

START RIGHT
ENVIRONMENTAL COMPLIANCE STRATEGIES for START-UPS

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Durham, NC
April, 2024

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EXECUTIVE SUMMARY

With the passage of the Infrastructure Investment and Jobs Act (IIJA) in late 2021, and the Inflation Reduction Act (IRA) and Creating Helpful Incentives to Produce Semiconductors (CHIPS) in 2022, construction of manufacturing facilities has more than doubled since late 2021. A summary of manufacturing construction spending since 2005 was developed by the US Department of the Treasury that illustrates the steep increase in new spending since 2021. (Van Nostrand et al., 2023)

Figure 1: Real Total Manufacturing Construction Spending

Billions of 2022 U.S. Dollars



Notes: Value of Private Construction Put in Place for Manufacturing, U.S. Census Bureau. Monthly at a seasonally adjusted, annualized rate. Nominal spending deflated by the Producer Price Index for Intermediate Demand Materials and Components for Construction, Bureau of Labor Statistics.

As companies rush to find a site for these facilities and build them, it is important to consider the environmental responsibilities associated with a new build. Often, companies do not have internal environmental staff until after the facility is completed or has been operating for some time. The cost of noncompliance can be high. In 2023, EPA enforcement activities resulted in the following (*Enforcement and Compliance Annual Results for FY 2023: Data and Trends, 2023*):

- Over \$3,800,000,000 in corrective actions
- \$13,100,000 in supplemental environmental projects
- \$167,000,000 in Administrative and Judicial fines
- \$1,080,000,000 in Superfund Assessments
- 199 environmental criminal cases opened
- 102 defendants charged
- Over \$540,000,000 in criminal penalties imposed

The Environmental Plan Guide (EPG) assists companies during each phase of a construction project in performing due diligence and meeting environmental responsibilities. No single guide can address every applicable environmental regulation. The EPG addresses the most common environmental issues that most facilities need to comply with and focuses on federal regulations. Many federal environmental regulations are implemented by states; some states have not adopted all federal regulations and others have their own state-specific rules. In general, the most stringent applicable regulation applies.

The information provided in the EPG comes primarily from EPA websites and other regulatory agencies. The topics chosen represent over 15 years of experience as an environmental consultant and work as an environmental professional at manufacturing facilities that had extensive construction projects. The EPG describes the topic, how to screen for applicability, what steps to take if it applies, and an estimate of how long compliance activities will take. Each topic also includes links to get more information.

Use the EPG as a starting point on large construction projects and planning to meet environmental obligations. Ensure the staff involved in the project considers the environmental implications of construction choices. If there is not an experienced environmental professional on staff, engage an experienced consultant to aid in preparing the appropriate reviews and permit applications.



ENVIRONMENTAL PLAN BOOK

Introduction to the Environmental Plan Guide

The Environmental Plan Guide (EPG) is intended for companies building a new facility or expanding a current facility in the United States. If the company has an environmental professional, it is imperative to involve them in the building or expansion activities as soon as possible. The EPG is designed as a guide for the environmental professional and the project team.

The EPG provides information on the most common federal regulations, but it does not cover every possible applicable regulation. Additionally, the EPG does not cover state-specific regulations, which in some states are more stringent than federal regulations. Most commonly, the more stringent requirement will apply. Many federal regulations are delegated to states for implementation. Throughout the EPG, the user is guided to work with their state to properly implement the regulations relevant to the project. As of the publication of the EPG, the links provided within are up-to-date and accurate. Should a link in the future be broken, search the EPA website for the most current information.

Format of the EPB

The EPG has four sections: Site Selection, Construction, Operations, and Programs to Consider. Each section highlights the primary environmental requirements relevant to that phase of the project. The colored border around the page delineates the section - orange for Site Selection, brown for Construction, blue for Operations, and purple for Programs to Consider. Additionally, the top right corner of each topic has a symbol that describes how difficult the process is. The time frames given are estimates and may vary depending on the specific state.

-  - Generally easy to complete or can be completed within a short timeframe. (within 1-3 months)
-  - Generally medium difficulty to complete and can be completed within a medium timeframe. May require coordination with regulators. (4-12 months)
-  - Generally difficult to complete or takes a long time to complete. Requires coordination with regulators. (6 months -2 years)

The topics are organized as follows:

What is it? – A brief description of the topic

How to Screen – A description of how to determine if the topic applies to your company

What to do – This section describes the overall process to comply with the topic's regulations.

When – A description of the normal timeline to complete the requirements for the topic.

There are two Appendices at the end of the EPB:

- A timeline for each section of the EPB
- Links to relevant federal and state agencies

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Site Selection



Site Types

There are three primary types of sites that are the focus of this section. Each type is defined below and examples are provided. When reviewing potential sites, keep in mind that some states and localities have environmental regulations that are more stringent or in addition to federal regulations.

Greenfield: A greenfield site is one where there has not been previous development. This type of site is generally located in a rural area.

Advantages	Disadvantages
Inexpensive land	Population to support production needs
Faster development because there is nothing to tear down or remediate prior environmental impacts	May need to invest in infrastructure
Generally, less risk from previous development	

Aspect	Applies	May Apply	Likely does not Apply
Asbestos			X
Lead			X
Endangered Species	X		
Waters of the US	X		
Environmental Site Assessment	X		
Environmental Justice		X	

Brownfield: A brownfield site is one where there was a previous use that may have impacted the property. These properties are typically contaminated or have been abandoned.

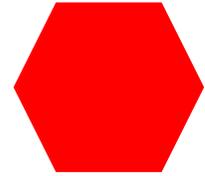
Advantages	Disadvantages
Inexpensive land	More due diligence upfront
Contaminated land is cleaned up	Unforeseen contamination can delay project
Infrastructure usually available	Risk of extra costs due to contamination
Grants for redevelopment may be available	

Aspect	Applies	May Apply	Likely does not Apply
Asbestos		X	
Lead		X	
Endangered Species	X		
Waters of the US	X		
Environmental Site Assessment	X		
Environmental Justice		X	

Renovation: A renovation site is one where there is currently infrastructure in place that the owner intends to modify to suit business needs.

Advantages	Disadvantages
Can be faster to start up (if few changes are needed)	Can be slower if extensive changes are needed
Can be less expensive (if few changes are needed)	Unforeseen contamination can delay project
Infrastructure already available	Risk of extra costs due to contamination or remediation
Grants for redevelopment may be available	

Aspect	Applies	May Apply	Likely does not Apply
Asbestos	X		
Lead		X	
Endangered Species			X
Waters of the US			X
Environmental Site Assessment	X		
Environmental Justice		X	



ENVIRONMENTAL SITE ASSESSMENTS

Environmental Media: Phase I /Phase II/ Phase III Site Assessment

Applies to: Brownfield, Greenfield, Renovate

What is it? Prior to the purchase of any site – be it a brownfield, greenfield, or renovation site – it is very important to perform due diligence on the history of the site. This is typically called an environmental site assessment and there are three levels of assessments. If the project is receiving federal (or likely state) grants, an All Appropriate Inquiries (AAI) evaluation is required to receive the grant money through the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) (an example of the AAI Rule requirements can be found here: [EPA: AAI](#)).

How to screen:

- **Phase I** – An environmental assessment conducted according to the requirements of ASTM-1527. The assessment typically includes: property records research for prior use, a CERCLA review, a review of Sanborn Fire Maps, a historical review, and a site visit. The Phase I Assessment must be conducted by a qualified environmental professional (Registered Site Assessor, Professional Engineer, or Geologist). A written report will be provided that assesses environmental risk at the site and should be maintained as a permanent record.
- **ASTM-1527** requirements are intended to provide a history of the site to determine possible contamination that may exist at the site from prior uses on-site and on contiguous or neighboring sites.

What to do

If no Recognized Environmental Conditions (RECs) are noted in the Phase I report, the project can proceed. Sometimes, small risks are noted, and the project team will decide the risk is acceptable or can easily be mitigated. However, if the site is contaminated and the risks are serious, a Phase II and Phase III Assessment should be completed.

- **Phase II** - An environmental assessment conducted according to the requirements of ASTM-E1903. The purpose of the assessment is to evaluate the site for the presence of hazardous substances. The firm conducting the assessment will evaluate the Phase I, the site history, and local geology to devise a test and sampling plan. The results of the Phase II Assessment provide the project team with information to evaluate project risk. Similar to Phase I, proper credentials are required to sign a Phase II (Registered Site Assessor, Professional Engineer or Geologist).

- Phase III – After the Phase II is complete and the extent of contamination is more defined, the Phase III ESA documents the remediation plan and projected costs. The project team can require the Phase III be completed by the seller as part of the purchase agreement. Alternatively, grants to complete the Phase II/ Phase III may be available, and the project team may decide to complete the Phase III activities to reduce the price of the property purchase. Regardless, at the end of the Phase III activities, a new Phase I should be conducted to ensure all environmental contamination issues have been resolved.
- ASTM-E1903 requirements include getting more specific information regarding issues discovered during the Phase I Assessment. The goal is to determine the type and extent of contamination at the Site. Phase II Assessments generally include a testing plan.

When:

- A Phase I Assessment should be completed prior to the purchase of the property.
- If the property requires remediation, Phase II and Phase III activities should be completed prior to taking ownership of the land. The exception to this would be if the buyer accepts the property as is and agrees to complete the Phase II investigation and Phase III cleanup activities required.
- Once Phase II and Phase III activities are complete, perform a new Phase I to ensure the property has been cleaned up. Complete the second Phase I prior to the start of construction.

More Information regarding Environmental Site Assessments is available at the links below:

[Brownfields All Appropriate Inquiries | US EPA](#)

[When Is an Environmental Site Assessment Needed? - Millman Land](#)

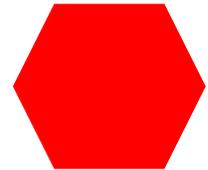
[ASTM's 2021 Standard Soon to Be Referenced in EPA's All Appropriate Inquiries Rule \(americanbar.org\)](#)

[Assessing Brownfield Sites Fact Sheet \(epa.gov\)](#)

[What is a Phase II Environmental Site Assessment? | Partner ESI](#)

[3 Phases of Environmental Site Assessments - NoVA Environmental Solutions](#)

Environmental Justice



Environmental Media: Environmental Justice

May apply to: Brownfield, Greenfield, Renovate

What is it: 'Environmental justice is the fair treatment and meaningful involvement of all people regardless of race, color, national origin, or income, with respect to the development, implementation, and enforcement of environmental laws, regulations, and policies. This goal will be achieved when everyone enjoys:

- The same degree of protection from environmental and health hazards, and
- Equal access to the decision-making process to have a healthy environment in which to live, learn, and work.' ([Environmental Justice | US EPA](#))

Environmental Justice (EJ) is an evolving requirement. Basic guidelines follow but be sure to consult with the project State early in the process to ensure project timelines are met. Because of the political nature of these requirements, consult with a government affairs professional and hire an attorney familiar with the EJ requirements in the State.

How to Screen: Currently, States are under a directive from EPA to include EJ principles in state environmental regulations. Each state is complying with this directive differently. Take the following initial steps to determine the EJ policies of the project State.

- Consult with the State to determine State EJ policies and requirements.
- Use the EJ Screen tool to investigate possible EJ concerns in the development area. The EJ Screening tool, as well as information for using the tool, can be found at: [EJScreen: Environmental Justice Screening and Mapping Tool | US EPA](#)

What to do: After consulting with the project State, create a plan that meets state requirements. Some states require meeting directly with people in the project area, not just elected officials/civic leaders. Keep detailed records of all EJ activities.

Understand how the project State reviews EJ activities. The parameters that make an area subject to EJ policies differ by state. Some states use racial makeup while others use economic indicators like education level or family income.

When: Engage with state regulators on EJ requirements early in the process. In some states, the process is straightforward, while in others, certain activities must be completed before other permitting activities can start.

More information on the EJ directive is available at the links below:

[Environmental Justice and National Environmental Policy Act | US EPA](#)

[Environmental Justice | US EPA](#)

ENDANGERED SPECIES ACT



Environmental Media: Endangered Species

Applies to: Brownfield and Greenfield

May Apply to: N/A

What is it? The Endangered Species Act (ESA) is managed by the US Fish and Wildlife Service (FWS) and pertains to species (both flora and fauna) that are on the threatened and endangered species list.

How to screen: As part of the application for a general construction permit (GCP) (for stormwater), check the threatened and endangered species list for the project site.

- FWS has a website where you specify a location and define the search area. The link below is to the beta version of the site, so the user can enter information that is not stored in FWS records (<https://ipac.ecosphere.fws.gov/>). Enter the city or zip code, then specify a range around the candidate site. The website will provide a list of threatened and endangered species and identify critical habitats. Select a species for more information.

What to do:

- If there are no critical habitats and no threatened or endangered species in the area surrounding the candidate site, save the search and include it in the documentation for the GCP application.
- If there are critical habitats, or threatened or endangered species in the area surrounding the candidate site, create a login account at the FWS website. Once in the live site, create a project. The website will guide the user through the steps to request a project review.
- Once all the required fields for the project are completed, a report will be sent to FWS for review.
- Contact the local FWS office for additional documentation required to get approval for the proposed project. For each listed species, you will need to work with the FWS nearest the project location.

When: Perform a search for endangered and threatened species during the site selection process, and before property is purchased. If an endangered or threatened species will be impacted by the project, allow at least 12-18 months to complete the project review with FWS and obtain approval for the project.

More Information regarding Threatened and Endangered Species is available at the links below:

<https://ecos.fws.gov/ecp/report/species-listings-by-state-totals?statusCategory=Listed>.

[Endangered Species | U.S. Fish & Wildlife Service \(fws.gov\)](https://www.fws.gov/)

[Endangered Species Conservation | NOAA Fisheries](#)

More information from EPA regarding Threatened and Endangered Species is available at the links below:

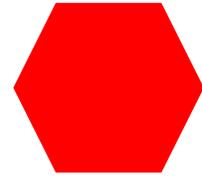
[Learn more about Threatened and Endangered Species | US EPA](#)

[Summary of the Endangered Species Act | US EPA](#)

More information from EPA Guidance on ESA requirements for Construction Activities is available at the link below:

https://archive.epa.gov/compliance/resources/publications/assistance/sectors/web/pdf/myer1c_species.pdf

WATERS of the US



Environmental Media: Waters of the US

Applies to: Brownfield and Greenfield

May Apply to: N/A

What is it? The Waters of the US (WOTUS) regulations cross several regulatory agencies. The EPA establishes regulations as amendments to the Clean Water Act to protect certain waters from development and pollution. The FWS maintains the national wetlands inventory (NWI) and the NWI mapping tool (<https://www.fws.gov/program/national-wetlands-inventory/wetlands-mapper>). The authority to declare an area subject to the WOTUS regulations and issue permits resides with the Army Corps of Engineers (USACE).

How to screen: The WOTUS regulations change and are frequently under legal review.

- Find the candidate project location at the NWI wetlands mapping tool (link above).
- If wetlands are identified, consult a certified wetland specialist (either a certified wetland delineator or professional wetland scientist) to conduct a wetlands delineation.
- The specialist will perform a site visit, complete application paperwork to impact wetlands (if needed), and provide invaluable guidance on timelines and impact to the candidate project if wetlands impact the site.

What to do: If there are wetlands on the site, there are two primary types of approvals from the USACE.

- If the total project will impact less than 0.5 acres of wetlands, the project will need approval from the USACE under a Nationwide Permit and will likely be required to purchase mitigation credits for the impact. The credits must be purchased from the wetlands mitigation bank. If no bank is available, often the requirement is to replace the impacted wetlands with new wetlands elsewhere on the project site.
- If the impact on wetlands is more than 0.5 acres, the project will require an individual 404 permit from the USACE. To keep projects on schedule, the project team must employ a qualified wetlands specialist to lead the activity to obtain the 404 permit, a process that can take over one year.

When:

- Determine if wetlands are present prior to land purchase.
- If wetlands will be impacted by the proposed project, the permitting time can be between 6 months to 2 years depending on the impact and complexity of the project and the site location

More Information regarding WOTUS is available at the links below:

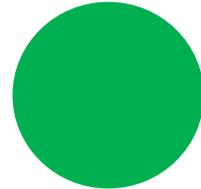
[Waters of the United States | US EPA](#)

<https://www.epa.gov/cwa-404/how-wetlands-are-defined-and-identified-under-cwa-section-404>

<https://www.fws.gov/program/national-wetlands-inventory/what-we-do>

<https://www.usace.army.mil/Missions/Locations/>

ASBESTOS



Environmental Media: Asbestos

Applies to: Renovate

May Apply to: Brownfield

What is it? Asbestos is a fiber-like material previously used in construction to provide insulation or act as a fire retardant ([Asbestos | US EPA](#)). Because of adverse health effects from exposure to asbestos, new uses of asbestos were banned in 1991 ([Asbestos Ban:EPA](#)). EPA has strict requirements for the removal of asbestos under the National Emission Standards for Hazardous Air Pollutants (NESHAP) ([Asbestos NESHAP](#)). The federal requirements under the NESHAP are delegated to and implemented by states.

How to screen: Survey to determine if asbestos is present prior to renovation or demolition projects.

- Hire a contractor certified by the state where the project site is to do an asbestos survey for renovation or demolition projects.
- Request that the Phase I assessment of a brownfield includes a survey for asbestos. If the survey suggests asbestos-containing materials could have been present, do a soil survey for asbestos.
- Save the results of the asbestos tests for the life of the facility.

What to do:

- If the survey indicates no asbestos is present, file the mandatory report with the appropriate agency to proceed with the project, if required.
- If the survey detects asbestos, hire a certified asbestos abatement company in the project state to devise a removal plan. Depending on the size of the removal project, the project may need approval prior to commencement.

When: Perform the survey a minimum of 90 days prior to project start (or more if required by law). The survey must be completed and representative samples sent to a lab for analysis. A report must be sent to the state agency, if required, that regulates asbestos, and time for approval must be factored in.

More Information regarding Asbestos is available at the links below:

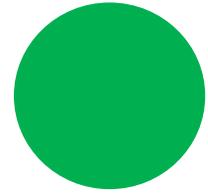
[Information for Owners and Managers of Buildings that Contain Asbestos | US EPA](#)

[Asbestos National Emission Standards for Hazardous Air Pollutants \(NESHAP\) | US EPA](#)

For State Agency contacts for state-specific procedures see the link below:

[State Asbestos Contacts | US EPA](#)

LEAD



Environmental Media: Lead

Applies to: Renovate

May Apply to: Brownfield

What is it? Lead is a naturally occurring metal that has been used in a multitude of industries and can be found in environmental media as well as inside our homes ([Lead Regulations | US EPA](#)). Because of adverse health effects from exposure to lead, especially among children and pregnant women, lead was regulated under TSCA in 1986. During that time, lead was banned in gasoline, paint, and other consumer products. Lead is a regulated substance under several federal regulations, such as the Clean Water Act and the Clean Air Act.

How to screen: Many states require a survey to determine if lead is present before renovation or demolition projects.

- Hire a contractor certified by the state where the project site is to perform a lead survey for renovation or demolition projects.
- If a Phase I assessment of a brownfield suggests lead-containing materials could have been present, do a soil survey for lead.
- Save the results of the lead tests for the life of the facility.
- In some areas of the US, there are naturally high levels of lead in the soil. Ensure the testing plan only covers areas exposed to lead contamination.

What to do:

- If the survey indicates no lead is present, file a report with the appropriate agency to proceed with the project, if required.
- If the survey detects lead, hire a certified lead abatement company in the project state to devise a removal plan. Depending on the size of the removal project, the project may need approval prior to commencement.

When: Perform the survey a minimum of 90 days prior to project start (or more if required by your state). The survey must be completed and sent to a lab for analysis. A report must be sent to the state agency that regulates lead and time for approval must be factored in, if required.

More Information regarding Lead is available at the links below:

[Lead Regulations | US EPA](#)

[Lead | US EPA](#)

[Contacts in EPA Regional Offices for Lead-based Paint Exposure Prevention Efforts | US EPA](#)

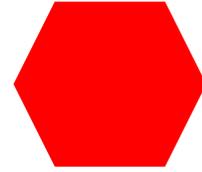
Construction



AIR PERMIT

Environmental Media: Air Emissions

May Apply to: Brownfield, Greenfield, Renovate



What is it?

The Clean Air Act (CAA) requires all manufacturing companies to determine if the requirements of the CAA apply to the facility. If the facility requires an air permit, that permit must be in place before the start of construction activities. Generally, the regulations in the CAA apply to emissions that leave the facility through a stack. However, some states require fugitive emissions to be included as part of the applicability assessment.

Each state has specific procedures and names for each permit type. For the purposes of this guide, the four most common permit types are presented, all four of which pertain to emissions of the six criteria pollutants. ([Criteria Air Pollutants | US EPA](#))

Minor New Source Review (NSR): Construction/operation permit issued to facilities with emissions less than 100 tons per year of each criteria air pollutant, to which no major source regulations apply or to limit emissions below major source thresholds.

PSD (Major NSR): Construction permit obtained if emissions of any of the six criteria pollutants are greater than 250 tons per year.

Non-attainment (NAA) Permit: Construction permitting for areas where ambient air quality does not meet federal standards for given criteria pollutants. Similar to PSD permitting with stricter standards and lower major source thresholds.

Title V Operating Permit: Operating permit (post-construction) issued for facilities with emissions greater than 100 tons per year of any criteria air pollutant or required by regulation. (<https://www.epa.gov/green-book>)

Additionally, if the facility will emit hazardous air pollutants (HAPs), the following limitations apply:

Area source of HAPs: less than 10 tons per year of an individual HAP **and** less than 25 tons per year of total HAPs for the facility.

Major Source of HAPs: more than 10 tons per year of an individual HAP **or** more than 25 tons per year of total HAPs for the facility.

Each of these designations is important because it will determine the type of permit the facility needs, the requirements for the permit, the time it takes to get the permit, air pollution control requirements, and operating expenses to maintain compliance with the permit requirements.

How to Screen:

Unless someone on the team has expertise in air permitting, hire an environmental consultant who specializes in air permitting to complete an applicability determination and prepare any permit applications. The consultant will:

- Prepare emissions calculations to determine permit applicability.
- Perform a regulatory review to understand which regulations under the CAA and state-specific regulations apply.
- Prepare permit application.

What to do:

Start with engaging an experienced air permit consultant. Depending on the complexity of the facility, consider utilizing an environmental attorney with expertise in the Clean Air Act.

- The consultant will review the processes in the proposed project, complete the emissions calculations, and propose a permitting strategy.
- Make an appointment with the air permitting section of your state environmental agency. Use the appointment to discuss timelines and application requirements.
- Prepare the application. Prior to applying, have the internal team (and attorney if using one) review the application.

When:

The permit application is a lengthy process, so it is important to start the permitting process as early as possible. To start construction, any applicable air permit must already be in place. Different states interpret the definition of the start of construction differently, so ask during the pre-application meeting with the state agency.

If your project requires air pollution control (APC) devices, factor the design, fabrication, and installation into the overall project schedule. Permitted equipment with APCs cannot run unless the APC is operating.

A general timeline is:

- Allow 2-4 months for a consultant to prepare the application.
- Allow 4-6 months for the state to process a minor permit application.
- Allow 6-12 months for the state to process a Title V permit application.
- Allow 12-24 months for the state to process a PSD or NAA permit application.
- Allow 1-2 months for a public comment period or a public hearing. These are required for PSD, NAA, and Title V permits and may be required for minor NSR permits.

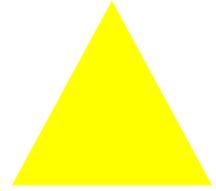
More Information regarding the CAA and air permitting is available at the links below:

[Permitting Under the Clean Air Act | US EPA](#)

[Regulatory and Guidance Information by Topic: Air | US EPA](#)

STORMWATER

Environmental Media: Stormwater discharge
May apply to: Brownfield, Greenfield, Renovate



What is it?

As part of the Clean Water Act (CWA), facilities are required to control their stormwater discharge. Under an NPDES permit (National Pollutant Discharge Elimination System), facilities are required to design and install BMPs (best management practices), perform inspections, prepare a Stormwater Pollution Prevention Plan (SWPPP), and obtain a construction stormwater permit.

How to screen:

A facility is required to get a construction NPDES stormwater permit if:

- The construction activity will disturb more than one acre of land.
- In some states and regions, the requirement is to obtain a permit when less than an acre of land is disturbed.

What to do:

- As part of site design, a civil engineer should design BMPs to control stormwater during construction. These can include swales, rock check dams, or sediment basins. The engineer should follow the design guidelines in the project state and aim to slow down the movement of water and remove pollutants.
- Prepare a SWPPP. Some states require this plan to be stamped by a professional engineer. The SWPPP should include measures to manage sediment, concrete washout, and material storage during all phases of construction.
- To apply for a construction permit -submit a notice of intent (NOI) through the state online application portal. The NOI gives notice to the State that the facility intends to discharge stormwater during construction and will disturb more than one acre of land. The facility agrees to follow all the requirements of the general construction permit. The State will review and send the facility a permit.
- Some states have an expedited review process – the permittee can obtain a permit in a few days. Contact the state where the project takes place to see if this service is available (typically with increased fees).

When:

The construction SWPPP must be in place prior to the start of operations. Allow 2-3 months to prepare the SWPPP and determine if the facility must use a professional engineer to prepare the plan. The engineer will require:

- A copy of the site plan drawings
- Specifics of the construction plan and phases of construction

- Once construction is complete and permit closure requirements have been met, the permittee notifies the State, and the site will be released from the requirements of the construction stormwater permit (generally after a site visit from the State).
- Make sure the operating stormwater permit is in place before requesting release from the construction stormwater permit.

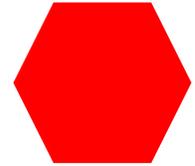
More Information regarding the CWA and stormwater discharge is available at the links below.

[Stormwater Discharges from Construction Activities | US EPA](#)

Operations



AIR PERMIT



Environmental Media: Air Emissions

May Apply to: Brownfield, Greenfield, Renovate

What is it?

The Clean Air Act (CAA) requires all manufacturing companies to determine if the requirements of the CAA apply to the facility. Generally, the regulations in the CAA apply to emissions that leave the facility through a stack. However, some states require fugitive emissions to be included as part of the applicability assessment.

Many states have a two-part permitting process for construction of new emission units at a facility that is subject to Title V. An operating air permit is required after the completion of permitted construction. The construction air permit generally includes the requirements that will transition to the operating air permit.

How to Screen

If the project requires a construction air permit, then an operating permit is required. Minor NSR permits may be both a construction and operating permit.

What to do and when:

To convert the construction permit into an operating permit, there are several steps.

- Within 30 days (check permit for state-specific requirement) of starting up each piece of equipment in the permit, notify the State that the equipment was turned on. In general, starting the equipment does not include testing or trial runs. The 30-day clock starts when the equipment is used in production. Refer to the construction permit for specific timeframes and requirements.
- If the construction permit requires stack testing, the facility must arrange for the testing to be completed within 60-180 days of start-up. Engage a stack testing firm to complete the testing and file all the required paperwork with the State.
- Within 12 months of the start-up of the first piece of equipment, submit a permit application for the Title V operating permit (if required). The facility operates under the terms of the construction permit until the operating permit is issued.

The operating permit will have record-keeping requirements and operating conditions. Often during construction minor details will change from what was initially conveyed in the permit application. These changes should be incorporated into the operating permit application. Changes that occur after the operating permit is issued must be assessed for the applicability of a new construction permit.

More Information regarding the CAA and air permitting is available at the links below:

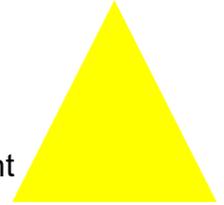
[Permitting Under the Clean Air Act | US EPA](#)

[Regulatory and Guidance Information by Topic: Air | US EPA](#)

Waste Management

Environmental Media: Hazardous Waste, Universal Waste, Waste Management

Applies to: Brownfield, Greenfield, Renovate



What is it?

All facilities will produce waste. In an industrial setting, the facility will likely produce multiple types of waste. In general, there are five types of waste:

- Hazardous Waste (before a waste is considered hazardous waste it must be considered solid waste under The Resource Conservation and Recovery Act) (RCRA)
- Universal Waste (fluorescent lights, etc.)
- Non-regulated Waste
- Valuable Waste/Recyclable Waste
- General Trash

RCRA requires that facilities perform a waste determination for every solid waste stream to determine whether the solid waste is also a hazardous waste. Within the code of federal regulations, 40 CFR Part 262, there is a table that describes the different types of hazardous waste generators and summarizes the requirements for each. The different types of generators are:

- Large Quantity Generator: $\geq 1,000$ kg/month hazardous waste, or >1 kg/month of acute hazardous waste, or >100 kg/month of acute spill residue or soil.
- Small Quantity Generator: >100 and $<1,000$ kg/month hazardous waste.
- Very Small Quantity Generator: ≤ 100 kg/month hazardous waste, and ≤ 1 kg/month of acute hazardous waste, and ≤ 100 kg/month of acute spill residue or soil.

How to screen:

There are several steps to managing all the waste streams at the facility. If you do not have the expertise to make waste determinations, a waste management vendor or environmental consultant can guide the facility in making the determination.

- The first step is to identify all the waste streams.
- Perform a waste determination on all identified waste streams. The waste determination must include assessing the type of waste for each waste stream and a determination of which solid wastes are also hazardous waste.
- Estimate monthly quantities of each waste stream identified as hazardous or universal waste.
- Review state-specific waste regulations.

What to do:

After deciding on the generator status of the facility, the following steps will be taken:

- If the generator status is a large or small quantity generator of hazardous waste or a large quantity generator of universal waste, obtain an EPA ID number.
- Apply for the EPA ID number through the RCRAInfo website. Once the facility registers at RCRAInfo and applies for the number, the State will review the application and issue an EPA ID number to the facility.
- A small facility with only a few waste streams may choose to manage waste disposal in-house. However, larger facilities with multiple waste streams may choose to engage a third-party vendor to manage all the waste at the site.
- After completing the waste determinations, find a disposal vendor for each waste stream.
- Prior to shipping out hazardous waste, the disposal vendor will prepare a waste profile. Review the profile and maintain a copy.
- All employees involved in managing hazardous waste must receive RCRA training that covers the regulatory requirements and includes site-specific waste management practices. Only employees who have received Department of Transportation (DOT) shipper's training can sign a hazardous waste manifest.
- There are several specific regulations that apply to generators of hazardous waste depending on generator status. Prior to disposing of hazardous waste, ensure the facility meets all the requirements.
- Check State regulations for additional requirements. Not all states have adopted federal regulations and some states may have stricter requirements.

When:

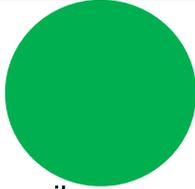
Finding vendors for all waste streams and preparing to meet RCRA regulatory requirements can take a long time, especially if the waste streams are complex or unusual.

- 3-4 months prior to the start of operations perform a generator status review.
- 60 days prior to the shipment of hazardous waste, apply for an EPA ID number if required.
- 2-3 months prior to start of operations engage a third party waste management vendor (if applicable). The third-party vendor will find disposal companies and set up waste profiles. If not using a third-party vendor, the facility will have to find disposal companies and make arrangements for each type of waste, including the preparation of waste profiles.
- 2-3 months prior to the start of operations prepare any necessary waste accumulation areas and waste storage areas, train employees, and prepare documents to meet RCRA requirements (these differ based on generator status).

More Information regarding RCRA and waste management is available at the links below.

[Categories of Hazardous Waste Generators | US EPA](#)

[RCRAInfo Sign In \(epa.gov\)](#)



SPILL PREVENTION

Environmental Media: Spill prevention, control, or countermeasures (SPCC) plan for oil

May apply to: Brownfield, Greenfield, Renovate

What is it?

To prevent oil reaching navigable waters and polluting water, 40 CFR Part 112 requires facilities that use and store oil to prepare plans and use BMPs.

How to screen:

Facilities must determine if 40 CFR Part 112 applies by:

- Completing an inventory of all oil products on site. All containers 55 gallons or more, including oil in machinery must be counted. The inventory must include the type of oil, the amount, and the storage location.
- Map the distance from the facility to the nearest water conveyance. The regulation requires the facility to determine if there is a possibility of a spill on site making its way to water.

What to do:

- If the facility has more than 1,320 gallons of aboveground oil storage or 42,000 gallons of underground storage onsite and there is a possibility of discharge of oil into navigable water or adjacent shorelines, then 40 CFR 112 applies.
- If the total onsite storage of aboveground oil storage is less than 10,000 gallons and there has not been a single spill that discharged more than 1,000 gallons in the past 3 years or two spills that discharged more than 42 gallons in the past 12 months to navigable water, the facility can self-certify. EPA provides a template for the self-certification plan at: [tier1template_edit.doc \(live.com\)](#).
- If the facility cannot self-certify, the facility must engage a professional engineer to create and certify the SPCC Plan.

When:

The SPCC plan must be in place prior to the start of operations. Allow 2-3 weeks to complete the self-certified plan. Allow 2-3 months if the facility must use a professional engineer to prepare the plan. The engineer will require:

- A site visit
- A copy of the oil inventory
- Specifics of secondary containment and bulk storage tanks

More Information regarding SPCC Plans is available at the link below.

[EPA:SPCC](#)

STORMWATER

Environmental Media: Stormwater discharge
May apply to: Brownfield, Greenfield, Renovate



What is it?

As part of the CWA, most industrial and manufacturing facilities are required to control their stormwater discharge. Under a NPDES permit, facilities are required to design and install BMPs, perform inspections, sample stormwater discharges during rain events, and submit reports to their State.

In some states, a facility can apply for a *No Exposure Certificate*. A No Exposure Certificate means there are no industrial activities that could be exposed to stormwater. The certificate absolves the facility from having to get a stormwater discharge permit and must be periodically reviewed and renewed.

There are two types of industrial stormwater permits – general and individual. Most facilities are able to obtain a general permit.

How to screen:

A facility is required to get an NPDES stormwater permit if:

- Stormwater is discharged through a point source. A point source is ‘any discernible, confined and discrete conveyance, such as a pipe, ditch, channel, tunnel, conduit, discrete fissure, or container’ ([NPDES Permit Basics | US EPA](#)).
- If the point source discharges into a water of the United States, you must get an NPDES permit.
- The stormwater must also contain pollutants. However, stormwater runoff from an industrial or agricultural (and many commercial sites) facility is generally considered to contain pollutants.
- If there are no materials or equipment stored outside and no industrial activities are exposed to stormwater, the facility may be eligible for a No Exposure Certificate. Each state has its own requirements.

What to do:

- As part of site design, a civil engineer should design BMPs to control stormwater. These can include swales, rock check dams, or stormwater basins. The engineer should follow the design guidelines in the project state and aim to slow down the movement of water and remove pollutants.
- Prepare a SWPPP. Some states require the plan to be stamped by a professional engineer.
- If applying for a general permit, submit a NOI through the state online application portal. The NOI gives notice to the State that the facility intends to discharge

stormwater and the facility agrees to follow all the requirements of the general permit. The State will review and send the facility a permit.

- If applying for an individual permit, the application process is more complicated, and the facility should either hire an environmental consultant to complete the application or work closely with the state to prepare the application.

When:

The SWPPP must be in place prior to the start of operations. Allow 2-3 months to prepare the SWPPP and determine if the facility must use a professional engineer to prepare the plan. The engineer will require:

- A site visit
- A copy of the site plan drawings
- Specifics of secondary containment and bulk storage tanks

The permitting timelines vary based on the type of permit:

- Submit a request for a No Exposure Certificate within the guidelines of the state where the facility operates, generally at least 60 days prior to the start of operations.
- Submit an NOI for a general permit at least 60 days prior to the discharge of stormwater from the facility
- Apply for an individual permit at least 180 days prior to the discharge of stormwater from the facility.

More Information regarding the Clean Water Act and stormwater discharge is available at the links below.

[NPDES Stormwater Program | US EPA](#)

[\(NPDES Permit Basics | US EPA](#)

EPCRA

Environmental Media: Chemical storage and disposal
May apply to: Brownfield, Greenfield, Renovate



What is it?

EPCRA – The Emergency Planning and Community Right to Know Act requires states and localities to plan for emergencies and make available to the public the types of chemicals stored and used in the community under SARA (superfund amendments reauthorization act).

EPCRA has several parts – some of which apply to State and Tribal authorities and others apply to facilities. Under EPCRA Sections 311, 312, and 313 facilities are required to submit two types of regular reporting. SARA Tier II and TRI (Toxic release inventory). The SARA Tier II report details chemicals stored at the facility and the amount stored. Facilities must determine the average amount and the maximum amount stored along with the storage location in the facility. The report is submitted to the state and local first responders (the local fire department, the State Emergency Response Commission (SERC) and Local Emergency Planning Commission (LEPC)). Under Section 304, facilities are required to report releases in amounts that exceed the Reportable Quantity of extremely hazardous substances and CERCLA listed hazardous substances to local, State, and Tribal authorities. More detailed information about the Sections of EPCRA can be found at: [What is EPCRA? | US EPA](#)

The TRI is submitted annually to the State and requires reporting of chemical use at the facility. The facility must report chemical use at the facility and what happens to the chemical. Some of the details required are: how much is emitted as air emission, how much ends up in wastewater or stormwater, and how much is sent out for disposal.

How to screen:

A facility is required to report SARA Tier II and TRI reporting if chemical usage exceeds certain thresholds. The thresholds can be found on the Consolidated List of Lists: [Consolidated List of Lists | US EPA](#)

What to do:

- Sign up for a CDX account (Central Data Exchange). If using a consultant, they can help with this task.
- If any chemical used or stored at the facility exceeds the limits in the Consolidated List of Lists, the facility must report.
- Guidance for preparing the SARA Tier II report can be found at: [Tier II Forms and Instructions | US EPA](#).
- Guidance for preparing the TRI report can be found at: [Reporting for TRI Facilities | US EPA](#).

- If the facility does not have staff experienced in preparing these reports, hire an environmental consultant. To save money in the future, the consultant can prepare tracking spreadsheets and tools to perform required calculations. After the first year, the facility can use the tools to keep required records and use the consultant to review the report and advise on regulatory changes.

When:

Both reports must be digitally submitted and typically have a fee associated with submittal (the process differs by State). The TRI Report requires an electronic signature by the site Responsible Official (RO). The RO must apply for a CDX account with EPA. Set up an appointment with the RO several weeks prior to report submission to sign up for the CDX account.

SARA Tier II: Reporting is due annually on March 1st.

- The first year, start preparation for the report in early January.
- In subsequent years, track the required information throughout the year, noting changes in facility layout or chemicals used.

TRI: Reporting is due annually on July 1st

- The first year, start preparation for the report as part of the SARA Tier II report (the required information is similar, and it will save time and money to gather information for both reports at the same time).
- In subsequent years, track the required information throughout the year, noting changes in facility layout, disposal outlet, or chemicals used.

More Information regarding EPCRA is available at the links below:

[Emergency Planning and Community Right-to-Know Act \(EPCRA\) | US EPA](#)

[Consolidated List of Lists | US EPA](#)

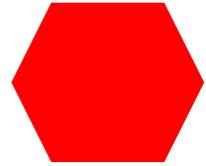
[Tier II Forms and Instructions | US EPA.](#)

[Reporting for TRI Facilities | US EPA](#)

[CDX Home | Central Data Exchange | US EPA](#)

TSCA

Environmental Media: Chemical usage and chemical imports
May apply to: Brownfield, Greenfield, Renovate



What is it?

TSCA regulates chemicals that can be manufactured, imported into the US, or processed, used, and disposed of within the US. Under TSCA, a business that intends to manufacture (the definition of manufacture includes import) a new chemical into the US must determine if TSCA applies.

The TSCA Chemical Inventory is a list of over 83,000 chemicals approved for import into the US. Approximately half are active in commerce. The Inventory has a public and confidential section. If a chemical is listed on the TSCA Inventory as active, it can be imported into the US. However, if inactive, a notice with EPA must be filed. the chemical may be subject to strict requirements on how the chemical is used, stored, and disposed – called a SNUR (significant new use rule). If the chemical will be used, stored, or disposed differently, the user must obtain permission for that use – called a SNUN (significant new use notification).

Because TSCA regulations are very complex, work with an experienced TSCA attorney and consultant to verify all chemicals to be used at the site meet TSCA requirements. TSCA regulations have many exemptions and special categories of exempted imports. The TSCA attorney will advise if any exemptions apply and how to document exemption applicability.

How to screen:

Prior to importing any industrial formulations or new chemicals, check to see if the chemical ingredients are on the public TSCA Inventory. Often, the SDS sheet does not list all components of materials. Make sure you have a complete list to check each individual component as well as the material. If the material contains a component labeled as confidential or trade secret, obtain the name from the manufacturer.

Often the manufacturer of the material will not provide the name of trade secret components. In this case, either obtain a signed TSCA compliance certification from your foreign supplier or engage a third-party consultant to conduct a review under a nondisclosure agreement with the supplier.

Information regarding the inventory, how to use it, and download can be found at: [Reviewing New Chemicals under the Toxic Substances Control Act \(TSCA\) | US EPA](#). It is recommended to use a consultant or attorney experienced in TSCA to perform the review.

What to do:

- Engage an experienced TSCA attorney and consultant.

- Make a list of every chemical that will be used at the site. Include an SDS for each chemical.
- Have the TSCA attorney or consultant review all chemicals for applicability to TSCA.
- Any chemicals not listed as active on the Inventory or exempt will need to be approved by EPA prior to use or importation.
- Keep detailed records of each chemical.
 - Records of determination of TSCA status
 - Records of import (certifications)
 - Records of applicable PMNs, SNURs, and SNUNs
 - Records of the amount imported every year.

When:

Screen for applicability for TSCA 1-2 years prior to use.

- If a chemical is listed on the inventory, and there are no restrictions to its use/import, no further action is needed.
- If a chemical is listed on the inventory, but has a SNUR, review the restrictions to determine if they apply to your use of the substance. Determine if a SNUN is required.
- If a chemical is not listed on the inventory, engage with the manufacturer to apply for permission to import the chemical. The manufacturer must make the application – called a Pre-Manufacture Notice (PMN).

[Basic Information for the Review of New Chemicals | US EPA](#)

The TSCA attorney, working with the TSCA consultant, can perform this evaluation. If a PMN is required, allow 6 months for preparation of the application, and up to a year for EPA review.

Every four years a report of imported chemicals, and the amount imported is due to EPA, submitted using CDX. Maintain required records to support the preparation of the report. Allow 6 months to prepare the report to meet submittal requirements.

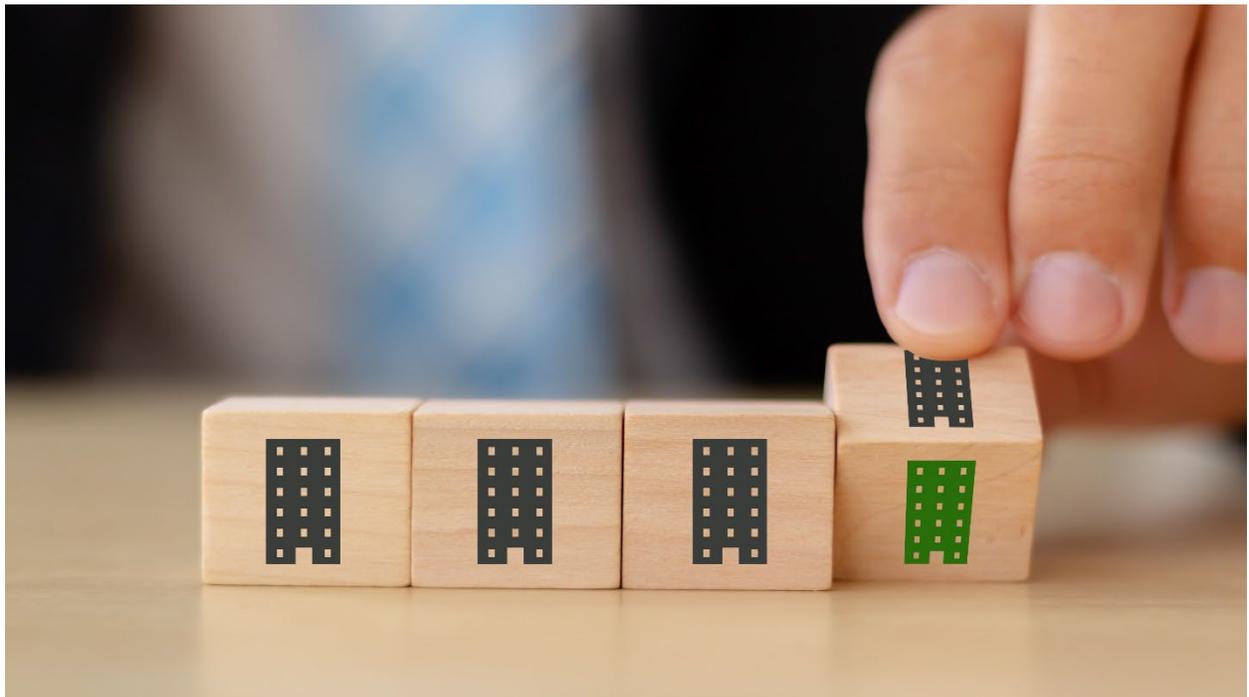
More Information regarding TSCA is available at the links below.

[Chemicals under the Toxic Substances Control Act \(TSCA\) | US EPA](#)

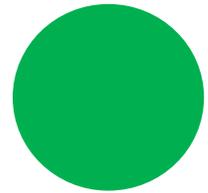
[Summary of the Toxic Substances Control Act | US EPA](#)

[TSCA Requirements for Importing Chemicals | US EPA](#)

Programs to Consider



Water



Environmental Media: Water, State Waterways, Wastewater

May apply to: Brownfield, Greenfield, Renovate

What is it?

It is important to consider the availability of water resources when selecting a site.

Water – What is the local source of water? Is public water available, or will the site depend on a well? Both questions have implications for the project.

Wastewater – There are two types of wastewater: sanitary and industrial.

Sanitary wastewater is wastewater with origins in human activities. This water not only comes from restrooms, but also from kitchen and washing activities.

Industrial wastewater comes from industrial processes.

Waterways – Waterways are local rivers and streams.

What to do:

- As part of the site selection process, meet with the local water provider. Prior to the meeting, estimate the water supply needs of the facility. Work with the water provider to ensure the local water supply will meet the needs of the process.
- As part of the site selection process, meet with the local wastewater treatment provider, if there is one. Estimate the sanitary and industrial wastewater discharge flow rates and ensure the local provider can treat the wastewater.
- Determine the pretreatment required to meet the requirements of the local wastewater treatment facility for the industrial wastewater stream.
- Design a pretreatment system in consultation with the local wastewater treatment facility.
- Screen for impaired waterways that the site discharges to. If there is no local wastewater treatment facility, the facility may require permission to discharge process wastewater to local waterways. The Clean Water Act restricts discharges to impaired waterways and requires states to develop plans to restore those waterways.

More information regarding wastewater is available at:

[Industrial Wastewater | US EPA](#)

More information regarding waterways is available at:

[Clean Water Act Section 303\(d\): Impaired Waters and Total Maximum Daily Loads \(TMDLs\) | US EPA](#)

UTILITIES



Environmental Media: Carbon Footprint

May apply to: Brownfield, Greenfield, Renovate

What is it?

Utilities provide the power to run the facility. In an industrial setting, the primary utilities are electricity and natural gas. To combat climate change, many companies have made commitments about the type and source of energy used to power facilities. Additionally, some municipalities and states have requirements regarding facility energy use and carbon footprint.

What to do:

- Estimate the power requirements to run the facility.
- Based on the local utilities available, use the tools available at EPA's e-grid website to estimate the carbon footprint of the project.
- E-grid has carbon emission factors by region for different energy sources.
- Compare the carbon footprint estimates to company goals or local mandates.

If the project carbon emissions will exceed company goals or local mandate, consider options to reduce carbon emissions from energy use. Some options include:

- On-site renewables
- Purchasing green power from the utility provider. Ensure the power includes retire-able carbon credits.
- Purchasing renewable energy credits (RECs)
- Participate in a virtual power purchase agreement (VPPA)

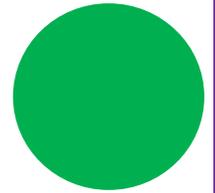
When: Perform the carbon emissions calculations as early in the design process as possible. Depending on the chosen solution, timelines can vary greatly. Onsite renewables are straightforward, but a VPPA is a multi-year process.

More information regarding green energy is available at:

[Emissions & Generation Resource Integrated Database \(eGRID\) | US EPA](#)

[What Is Green Power? | US EPA](#)

[webinar_kent_20160928.pdf \(epa.gov\)](#)



LEED

Environmental Media: Green Building Standard

May apply to: Brownfield, Greenfield, Renovate

What is it?

LEED: Leadership In Energy and Environmental Design. LEED is a building design standard that rates buildings according to efficient, green-building design standards. The latest version of LEED, LEED5 incorporates standards relating to climate change, human health, water resources, biodiversity, green economy, community, and natural resources.

Rating System:

There are four levels of LEED certification. The awarded level is based on a point system. There are several categories on the points checklist.

- Certified: 40-49 points.
- Silver: 50-59 points
- Gold: 60-79 points
- Platinum: 80+ points.

What to do:

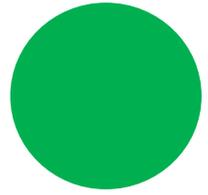
- As part of initial design of the project, decide which level of certification is appropriate for the project.
- Using the LEED points checklist, estimate the number of points currently planned projects are eligible for.
- Add projects until you reach the desired number of points.
- Step by step instructions for earning points and applying for certification can be found at: [LEED rating system | U.S. Green Building Council \(usgbc.org\)](https://www.usgbc.org/leed-rating-system)

When: Start the LEED planning process at the initial project design phase.

More information regarding LEED is available at:

[LEED rating system | U.S. Green Building Council \(usgbc.org\)](https://www.usgbc.org/leed-rating-system)

BETTER BUILDINGS



Environmental Media: Energy Efficient Buildings

May apply to: Brownfield, Greenfield, Renovate

What is it?

Better buildings is a program within the Department of Energy (DOE) with a goal of improving the energy efficiency of industrial plants through strategic investments and sharing best practices.

The Better Buildings program has three primary initiatives:

- Better Climate – Reduce Scope 1 and Scope 2 greenhouse gas emissions by 50% in 10 years
- Better Buildings- Commit to reduce energy usage by 20% within 10 years
- Better Plants – Across all US operations, a company agrees to reduce energy intensity by 25% over 10 years.

All programs and commitments are voluntary, but include DOE assistance, access to tools to meet those goals, and recognition for achieving Better Buildings goals.

What to do:

- Decide which initiative to join.
- Download the form appropriate to the desired program and get it signed by the CEO.
- Design projects to meet stated goals.

When: Start the Better Buildings planning process at any time. The goals in the chosen initiative can be met at any time.

More information regarding Better Buildings is available at:

[Better Buildings Programs & Partners | Better Buildings Initiative \(energy.gov\)](#)

WELL BUILDING

Environmental Media: Environmental Social Governance

May apply to: Brownfield, Greenfield, Renovate



What is it?

The International Well Building Standard integrates healthy living standards with the built environment. Buildings are rated across the following categories:

- Air – clean interior air
- Thermal comfort – designed to provide temperature and humidity control
- Light – provides natural and indirect lighting
- Community – multiple stakeholders involved in the design process
- Mind – aesthetics designed to boost morale
- Movement – Active design elements to encourage movement
- Water – water that is treated to meet World Health Organizations standards
- Sound – An environment that reduces background sound
- Materials – low or no VOC building materials
- Nourishment – provide onsite, healthy food options
- Better buildings is a program with the Department of Energy (DOE) with a goal of improving the energy efficiency of industrial plants through strategic investments and sharing best practices.

There are several ways companies can participate – through rated activities, certified buildings, and company-wide initiatives.

What to do:

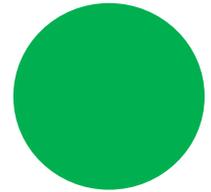
- Decide whether to participate in a rated activity, a certification program, or a company scaled initiative.
- Design the building to meet program requirements
- Meet the requirements of the chosen program.

When: The timeline to start the WELL Buildings planning process depends on the selected program.

More information regarding WELL Buildings is available at:

[WELL - International WELL Building Institute | IWBI \(wellcertified.com\)](https://www.wellcertified.com)

ENERGY STAR



Environmental Media: Energy Efficient Buildings

May apply to: Brownfield, Greenfield, Renovate

What is it?

Energy Star is a partnership with the government to reduce energy use and improve energy efficiency. Started by EPA in 1992, Energy Star provides tools and resources to the industrial sector. An additional benefit is long term savings on energy costs.

Companies can participate in the program in four ways:

- Challenge for Industry – reduce energy intensity by 10%
- Industrial focuses – collaborate and network with similar industries
- Plant certification – Achievement of 75 or more points using EPA’s benchmarking tools
- Energy treasure hunts – Employee walk to find ways to save energy

What to do:

- Decide how the company wants to participate.
- Using the tools provided at the Energy Star website, design your energy saving program.
- Join the Energy Star program and submit program application materials.

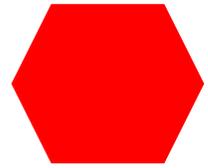
When: Start the Energy Star planning process at any time. The goals in the chosen program can be met at any time.

More information regarding Energy Star Buildings is available at:

[Industrial Energy Management | ENERGY STAR](#)

[Energy Star Program Benefits](#)

REACH and RoHS



Environmental Media: Chemical usage and chemical imports
May apply to: Brownfield, Greenfield, Renovate

What is it?

REACH and RoHS are regulations that apply to products sold in the European Union (EU). Some US States and non-EU countries also adhere to REACH/RoHS regulations. The following link provides an overview of US and non-EU requirements: [Compliance FAQs: RoHS | NIST](#). For imports into the EU where the chemical/consumer product is manufactured outside the US, the importer is responsible to ensure obligations under REACH/RoHS have been met.

REACH-Registration, Evaluation, Authorization, and Restriction of Chemicals. REACH is enforced by the European Chemicals Agency (ECHA). ECHA has developed a list of over 200 Substances of Very High Concern (SVHCs). Manufacturers must evaluate materials and consumer products that contain these materials. Manufacture or import of more than 1 ton must be reported and the potential risks from the substance must be included in the report. The SVHC is constantly evolving, and more substances are added. The ECHA also maintains a list of chemicals and materials that are restricted for manufacture and import.

RoHS – Restriction of Hazardous Substances bans the use of 10 hazardous substances, primarily used in electronics. The list is comprised of 10 substances that cannot be present in consumer products or used in the EU. These are:

1. Lead (Pb)
2. Mercury (Hg)
3. Cadmium (Cd)
4. Hexavalent chromium (Cr6+)
5. Polybrominated biphenyls (PBB)
6. Polybrominated diphenyl ether (PBDE)
7. Bis(2-ethylhexyl) phthalate (DEHP)
8. Butyl benzyl phthalate (BBP)
9. Dibutyl phthalate (DBP)
10. Diisobutyl phthalate (DIBP)

A good overview of these regulations can be found at: [REACH vs RoHS: What Should You Understand About Each? \(insight-quality.com\)](#).

How to screen:

Prior to exporting any chemical or consumer product to the EU, US state or non-EU country with applicable regulations, check the SVHC list to determine if the chemical is on the SVCH or if the consumer product contains a chemical/material on the SVHC. Additionally, review chemicals or consumer products that you want to export for chemicals or materials on the RoHS list.

What to do:

- Engage an experienced REACH/RoHS attorney and consultant.
- Make a list of every chemical and consumer product that will be exported to the EU, non-EU country with applicable regulations, or US state that has adopted REACH/RoHS regulation.
- Evaluate consumer products or chemicals for inclusion on the SVHC or RoHS list of restricted or banned chemicals.
- Keep detailed records of each chemical /consumer product as required
- Provide importers with all information required for the importer to register the chemical/consumer product with ECHA.

When:

- Under the direction of the import agent, provide all required information in the timeframe required for the importer to register the chemical/consumer product.
- Engage with the importer as early as possible

More Information regarding REACH/RoHS is available at the links below.

[Synopsis of Questions to be Answered 20 \(europa.eu\)](#)

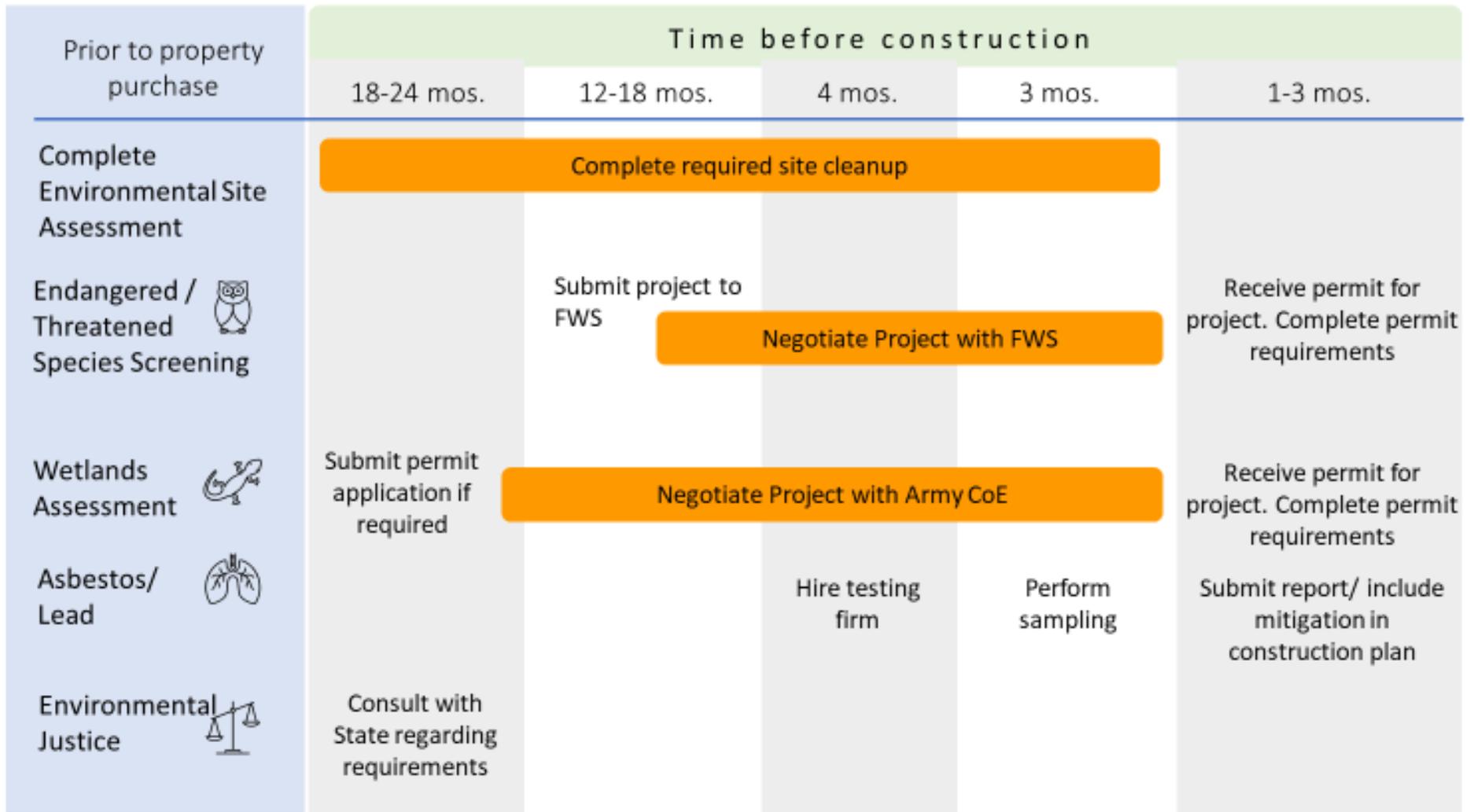
[Understanding REACH - ECHA \(europa.eu\)](#)

[REACH, CLP and biocides for non-EU companies - ECHA \(europa.eu\)](#)

APPENDIX A

Timeline

SITE SELECTION



CONSTRUCTION

Prior to start of Construction	Time before construction					
	18-24 mos	15-18 mos.	12-15 mos.	6-12 mos.	3-6 mos.	1-3 mos.
Air Permit  <ul style="list-style-type: none"> • Minor • Title V • PSD 		Pre-application meeting with State	Pre-application meeting with State Prepare permit application	Prepare permit application Submit permit application	Submit permit application Negotiate Permit/ comments	Receive permit for project.
	Pre-application meeting with State, Prepare permit application	Submit permit application	Negotiate Permit/ hearing			Receive permit for project.
Storm Water 					Submit Notice of Intent	Receive permit for project. Install BMPs

OPERATIONS

Prior to start of Operations	Time before/after start of Operations				
	1-2 yrs. before	2-4 mos. before	1 mo. before	0-12 mos. after	1 year after
Air Permit 				Submit start-up notification, complete stack testing	Submit operating permit application.
Waste Management 		<ul style="list-style-type: none"> Apply for EPA ID Prepare program documents 	Train employees		
Storm Water/SPCC 	Prepare permit application	<ul style="list-style-type: none"> Prepare SWPPP/SPCC Submit Notice of Intent 	Train employees		Submit annual reports.
EPCRA 				Collect and maintain documentation.	Submit annual reports.
TSCA/REACH/RoHS 	Screen for applicability. Submit required application	Receive required permissions.		Collect and maintain documentation.	

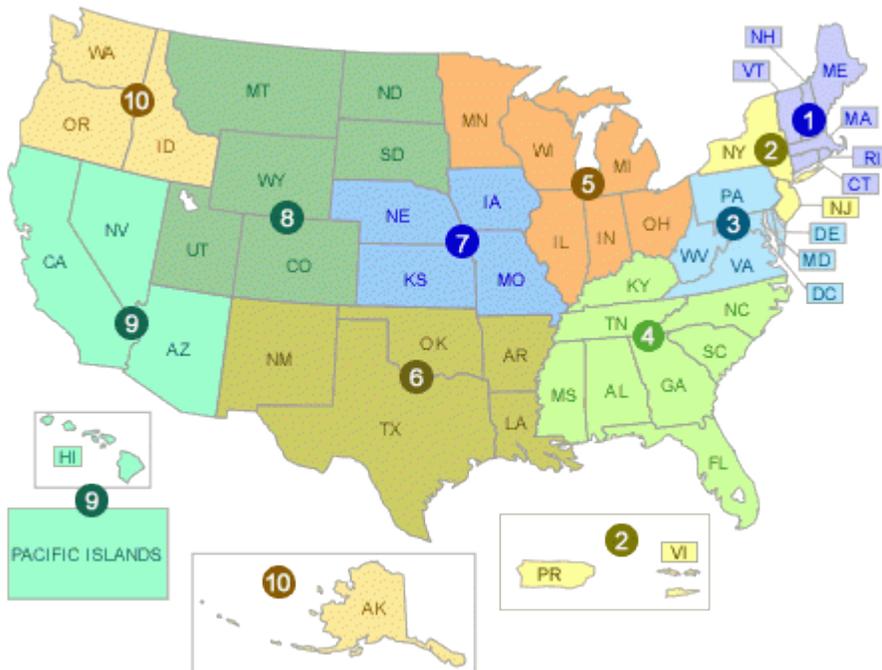
APPENDIX B

**Links to Federal and State
Regulatory Agencies**

Links to Federal Agencies

Environmental Protection Agency

- [Region 1](#) – Boston (serving CT, ME, MA, NH, RI, and VT)
- [Region 2](#) – New York City (serving NJ, NY, Puerto Rico, the U.S. Virgin Islands and 8 federally recognized Indian Nations)
- [Region 3](#) – Philadelphia (serving DE, DC, MD, PA, VA, WV and 7 federally recognized tribes)
- [Region 4](#) – Atlanta (serving AL, FL, GA, KY, MS, NC, SC, and TN)
- [Region 5](#) – Chicago (serving IL, IN, MI, MN, OH, and WI)
- [Region 6](#) – Dallas (serving AR, LA, NM, OK, and TX)
- [Region 7](#) - Kansas City (serving IA, KS, MO, and NE)
- [Region 8](#) – Denver (serving CO, MT, ND, SD, UT, and WY)
- [Region 9](#) - San Francisco (serving AZ, CA, HI, NV, American Samoa, Commonwealth of the Northern Mariana Islands, Federated States of Micronesia, Guam, Marshall Islands, and Republic of Palau)
- [Region 10](#) – Seattle (serving AK, ID, OR, WA and 271 native tribes)



[U.S. Environmental Protection Agency | US EPA](#)

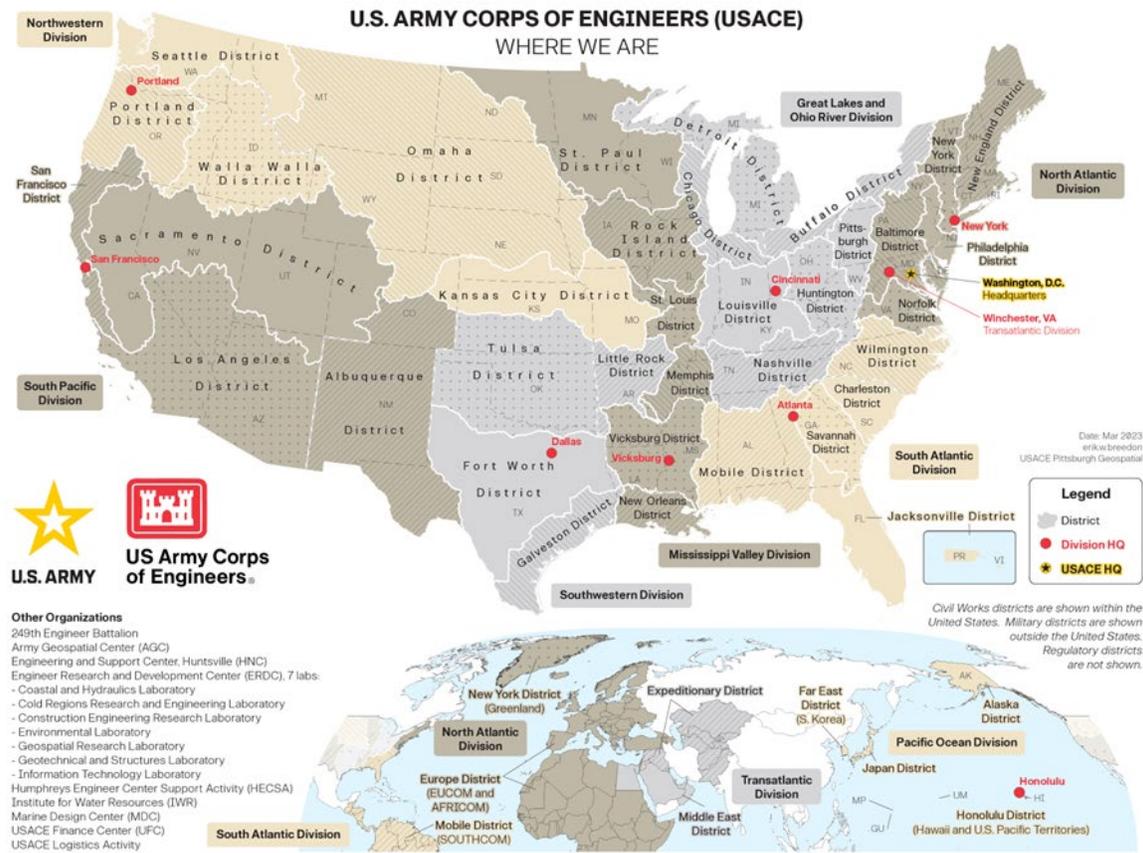
[eCFR :: Titles](#)

[Regional and Geographic Offices | US EPA](#)

US Army Corps of Engineers

[Headquarters U.S. Army Corps of Engineers](https://www.usace.army.mil/)

[Locations \(army.mil\)](https://www.usace.army.mil/)



US Fish and Wildlife Service

[U.S. Fish and Wildlife Service \(fws.gov\)](https://www.fws.gov/)

[Our Regions | U.S. Fish & Wildlife Service \(fws.gov\)](https://www.fws.gov/)

Links to State Agencies

Alabama - [Alabama Department of Environmental Management](#)

Alaska - [DEC Home \(alaska.gov\)](#)

Arizona - [Home Page | ADEQ \(azdeq.gov\)](#)

Arkansas - [Division of Environmental Quality \(DEQ\) \(state.ar.us\)](#)

California - [CalEPA | California Environmental Protection Agency](#)

Colorado - [Home | Department of Public Health & Environment \(colorado.gov\)](#)

Connecticut - [Department of Energy & Environmental Protection](#)

Delaware - [DNREC Alpha - State of Delaware](#)

Florida - [Welcome to Florida Department of Environmental Protection](#)

Georgia - [Environmental Protection Division \(georgia.gov\)](#)

Hawaii - [Environmental Review Program \(hawaii.gov\)](#)

Idaho - [Welcome to Idaho Department of Environmental Quality](#)

Illinois - [EPA \(illinois.gov\)](#)

Indiana - [IDEM: IDEM \(in.gov\)](#)

Iowa - [Environmental Protection \(iowadnr.gov\)](#)

Kansas - [KDHE, KS | Official Website](#)

Kentucky - [Environmental Protection - Kentucky Energy and Environment Cabinet](#)

Louisiana - [Louisiana Department of Environmental Quality](#)

Maine - [Maine Department of Environmental Protection](#)

Maryland - [Maryland Department of the Environment](#)

Massachusetts - [Massachusetts Department of Environmental Protection | Mass.gov](#)

Michigan - [Environment, Great Lakes, and Energy \(michigan.gov\)](#)

Minnesota - [Minnesota Pollution Control Agency \(state.mn.us\)](#)

Mississippi - [MDEQ – Mississippi Department of Environmental Quality \(ms.gov\)](#)

Missouri - [Division of Environmental Quality | Missouri Department of Natural Resources \(mo.gov\)](#)

Montana - [Home | Montana DEQ \(mt.gov\)](#)

Nebraska - [NDEE Home \(state.ne.us\)](#)

Nevada - [Nevada Division of Environmental Protection | NDEP](#)

New Hampshire - [Welcome | NH Department of Environmental Services](#)

New Jersey - [NJDEP | New Jersey Department of Environmental Protection](#)

New Mexico - [New Mexico Environment Department](#)

New York - [New York State Department of Environmental Conservation \(ny.gov\)](#)

North Carolina - [NC Dept. of Environmental Quality](#)

North Dakota - [North Dakota Department of Environmental Quality \(nd.gov\)](#)

Ohio - [Ohio Environmental Protection Agency | Ohio.gov](#)

Oklahoma - [DEQ Home - Oklahoma Department of Environmental Quality](#)

Oregon - [Department of Environmental Quality : Welcome Page : State of Oregon](#)

Pennsylvania - [Pennsylvania DEP \(pa.gov\)](#)

Rhode Island - [Welcome | Rhode Island Department of Environmental Management \(ri.gov\)](#)

South Carolina - [Environment | SCDHEC](#)

South Dakota - [South Dakota Environment Program \(sd.gov\)](#)

Tennessee - [Environment and Conservation \(tn.gov\)](#)

Texas - [Homepage - Texas Commission on Environmental Quality - www.tceq.texas.gov](#)

Utah - [Home - Utah Department of Environmental Quality](#)

Vermont - [Welcome to DEC | Department of Environmental Conservation \(vermont.gov\)](#)

Virginia - [Virginia DEQ | Home](#)

Washington - [Home - Washington State Department of Ecology](#)

West Virginia - [WV Department of Environmental Protection](#)

Wisconsin - [Environmental Protection | Wisconsin DNR](#)

Wyoming - [Home - Wyoming Department of Environmental Quality %](#)

Other Useful Links

US Department of Energy - [Department of Energy](#)

LEED Certification - [LEED rating system | U.S. Green Building Council \(usgbc.org\)](#)

ISO 14001:2015 / Environmental Management Systems - [ISO - Standards](#)

B Corp - [B Corp Certification demonstrates a company's entire social and environmental impact. \(bcorporation.net\)](#)

Better Buildings - [Better Buildings Initiative | U.S. Department of Energy](#)

US Green Building Council - [USGBC | U.S. Green Building Council](#)

CDP (Carbon Disclosure Project) - [Home - CDP](#)

WORKS CITED

Environmental Protection Agency. (2023, December 18). *Enforcement and Compliance Annual Results for FY 2023: Data and Trends*. EPA.
<https://www.epa.gov/enforcement/enforcement-and-compliance-annual-results-fy-2023-data-and-trends>

Van Nostrand, E., Sinclair, T., & Gupta, S. (2023, June 27). *Unpacking the Boom in U.S. Construction of Manufacturing Facilities*. US Department of the Treasury.
Unpacking the Boom in U.S. Construction of Manufacturing Facilities | U.S. Department of the Treasury