.[865]

Under HSCA, DEP is obligated to issue a public notice detailing its response action and the time and place a public hearing will be held on the response action. DEP must also mail the notice to the responsible persons, publish the notice in a newspaper of general circulation, and include the notice in the Pennsylvania Bulletin.[866] DEP must hold a 90 day period for public comment and a 30 day period after the date of the public hearing before issuing its decision.[867] Owners and operators also have notice responsibilities, as pursuant to CERCLA any facility that releases the listed substances or radionuclides must immediately notify the National Response Center.[868]

The Pennsylvania Hazardous Sites Cleanup Fund received the over 75 percent of its funding in fiscal years 2014-2015 and 2015-2016 from allocations of the capital stock and franchise tax.[869] The tax expired on December 31, 2015, and appropriations or allocations to replace what was a $40 million revenue source[870] have not subsequently been enacted. Accordingly, the activities of DEP under the HSCA have been greatly diminished.

Land Recycling and Environmental Remediation Standards

Act 2 governs "brownfields" generally, which are previously developed industrial or urban sites that are not currently in use but that do not meet the threshold for being considered contaminated with hazardous waste under the HSCA.[871] Act 2 provides for uniform cleanup standards, addresses liability concerns for future owners and users of a site, standardizes reviews and time limits, including reporting requirements, and includes provisions for grants and low-interest loans for assessment and remediation, which are available only to those who did not cause or contribute to the contamination at the site.[872]

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[864] 42 U.S.C. § 9607.
[865] HSCA § 701; 35 P.S. § 6020.701(a).
[866] HSCA § 506; 35 P.S. § 6020.506(b).
[867] HSCA § 506; 35 P.S. §§ 6020.506(c) - (e).
[868] 42 U.S.C. § 9603.
[869] DEP. "Hazardous Sites Cleanup Fund." Annual Report. (August 2015). http://www.depgreenport.state.pa.us/elibrary/PDFProvider.ashx?action=PDFStream&docID=5095&chksum=&revision=0&docName=2620-RE-DEP4351+++2015+HSCA+Annual+Report.pdf&nativeExt=pdf&PromptToSave=False&Size=959742&ViewerMode=2&overlay=0. The act of March 4, 1971 (P.L.6, No.2), known as the Tax Reform Act of 1971 contained the capital stock and franchise tax provisions. Section 607 of the act was amended by the act of July 9, 2013 (P.L.270, No.52) to cause the tax to expire on December 31, 2015.
[870] The act of December 18, 2007 (P.L.486, No.77); § 4(a); 35 P.S. § 6021.4(a), known as the Hazardous Sites Cleanup Fund Funding Act.
[871] The Act of May 19, 1995 (P.L.4, No.2); 35 P.S. § 6026.101 *et seq*., known as the Land Recycling and Environmental Remediation Standards Act (Act 2).
[872] *Id.*

Much of Act 2 relies on voluntary cleanup efforts in exchange for protection from liability, and is as much of a land use tool as it is an environmental statute.

Act 2 establishes three remediation standards: background, statewide health, and site-specific.[873] Any person who proposes or is required to respond to the release of a regulated substance at a site and who wants to be eligible for liability protection under Act 2 must choose and attain compliance with one of the three remediation standards.[874] To be afforded liability protection under the background standard, the person requesting the liability protection must submit a notice of intent to remediate (NIR) to DEP, submit a copy of the NIR to the municipality where the site is located, and publish a summary of the notice in a local newspaper.[875] The person must also give notice to the municipality of their submission of the final report demonstrating attainment of the background standard to the DEP.[876] A property remediated under this standard does not have to include a deed acknowledgement regarding the cleanup, and any deed acknowledgment made pursuant to the Solid Waste Management Act or the HSCA may be removed.[877]

The background standard refers to determining a "baseline" level of contaminants at a given site. Cleaning up a site to meet the background standard requires demonstrating that the concentration of any regulated contaminants remaining after cleanup is not related to any release of a regulated substance at the site. This can be determined with statistical methods. This standard often applies to sites where contamination has come onto the site from a nearby property.[878] A "regulated contaminant" is any hazardous substance or contaminant regulated under the HSCA, CSL, Air Pollution Control Act, Solid Waste Management Act, the Infectious and Chemotherapeutic Waste Law, and the Storage Tank and Spill Prevention Act.[879]

The statewide health standards are regulations that have been developed that establish specific standards for contaminants for each environmental medium (soil and water)."[880] The Statewide health standards are concentrations of regulated substances associated with a specific environmental medium, and are designated as the MSCs. The Environmental Quality Board is directed to promulgate the regulations specifying standards for each contaminant, which shall include any health-based standards adopted by DEP or the federal government for those contaminants in other contexts.[881] To help the EQB and DEP develop the statewide health standards, Act 2 creates a 13-member Cleanup Standards Scientific Advisory Board.[882] The standards that are adopted "shall be no more stringent than those standards adopted by the Federal Government."[883]

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[873] Act 2, §§ 302-304; 35 P.S. §§ 6026.302-6026.304.
[874] Act 2, § 301(a); 35 P.S. § 6026.301(a).
[875] Act 2, § 302(e)(1); 35 P.S. § 6026.302(e)(1).
[876] Act 2, § 302(e)(2); 35 P.S. § 6026.302(e)(2).
[877] Act 2, § 302(d); 35 P.S. § 6026.302(d).
[878] Act 2, § 302; 35 P.S. § 6026.302; *See also,* 25 Pa. Code §§ 201-204.
[879] Act 2, § 103; 35 P.S. § 6026.103.
[880] 25 Pa. Code § 250.301(a).
[881] Act 2, § 303(a); 35 P.S. § 6026.303(a).
[882] Act 2, § 105(a); 35 P.S. § 6026.105(a).
[883] Act 2, § 303(a); 35 P.S. § 6026.303(a).

For surface water, the MSCs must comply with state regulations governing water resources. The MSCs must also conform to antidegradation requirements and they may not cause any applicable water quality standard to be exceeded.[884] For air, any regulated emissions must comply with the CAA and the Pennsylvania Air Pollution Control Act and their attendant regulations relating to emissions into the outdoor air.[885] For groundwater from aquifers that are currently used or that are planned to be used for drinking water or for agricultural purposes, the applicable MSC for a regulated substance will be the maximum contaminant level (MCL) or the lifetime health advisory level (HAL) established by the EPA.[886] For soil, determining the MSC is more complicated and requires the use of specified equations.[887]

Finally, a site-specific standard allows a person to develop a cleanup standard specifically for the site and its intended use.[888] The DEP exercises more oversight over persons using this standard. Such persons must implement a remediation plan approved by the DEP that meets certain criteria as detailed in the statute.[889] There are also reporting and evaluations requirements, such as a remedial investigation report, a risk assessment report, a cleanup plan, and a final report demonstrating that the approved remedy has been completed in accordance with the cleanup plan.[890] Additionally, a property rehabilitated under a site-specific standard will still be subject to the deed acknowledgement requirements of the Solid Waste Management Act and the HSCA.[891]

When determining the site-specific soil and groundwater cleanup standards, the Act requires the consideration of appropriate standard exposure factors for the current and future planned use of the site, the use of specific statistical techniques, and the potential for human exposure through surface water and air exposure pathways.[892] For known or suspected carcinogens, soil and groundwater cleanup standards are required to be established at exposures that represent an excess upper-bound lifetime risk of between 1 in 10,000 and 1 in 1,000,000. The cumulative lifetime risk for exposed populations shall not be greater than 1 in 10,000.[893]

For a regulated substance that is non-carcinogenic, soil and groundwater cleanup standards shall represent the level to which the human population could be exposed on a daily basis without appreciable risk of deleterious effect to the exposed population.[894] Attainment of the site-specific standard may be accomplished through a combination of remediation activities that can include treatment, removal, engineering, or institutional controls and can include innovative or other demonstrated measures.[895] DEP is directed

[884] 25 Pa. Code § 250.309(a).
[885] Act 2, § 303(b)(2); 35 P.S. § 6026.303(b)(2).
[886] Act 2, § 303(b)(3); 35 P.S. § 6026.303(b)(3); 25 Pa. Code § 250.304(c).
[887] 25 Pa. Code §§250.305 – 250.310.
[888] Act 2, § 304(a); 35 P.S. § 6026.304(a).
[889] Act 2, § 304(k); 35 P.S. § 6026.304(k).
[890] Act 2, § 304(*l*) 35 P.S. § 6026.304(*l*).
[891] Act 2, § 304(m); 35 P.S. § 6026.304(m).
[892] Act 2, § 304(f)(1)-(f)(3); 35 P.S. §§ 6026.304(f)(1) – (f)(3).
[893] Act 2, § 304(b); 35 P.S. § 6026.304(b); 25 Pa. Code § 250.402(b)(1).
[894] Act 2, § 304(c); 35 P.S. § 6026.304(c); 25 Pa. Code § 250.402(b)(1).
[895] Act 2, § 304(i); 35 P.S. § 6026.304(i).

by Act 2 to disapprove any site-specific remediation plan if it consists solely of fences, warning signs, or future land use restrictions, unless the site-specific standard is based upon exposure factors that are no less stringent than those that would apply to the site at the time the contamination is discovered.[896] In cases where the site-specific standard for a regulated substance is less than the background standard, the background standard applies.[897]

Persons who demonstrate attainment with the remediation standards are shielded from liability for cleanup of site contamination identified in the final reports submitted to and approved by DEP.[898] They are also immune from citizen suits and actions brought by other responsible parties under state environmental statutes.[899] The developer and occupier of a remediated site are immune, as well as their successors or assigns.[900] There are several limitations on these liability protections, however. For instance, the immunity does not amend, modify, repeal, or alter any provision of any other state environmental act relating to civil and criminal penalties or enforcement actions and remedies.[901] DEP may also require additional remediation under certain circumstances, such as fraud in the attainment of a remediation standard or new information confirming the existence of a previously unknown contaminant or area of contamination.[902] In 2004, DEP and the EPA entered into the first-in-the-nation Memorandum of Agreement (MOA) that outlines a procedure where brownfield sites remediated according to Pennsylvania's Land Recycling Program established under Act 2 may also satisfy requirements for three key federal laws: RCRA, CERCLA and the Toxic Substances Control Act (TSCA).[903]

Act 2 contains provisions to provide additional incentives and liability protections for persons who reuse certain types of contaminated property known as "special industrial areas." These are properties that either were once used for industrial activities but where there is no financially viable responsible party to clean up contamination or are land located within an enterprise zone as designated by the Department of Community and Economic Development.[904]

To take part in the special industrial areas program, a baseline remedial investigation is required to be conducted on the property based on a work plan submitted to and approved by DEP. The purpose of the baseline report is to establish as reference point for the existing contamination on the site. The report must describe the proposed remediation measures that will be undertaken within the limits of the section of the act delineating cleanup liability.[905] There are also public notice and review requirements for

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[896] *Id.*
[897] Act 2 § 304(h); 35 P.S. § 6026.304(h).
[898] Act 2 § 501(a); 35 P.S. § 6026.501(a).
[899] Act 2 § 106(a); 35 P.S. § 6026.106(a).
[900] Act 2 § 501(a); 35 P.S. § 6026.501(a).
[901] Act 2 § 106(b); 35 P.S. § 6026.106(b).
[902] Act 2 § 505; 35 P.S. § 6026.505.
[903] "One Cleanup Program Memorandum of Agreement Between the Commonwealth of Pennsylvania Department of Environmental Protection and Region 3 of the United States Environmental Protection Agency." (April 21, 2004). https://www.epa.gov/sites/production/files/2015-11/documents/pa_moa.pdf.
[904] Act 2 § 305(a); 35 P.S. § 6026.305(a).
[905] Act 2 § 305(b); 35 P.S. § 6026.305(b).

persons redeveloping property under the special industrial areas program.[906] DEP and the persons undertaking the reuse of a special industrial site are required to enter into an agreement based on the environmental report that outlines cleanup liability for the property.[907] As with the site-specific standard, those entering into agreements pursuant to the special industrial areas provision are subject to deed acknowledgement requirements.[908]

In addition to liability protection, Act 2 establishes two grant funds to carry out the goals and objectives of the act. The Industrial Land Recycling Fund (ILRF) is to be used by the DEP to administer the act and is funded by money appropriated by the General Assembly, the federal government, private contributions, and fines and penalties collected through enforcement actions.[909] The Industrial Sites Cleanup Fund (ISCF) was established to make grants or loans to eligible applicants for site assessments and cleanup under Act 2.[910] Another grant program, known as the Industrial Sites Environmental Assessment Fund (ISEAF), was established to make grants to certain municipalities and economic development agencies for the purpose of conducting environmental assessments.[911]

In addition to any deed acknowledgement that may be required, all properties rehabilitated under Act 2 will be subject to a restrictive covenant imposed by DEP limiting the future use of the rehabilitated property. This restrictive covenant requirement was added in 2007 by the Uniform Environmental Covenants Act, which was implemented to ensure the safe reuse of Act 2 sites and provide uniformity in the language of environmental covenants associated with those sites.[912]

Community Right-to-Know

Authorized by Title III of SARA, the federal Emergency Planning and Community Right-to-Know Act (EPCRA) was enacted by Congress to help local communities protect public health, safety, and the environment from chemical hazards.[913] To implement EPCRA, Congress requires each state to appoint a State Emergency Response Commission, which must divide their states into Emergency Planning Districts and name a Local Emergency Planning Committee for each district.[914] Broad representation by fire fighters, health officials, government and media representatives, community groups,

[906] Act 2 § 305(c); 35 P.S. § 6026.305(c).
[907] Act 2 §§ 305 and 502; 35 P.S. §§ 6026.305(e) and 6026.502.
[908] Act 2 §3 05; 35 P.S. § 6026.305(g).
[909] Act 2 § 701; 35 P.S. § 6026.701.
[910] Act 2 § 702; 35 P.S. § 6026.702.
[911] Act of May 19, 1995 (P.L.43, No.4); 35 P.S. § 6028.1 *et seq*., known as the Industrial Sites Environmental Assessment Act of 1995.
[912] 27 Pa. C.S. § 6 501 *et seq*., known as the Environmental Covenants Act.
[913] EPA. "Laws & Regulations: Summary of the Emergency Planning & Community Right-to-Know Act." (February 7, 2017). https://www.epa.gov/laws-regulations/summary-emergency-planning-community-right-know-act. 42 U.S.C. § 11001 *et seq.*
[914] *Id.*

industrial facilities, and emergency managers ensures that all necessary elements of the planning process are represented.[915]

EPCRA requires reporting of information on hazardous or toxic chemicals and substances by businesses and government agencies that produce, process, use, or store them.[916] EPCRA requires mining facilities having 10 or more employees and using at least a threshold amount of a Toxic Release Inventory (TRI) chemical to report annually on their releases of that chemical to the environment.[917] In general chemicals are covered by the TRI Program if they cause cancer or other chronic human health effects, significant adverse acute human health effects, and/or significant adverse environmental effects.[918] The TRI list currently includes 692 chemicals and chemical categories.[919]

In addition, if there is a threshold planning quantity or more of an Extremely Hazardous Substance (EHS) at any facility that produces, uses, or stores an EHS, the owner or operator must notify the State Emergency Response Commission and Local Emergency Planning Committee.[920] Approximately 361 chemicals are identified as EHS for purposes of emergency planning.[921]

The EPA has exempted most farming operations from reporting under EPCRA and CERCLA since 2008 because in most cases, a federal response was impractical and unlikely.[922] Generally, only concentrated animal feeding operations[923] are required to report hazardous substance air releases from animal waste. Several environmental groups brought suit challenging this exemption. The District of Columbia Circuit Court of Appeals issued an order on April 11, 2017, invalidating the EPA rule.[924] The EPA's motion for a stay until May 1, 2018 was granted, and the EPA is drafting guidance for farming

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[915] *Id.*

[916] *Supra,* note 692 at p. C-37.

[917] *Id*., at p. C-40. EPA. "Toxics Release Inventory (TRI) Program: Is My Facility's Six-Digit NAICS Code a TRI-Covered Industry?" (December 13, 2017) https://www.epa.gov/toxics-release-inventory-tri-program/my-facilitys-six-digit-naics-code-tri-covered-industry.

[918] EPA. "Toxics Release Inventory (TRI) Program: TRI-Listed Chemicals." (September 5, 2017) https://www.epa.gov/toxics-release-inventory-tri-program/tri-listed-chemicals. Persistent Bioaccumulative Toxic (PBT) chemicals have lower reporting thresholds than other TRI chemicals. PBTs are of particular concern because they remain in the environment for long periods of time, are not readily destroyed and build up or accumulate in body tissue. *Id.*

[919] *Id.*

[920] *Supra,* note 692 at p. C-38.

[921] *Id*., at p. C-37 - C-38.

[922] EPA. "CERCLA and EPCRA Reporting Requirements for Air Releases of Hazardous Substances from Animal Waste at Farms." *See,* 73 Fed. Reg. 76,948 (December 18, 2008). https://www.epa.gov/epcra/cercla-and-epcra-reporting-requirements-air-releases-hazardous-substances-animal-waste-farms.

[923] Defined as an animal feeding operation "with more than 1000 animal units (an animal unit is defined as an animal equivalent of 1000 pounds live weight and equates to 1000 head of beef cattle, 700 dairy cows, 2500 swine weighing more than 55 lbs., 125 thousand broiler chickens, or 82 thousand laying hens or pullets) confined on site for more than 45 days during the year." United States Department of Agriculture, Natural Resources Conservation Servic., "Animal Feeding Operations." https://www.nrcs.usda.gov/wps/portal/nrcs/main/national/plantsanimals/livestock/afo/.

[924] *Waterkeeper Alliance, et al. v. Environmental Protection Agency,* U.S.C.A Case #09-1017 Document #1670473 (April 11, 2017).

operations to comply with the Court's order.[925] Under current Pennsylvania law, "A person may not permit the emission into the outdoor atmosphere of any malodorous air contaminants from any source, in such a manner that the malodors are detectable outside the property of the person on whose land the source is being operated." This prohibition does not apply to "odor emissions arising from the production of agricultural commodities in their unmanufactured state on the premises of the farm operation."[926] However, farming operations are subject to clean streams regulation and Pennsylvania's community right-to-know law.

Pennsylvania has enacted its own Worker and Community Right-to-Know Act.[927] The act is applicable to all employers in the Commonwealth, including individuals, partnerships, corporations, associations, the Commonwealth, political subdivisions, school districts and any officer, board, commission, agency, authority or other instrumentality thereof.[928] Several minor exemptions are provided, and chemical manufacturers, private sector employers regulated by OSHA's Hazard Communication Standard at 29 C.F.R. 1910.1200 (relating to hazard communication) with respect to the communication of information to their employees about hazardous chemicals found in their workplace; and research and development laboratories are exempt from most provisions of the act on the theory that they are already regulated.[929] The hazardous substance list can potentially be broader than the federal list. The statute specifically notes that

> This act is to be read in conjunction with any provision of Federal law providing for the identification, labeling or providing of information concerning hazardous substances and is intended to supplement such Federal regulation in the interests of protecting the health and safety of citizens of the Commonwealth. [930]

Environmental Lab Accreditation

The EPA established the National Environmental Laboratory Accreditation Conference (NELAC) in 1995. It is a voluntary program to develop national consensus standards for environmental laboratory accreditation. The program is operated by The NELAC Institute (TNI), a non-profit organization formed in 2006 from the NELAC program and the Institute for National Environmental Laboratory Accreditation. Under the program, state governmental agencies serve as the accreditation bodies, and DEP is one of

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[925] EPA. "CERCLA and EPCRA Reporting Requirements for Air Releases of Hazardous Substances from Animal Waste at Farms." (February 2018). https://www.epa.gov/sites/production/files/2018-01/documents/cercla_epcra_factsheet_final.pdf

[926] 25 Pa. Code § 123.31(b) and (c).

[927] Act of October 5, 1984 (P.L.734, No.159); 35 P.S. § 7301 *et seq.*, known as the Work and Community Right-to-Know Act.

[928] *Id.*, § 2 (definition of "employer"); 35 P.S. § 7302.

[929] 34 Pa. Code §§ 301.2 and 301.3(b).

[930] *Supra*, note 870, § 19; 35 P.S. § 7319; 35 Pa. Code § 301.3(d).

14 accreditation bodies nationwide.[931] Pennsylvania's environmental laboratory law directs DEP to:

> Establish, administer and enforce an environmental laboratory accreditation program which shall include accreditation standards necessary for a State certification program. The program shall also include a NELAP accreditation program for those laboratories seeking this certification. The program may also include any other specific broad-based Federal or State accreditation program for certification.[932]

Pennsylvania is one of six state programs that accredits to the 2009 TNI Environmental Laboratory Sector Standard for laboratories seeking NELAP certification. A revised standard was proposed in 2016, but has not yet been adopted by TNI. Nationwide uniformity remains a goal of the NELAP program.[933]

Underground Storage Tanks and Spill Prevention

Integral to the safe handling of hazardous materials is the regulation of storage tanks, which is accomplished through both federal and state law. The federal regulation of storage tanks, which is found in Subchapter IX of RCRA, applies to "underground storage tanks." An underground storage tank is "any one or combination of tanks (including underground pipes connected thereto) which is used to contain an accumulation of regulated substances … the volume of which is 10 percent or more below the surface of the ground."[934] This definition expressly excludes farm and residential tanks less than 1,100 gallons, tanks for storing heating fuel where consumed, septic tanks, pipeline facilities, storm or wastewater collection systems, or storage tanks situated in an underground area such as a basement so long as the tank itself is above the floor.[935] "Regulated substance" means petroleum or any hazardous material as defined by RCRA other than hazardous waste.[936]

In Pennsylvania, the Storage Tank Spill and Prevention Act applies to both underground storage tanks (USTs) and above-ground storage tanks (ASTs).[937] An above-ground storage tank is a tank or system of tanks including underground pipes and dispensing systems with a capacity in excess of 250 gallons that holds a regulated substance

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[931] http://www.nelac-institute.org/content/NELAP/accred-bodies.php.
[932] 27 Pa.C.S. § 4104(1). Originally enacted in 2002 and later codified as 27 Pa.C.S. Chapter 41 (Environmental Laboratory Accreditation).
[933] *Supra*, note 874.
[934] 42 U.S.C. § 6991(10).
[935] *Id.*
[936] 42 U.S.C. § 6991(7).
[937] Act of July 6, 1989 (P.L.169, No.32); 35 P.S. § 6021.101 *et seq.*, known as the Storage Tank Spill and Prevention Act (STSPA).

where 90 percent of it is stored above the surface of the ground. The Pennsylvania regulation defining "above-ground storage tank" contains many of the same exceptions to this definition as the federal law pertaining to the definition of underground storage tanks, plus other exceptions such as tanks used to store propane gas, tanks used to hold material related to oil and gas exploration and production, and tanks that contain a de minimis concentration of regulated substances, among other exceptions. The definition of "underground storage tank" is the same as the definition under federal law.[938]

Like with many other environmental laws, the responsibility for regulating underground storage tanks belongs to the states, with the EPA providing oversight of state regulatory programs. States may submit an underground storage tank release detection, prevention, and correction plan for review and approval by the administrator of the EPA.[939] The state's plan must demonstrate that it has regulatory requirements and standards to provide for adequate enforcement and compliance of numerous federal requirements. These requirements include maintaining a leak detection system, record-keeping, reporting releases, taking corrective action in the event of a release or leak, requirements for closure of tanks, standards of performance for new tanks, requirements for maintaining evidence of financial responsibility for taking corrective action and compensating third parties for bodily injury and property damage caused by leaks, procedures for notifying the appropriate state agency or department of leaks, and training requirements, which may be tailored to meet state needs.[940] The state program may be approved by the EPA "only if the requirements [listed above] are no less stringent than the corresponding requirements standards" promulgated by the EPA. The specific details of these regulations are found in Title 40 of the Code of Federal Regulations at Part 280.[941] Pennsylvania's program is approved by the EPA.[942]

Under Pennsylvania law, all above-ground and underground storage tanks must be registered by their owners with DEP.[943] No person is allowed to install, construct, erect, modify, operate, or even remove from service all or part of an above-ground or underground tank unless the action is authorized by the rules and regulations of DEP or the person has obtained a permit from DEP to do so.[944] The requirements for a site-specific installation permit are very detailed. Among other rules, if the facility where the above-ground storage tank is sited is adjacent to surface waters, the owner or operator must, on an annual basis, provide public notice to all downstream municipalities, water companies, and industrial users within 20 miles of the site.[945]

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[938] STSPA § 103; 35 P.S. § 6021.103; 25 Pa. Code § 245.1.
[939] 42 U.S.C. § 6991c(a); 40 C.F.R. § 281.11.
[940] *Id.*
[941] 40 C.F.R. Part 280.
[942] 40 C.F.R. § 282.88.
[943] STSPA §§ 303(a) and 503(a); 35 P.S. §§ 6021.303(a) and 6021.503(a).
[944] STSPA §§ 304(a) and 504(b); 35 P.S. §§ 6021.304(a) and 6021.504(a).
[945] STSPA § 903; 35 P.S. §6021.903.

All storage tanks throughout the Commonwealth must be installed and inspected by DEP-certified individuals.[946] There are 11 different categories of certification, and to engage in a particular act the individual must be certified in that category.[947] DEP's regulations also provide for the certification of tank inspectors, in three categories.[948]

Pennsylvania's Storage Tank Spill and Prevention Act also creates the Storage Tank Fund, a special non-lapsing fund in the State Treasury to be used by DEP for the operation of the above-ground and underground storage tank programs, including any remediation necessary to address or eliminate releases from storage tanks. All fees, fines, judgments, bond forfeitures, interest, and recovered costs collected by DEP under the STSPA are deposited into the fund. The fund is also authorized to accept supplemental appropriations from the General Assembly, the federal government, local government, other state governments, and private contributions.[949]

DEP has several tools that it can use to enforce the provisions of the STSPA Act. First, DEP is statutorily prohibited from issuing any permit, and may revoke any permit previously issued, if it finds that the applicant has failed to comply with the provisions of the STSPA or any federal or state law that are in any way connected with or related to the regulation of storage tanks. It must also deny and may revoke permits for any applicant who has shown a lack of ability or intention to comply with any law, rule, regulation, permit, or order of the DEP issued pursuant to the STSPA.[950] Any violation of the STSPA or any order or regulation issued under it shall be considered a public nuisance, which DEP can order the violator to abate. DEP or any other Commonwealth agency may recover from the person causing the public nuisance any costs they incur in bringing an abatement action against the violator.[951] There are also criminal and civil penalties applicable to any person who violates the STSPA.[952]

The federal government, by way of regulation, sets certain technical standards and delineates corrective action plans. For the EPA to approve a state underground storage tank program, elements of the program must be no less stringent than what federal law and regulation require. Although DEP did not adopt the federal technical standards and corrective action plan by incorporating them by reference, it did essentially copy them word-for-word, and added extra requirements as DEP deemed necessary. For instance, Pennsylvania's regulation on methods of release detection for tanks is identical to the federal regulation on methods of release detection for tanks, with the exception that Pennsylvania explicitly instructs that "dispenser meters shall be calibrated," whereas the federal regulation is silent as to dispenser meter calibration.[953]

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[946] 25 Pa. Code § 245.101 *et seq*.
[947] 25 Pa. Code § 245.110.
[948] 25 Pa. Code § 245.112.
[949] STSPA § 702(a) and (b); 35 P.S. §§ 6021.702(a) and (b).
[950] STSPA § 1301; 35 P.S. § 6021.1301.
[951] STSPA § 1304; 35 P.S. § 6021.1304.
[952] STSPA §§ 1306 and 1307; 35 P.S. §§ 6021.1306 and 6021.1307.
[953] 25 Pa. Code § 245.444; 40 C.F.R. § 280.43.

Another example where Pennsylvania's Storage Tank Spill and Prevention Act could be considered more stringent than what the federal underground storage tank regulations require is DEP's regulation on inspection frequency. The Commonwealth's regulation requires new tanks to be inspected within 6 to 12 months of their installation, and within 6 to 12 months of any sale or transfer in ownership of the tank.[954] There is no comparable federal regulation on inspection frequency.

Pennsylvania's regulatory requirement that new underground storage tanks installed after 2007 be double-walled (known as a "total secondary containment")[955] is more stringent than the comparable federal regulation on the subject of tank design, which allows for single-walled underground storage tanks.[956] Pennsylvania regulations requiring line-leak detectors which also shut off pumps when a leak is detected in the distribution line are more stringent than what is required by federal law.[957]

Originally, Pennsylvania's regulations on the operation of underground storage tanks storing petroleum or certain listed hazardous substances incorporated the federal regulations by reference.[958] The 2007 amendments to the Pennsylvania storage tank regulations created a more stringent regulatory setting compared to the analogous federal regulation at the time of the amendment. Since this regulation was last amended in 2007, the analogous federal regulation was updated in 2015 such that the federal regulations match the Commonwealth's. Most of these amendments came from a 2001 U.S. General Accounting Office report to Congress and were later required by the Energy Act of 2005.[959]

The federal regulatory changes that took place in 2015 required states to revise their regulations to be no less stringent than the federal ones by the end of 2018 in order to maintain state program approval.[960] If Pennsylvania does not revise its underground storage tank regulations, it could be in jeopardy of losing federal grant money awarded to the DEP under the federal Leaking Underground Storage Tank Prevention and Leaking Underground Storage Tank Cleanup grant program.[961] Accordingly, DEP has proposed new regulations to maintain compliance. The new regulations will generally add secondary containment requirements for new and replaced tanks and piping, add operator training requirements, add periodic operation and maintenance requirements for underground storage tank systems, remove certain deferrals, add new release prevention and detection technologies, update codes of practice, and make editorial and technical corrections.

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[954] 25 Pa. Code § 245.411.
[955] 25 Pa. Code § 245.421(a)(1).
[956] 40 C.F.R. § 280.20.
[957] 25 Pa. § 245.421(a)(1) and 245.445(1); 40 C.F.R. § 280.44.
[958] 42 U.S.C. § 6901 *et seq*.; 40 C.F.R. Part 280; 25 Pa. Code § 245 *et seq.*
[958] 25 Pa. Code § 245.2(a).
[959] Regulatory Analysis Form submitted by DEP, #7-395.
http://www.irrc.state.pa.us/docs/2532/AGENCY/2532FF.pdf.
[960] EPA. "Revising Underground Storage Tank Regulations – Revisions to Existing Requirements and New Requirements for Secondary Containment and Operator Training." 80 Fed. Reg. 41566 (July. 15, 2015).
[961] *See*, 42 U.S.C. § 6991m.

Nearly all of these proposed DEP regulations mirror the federal regulations adopted by the EPA in 2015. However, there are aspects of the proposed regulations which are not required by federal regulation. For instance, if adopted, a responsible party will be required to notify DEP by phone or e-mail no later than 24 hours after the initiation of interim remedial action or the initiation of site characterization activities.[962] Federal regulations have no such requirement. Another more stringent aspect is that a subsection of the Pennsylvania regulation which allows a repaired portion of an underground storage tank to be monitored monthly for releases in lieu of tightness testing will be deleted. Currently, this allowance is identical to the federal regulation on this particular facet. Its erasure from the Pennsylvania regulation and the move to require tightness testing after repair, while more stringent than the comparable federal regulation, brings the Commonwealth's regulation in line with most manufacturers' specifications and nationally-recognized codes of practice.[963]

Transportation of Hazardous Materials

The transportation of hazardous materials is separately regulated at the federal level by the Hazardous Materials Transportation Act (HMTA).[964] Its provisions are enforced by multiple different federal agencies. Administration of the HMTA is done by the Pipeline and Hazardous Materials Safety Administration, a part of the U.S. Department of Transportation that is "responsible for regulating and ensuring the safe and secure movement of hazardous materials to industry and consumers by all modes of transportation."[965] The Federal Highway Administration, Federal Railroad Administration, United States Coast Guard, Environmental Protection Agency, Department of Energy, Atomic Energy Authority, and the Nuclear Regulatory Commission are some of the agencies enforcing the laws and regulations of the HMTA.

The secretary of the U.S. Department of Transportation designates which materials are considered hazardous.[966] A state cannot issue a hazardous materials transportation license to anyone unless they have been granted a security clearance from the Department of Homeland Security.[967] Additionally, transporters must have a safety permit issued by the secretary of the U.S. Department of Transportation.[968] Transporters of hazardous materials must have proper paperwork in accordance with Department of Transportation

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[962] "Administration of the Storage Tank and Spill Prevention Program." Regulatory Analysis Form, Independent Regulatory Review Commission. (Feb. 13, 2018).
http://www.irrc.state.pa.us/docs/3199/AGENCY/3199PRO.pdf. The public comment period for these regulations ended on March 26, 2018 and the IRRC Comments are due April 25, 2018. The final rule is due March 26, 2020.
[963] *Id.*
[964] 49 U.S.C. § 5101 *et seq*.
[965] United States Department of Transportation. Pipeline and Hazardous Materials Safety Administration. "Hazardous Materials Regulation." https://www.phmsa.dot.gov/standards-rulemaking/hazmat/hazardous-materials-regulations.
[966] 49 U.S.C. § 5103(a).
[967] 49 U.S.C. § 5103a(a).
[968] 49 U.S.C. § 5109.

regulations.[969] Violations of HMTA rules and regulations can result in enforcement actions as well as civil or criminal penalties.[970] Other important aspects of HMTA include labelling requirements,[971] placarding requirements,[972] marking requirements,[973] and packaging requirements.[974]

Federal law on the transportation of hazardous materials preempts all state and local laws on the issue. However, a state may petition the administrator of the EPA for a waiver of the preemption if its own state law or regulation "provides the public at least as much protection as do requirements" of the HMTA and is not an unreasonable burden to interstate commerce. Additionally, states still retain the authority to determine which roads may or may not be used to transport hazardous materials and any limitations on which categories of hazardous materials may be transported on such roads, so long as those determinations are consistent with the other provisions and regulations of the HMTA.[975]

Pennsylvania's law governing the transportation of hazardous materials is designed to correspond with federal regulations to avoid imposing conflicting regulations. Additionally, the statute states "[I]t is also the purpose of this chapter to empower, but not require, the department [PennDOT] to prescribe, for persons not subject to the Federal regulations, regulations identical with or similar to those federal regulations pertaining to the transportation of hazardous materials."[976] Pennsylvania incorporated by reference most of the federal regulations into the Pennsylvania Code, and added that "the Department [PennDOT] will be guided by interpretations of the Federal Motor Carrier Safety Regulations issued by the Federal Highway Administration, United States Department of Transportation and Hazardous Materials Regulations issued by the Research and Special Programs Administration, United States Department of Transportation."[977]

While generally identical to or consistent with the federal regulations, Pennsylvania has issued some supplemental rules and regulations addressing carrier registration, towing of vehicles, extended loads, and special permits for certain intrastate cargo tanks.[978] Pennsylvania also incorporates by reference federal law and regulations governing gas and hazardous liquid pipeline safety. The Public Utility Commission is the administrative authority for this act, and may "supervise and regulate pipeline operators within this Commonwealth consistent with Federal pipeline safety laws. The commission may adopt regulations, consistent with the Federal pipeline safety laws, as may be necessary or proper in the exercise of its powers and perform its duties under this act. The regulations shall not be inconsistent with or greater or more stringent than the minimum standards and regulations adopted under the Federal pipeline safety law."[979]

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[969] 49 C.F.R. §§ 172.200 – 172.205.
[970] 49 U.S.C. §§ 5121 – 5124.
[971] 49 C.F.R. §§ 172.400 – 172.450.
[972] 49 C.F.R. §§ 172.500 – 172.560.
[973] 49 C.F.R. §§ 172.300 – 172.338.
[974] 49 C.F.R. §§ 173.101 *et seq*., 178.101 *et seq*., 179.101 *et seq*., 180.101 *et seq*.
[975] 49 U.S.C. § 5125.
[976] 75 Pa.C.S. § 8303.
[977] 67 Pa. Code §§ 403.4 and 403.5.
[978] 67 Pa. Code § 403.7.
[979] The act of December 22, 2011 (P.L.586, No.127); 58 P.S. § 801.101 *et seq.*, known as the Gas and

Other Hazardous Materials

While the federal and state Superfunds are important statutes that govern the cleanup of sites when the handling of hazardous substances go wrong, there are other state and federal statutes that seek to regulate the handling of hazardous materials so that accidents that cause damage to human health and the environment are minimized or prevented. The Toxic Substances Control Act of 1976 (TSCA) granted the EPA authority to require reporting, record-keeping and testing of chemical substances, impose restrictions relating to chemical substances and/or mixtures, and address the production, importation, use, and disposal of specific chemicals including polychlorinated biphenyls (PCBs), asbestos, radon and lead-based paint.[980] The TSCA preempts state statutes that essentially duplicate federal mandates under the act.[981]

Asbestos and PCBs

The TSCA provides for "asbestos hazard emergency response" that addresses inspection, notification and response to the presence of "friable asbestos-containing material" in school buildings. Friable means material that when dry may be crumbled, pulverized or reduced to powder by hand pressure.[982] Persons may not inspect, prepare a management plan or design or conduct response actions unless the person is an accredited contractor. The EPA was directed by the act to develop a model contractor accreditation plan. States were directed to adopt an accreditation plan at least as stringent as the model plan.[983] Pennsylvania's plan, enacted in 1990, is administered by the Department of Labor and Industry.[984] The act authorizes the Department of Labor and Industry to establish by regulation standards and procedures that are "at least as stringent and as consistent as possible as those established by the Environmental Protection Agency under the Asbestos Hazard Emergency Response Act of 1986 (Public Law 99-519, 15 U.S.C. § 2641 *et seq*.) or those established for certain occupations by the Environmental Protection Agency under the National Emission Standard for Hazardous Air Pollutants (40 C.F.R. Part 41).No regulations specific to asbestos have been promulgated under this law."[985]

Hazardous Liquids Pipeline Act (Act 127).

[980] EPA. "Laws & Regulations: Summary of the Toxic Substances Control Act." (November 28, 2017) https://www.epa.gov/laws-regulations/summary-toxic-substances-control-act, 15 U.S.C. § 2601 *et seq.*

[981] 15 U.S.C. § 2617.

[982] Asbestos Hazard Emergency Response Act of 1986, Pub.L.. 99-519, 15 U.S.C. § 2641 *et seq.*

[983] 15 U.S.C. § 2646. The Asbestos Model Accreditation Plan (MAP) (40 C.F.R. 763 Subpart E Appendix C).

[984] Act of Act of Dec. 19, 1990 (P.L. 805, No. 194); 63 P.S. § 3101 *et seq.* known as the Asbestos Occupations Accreditation and Certification Act.
http://www.dli.pa.gov/Individuals/Labor-Management-Relations/bois/Pages/Asbestos-Occupations.aspx

[985] *Id.*, §§ 4(a) and 5(a).

Polychlorinated biphenyls (PCBs) are regulated under the TSCA as well. The mining industry has traditionally used high levels of PCBs, which are most commonly found in transformers and capacitors. The PCB regulations require marking, inspections, annual document logs, and proper disposal of PCB-containing equipment. This is especially applicable at the end of operations at a mining site prior to reclamation.[986] The use of PCBs is strictly regulated and Pennsylvania has not added any further regulation to the federal standards.[987]

Radon

Radon is a colorless, odorless, tasteless gas. It occurs naturally in the ground and is formed by the decay of radium, which is itself formed by the decay of uranium. Radon itself decays, releasing alpha, beta, and gamma radiation, until it eventually becomes lead. Radon has industrial purposes, and is used in equipment for petroleum exploration and predicting earthquakes.[988] Radon is also extremely hazardous to human health, and is the second leading cause of lung cancer deaths after smoking.[989]

Although the federal government does not comprehensively regulate radon, in 1988 Congress amended the TSCA with the goal of reducing levels of radon within buildings so that they are as free of radon as the ambient outdoor air.[990] To achieve this goal, the EPA issued guidance in the form of "A Citizen's Guide to Radon: The Guide to Protecting Yourself and Your Family from Radon"[991] and "Consumer's Guide to Radon Reduction: How to Fix Your Home."[992] Additionally, the EPA has developed "Model Standards and Techniques for Control of Radon in New Residential Buildings."[993] A National Radon Action Plan was released in November, 2015. The action plan is the product of a collaborative effort between the EPA, the U.S. Department of Health and Human Services, the U.S. Department of Housing and Urban Development, and nine national health-related organizations and is designed to prevent lung cancer deaths. [994]

Additionally, the EPA was directed by Congress to provide grants, as the EPA deems appropriate, for the purpose of assisting states in the development and implementation of programs for the assessment and mitigation of radon, conduct a study for the purpose of determining the extent of radon contamination in the nation's school buildings, and issue any regulations that may be necessary to carry out these provisions.[995]

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[986] *Supra*, note 692 at p. C-46.
[987] TSCA, 15 U.S.C. § 2605(e), 40 C.F.R. Part 761.
[988] United States Department of Health and Human Services, National Institute of Health, U.S. National Library of Medicine, PubChem – Open Chemistry Database, "Radon." https://pubchem.ncbi.nlm.nih.gov/compound/radon.
[989] EPA. "A Citizen's Guide to Radon – The Guide to Protecting Yourself and Your Family from Radon." https://www.epa.gov/sites/production/files/2016-12/documents/2016_a_citizens_guide_to_radon.pdf.
[990] Amendment of Toxic Substances Control Act, Pub. L. No.100-551, 102 Stat. 2755; 15 U.S.C. § 2661.
[991] EPA 402/K-12/002, December 2016.
[992] EPA 402/K-10/005, December 2016.
[993] https://www.epa.gov/radon/model-standards-and-techniques-control-radon-new-residential-buildings
[994] https://www.epa.gov/radon/national-radon-action-plan-strategy-saving-lives
[995] 15 U.S.C. §§ 2664-2670.

Within the Commonwealth, the General Assembly has enacted a requirement to protect property owners from unqualified radon consultants by requiring persons who test for radon gas and radon progeny (the materials radon decays into) to be properly certified by DEP.[996] The certification program includes qualifications and minimum experience requirements, proficiency testing, periodic recertification, measures for decertification, and truth in advertising requirements.[997] There are separate certification requirements and procedures for radon mitigation[998] and radon laboratory testing,[999] as well. As part of these certification requirements, a person conducting radon testing or radon laboratory activities is required to have taken part in the most recent EPA Radon/Radon Progeny Measurement Proficiency Program or an equivalent DEP-approved program.[1000]

In addition to the certification program, the General Assembly directed DEP to develop, in cooperation with the federal government and private industry, methods of remedial action to reduce unsafe levels of naturally occurring radon gas in residential buildings.[1001] This is very similar to what the EPA was directed to do by Congress's amendment to the TSCA.

Radioactive Materials

In order to better protect Pennsylvanians from radiation exposure, the General Assembly enacted the Radiation Protection Act (RPA) to establish and maintain a comprehensive program of radiation protection within the DEP, provide for the licensing and regulation of radiologic equipment and procedures in cooperation with the federal government, establish a nuclear safety program to evaluate all nuclear power plants within the Commonwealth, maintain a technical emergency radiation response capability, and assume licensing and regulatory responsibility for radioactive materials from the federal government, among other things.[1002]

The provisions of the RPA that allow DEP to assume licensing and regulatory responsibility for radioactive materials are important and are made possible by the federal Atomic Energy Act of 1954, which allows the Nuclear Regulatory Commission (NRC) to enter into agreements with the governors of states to discontinue federal regulatory authority with regard to most byproduct materials, source materials, and special nuclear materials in quantities not sufficient to form a critical mass.[1003] The NRC is obligated to enter into an agreement transferring jurisdiction to the state if the governor of the state certifies that the state has a program for the control of radiation hazards, and the NRC finds

[996] Act of July 9, 1987 (P.L.238, No.43); 63 P.S. §§ 2001-2014, known as the Radon Certification Act.
[997] Radon Certification Act § 13; 63 P.S. § 2013; 25 Pa. Code § 240.1 *et seq*.
[998] 25 Pa. Code §§ 240.111-240.114.
[999] 25 Pa. Code §§ 240.121-240.124.
[1000] 25 Pa. Code § 240.102.
[1001] Act of May 16, 1986 (P.L.203, No.62) § 2; 35 P.S. §7502, known as the Radon Gas Demonstration Project and Home Improvement Loan Act.
[1002] Act of July 10, 1984 (P.L.688, No.147); 35 P.S. § 7110.101 *et seq*., known as the Radiation Protection Act (RPA).
[1003] 42 U.S.C § 2021(b).

that the state program is adequate to protect the public health and safety with respect to the materials covered by the proposed agreement.[1004] The state program is obligated by federal law to ensure compliance with federal laws and regulations on the ownership and custody of certain byproduct materials and disposal sites.[1005] Pennsylvania has incorporated by reference nearly all federal regulations pertaining to the NRC, including the federal regulations governing the standards for protection against radiation.[1006] Pennsylvania is an agreement state and regulates most by-product materials, source materials, and small quantities of special nuclear materials within the Commonwealth.[1007]

It is important to understand what the Commonwealth has regulatory authority over. "Byproduct materials" are defined federally to include any radioactive material made radioactive by exposure to special nuclear material, any material made radioactive by use of a particle accelerator, any material that "is produced, extracted, or converted after extraction, before, on, or after August 8, 2005, for use for a commercial, medical, or research activity," any discrete source of radium-226, or any naturally occurring discrete source of radiation, with certain exceptions.[1008] Regulation of special nuclear material at certain quantities remains a responsibility of the NRC, and includes plutonium, or uranium enriched in the isotopes uranium-233 or uranium-235, and any other material the NRC deems to be a special nuclear material, but excluding source material (*i.e.* ores).[1009] To be clear, DEP does not regulate nuclear power plants. That undertaking remains the responsibility of the NRC and the U.S. Department of Energy.

Under the Commonwealth's RPA, DEP is given the authority over the registration, licensing, regulation, and control of radiation, radiologic procedures, radiation sources, and users of radiation sources.[1010] A "radiation source" is "an apparatus or material, other than a nuclear power reactor and nuclear fuel located on a plat site, emitting or capable of emitting radiation."[1011] United States Department of Energy contractors or subcontractors and NRC contractors or subcontractors are exempt from regulation under the RPA, as are federal government agencies, electrical equipment that produces radiation incidental to its operation (except for electron microscopes and electron beam welders, which are not exempt), radiation machines in transit or storage incident thereto, any material, product, or use specifically exempted from licensing requirements by the NRC, DEP, or another state that has entered into an agreement with the NRC, and any materials, products, or uses authorized for distribution to persons exempt from licensing requirements.[1012]

[1004] 42 U.S.C. § 2021(d).
[1005] 42 U.S.C. § 2021(o)(1) (requiring states to require and ensure compliance with the federal provision relating to ownership and custody of certain byproduct material and disposal sites, 42 U.S.C. § 2113).
[1006] 25 Pa. Code § 215(e) (incorporating, with noted exceptions, all of Title 10 Chapter I of the Code of Federal Regulations); 25 Pa. Code § 219.5 (specifically incorporating by reference 10 C.F.R. § 20.1001 *et seq*.).
[1007] United States Nuclear Regulatory Commission, "Pennsylvania." https://www.nrc.gov/info-finder/region-state/pennsylvania.html.
[1008] 42 U.S.C. § 2014(e).
[1009] 42 U.S.C. § 2014(aa).
[1010] RPA § 301; 35 P.S. § 7110.301(a).
[1011] RPA § 103; 35 P.S. § 7110.103.
[1012] 25 Pa. Code § 215.32.

DEP is authorized by the RPA to develop and manage programs for the licensing of radiation sources and radiation source users.[1013] DEP is authorized to set annual fees for registrants and licensees.[1014] There is a separate provision detailing nuclear facility and transport fees for those persons engaged in the business of producing electricity utilizing nuclear energy, operating facilities for storing away-from-reactor spent nuclear fuel, fabrication of nuclear reactor fuel, or shipping spent nuclear fuel, high-level waste, transuranic waste or a large quantity of radioactive materials.[1015]

DEP implements the federal regulations in multiple area of licensing. There are two types of licenses: general and specific. General licenses are provided for by way of regulation, and are effective without the applicant's filing an application or receiving licensing documents.[1016] Separately from the NRC regulations, DEP issues a general permit to possess radioactive material produced incidentally to the operation of a particle accelerator.[1017]

Specific licenses are issued for various uses. The uses that require a specific license include the manufacture, preparation, or transfer for commercial distribution of radioactive drugs containing byproduct material for use by persons authorized in institutions approved to use them,[1018] and for other types of medical uses.[1019] Specific licenses are also required to manufacture or initially transfer devices containing byproduct material to persons generally licensed under federal regulations.[1020] In addition to licensing in accordance with federal regulations, DEP is empowered by the RPA to register any radiation source and set reasonable registration fees.[1021]

Regulations governing safety are perhaps the most important component of the regulatory framework governing radiation and radioactive materials. The safety regulations developed by the NRC are incorporated by reference in the Pennsylvania Code.[1022] These include receipt of occupational doses individual adults, except for planned special exposures,[1023] to amounts specified by the NRC.[1024] Licensees must also monitor occupational exposure of pregnant women, minors, and fetuses for exposure to radioactive

[1013] RPA §§ 301 and 303; 35 P.S. §§ 7110.301(c)(2) and 7110.303.
[1014] RPA § 401; 35 P.S. § 7110.401.
[1015] RPA § 402; 35 P.S. § 7110.402.
[1016] 25 Pa. Code § 217.131 (incorporating by reference 10 C.F.R. Part 30).
[1017] 25 Pa. Code § 217.144.
[1018] 25 Pa. Code § 217.151 (incorporating by reference 10 C.F.R. § 32.72)
[1019] *Id*. (incorporating 10 C.F.R. § 32.74).
[1020] *Id.* (incorporating 10 C.F.R. § 32.51).
[1021] RPA §§ 303 and 401; 35 P.S. §§ 7110.303 and 7110.401.
[1022] 25 Pa. Code § 219.5 (incorporating by reference 10 C.F.R. Part 20, relating to standards for protection against radiation).
[1023] A special exposure is when a licensee allows an adult worker to receive doses in addition to and accounted for separately from the occupational doses received. The licensee, and the employer if the employer is not the licensee, must authorize the special exposure in writing and must also inform the worker of the planned special exposure. A planned special exposure may only be authorized in an exceptional situation when alternatives that might avoid the dose estimated to result from the planned special exposure are unavailable or impractical. *Id*. (incorporating 10 C.F.R. § 20.1206).
[1024] *Id.* (incorporating 10 C.F.R. § 20.1201).

material.[1025] These safety rules also address restrictions on access to high radiation areas, process or other engineering controls such as containment, decontamination, or ventilation, in order to control the concentration of radioactive material in air. When it is not practical to apply processes or other engineering controls to control the concentrations of radioactive materials in the air to values below those that define an airborne radioactivity area, the licensee shall increase monitoring and limit intakes by means of controlling access, limiting exposure times, using respiratory protection equipment, or other controls.[1026]

The incorporated federal regulations also provide for a process to terminate a license, however DEP "will not terminate a license under the conditions of restricted release as provided for [in the NRC regulation] … until a license termination plan … has been in effect for a period of time sufficient to demonstrate to the Department that continued implementation of the plan will be effective in maintaining compliance with the required conditions of the plan." This provision is in addition to, and not in contravention of, the applicable federal regulation on license termination.[1027]

Additional federal regulations implemented by DEP specify dose limitations and maximum exposure levels from sources of radiation for members of the public. Licensees are required to conduct surveys of radiation levels in unrestricted and controlled areas and radioactive materials in effluents released to unrestricted and controlled areas to demonstrate compliance with the dose limits for individual members of the public.[1028] Radiation sources must be secured against their removal from their storage places and must remain under constant surveillance and immediate control of the licensee when not in storage.[1029]

Certain precautionary procedures must be taken by licensees. A caution sign bearing the symbol for radiation must be posted in areas where radiation is present. The labelling of the sign depends on whether the area is a radiation area, high radiation area, very high radiation area, airborne radioactivity area, or a room where radioactive material is stored.[1030] In addition to these labelling rules, DEP requires licensees to label all radiation-producing machines in a conspicuous manner that cautions individuals that radiation is produced when it is energized. However, this labelling requirement does not apply to radiation machines used solely for diagnosis in the healing arts (*e.g.* X-ray machines).[1031] Procedures for receiving and opening packages containing radioactive material are also prescribed by regulation.[1032]

[1025] *Id*. (incorporating 10 C.F.R. §§ 20.1207-20.1208).
[1026] *Id*. (incorporating 10 C.F.R. § 20.1702).
[1027] 25 Pa. Code § 219.7 (effect of incorporation of 10 C.F.R. § 20.1403).
[1028] 25 Pa. Code §§ 219.5 and 219.51 (incorporating by reference 10 C.F.R. §§ 20.1301-20.1302).
[1029] 25 Pa. Code § 219.5 (incorporating by reference 10 C.F.R. §§ 20.1801-20.1802); 25 Pa. Code §§ 219.131-219.132.
[1030] *Id*. (incorporating 10 C.F.R. §§ 20.1901-20.1902).
[1031] 25 Pa. Code §§ 219.159-219.160.
[1032] 25 Pa. Code § 219.5 (incorporating by reference 10 C.F.R. §§ 20.2202-20.2204); 25 Pa .Code §§ 219.227-219.228.

In addition to the decontamination regulations prescribed by the NRC, DEP requires all licensees to give notice to DEP in writing 30 days before vacating or relinquishing possession or control of premises that may have been contaminated with radioactive material as a result of the licensee's activities, and may be required by DEP to decontaminate the premises.[1033]

Specific safety requirements exist for well logging,[1034] industrial radiographic operations,[1035] analytical x-ray equipment, x-ray gauging equipment, electron microscopes, and x-ray calibration systems,[1036] and particle accelerators.[1037]

Under the federal regulations, a person must receive a specific license to manufacture, produce, acquire, receive, possess, prepare, use, or transfer byproduct material for medical use.[1038] The regulations governing the medical use of radiation byproduct materials also include technical requirements. Other technical requirements are provided for radiation shields and labels for syringes and vials, surveys for contamination and ambient radiation exposure rate, release of patients who have radiopharmaceutical or permanent implants, mobile nuclear medicine service, storage of volatile gasses, and decay-in-storage.[1039] In addition to these incorporated federal regulations, within the Commonwealth a licensee authorized for medical use of radioactive materials may not receive, possess or use radium in total quantity of 3.7 megabecquerels or more for check, calibration, transmission, or reference use except as specifically authorized by DEP.[1040]

Any person who transports or delivers radioactive material to a carrier for transport must possess a general or specific license.[1041] However, there are certain exemptions, such as if the licensee is a licensed physician transporting material for use in the practice of medicine or if the radioactivity of the material is below a certain amount.[1042] Separately, the DEP has implemented regulations for the safe transport of plutonium and nuclear waste, requiring advance notice be given to the governor of each state it is transported through.[1043] Additionally, under the RPA, all shipments of spent nuclear fuel or high-level waste shipped to, within, through, or across the boundaries of the Commonwealth must be escorted by the Pennsylvania State Police.[1044] It is unlawful for a person to transport upon the highways, waterways, or rails of the Commonwealth any spent nuclear fuel, high-level waste, transuranic waste, or a large quantity of radioactive material unless that person notifies DEP in advance.[1045]

[1033] 25 Pa. Code § 215.27.
[1034] 25 Pa. Code § 226.4 (incorporating by reference 10 C.F.R. § 39.1 *et seq*.).
[1035] 25 Pa. Code § 225.2a (incorporating by reference 10 C.F.R. § 34.1 *et seq*.).
[1036] 25 Pa. Code § 227.1 *et seq*.
[1037] 25 Pa. Code § 228.1 *et seq*.
[1038] 25 Pa. Code § 224.10 (incorporating by reference 10 C.F.R. § 35.11).
[1039] *Id*. (incorporating 10 C.F.R. §§ 35.69-35.92).
[1040] 25 Pa. Code § 224.22.
[1041] 25 Pa. Code § 230.3 (incorporating by reference 10 C.F.R. § 71.3).
[1042] *Id*. (incorporating 10 C.F.R. §§ 71.13-71.14).
[1043] 25 Pa. Code § 230.47.
[1044] RPA § 602; 35 P.S. § 7110.602.
[1045] RPA § 601; 35 P.S. § 7110.601.

Like other environmental statutes, the RPA grants DEP broad enforcement powers. DEP has the power to enter, upon sufficient probable cause, upon any public or private property for the purpose of determining compliance with the RPA, any license conditions, or any rules, regulations, or orders issued pursuant to the RPA. In conducting such an investigation, DEP has the authority to conduct tests, inspections, or examinations of any radiation source, or of any book, record, or document or other physical evidence related to the use of a radiation source.[1046] DEP may apply for a search warrant for the purpose of testing, inspecting, or examining any radiation source or any public or private property, building, premise, place, book, record, or other physical evidence related to the use of the radiation source.[1047]

The RPA also instructs that "it shall be unlawful for any person to use, manufacture, produce, transport, transfer, bury, receive, acquire, own, possess, or dispose of any radiation source in violation of" the statute. The RPA also makes it unlawful to operate an unregistered radiation source, or to operate a radiation source or administer a radiologic procedure without a license to do so.[1048] The RPA provides for criminal and civil penalties for failure to comply with it.[1049] Further, any violation of the RPA is statutorily considered to be a public nuisance, and any violator is liable for the costs of abatement.[1050] DEP has the authority to obtain an injunction from a court, to impound any radiation source, and to revoke the licenses or permits of those who commit repeated violations of any provisions of the RPA.[1051]

The RPA created the Radiation Emergency Response Program. In conjunction with DEP, the Pennsylvania Emergency Management Agency develops the program for incorporation into the Pennsylvania Emergency Management Plan. The program includes an assessment of potential nuclear accidents or incidents, their radiological consequences, and the necessary protective measures required to mitigate them.[1052]

Low-Level Radioactive Waste

In order to encourage states to better manage their low-level radioactive waste, Congress enacted the Low-Level Radioactive Waste Policy Amendments Act of 1985, requiring that states accept responsibility for such waste generated within their borders and incentivizing states to establish and operate regional compacts for the disposal of low-level radioactive waste.[1053] Low-level radioactive waste is defined as any radioactive material that is not high-level radioactive waste, spent nuclear fuel, or byproduct material, or any material that the NRC, in accordance with existing law, classifies as low-level radioactive

[1046] RPA § 305; 35 P.S. § 7110.305(a).
[1047] RPA § 305; 35 P.S. § 7110.305(b).
[1048] RPA § 307; 35 P.S. § 7110.307.
[1049] RPA § 308; 35 P.S. § 7110.308.
[1050] RPA § 309; 35 P.S. § 7110.309(a).
[1051] RPA § 309; 35 P.S. § 7110.309(c), (d), and (f).
[1052] RPA § 502; 35 P.S. § 7110.502.
[1053] 42 U.S.C. § 2021b-j.

waste.[1054] The NRC further defines low-level radioactive waste as any source, special nuclear, or byproduct materials that are acceptable for disposal in a land disposal facility, which excludes transuranic waste, spent nuclear fuel, or "byproduct material" as so defined in 10 C.F.R. §20.1003.[1055] From a practical perspective, low-level waste is anything that becomes contaminated by exposure to radiation. Waste owned or generated by the U.S. Department of Energy, the Department of the Navy, or any waste associated with the production of atomic weapons, is statutorily not the responsibility of the states.[1056]

States participating in a compact may restrict the use of their regional disposal facilities to low-level radioactive waste generated within the compact region.[1057] Additionally, states and compacts with disposal sites are allowed to impose a surcharge for radioactive waste generated in and received from other states and compacts.[1058]

In response to this federal law, the General Assembly passed the Low-Level Radioactive Waste Disposal Act.[1059] Pennsylvania also created the Appalachian States Low-Level Radioactive Waste Compact, along with West Virginia, Maryland, and Delaware.[1060] Compacts must be approved by Congress, and the Appalachian States Compact was approved by Congress with the passage of the Appalachian States Low-Level Radioactive Waste Compact Consent Act.[1061]

In addition to forming the compact, the Appalachian States Low-Level Radioactive Waste Compact created the Appalachian States Low-Level Radioactive Waste Commission.[1062] The Commission's powers and duties include, among other things, conducting research and establishing regulations to promote a reasonable reduction of volume and curie content of low-level wastes generated within the compact region, ensuring that low-level waste is safely disposed of, ensure that low-level waste packages brought into any regional facility for disposal conform to applicable state and federal regulations, establishing an advisory committee as it deems necessary for the purpose of advising the Commission on matters pertaining to the management and disposal of low-level waste, and making and publishing an annual report to the governors of the signatory party states and to the public detailing its programs, operations, and finances.[1063]

Although the Commonwealth has adopted its own regulations for the siting, design, licensure, operation, and procedures of low-level radioactive waste disposal as part of a plan to site a low-level radioactive waste disposal facility within the Commonwealth, the

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[1054] 42 U.S.C. § 2021b(9).
[1055] 10 C.F.R. § 61.2.
[1056] 42 U.S.C. § 2021c(a)(1)(B)
[1057] 42 U.S.C. § 2021d(c).
[1058] 42 U.S.C § 2021e(d).
[1059] Act of February 9, 1988 (P.L.31, No.12); 35 P.S. § 7130.101 *et seq*., known as the Low-Level Radioactive Waste Disposal Act.
[1060] Act of Dec. 22, 1985 (P.L.539, No.120); 35 P.S. § 7125.1, known as the Appalachian States Low-Level Radioactive Waste Compact.
[1061] Appalachian States Low-Level Radioactive Waste Compact Consent Act, Pub.L. No. 100-319, 102 Stat. 471.
[1062] Compact, Article 2.
[1063] *Supra*, note 1060.

plan was eventually abandoned. Pennsylvania currently sends its low-level radioactive waste to facilities in Clive, Utah, and Andrews, Texas.[1064] Pennsylvania and the Appalachian States Compact are not alone in this arrangement, as there are only four low-level radioactive waste disposal facilities in the United States (two of which are in the Northwest Compact), although there are 10 compacts and 10 unaffiliated states.[1065]

Lead-Based Paint and Dust

The use of lead-based paint was severely restricted in 1971 by the federal government.[1066] The TSCA was amended in 1992 to address lead exposure from paint, dust and soil.[1067] These provisions address three topic areas: lead renovation, repair and painting (RRP Rule); lead abatement (training and certification for lead-based paint activities); and real estate disclosures regarding lead-based paint in housing. States may establish their own training, certification and accreditation programs, subject to EPA approval and based on an EPA generated model. States are specifically authorized to adopt more stringent standards. [1068]

The RRP Rule "requires that firms performing renovation, repair, and painting projects that disturb lead-based paint in homes, child care facilities and pre-schools built before 1978 have their firm certified by EPA (or an EPA authorized state), use certified renovators who are trained by EPA-approved training providers and follow lead-safe work practices."[1069] The EPA's Abatement Program addresses inspection, risk assessments and paint removal.[1070]

Pennsylvania has adopted its own certification statute. The statute mandates that regulations to implement the act shall not be more stringent that the EPA's requirement and are limited to standards for:

- Accreditation of training providers,
- Training of individuals to engage in lead-based paint activities,
- Certification of persons to perform lead-based paint activities,

[1064] DEP. "Annual Low-Level Radioactive Waste Program Report to the Pennsylvania General Assembly and the Appalachian Compact Commission."
http://www.depgreenport.state.pa.us/elibrary/GetDocument?docId=4921&DocName=2016%20ANNUAL%20LOW-LEVEL%20RADIOACTIVE%20WASTE%20PROGRAM%20REPORT.PDF%20.
[1065] United States Nuclear Regulatory Commission, "Low-Level Waste Compacts."
https://www.nrc.gov/waste/llw-disposal/licensing/compacts.html.
[1066] Lead-Based Paint Poisoning Prevention Act, Pub. L. 91–695, title IV, § 401, Jan. 13, 1971, 84 Stat. 2079; 42 U.S.C. § 4831 *et seq.*.
[1067] The Residential Lead-Based Paint Hazard Reduction Act of 1992, title X of Pub. L. 102–550, Oct. 28, 1992, 106 Stat. 3897, 15 U.S.C. § 2681 et seq.
[1068] 15 U.S.C. § 2684.
[1069] https://www.epa.gov/lead/renovation-repair-and-painting-program; 40 C.F.R. Part 745.
[1070] https://www.epa.gov/lead/lead-abatement-vs-lead-rrp.

- Certification of contractors to perform lead-based paint activities,
- Reciprocity for other states engaged in accreditation and certification, and
- Performing lead-based paint activities.

Additionally, DEP is required to grant accreditation to all lead occupation training programs approved by the EPA and to any other training programs that the department determines to have met the approval standards of the EPA.[1071] Political subdivisions are prohibited from developing programs or procedures that deviate from those performed or approved by the Commonwealth.[1072]

Prior to the sale or lease of any "target housing," defined as "any housing constructed prior to 1978, except housing for the elderly or persons with disabilities or any 0-bedroom dwelling (unless any child who is less than 6 years of age resides or is expected to reside in such housing),"[1073] information regarding lead hazards must be provided to the proposed buyer/lessee, and disclosure must be made of the presence of any known lead-based paint, or any known lead-based paint hazards.[1074] Under the Pennsylvania Real Estate Seller Disclosure law, contracts for all residential real estate transfers (with a few exceptions) must include a disclosure of the presence of hazardous substances, including, but not limited to identified as asbestos, PCBs, radon, lead paint, and urea-formaldehyde foam insulation.[1075]

The EPA's dust lead and lead paint standards have not been updated since 2001. In a 2009 lawsuit, the Ninth Circuit Court of Appeals found that the EPA had a duty under the TSCA to update its regulations on a regulation basis. The court ordered that the EPA must issue a new rule within 90 days of the decision.[1076] The new rule was due to be published at the end of March 2018, with the final rule due with six months (June 2018), but it has not published as of this date. This new rule may create regulations regarding certification and accreditation that Pennsylvania will need to adopt to keep its regulations in sync with the federal standards.

Safe Packaging

Amid concern that solid waste can pose a wide range of hazards to public health and the environment, the General Assembly passed the Safe Packaging Act in 1994 to

[1071] Act of Jul. 6, 1995 (P.L.291, No.44) §§ 4 and 5; 35 P.S. §§ 5904 and 5905, known as the Lead Certification Act.
[1072] *Id.*, § 15.
[1073] 15 U.S.C. § 2681(17).
[1074] 42 U.S.C. § 4852d.
[1075] 68 Pa.C.S. § 7304(b)(14); 49 Pa. Code § 35.335a.
[1076] *A Community Voice, et al. v. U.S. Environmental Protection Agency*, No. 16-72816 (9th Cir. December 27, 2017).

eliminate certain materials from the packaging waste stream.[1077] The Act regulates "toxic packaging" primarily by prohibiting the sale or "promotional use" of packaging or packaging components that contain lead, mercury, cadmium, or hexavalent chromium that has been intentionally introduced as an element during manufacturing or distribution.[1078] Similarly, no product may be sold in packaging containing lead, mercury, cadmium, or hexavalent chromium.[1079] There is an exception for packaging or packaging components that contain lead, mercury, cadmium, or hexavalent chromium in order to comply with federal law, or if there is no feasible alternative to using those materials. The manufacturer must petition DEP to be granted either exception.[1080]

DEP has the right to enter and inspect the premises of a package manufacturer in order to determine compliance.[1081] DEP may issue enforcement orders and go to court to restrain violations of the Safe Packaging Act.[1082] There are also civil and criminal penalties for violating the provisions of the Safe Packaging Act.[1083] With the exception of food packaging regulations established by the Food and Drug Administration, there are no analogous federal laws. However, the ban on packaging containing lead, mercury, cadmium, or hexavalent chromium was based on model legislation and was enacted in numerous states, including California and New York, resulting in a gradual phase-out of those substances in packaging.[1084]

Pesticides

One group of potentially hazardous materials that are regulated by both the federal government and the Commonwealth is pesticides. The federal government creates a regulatory framework, but the states have primary enforcement responsibility for pesticide use violations so long as the state has adopted adequate pesticide use laws and regulations and has implemented rules and regulations for their enforcement. If a state does not have adequate laws and regulations for pesticide use, then the administrator of the EPA has primary enforcement responsibility for that state.[1085] Under the Pesticide Control Act of 1973, Pennsylvania authorized the Secretary of DEP to adopt regulations in conformity with the EPA's primary pesticide standards as to labeling, registration requirements, and pesticides classified for restricted use. The secretary is also authorized to determine pesticides, and quantities of substances contained in pesticides, which are injurious to the environment, consistent with EPA regulations.[1086]

[1077] Act of December 7, 1994 (P.L.797, No.112); 35 P.S. § 6024.101 *et seq*., known as the Safe Packaging Act (SPA).
[1078] SPA § 301(a); 35 P.S. § 6024.301(a).
[1079] SPA § 301(b); 35 P.S. § 6024.301(b).
[1080] SPA § 302(b); 35 P.S. § 6024.302(b).
[1081] SPA § 501; 35 P.S. § 6024.501.
[1082] SPA §§ 702 and 703; 35 P.S. §§ 6024.702 and 6024.703.
[1083] SPA §§ 704 and 705; 35 P.S. §§ 6024.704 and 6024.705.
[1084] Toxics in Packaging Clearinghouse. "Comparative Analysis." https://toxicsinpackaging.org/state-laws/comparative-analysis/.
[1085] 7 U.S.C. § 136w-1.
[1086] Act of March 1, 1974, (P.L.90, No.24); § 7; 3 P.S. §111.27, known as the Pennsylvania Pesticide Control Act of 1973 (PPCA).

The federal Insecticide, Fungicide, and Rodenticide Act ("FIFRA") provides for the regulation of the distribution, sale, and use of pesticides. A "pesticide" is "any substance or mixture of substances intended for preventing, destroying, repelling, or mitigating any pest … or intended for use as a plant regulator, defoliant, or desiccant."[1087] A substance is intended for use as a pesticide, and thus becomes a pesticide requiring registration, if the seller or distributer states, claims, or implies, by labeling or otherwise, that the substance can or should be used as a pesticide, that the substance consists of or contains an active ingredient and that it can be used to manufacture a pesticide; or the substance consists of one or more active ingredients and has no significant commercially valuable use other than as a pesticide or for the manufacture of a pesticide; or the person who manufactures or distributes the substance has actual or constructive knowledge that the substance will be used, or is intended to be used, for a pesticidal purpose.[1088]

FIFRA defines "pest" to include any "insect, rodent, nematode, fungus, weed" or any other animal or plant life, as well as any bacteria or virus, which the EPA declares to be a pest.[1089] By way of regulation, EPA defines a "pest" as any vertebrate other than a human or any invertebrate which is "deleterious to man or the environment," or any plant or fungus growing where it is not wanted.[1090] The EPA administrator is empowered by FIFRA to declare as a pest, after notice and hearing, "any form of plant or animal life (other than man) … which is injurious to health or the environment."[1091] The Commonwealth has adopted FIFRAs' definitions of "pesticide" and "pest" and defers to the EPA as to which specific taxa constitute a pest.[1092] However, the Secretary of the DEP is also empowered, after notice and hearing, "to declare as a pest any form of plant or animal life … which is injurious to man, desirable animals, desirable plants, and land."[1093]

Under FIFRA, no person may distribute or sell any pesticide that is not registered with the EPA, and the EPA will only permit a pesticide to be registered if it determines that the product will not cause any "unreasonable adverse effects on the environment."[1094] Because of the detailed regulatory requirements for registering a pesticide, registration is typically done by the manufacturer. Registering a pesticide entails identifying the product and including its exact formula, providing the EPA with a draft label, and perhaps most importantly, detailed data regarding the pesticide's chemistry, performance, toxicology, and ecological effects.[1095] Obtaining this data generally requires that the registrant conduct studies on the active ingredients and submit the results of such studies.[1096] FIFRA also provides for a separate five-phase application process for re-registering previously-registered pesticides.[1097] Any person distributing a pesticide in Pennsylvania must also

[1087] 7 U.S.C. § 136(u).
[1088] 40 C.F.R. § 152.15(a)-(c).
[1089] 7 U.S.C. § 136(t).
[1090] 40 C.F.R. § 152.5.
[1091] 7 U.S.C. § 136w(c)(1).
[1092] PPCA § 4; 3 P.S. § 111.24(30) and (31).
[1093] PPCA § 7(a)(1); 3 P.S. § 111.27(a)(1).
[1094] 7 U.S.C. § 136a(a).
[1095] 7 U.S.C. § 136a(c)(1); 40 C.F.R. §§ 152.50 and 158.1 *et seq.*
[1096] 40 C.F.R. § 152.50(f)(1).
[1097] 7 U.S.C. § 136a-1.

register the pesticide with the DEP under Pennsylvania law.[1098] Additionally, the EPA administrator is empowered to exempt specific pesticides from the requirements of FIFRA.[1099]

Under FIFRA, the EPA may classify a pesticide as either for "general use" or "restricted use."[1100] General use pesticides can be purchased at retail by the general public. Restricted use pesticides "may generally cause, without additional regulatory restrictions, unreasonable adverse effects on the environment, including injury to the applicator."[1101] FIFRA requires that a restricted use pesticide be applied only by a certified applicator.[1102] In Pennsylvania, anyone who sells pesticides determined by the EPA to be "restricted use" pesticides must obtain a pesticide dealer's license from DEP.[1103] Anyone who performs pest management services must also be licensed by DEP and pass an examination.[1104] Further, Pennsylvania requires licensure of commercial applicators of pesticides.[1105] A "commercial applicator" is one who applies any pesticide to the property or premises of another or anyone who uses or supervises the use of a restricted pesticide, including on property owned or rented by the applicator or his employer, when not for purposes of producing an agricultural product.[1106] In addition to licensure, anyone who applies or supervises the application of any pesticide for any purpose must be certified to do so by DEP, as is required by FIFRA.[1107]

Other provisions of FIFRA include an emergency exemption clause, allowing the EPA to grant a dispensation to any federal agency or state government from any provision of FIFRA.[1108] The EPA may also approve state registration of a pesticide for use only within that state under the special local use provision.[1109] The state may generally regulate the sale and use of any federally registered pesticide within the state, but only to the extent the regulation does not permit any sale or use prohibited by FIFRA or the EPA.[1110] The states are prohibited from imposing any labeling or packaging requirements on pesticides in addition to or different from those required under FIFRA or its implementing regulations.[1111]

[1098] PPCA § 5.1; 3 P.S. § 111.25a.
[1099] 7 U.S.C. § 136w(b).
[1100] 7 U.S.C. § 136a(d)(1).
[1101] 7 U.S.C. § 136a(d)(1)(C).
[1102] 7 U.S.C. § 136a(d)(1)(C)(i)-(ii).
[1103] PPCA § 12; 3 P.S. § 111.32.
[1104] PPCA §§ 13 and 14; 3 P.S. §§ 111.33 and 111.34.
[1105] PPCA § 15.1; 3 P.S. 111.35a.
[1106] PPCA § 4; 3 P.S. § 111.24(6)(C).
[1107] PPCA §§ 16.1, 17, and 17.1; 3 P.S. §§ 111.36a, 111.37, and 111.37a.
[1108] 7 U.S.C. § 136p.
[1109] 7 U.S.C. § 136v(c); 40 C.F.R. § 162.150.
[1110] 7 U.S.C. § 136v(a).
[1111] 7 U.S.C. § 136v(b).

Phosphates

Phosphates are made up of phosphorus and oxygen atoms and are essential to life, as they are components of DNA and cell membranes. Phosphates are also an effective fertilizer and a powerful detergent. When phosphates are used in dishwashing and laundry detergents, the wastewater that is generated is eventually discharged back into the environment, providing fertilizer to unwanted algae in streams, ponds, and other waterbodies. When the algae dies, it depletes the oxygen in the water, a process known as eutrophication.[1112]

The ban on the use of phosphate as an ingredient in household cleaning products has its genesis in the 1967 Joint Industry-Government Task Force on Eutrophication, with the goal of developing research into suitable alternatives to phosphates in detergents. Although this task force did not result in any legislation being passed at the federal level, the later passage of the federal CWA required states to clean up their waterways by implementing water quality standards. Total maximum daily loads of pollutants in watercourses were devised. This led states to think of ways to reduce water pollution to meet federal requirements. The phosphate bans began in cities in Illinois, which passed ordinances limiting the amount of phosphate that could be used in household laundry detergent. As more municipalities and states followed, the detergent manufacturers eventually developed phosphate-free detergents and by 1994 phased out their phosphate-containing product formulations.[1113]

Pennsylvania enacted its own phosphate ban in 1989 with the passage of the Phosphate Detergent Act.[1114] It prohibits the use, sale, manufacture, or distribution within the Commonwealth of cleaning agents that contain phosphorus.[1115] There are several exceptions, however. The ban does not apply to cleaning agents that are used in dairy, beverage, or food processing equipment, as an industrial sanitizer, brightener, or metal conditioner, in hospitals, veterinary hospitals or clinics, or other healthcare facilities, and several other use exclusions.[1116] Initially, dishwashing detergents were excluded from the phosphate ban so long as they did not exceed 8.7 percent phosphorus by weight.[1117] However, in 2008, dishwashing detergents for home use became subject to the phosphate ban.[1118] With this additional ban, Pennsylvania became the sixteenth state to ban phosphates in dishwashing detergent. [1119]

[1112] *Id.*

[1113] United States Geological Survey, "Review of Phosphorus Control Measures in the United States and Their Effects on Water Quality," Water-Resources Investigation 99-4007, 1999. https://pubs.usgs.gov/wri/wri994007/pdf/wri99-4007.pdf.

[1114] Act of July 5, 1989 (P.L.166, No.31); 35 P.S. §722.1 *et seq*. known as the Phosphate Detergent Act PDA).

[1115] PDA § 2; 35 P.S. §722.2.

[1116] PDA § 3(a); 35 P.S. §722.3(a).

[1117] PDA § 3(b); 35 P.S. § 722.3(b).

[1118] Act of May 13, 2008 (P.L.143, No.15); amending the PDA.

[1119] A.D. Crable. "Phosphate ban in dishwasher detergent goes into effect: Pennsylvania one of 16 states to prohibit use of cleaning agent." *Lancasteronline.com.* July 6, 2010. https://lancasteronline.com/news/phosphate-ban-in-dishwasher-detergent-goes-into-effect/article_4578d0af-69c2-5418-8980-8be249e4b7b3.html.

National Environmental Policy Act of 1969 (NEPA)

Under NEPA, federal agencies are required to prepare environmental impact statements (EISs) which are assessments of the likelihood of impacts from alternative courses of action, prior to undertaking any major federal action that significantly affects the environment.[1120]

NEPA is primarily limited to providing a procedural framework that requires federal agencies to evaluate and analyze their proposed actions. NEPA does not contain substantive requirements and does not generally compel selection of the environmentally preferred alternative. A further limitation is that conditions are difficult to enforce unless they are also specifically included in a permit or through some other legally binding agreement.[1121] Pennsylvania does not have an analogous state law requiring EISs for all state agency action. However, specific projects, including the ones listed below, are required to file an environmental assessment form as part of their permitting process:

- Application of soil and groundwater contaminated with agricultural chemicals to agricultural lands,[1122]
- Industrial development projects,[1123]
- Dams and other water obstructions,[1124]
- Underground and above ground storage tank systems and facilities,[1125]
- Hazardous waste treatment and disposal facilities,[1126]
- Municipal waste disposal or processing facilities,[1127] and
- Residual waste disposal or processing facilities.[1128]

[1120] EPA. "Laws and Regulations: Summary of the National Environmental Policy Act." (August 24, 2017) https://www.epa.gov/laws-regulations/summary-national-environmental-policy-act.
[1121] *Id.*
[1122] 7 Pa. Code § 130d.
[1123] 12 Pa. Code § 73.201.
[1124] 25 Pa. Code § 105.15.
[1125] 25 Pa. Code § 245.235.
[1126] 25 Pa. Code § 269a.50.
[1127] 25 Pa. Code § 271.126.
[1128] 25 Pa. Code § 287.126.

Pollution Prevention Act of 1990

The Pollution Prevention Act[1129] was intended to establish a national policy to address pollution from a source reduction perspective, rather than from control and cleanup efforts. No regulations were issued under this act to establish such national policy, but a grant program is administered by the EPA that provides funds to state governments, state colleges and universities, and federally-recognized tribes and intertribal consortia to provide technical assistance and training to businesses and facilities about source reduction techniques.[1130] Under Executive Order 13693, the Obama Administration ordered federal agencies to meet source reduction standards in federal contracts as set forth in the Executive Order.[1131]

[1129] 42 U.S.C. § 13101, Pub.L. 101-508, title VI, § 6602, Nov. 5, 1990, 104 Stat. 1388-321.
[1130] https://www.epa.gov/p2/grant-programs-pollution-prevention.
[1131] Executive Order 13693 of March 19, 2015, "Planning for Federal Sustainability in the Next Decade," 80 Fed. Reg. (March 25, 2015).

APPENDICES

APPENDIX A:
TABLE OF STATUTES AND REGULATIONS

The following tables list the federal laws and regulations and the comparable Pennsylvania law and regulations that are discussed in this report. They are organized in the same topic areas as each substantive chapter, with the exception of mineral extraction. There are many laws in Pennsylvania governing coal mining and oil and gas extraction, so a separate table was created to organize them in a comprehensible manner.

Clean Air

Federal Law & Regulations	Pennsylvania Law & Regulations
Clean Air Act, 42 U.S.C. ch. 85, Subch I (§ 7401 et seq.), Pub.L.. 88-206, 77 Stat. 392 *Regulations*: 40 C.F.R. Subchapter C – Air Programs NAAQS: Part 50 State Implementation Plans: Parts 51 & 52 Volatile Organic Compounds: Part 59 New Stationary Sources: Part 60 Hazardous Air Pollutants: Parts 61 & 63 Sulfur Dioxide: Parts 73 & 74 Acid Rain Nitrogen Oxide: Part 76 Stratospheric Ozone: Part 82 Mobile Sources: Parts 85-94 Greenhouse Gas Reporting; Part 98	Air Pollution Control Act, act of January 8, (1960) 1959, P.L. 2119, No. 787; 35 P.S. § 4001 et seq. New Stationary Sources: 25 Pa. Code Ch. 122 Contaminants: 25 Pa. Code Ch. 123 Hazardous Air Pollutants: 25 Pa. Code Ch. 124 Motor Vehicle and Fuels: 25 Pa. Code Ch. 126 Ambient Air Quality Standards: 25 Pa. Code Ch. 131 Volatile Organic Compounds: 25 Pa. Code Ch. 121, 129-130 Nitrogen Oxide Emissions: 25 Pa. Code Ch. 129, 145 Uniform Interstate Air Pollution Agreements Act, Act of February 17, 1972, P.L. 64, No. 22); 35 P.S. § 4101 et seq.; regional compacts authorized Act of 1911 (P.L. 667, No. 257)) authorizing cities of the 2nd class to regulate the production or emission of smoke from any chimney, smokestack, or other source.
Motor Vehicle Air Pollution Control Act aka National Emissions Standard Act, Pub.L.. 89-272. 40 CFR Part 60 "Carbon Pollution Emission Guidelines for Existing Stationary Sources: Electric Utility Generating Units; Proposed Rule" Federal Register Vol. 79, No. 117, Wednesday, June 18, 2014, pp. 34830-34958.	Pa. Greenhouse Gas Regulation Implementation Act, act of October 22, 2014 (P.L. 2873, No. 175); 71 P.S. § 1362.1 et seq.
40 C.F.R. Part 1037 "Greenhouse Gas Emissions and Fuel Efficiency Standards for Medium- and Heavy-Duty Engines and Vehicles—Phase 2" Federal Register, Vol. 81, No. 206, Tuesday, October 25, 2016, pp. 73478-74274.	Diesel Powered Motor Vehicle Idling Act, Act of Oct. 9, 2008 (P.L. 1511, No. 124); 35 P.S. 4601 et seq.
Methane Rule 40 CFR Part 60 "Oil and Natural Gas Sector: Emission Standards for New, Reconstructed, and Modified Sources; Final Rule" Federal Register, Vol. 81, No. 107, Friday, June 3, 2016, pp. 35824-35942.	See Mineral Extraction Chapter, *infra*.
29 C.F.R. § 1910.94 et seq. OHSA ventilation regulations; 29 C.F.R. § 1910 Subpart Z. OHSA regulations of toxic and hazardouse substances	34 Pa.Code §§ 58.81 and 47.861. L&I ventilation rules. Clean Indoor Air Act, Act of June 13, 2008 (P.L. 908, No. 63; 35 P.S. § 6021.1 et seq. (smoking ban)

Clean Water

Federal Law & Regulations	Pennsylvania Law & Regulations
Federal Water Pollution Control Act ("Clean Water Act'), 33 U.S.C. 1251 et seq.; Pub.L.. 92-500, 86 Stat. 816 40 CFR Subchapter D – Water Programs The National Pollutant Discharge Elimination System (NPDES): Parts 122, 123, 125 & 127 Toxic Pollutant Effluent Standards: Part 129 Water Quality Standards: Part 131 Secondary Treatment Regulation: Part 133 40 CFR Subchapter N – Effluent Guidelines and Standards: Parts 400-424 Pretreatment Regulations for Existing and New Sources of Pollution: Part 403 Wetlands permits: Part 230	Clean Streams Law, Act of June 22, 1937 (P.L. 1987, No. 394); 35 P.S. § 691.1 et seq. *Regulations:* General Provisions: 25 Pa. Code Ch. 91. NPDES: 25 Pa. Code Ch. 92a. Water Quality Standards: 25 Pa. Code Ch. 93 & 96 Watersheds: 25 Pa. Code Ch. 102 Wetlands: 25 Pa. Code Ch. 105 Dam Safety and Encroachment Act, Act of November 26, 1978 (P.L. 1375, No. 325); 32 P.S. §§693.1-693.27; 25 Pa. Code Ch. 105 – Dam Safety and Waterway Management
Waters of the United States Rule 33 U.S.C. § 1362; 40 C.F.R. Part 230.	Erosion and Sediment Control 25 Pa. Code Ch. 102 Dirt, Gravel and Low-Volume Road Maintenance, 75 Pa.C.S. § 9106 Nutrient and Odor Management Act, Act of July 6, 2005 (P.L. 112, No. 38); 3 Pa.C.S. §§ 501-522; 25 Pa. Code §§83.201, 83.501, 83.701
Safe Drinking Water Act, 42 U.S.C. §300f et seq. (Safety of Public Water Systems); Pub. L. 93-523, 88 Stat. 1660 *Regulations*: 40 C.F.R. – Water Programs National Drinking Water Regulations – Parts 141-143 Underground Injection Control Program 42 U.S.C. § 300h; 40 C.F.R. § 144.3	Safe Drinking Water Act, act of May 1, 1984 (P.L. 206, No. 43); 35 P.S. § 7212.1 et seq.
Lead and Copper Rule – 40 C.F.R. § 141.80 et seq.	Plumbing System Lean Ban and Notification Act, act of July 6, 1989 (P.L. 207, No. 33); 35 P.S. § 723.1 et seq.; 25 Pa. Code Ch. 109

Natural Resource Use and Conservation

Federal Law & Regulations	Pennsylvania Law & Regulations
Water Resources Planning Act, Pub.L.. 89-79, 79 Stat. 244, 42 U.S.C. Ch. 19B Water Quality Act of 1987, Pub.L.. 100-4, 101 Stat. 7; 33 U.S.C. § 1342(p)	Conservation and Natural Resources Act, act of June 28, 1995 (P.L.89, No.18); 71 P.S. § 1340.101 et seq. Conservation District Law, act of May 15, 1945 (P.L. 547, No. 217); 3 PS. § 850. Water Resources Planning; State Water Plan, 27 Pa. C.S. § 3112 et seq. 25 Pa. Code Ch. 110 Water Rights Law, act of June 24, 1939 (P.L. 842, No.365); 35 P.S. § 631 et seq.
Flood Disaster Protection Act of 1973, Pub.L.. 93-234, 87 State. 976, 42 U.S.C. § 4100 et seq. 44 C.F.R. § 60.1 et seq.	Stormwater Management Act, act of October 4, 1978 (P.L. 167, No. 864); 32 P.S. § 680.1 et seq.: 25 Pa. Code Ch. 111 - Storm Water Management Flood Plain Management Act, act of Oct. 4, 1978 (P.L. 851, No. 166); 32 P.S. § 679.101 et seq. 25 Pa. Code Ch. 106 Flood Plain Management
Coastal Zone Management Act of 1972, Pub.L.. 92-583, 86 Stat. 1280, 16 U.S.C.§ § 1451-1464	Bluff Recession and Setback Act, act of May 13, 1980 (P.L.122, No.48), 32 P.S. § 5201-5215
National Wild and Scenic Rivers Act, Pub.L.. 90-542, 16 U.S.C. § 1271 et seq.	Pennsylvania Scenic Rivers Act, act of December 5, 1972 (P.L. 1277, No. 283); 32 P. S. §§ 820.22—820.29. 17 Pa.Code Ch. 41
Endangered Species Act of 1973, Pub.L.. 93-205, 87 Stat. 884, 16 U.S.C. §§ 1531-1544 50 C.F.R. Part 17	Wild Resource Conservation Act, act of June 23, 1982 (P.L. 597, No. 170); 32 P.S. 5301 et seq. 17 Pa.Code Ch. 45, Conservation of Pennsylvania Native Wild Plants
Farmland Protection Policy Act, Pub.L.. 97-98, subtitle I of Title XV, §§ 1539-1949, 95 Stat. 1341, 7 U.S.C. §§ 4201-4209.	Agricultural Area Security Law, act of June 20, 1981 (P.L. 128, No.43); 3 P.S. § 901 et seq. 7 Pa.Code Ch. 138e Pennsylvania Farmland and Forest Land Assessment Act of 1974 (Clean and Green0, act of Dec. 19, 1974 (P.L. 973, No. 319); 72 P.S. § 5490.1 et seq. 3 Pa.C.S. Chapter 3 – local regulation of normal agricultural operations

Mineral Extraction

GENERAL MINERAL EXTRACTION LAWS	
na	Noncoal Surface Mining Conservation and Reclamation Act, act of December 19, 1984 (P.L.1093, No.219); 52 P.S. § 3301 et seq.
na	Environmental Good Samaritan Act; 27 Pa.C.S. Ch. 81
COAL MINING	
Federal Surface Mining Control and Reclamation Act, 30 U.S.C. Ch. 25; 43 C.F.R. Parts 3400-3480	Pennsylvania Surface Mining Conservation and Reclamation Act, act of May 31, 1945 (P.L.1198, No.418); 52 P.S. § 1396.1 et seq.
Other Relevant Pennsylvania Coal Mining Laws	
Act of July 26, 1913 (P.L.1439, No.857); 52 P.S. §§ 5201-5210 – regulating mining and surface support Act of May 27, 1921 (P.L.1198, No.445); 52 P.S. § 661 et seq. regulating anthracite coal mining – prohibiting activities that create cave-ins, collapses or subsidence Act of Jun. 1, 1933 (P.L.1409, No.296; 52 P.S. §§ 1501 to 1507 regulating subsidence resulting from mining coal under state land Act of May 7, 1935 (P.L. 141, No. 55); 52 P.S. §§ 809-813 - water pollution from bituminous coal mines Act of Jul. 2, 1937 (P.L.2787, No.579); 52 P.S. § § 1407-1410d regulating mining in second class counties – bituminous coal – same as 1921 act Anthracite Strip Mining and Conservation Act, act of June 27, 1947 (P.L.1095, No.472); 52 P.S. § 681.1 et seq. Act of July 7, 1955 (P.L.258, No.82); 52 P.S. §§ 682-685 – anthracite mine drainage Act of December 22, 1959 (P.L.1994, No.729); 52 P.S. § 3104– mining near rivers and bodies of water	Act of Aug. 23, 1961 (P.L.1068, No.484); 52 P.S. 3201 et seq. creating an anthracite and bituminous coal mine subsidence fund; 25 Pa. Code Ch. 401 – mine subsidence fund Act of Sep. 20, 1961 (P.L.1538, No.656); 52 P.S. § 672.1 et seq, regulating anthracite coal mining – reenactment of 1921 act Act of July 19, 1965 (P.L.216, No.117) – sealing abandoned bituminous coal mines Anthracite Mining Act, act of November 10, 1965 (P.L.721, No.346); 52 P.S. § 70.101 et seq. Act of December 15, 1965 (P.L.1075, No.410) - watershed pollution by abandoned mines Bituminous Mine Subsidence and Land Conservation Act, act of April 27, 1966 (Spec. Sess. 1, P.L.31, No. 1); 52 P.S. 1406.1 et seq. Land and Water Conservation and Reclamation Act, act of January 19, 1968 (1967 P.L. 996, No.443); 32 P.S. § 5101 et seq. Act of April 3, 1968 (P.L.92, No. 42); 52 P.S. § 30.201 et seq. – DEP authority to fight mine fires and subsidence on private land
Act of June 26, 1913 (P.L.640, No. 375); 52 P.S. § 631.- anthracite coal mine runoff in streams	Coal Refuse Disposal Act, act of September 24, 1968 (P.L.1040, No.318); 52 P.S. § 30.51 et seq.
Oil and Gas	
Act of May 26, 1891 (P.L.122, No.114); 58 P.S. §§ 1-3 – plugging of abandoned oil and gas wells. Act of May 17, 1921 (P.L.912, No.322); 58 P.S. §§ 4-10 – plugging abandoned oil and gas wells Coal and Gas Resource Coordination Act, act of December 18, 1984 (P.L.1069, No.214); 58 P.S. § 501 et seq.	Oil and Gas Act, Title 58 of the Pa. Consolidated Statutes (added 2012) Treated Mine Water Act, act of October 8, 2015 (P.L.186, No.47); 58 P.S. §§ 1101-1105 Pennsylvania Grade Crude Development Act, act of June 23, 2016 (P.L.375, No.52); §58 P.S. § 1201 et seq.

Waste Management and Recycling

Federal Law & Regulations	Pennsylvania Law & Regulations
Resource Conservation and Recovery Act, Pub.L.. 94-580, 90 Stat. 2795, 42 U.S.C. §6901 et seq. 40 CFR 261.2	Solid Waste Management Act, act of July 7, 1980, (P.L. 380, No. 97); 35 P.S. §6018.101 et seq. 25 Pa. Code Chapters 26a to 270a Infectious and Chemotherapeutic Waste Law, act of July 13, 1988 (P.L. 525, No. 93); 35 P.S. §§6019.1 – 6019.6 Waste Transportation Safety Act, 27 Pa.C.S. § 6201 et seq.
na	Municipal Waste Planning, Recycling and Waste Reduction Act (Act 101); act of July 28, 1988 (P.L. 556, No. 10); 53 P.S. §4000.101 et seq. 25 Pa. Code Chapters 271-299.
na	Pennsylvania Sewage Facilities Act, act of January 24, 1966 (P.L. 1535, No. 537); 35 P.S. §750.1 et seq. 25 Pa. Code Chapters 71, 72 and 73 Sewage Systems Cleaner Act, act of May 28, 1992, (P.L.249, No. 41); 35 P.S. § 7701.1 et seq. Water Wastewater Systems Operators Certification Act, act of November 18, 1968 (P.L. 1052, No. 322); 62 P.S. § 1001 et seq.
na	Household Hazardous Waste Funding Act, act of December 27, 1994 (P.L. 1346, No. 155); 35 P.S. 6025.1 et seq. Waste Tire Recycling Act, act of December 19, 1996 (P.L. 1478, No. 190); 35 P.S. §6029.101 et seq. Covered Device Recycling Act, act of November 23, 2010 (P.L. 1083, No. 108); 35 P.S. §6031.101 et seq.

Safe Handling of Hazardous Materials

Federal Law & Regulations	Pennsylvania Law & Regulations
Comprehensive Environmental Response, Compensation, and Liability Act, 42 U.S.C. § 9601 et seq.	Hazardous Site Cleanup Act, act of October 18, 1988 (P.L.756, No.108); 35 P.S. 6020.101 et seq. Hazardous Sites Cleanup Fund Funding Act, act of December 18, 2007 (P.L.486, No.77) 35 P.S. § 6201 et seq. Land Recycling and Environmental Remediation Standards Act, act of May 19, 1995 (P.L.4, No.2); 35 P.S. § 6026.101 et seq. Industrial Sites Environmental Assessment Act of 1995, act of May 19, 1995 (P.L. 43, No.4); 35 P.S. § 6028.1 et seq. Environmental Covenants Act, 27 Pa.C.S. § 6501 et seq.
Emergency Planning and Community Right-to-Know Act; 42 U.S.C. § 1101 et seq.	Worker and Community Right-to-Know Act, act of October 5, 1984 (P.L. 734, No.159); 35 P.S. § 7301 et seq.
na	Radon Gas Demonstration and Home Improvement Loan Act, act of May 16, 1986 (P.L. 203, No. 63); 35 P.S. § 7501 et seq. Radon Certification Act, act of July 9, 1987 (P.L. 238, No. 43); 63 P.S. §2001 et seq.
42 U.S.C. § 6991 – underground storage tanks	Storage Tank Spill and Prevention Act, Act of July 6, 1989 (P.L.169, No.32); 35 P.S. § 6021.101 et seq.
Hazardous Materials Transportation Act; 49 U.S.C. § 5101 et seq.	Hazardous materials transportation; 27 Pa.C.S. § 8303; 67 Pa. Code § 403 et seq. Gas and Hazardous Liquids Pipeline Act, act of December 22, 2011 (P.L.586, No.127); 58 P.S. § 801.101 et seq.
Toxic Substances Control Act, 15 U.S. C. § 2617. Asbestos Hazard Emergency Response Act of 1986; 15 U.S. c. § 2641 et seq.	Environmental Laboratory Accreditation; 27 Pa.C.S. Ch. 41. Asbestos Occupations Accreditation and Certification Act; ace of December 19, 1990 (P.L.805, No.194); 63 P.S. § 3101 et seq. Sewage Systems Cleaner Control Act, act of May 28, 1992 (P.L. 249, No. 41); 35 P.S. § 770.1 et seq. Safe Packaging Act, act of December 7, 1994 (P.L.797, No.112); 35 P.S. § 6024.101 et seq
Federal Insecticide, Fungicide and Rodenticide Act (FIFRA); 7 U.S.C. § 136w-1.40 CFR Subch. E Pesticide Programs	Pa. Pesticide Control Act of 1973, act of March 1, 1974 (P.L. 90, No. 24) 3 P.S. § 111.21 et seq.
Atomic Energy Act of 1954, 42 U.S.S. § 2021 et seq.	Radiation Protection Act, act of July 10, 1984 (P.L.688, No.147) 35 P.S. § 7110.101 et seq.; 25 Pa.Code Article V
Appalachian States Low-Level Radioactive Waste Compact Consent Act; Pub.L.. 100-319	Appalachian States Low-Level Radioactive Waste Compact, Act of Dec. 22, 1985 (P.L. 539, No. 120); 35 P.S. § 7125.1 Low-Level Radioactive Waste Disposal Act, act of Feb. 9, 1988 (P.L.31, No.12) 35 P. S. § 7130.101 et seq.

Safe Handling of Hazardous Materials (continued)

Federal Law & Regulations	Pennsylvania Law & Regulations
Lead-Based Paint Poisoning Prevention Act; 42 U.S.C § 4831 The Residential Lead-Based Paint Hazard Reduction Act of 1992; 15 U.S. c. § 2681 et seq	Lead Certification Act, act of July 6, 1995 (P.L.291, No.44) 35 P.S. § 5901 et seq. Real Estate Seller Disclosure Law, 68 Pa.C.S. § 7304.
Phosphate Manufacturing Point Source Category: 40 C.F.R. Part 422	Phosphate Detergent Act, act of July 5, 1989 (P.L. 166, No. 31) 35 P.S. § 722.1 et seq.

APPENDIX B:
SELECTED PENNSYLVANIA REGULATIONS, 2007-2017

Under the Regulatory Review Act, all regulations promulgated by state agencies in the Commonwealth are reviewed by the Independent Regulatory Review Commission (IRRC).[1132] The proposed regulations are published in the *Pennsylvania Bulletin* for a period of 30 days, during which time any interested parties may submit public comment on the proposed regulation. After that, the IRRC's five commissioners vote on whether the agency will be allowed to adopt the regulation. The IRRC is obligated to consider, among other things, whether the agency promulgating the regulation has the statutory authority to do so and whether the regulation is consistent with the legislative intent.[1133]

To submit their proposed regulations for review by the IRRC, an agency must submit what is known as a Regulatory Analysis Form.[1134] The form requires the submitting agency to explain the regulation in as non-technical terms as possible. One of the specific questions on the Regulatory Analysis Form, however, directly asks if the regulation is more stringent than any parallel federal regulations. The Regulatory Analysis Form requires the agency to explain why the state regulation is or is not more stringent than the parallel federal regulation.

The following tables list new and amended regulations issued by the Environmental Quality Board for the period 2007-2017. The assessment of whether or not the regulation in question is more stringent that the federal regulations was determined by the EQB and included in their Regulatory Analysis Forms filed with the Independent Regulatory Review Commission, found at http://www.irrc.state.pa.us/regulations/RegSrchRslts.cfm.

[1132] Act of June 25, 1982 (P.L.633, No.181) § 5; 71 P.S. § 745.5, known as the Regulatory Review Act.
[1133] *Id.*, § 5.2; 71 P.S. § 745.5b.
[1134] 1 Pa. Code § 307.2(c)(1).

Clean Air

Regulation	Authority	Topic	More Stringent
25 Pa. Code §129	35 P.S. §§4005(a)(1) & 4005(a)(8) 42 U.S.C. §§7410(a), 7502(c)(1), 7511a(b)(2)(A), & 7511c(b)(1)(B)	Control of VOC Emissions from Vehicle Coating Operations	No
25 Pa. Code §129	35 P.S. §§4005(a)(1) & 4005(a)(8) 42 U.S.C. §§7410(a), 7502(c)(1), 7511a(b)(2)(A), and 511c(b)(1)(B)	Control of VOC Emissions from Miscellaneous Metal Parts Coating Processes, Miscellaneous Plastic Parts Coating, and Pleasure Craft Surface Coatings	No
25 Pa. Code §129	35 P.S. §§4005(a)(1) & 4005(a)(8) 42 U.S.C. §§7409(b), 7410(a), 7502(c)(1), 7511a(b)(2)(A), and 7511c(b)(1)(B)	Control of VOC Emissions from Fiberglass Boat Manufacturing Materials	No
25 Pa. Code §§121 and 129	35 P.S. §§4005(a)(1) & 4005(a)(8) 42 U.S.C. §7502(c)(1), §7401(a), §7511a (b)(2), §7511a (f)	Additional RACT Requirements for Major Sources of NOx and VOCs	No or N/A
25 Pa. Code §§121 and 139	35 P.S. §§4005(a)(1) & 4005(a)(8); 42 U.S.C. §§7401-7671q	Measurement and Reporting of Condensable Particulate Matter Emissions	No
25 Pa. Code §§121, 129 and 130	35 P.S. §§4005(a)(1) & 4005(a)(8) 42 U.S.C. §7502(c)(1), §7511a(b)(2), §7509	Flexible Packaging, Offset Lithographic and Letterpress Printing Presses; Adhesives, Sealants, Primers and Solvents.	Yes
25 Pa. Code §§121, 123, & 139	35 P.S. §§4005(a)(1) & 4005(a)(8)	Commercial Fuel Oil Sulfur Limits for Combustion Units	Yes
25 Pa. Code §92a	35 P.S. §§691.5(b)(1) & 691.402; 71 P.S. §510-20; 33 U.S.C. §1342	National Pollutant Discharge Elimination System Permitting, Monitoring, and Compliance	Yes
25 Pa. Code §§121 & 127	35 P.S. §4005(a)(1) 42 U.S.C. §7409	Nonattainment New Source Review for Fine Particulate Matter	Yes
25 Pa. Code §129	35 P.S. §§ 4005(a)(1) and 4005(a)(8); 42 U.S.C. §7511a(b)(2), 7511b(e)(3)(C) & 7511c(b)(1)(B)	Large Appliances and Metal Furniture Surface Coating Processes	Yes
25 Pa. Code §§ 121 & 129	35 P.S. §§ 4005(a)(1) and 4005(a)(8)	Control of VOC Emissions from Paper, Film and Foil Surface Coating Processes	No
25 Pa. Code §§121 & 123	35 P.S. §§4005(a)(1) & 4004.2	Outdoor Wood-Fired Boilers	No – N/A
25 Pa. Code §§121 & 129	35 P.S. §§4005(a)(1) & 4005(a)(8)	Flat Wood Paneling Surface Coating Process	No
25 Pa. Code §§121, 129, 130	35 P.S. §§4005(a)(1) & 4005(a)(8) 42 U.S.C. §§7409(b) & 7409(d)	Standards for Sources – Adhesives, Sealants, Primers, and Solvents	Yes
25 Pa. Code §§121 & 129	35 P.S. §4004.2; 35 P.S. §§4005(a)(1) & 4005(a)(8) 42 U.S.C. §7511-7511f	Control of NOx Emission from Glass Melting Furnaces	Yes
25 Pa. Code §145	35 P.S. §4004.2; 35 P.S. §4005(a)(1); 42 U.S.C. §7511-7511f	Control of NOx Emissions from Cement Kilns	Yes
25 Pa. Code §§121 & 126	35 P.S. §§4005(a)(1), 4005(a)(7) & 4005(a)(8)	Diesel Vehicle Idling	No
25 Pa. Code §130	35 P.S. §4004.2; 35 P.S. §4005 42 U.S.C. §7511-7511f	VOCs from Consumer Products and AIM Coatings	Yes
25 Pa. Code §127	35 P.S. §4005(a)(1); 35 P.S. §4006.1(b.3)	Permit Streamlining	No
25 Pa. Code §§121 & 127	35 P.S. §4005(a)(1); 42 U.S.C. §7475	Nonattainment New Source Review	Yes

Clean Water

Regulation	Authority	Topic	More Stringent
25 Pa. Code §93	35 P.S. §§691.1(b)(1) and 691.402; 71 P.S. §510-20; 33 U.S.C. 1313(c)	Water Quality – Class A Stream Redesignations	No
25 Pa. Code §109	35 §721.4(a); 71 P.S. §510-20(b); 42 U.S.C. §300g-2a	Safe Drinking Water – Revised Total Coliform Rule	Yes
25 Pa. Code §93	35 P.S. §691.1 *et seq*.; 71 P.S. §510-20; 33 U.S.C. §1313(c) and (2)(A)	Triennial Review of Water Quality Standards	No
25 Pa. Code §105.1 *et seq*.	71 P.S. §§194, 510-1, 510-8, 510-17, & 510-20; 35 P.S. §§691.5, 691.6, 691.8, & 691.402; 32 P.S. §§679.302 & 679.402; §32 P.S. §§693.5, 693.7, 693.10, 693.11, & 693.17	Dam Safety and Waterway Management Fees	No – N/A
25 Pa Code §93	35 P.S. §691.1 *et seq*.; 71 P.S. §510-20; 33 U.S.C. §1313	Stream Redesignations – Fishing Creek et al.	No
25 Pa. Code §86	52 P.S. §1396.4; 30 U.S.C. §1272	Designation of Headwaters of Muddy Run as Unsuitable for Coal Mining	No
25 Pa. Code §105.1 *et seq*.	32 P.S. §597; 71 P.S. §194; 71 P.S. §§510-1, 510-8, 510-17, & 510-20.	Dam Safety and Encroachments	No
25 Pa. Code §93	35 P.S. §691.1 *et seq*.; 71 P.S. §510-20; 33 U.S.C. §1313	Stream Redesignations – Clarks Creek et al.	No
25 Pa. Code §96	35 P.S. §691.5(b); 35 P.S. §§691.202, 691.307, & 691.402; 71 P.S. §510-20(b)	Water Quality Standards Implementation	No
25 Pa. Code §95	35 P.S. §691.5 & 691.402; 71 P.S. §§510-17 & 510-20	Wastewater Treatment Requirements	Yes
25 Pa. Code §109	35 P.S. §721.4(a); 71 P.S. §§510-17 & 510-20(b); 42 U.S.C. §300g-2a	Safe Drinking Water Amendments	Yes
25 Pa. Code §109	35 P.S. §721.4(a); 71 P.S. §§510-17 & 510-20(b); 42 U.S.C. §300g-2a	Lead and Copper Rule Short Term Revisions	Yes
25 Pa. Code §102	35 P.S. §§691.5 & 691.402; 71 P.S. §510-20; 3 P.S. §859(2); 42 U.S.C. §1342	Erosion and Sediment Control and Stormwater Management	Yes
25 Pa. Code §93	35 P.S. §691.1; 71 P.S. §71 P.S. 510-20; 33 U.S.C. §1313	Stream Redesignations – Blue Eye Run, et al.	No
25 Pa. Code §109	35 P.S. §721.4(a); 71 P.S. §§510-17 & 510-20(b)	Safe Drinking Water: Public Notification Revisions	Yes
25 Pa. Code §§16 & 93	35 P.S. §691.1; 42 U.S.C. §1313	Triennial Review of Water Quality Standards	No
25 Pa. Code §109	35 P.S. §721.4(a); 71 P.S. §§510-17 & 510-20(b); 42 U.S.C. §300g-2a	Safe Drinking Water – General Updates	Yes
25 Pa. Code §93	35 P.S. §691.1; 71 P.S. §510-20; 33 U.S.C. §1313	Stream Redesignations – Big Brook et al.	No

Natural Resource Use and Conservation

Regulation	Authority	Topic	More Stringent
25 Pa. Code §102	35 P.S. §§691.5 & 691.402; 71 P.S. §510-20; 3 P.S. §859(2); 42 U.S.C. §1342	Erosion and Sediment Control and Stormwater Management	Yes
25 Pa. Code §85	35 P.S. §§5201 – 5315	Bluff Recession and Setback	No – N/A
25 Pa. Code §§109 & 110	35 P.S. §721.4; 27 Pa. C.S. §3118; 71 P.S. §510-20	Water Resources Planning	No
25 Pa. Code §§87, 88, and 90	35 P.S. §691.5; 52 P.S. §§1396.4(a) & 1396.4(b); 71 P.S. §510-20	Remining Requirements	Yes
25 Pa. Code §§78 and 78a	8 Pa. C. S. §§ 3202, 3215(e), 3218(a), 3218.2(a)(4), 3218.4(c), 3274; 35 P.S. § 691.5; 35 P.S. § 6018.105; 32 P.S. § 693.5; 35 P.S. § 6026.104; 35 P.S. §§ 7110.301 and 7110.302; 58 P.S. §1003; 71 §§510-17 & 510-20; Section 1741.1-E of the act of July 10, 2014	Environmental Protection Performance Standards at Oil & Gas Well Sites	No
25 Pa. Code §78	58 P.S. §601.604; 71 P.S. §§510-17 & 510-20.	Oil and Gas Well Technical Amendments	No – N/A
25 Pa. Code §§86 – 90	52 P.S. §691.5; 52 P.S. §§1396.4(a) & 1396.4(b); 52 P.S. §30.53(b); 71 P.S. §510-20	Incidental Coal Extraction, Bonding, Enforcement, Sediment Control, and Remining Financial Guarantees	No
25 Pa. Code §§287 & 290	35 P.S. §§6018.102, 6018.104, 6018.105a & 6018.508; 35 P.S. §§691.5(b) & 691.402; 35 P.S. §§1396.4b & 1396.4(a); 52 P.S. §30.53b; 71 P.S. §§510-17 & 510-20	Beneficial Use of Coal Ash	No – N/A
25 Pa. Code §209a	52 P.S. §§1396.4b & 3311(a); 71 P.S. §510-20; 43 P.S. §25-2(f)	Coal Mine Safety; Surface Mining	Yes
25 Pa. Code §§77, 87, 88, 89, 210	52 P.S. §§1396.4b & 3311(e); 71 P.S. §510-17 & 510-20	Mine Opening Blasting	Yes
25 Pa. Code §86	52 P.S. §§1396.4b(a),(d) &(d.2); 52 P.S. §691.5; 52 P.S. §30.53b; 52 P.S. §1406.7; 71 P.S. §510.20	Coal Mine Reclamation Fees and Reclamation of Bond Forfeiture Sites	No

Waste Management and Recycling

Regulation	Authority	Topic	More Stringent
25 Pa. Code §261a	35 P.S. §§6018.105, 6018.402 & 6018.501; 71 P.S. 510-20	Hazardous Waste Management System Exclusion for Identification and Listing of Hazardous Waste	No
25 Pa. Code §95	35 P.S. §691.5 & 691.402; 71 P.S. §§510-17 & 510-20	Wastewater Treatment Requirements	Yes
25 Pa. Code §250	35 P.S. §§ 6026.104(a) & 6026.303(a); 71 P.S. §510-20	Administration of the Land Recycling Program	No
25 Pa. Code §250	35 P.S. §§6026.104(a) & 6026.303(a); 71 P.S. §510-20	Administration of the Land Recycling Program	No
25 Pa. Code §§301, 302, 303, 305,	63 P.S. §1001; 71 P.S. §510-20	Administration of the Water and Wastewater Systems Operators' Certification Program	Yes
25 Pa. Code §245	35 P.S. §§6021.106 & 6021.501; 71 P.S. §510-20; 42 U.S.C. §13201 *et seq*.	Underground Storage Tank Operator Training Requirements	No
25 Pa. Code §§260a-266a, 266b, 267a, 269a, 270a	35 P.S. §§6018.105, 6018.402, 6018.501; 35 P.S. §§6020.303, 6020.305(e)(2); 35 P.S. §§691.5, 691.402, 691.501; 71 P.S. §510-20	Hazardous Waste Regulations Amendments	No
25 Pa. Code §§271, 279, 287, 293	35 P.S. §§6018.101-105(a); 53 P.S. §§4000.102 & 4000.301; 71 P.S. §§510-17 & 510-20.	Notification of Proximity to Airports	Yes
25 Pa. Code §245	35 P.S. §§6021 *et seq*.; 71 P.S. §510-20	Administration of the Storage Tank and Spill Prevention Program	Yes

Safe Handling of Hazardous Materials

Regulation	Authority	Topic	More Stringent
25 Pa. Code §252	27 Pa. C. S. §4105(a)	Gen. Health & Safety Laboratory Accreditation	Yes
25 Pa. Code §253	27 Pa. C. S. §6515; 71 P.S. §510-20	Administration of the Uniform Environmental Covenants Act	No – N/A
25 Pa. Code §§218, 221	35 P.S. §§7110.301, 7110.302 & 7110.401. 63 P.S. §§2008, 2012, 2013; 71 P.S. §510-20	Radiological Health & Radon Certification Fees; Radon Mitigation System Fee	No
25 Pa. Code §§215-221, 223, 225, 227, 228, 230	35 P.S. §§7110.301 & 7110.302l 71 P.S. §510-20	Radiological Health Revisions	No
25 Pa. Code §215	35 P.S. §§7110.301 & 7110.302	Security Rule for Radioactive Material	No
25 Pa. Code §§271-273, 284-285, 287-288, and 299	35 P.S. §§6018.101-6018.1003; 35 P.S. §§6019.2(b) & 6019.4(b); 71 P.S. §§510-17 and 510-20	Regulated Medical and Chemotherapeutic Waste	No or N/A
25 Pa. Code §§215 & 240	35 P.S. §7110.101; 63 P.S. §2001; 71 P.S. §510-20	Radiological Health and Radon Certification Fees	No
25 Pa. Code §§215, 221, 225, 230, 240	35 P.S. §7110.101; 63 P.S. §20001; 71 P.S. §510-20	Radiological Health Amendments	No

APPENDIX C:
SENATE RESOLUTION 385 OF 2015

PRIOR PRINTER'S NO. 1878 PRINTER'S NO. 2092

THE GENERAL ASSEMBLY OF PENNSYLVANIA

SENATE RESOLUTION

No. 385 Session of 2015

INTRODUCED BY BROOKS, SCARNATI, VOGEL, BARTOLOTTA, VULAKOVICH, FOLMER, HUTCHINSON, WHITE, STEFANO, WARD, AUMENT AND RESCHENTHALER, JUNE 6, 2016

SENATOR YAW, ENVIRONMENTAL RESOURCES AND ENERGY, AS AMENDED, SEPTEMBER 27, 2016

A RESOLUTION

Directing the Joint State Government Commission to conduct a study to analyze and identify which environmental laws and regulations of this Commonwealth have more stringent standards than Federal law requires.

WHEREAS, Executive Order 1996-1, issued by the Governor on February 6, 1996, provides that State agencies may not exceed Federal standards unless justified by a "compelling and articulable" interest or required by State law; and

WHEREAS, Section 6.6 of the Air Pollution Control Act provides that the Environmental Quality Board may only establish certain more stringent air quality standards when needed to protect public health, welfare and the environment; and

WHEREAS, Because of the complexity and close interworking of Federal and State environmental law, it is important that the relationship between Federal and State environmental law and regulation be examined and understood; therefore be it

RESOLVED, That the Joint State Government Commission conduct a study to analyze and identify which environmental laws and

regulations of this Commonwealth have more stringent standards than Federal law requires; and be it further

RESOLVED, That the commission report its findings and recommendations to the General Assembly within ~~one year~~ 18 MONTHS of the adoption of this resolution. <--