

INDUSTRIAL STORMWATER

FACT SHEET SERIES

Sector A: Timber Products Facilities



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What is the NPDES stormwater permitting program for industrial activity?

Activities, such as material handling and storage, equipment maintenance and cleaning, industrial processing or other operations that occur at industrial facilities are often exposed to stormwater. The runoff from these areas may discharge pollutants directly into nearby waterbodies or indirectly via storm sewer systems, thereby degrading water quality.

In 1990, the U.S. Environmental Protection Agency (EPA) developed permitting regulations under the National Pollutant Discharge Elimination System (NPDES) to control stormwater discharges associated with eleven categories of industrial activity. As a result, NPDES permitting authorities, which may be either EPA or a state environmental agency, issue stormwater permits to control runoff from these industrial facilities.

What types of industrial facilities are required to obtain permit coverage?

This fact sheet specifically discusses stormwater discharges from timber products facilities as described by Standard Industrial Classification (SIC) Major Group 24 – identified in EPA's Multi-Sector General Permit as Sector A, Timber Products Facilities. This includes all facilities that produce lumber and wood products, except furniture. Facilities and products in this group fall under the following categories, all of which require coverage under an industrial stormwater permit:

- ◆ Log storage and handling (wet deck storage areas only authorized if no chemical additives are used in the spray water or applied to the logs) (SIC 2411)
- ◆ General sawmills and planing mills (SIC 2421)
- ◆ Hardwood dimension and flooring mills (SIC 2426)
- ◆ Special product sawmills not elsewhere classified (SIC 2429)
- ◆ Millwork, veneer, plywood, and structural wood (SIC 2431-2439)
 - ◆ *Not included are wood kitchen cabinet manufacturers (SIC 2434) which are instead addressed in the Fact Sheet for wood and metal furniture and fixture manufacturing.*
- ◆ Wood containers (SIC 2441-2449)
- ◆ Wood buildings and mobile homes (SIC 2451 and 2452)
- ◆ Wood preserving (SIC 2491)
- ◆ Reconstituted wood products (SIC 2493)
- ◆ Wood products, not elsewhere classified (SIC 2499)

What does an industrial stormwater permit require?

Common requirements for coverage under an industrial stormwater permit include development of a written stormwater pollution prevention plan (SWPPP), implementation of control measures, and submittal of a request for permit coverage, usually referred to as the Notice of Intent or NOI. The SWPPP is a written assessment of potential sources of pollutants in stormwater runoff and control measures that will be implemented at your facility to minimize the discharge of these pollutants in runoff from the site. These control measures include site-specific best management practices (BMPs), maintenance plans, inspections, employee training, and reporting. The procedures detailed in the SWPPP must be implemented by the facility and updated as necessary, with a copy of the SWPPP kept on-site. The industrial stormwater permit also requires collection of visual, analytical, and/or compliance monitoring data to determine the effectiveness of implemented BMPs. For more information on EPA’s industrial stormwater permit and links to State stormwater permits, go to www.epa.gov/npdes/stormwater and click on “Industrial Activity.”

What pollutants are associated with activities at my facility?

Pollutants conveyed in stormwater discharges from facilities involved with the manufacturing of timber products will vary. There are a number of factors that influence to what extent industrial activities and significant materials can affect water quality.

- ◆ Geographic location
- ◆ Topography
- ◆ Hydrogeology
- ◆ Extent of impervious surfaces (e.g., concrete or asphalt)
- ◆ Type of ground cover (e.g., vegetation, crushed stone, or dirt)
- ◆ Outdoor activities (e.g., material storage, loading/unloading, vehicle maintenance)
- ◆ Size of the operation
- ◆ Type, duration, and intensity of precipitation events

The activities, pollutant sources, and pollutants detailed in Table 1 are commonly found at timber products manufacturing facilities.

Table 1. Common Activities, Pollutant Sources, and Associated Pollutants at Timber Products Facilities

Activity	Pollutant Source	Pollutant
Log storage and handling	Exposure of lumber to precipitation	Bark and wood debris, total suspended solids (TSS), and leachates (which can contain high levels of TSS and biochemical oxygen demand (BOD))
Untreated lumber and residue generation activities and untreated wood materials storage	Exposure of lumber and residues to precipitation	Bark and wood debris, TSS, and leachates (which can contain high levels of TSS and BOD)
Wood surface protection activities and chemicals and surface protected materials storage	Spills from surface protection areas and storage and mixing tank areas; treated wood drippage, transport, and storage; and fugitive emissions from spraying	Chemicals (used for surface protection), BOD, chemical oxygen demand (COD), and TSS
Wood preservation activities and chemicals and preserved wood material storage	Drippage after pressurized treatment; washing after preservation: spills and leaks from process equipment and preservative tanks; fugitive emissions; and kick-back	Chemicals (specific toxics dependant on the preserving formulations used), BOD, TSS, oil, and grease

Table 1. Common Activities, Pollutants Sources, and Associated Pollutants at Timber Products Facilities (continued)

Activity	Pollutant Source	Pollutant
Wood assembly/fabrication activities and final fabricated wood product storage	Exposure of lumber, residues, and vehicles/equipment to precipitation	BOD, TSS, oil, and grease
Equipment/vehicle maintenance, repair, and storage	Parts cleaning	Solvents, oil, heavy metals, acid/alkaline wastes
	Waste disposal of oily rags, oil and gas filters, batteries, coolants, degreasers	Oil, heavy metals, solvents, acids
	Fluid replacement including hydraulic fluid, oil, transmission fluid, radiator fluids, and grease	Oil and grease, arsenic, lead, cadmium, chromium, COD, and benzene
Vehicle fueling	Diesel fuel	Diesel, gasoline, oil

What BMPs can be used to minimize contact between stormwater and potential pollutants at my facility?

A variety of BMP options may be applicable to eliminate or minimize the presence of pollutants in stormwater discharges from timber products facilities. You will likely need to implement a combination or suite of BMPs to address stormwater runoff at your facility. Your first consideration should be for pollution prevention BMPs, which are designed to prevent or minimize pollutants from entering stormwater runoff and/or reduce the volume of stormwater requiring management. Prevention BMPs can include regular cleanup, collection and containment of debris in storage areas, and other housekeeping practices, spill control, and employee training. It may also be necessary to implement treatment BMPs, which are engineered structures, intended to treat stormwater runoff and/or mitigate the effects of increased stormwater runoff peak rate, volume, and velocity. Treatment BMPs are generally more expensive to install and maintain and include oil-water separators, wet ponds, and proprietary filter devices.

EPA requires that all timber products facilities implement BMPs in the following areas of the site:

- ◆ Log, lumber, and other wood product storage areas
- ◆ Residue storage areas
- ◆ Loading, and unloading areas
- ◆ Material handling areas
- ◆ Chemical and liquid fuel storage areas
- ◆ Equipment/vehicle maintenance, storage, and repair areas

Facilities that surface protect and/or preserve wood products are also required to address specific BMPs for wood surface protection and preserving activities.

BMPs must be selected and implemented to address the following:

Good Housekeeping Practices

Good housekeeping is the practical, cost-effective way to maintain a clean and orderly facility and keep contaminants out of stormwater discharges. It includes establishing protocols to reduce the possibility of mishandling materials or equipment and training employees in good housekeeping techniques. Common problem areas at a facility include areas around trash containers, storage areas, and loading docks. Good housekeeping measures must include a schedule for regular pickup and disposal of garbage and waste materials and routine inspections of drums, tanks, and containers for leaks and structural conditions. Practices also include containing and covering garbage, waste

materials, and debris. Involving employees in routine monitoring of housekeeping practices has proven to be an effective means of ensuring their continued implementation.

Additional good housekeeping practices for timber products facilities in storage, loading/unloading and material handling areas include:

- ◆ Limiting the discharge of wood debris by confining to restricted locations, and by keeping it cleaned up in non-designated areas
- ◆ Cleaning up air-borne dusts that have settled in other areas
- ◆ Chemical management

Minimizing Exposure

Where feasible, minimizing exposure of potential pollutant sources to precipitation is an important control option. Minimizing exposure prevents pollutants, including debris, from coming into contact with precipitation and can reduce the need for BMPs to treat contaminated stormwater runoff. It can also prevent debris from being picked up by stormwater and carried into drains and surface waters. Examples of BMPs for exposure minimization include covering materials or activities with temporary structures (e.g., tarps) when wet weather is expected or moving materials or activities to existing or new permanent structures (e.g., buildings, silos, sheds). Even the simple practice of keeping a dumpster lid closed can be a very effective pollution prevention measure.

Erosion and Sediment Control

BMPs must be selected and implemented to limit erosion on areas of your site that, due to topography, activities, soils, cover, materials, or other factors are likely to experience erosion. Erosion control BMPs such as seeding, mulching, and sodding prevent soil from becoming dislodged and should be considered first. Sediment control BMPs such as silt fences, sediment ponds, and stabilized entrances trap sediment after it has eroded. Sediment control BMPs should be used to back-up erosion control BMPs.

Management of Runoff

Your SWPPP must contain a narrative evaluation of the appropriateness of stormwater management practices that divert, infiltrate, reuse, or otherwise manage stormwater runoff so as to reduce the discharge of pollutants. Appropriate measures are highly site-specific, but may include, among others, vegetative swales, collection and reuse of stormwater, inlet controls, snow management, infiltration devices, and wet retention measures.

A combination of preventive and treatment BMPs will yield the most effective stormwater management for minimizing the offsite discharge of pollutants via stormwater runoff. Though not specifically outlined in this fact sheet, BMPs must also address preventive maintenance records or logbooks, regular facility inspections, spill prevention and response, and employee training.

All BMPs require regular maintenance to function as intended. Some management measures have simple maintenance requirements, others are quite involved. You must regularly inspect all BMPs to ensure they are operating properly, including during runoff events. As soon as a problem is found, action to resolve it should be initiated immediately.

Implement BMPs, such as those listed below in Table 2 for the control of pollutants at timber products manufacturing facilities, to minimize and prevent the discharge of pollutants in stormwater. Identifying weaknesses in current facility practices will aid the permittee in determining appropriate BMPs that will achieve a reduction in pollutant loadings. BMPs listed in Table 2 are broadly applicable to timber products manufacturing facilities; however, this is not a complete list and you are recommended to consult with regulatory agencies or a stormwater engineer/consultant to identify appropriate BMPs for your facility.

Table 2. BMPs for Potential Pollutant Sources at Timber Products Facilities

Pollutant Source	BMPs
Log, lumber and wood product storage areas	<ul style="list-style-type: none"> <input type="checkbox"/> Divert stormwater around storage areas with vegetated swales, and/or berms. A properly designed vegetated swale can also provide infiltration benefits. <input type="checkbox"/> Locate storage areas on stable, well-drained soils with slopes of 2–5 percent to prevent ponding and to convey stormwater leachate to treatment. Sloping should be limited to prevent erosion. Slopes should be stabilized. <input type="checkbox"/> Line storage areas with crushed rock or gravel or porous pavement to promote infiltration, minimize discharge, and provide sediment and erosion control. <input type="checkbox"/> Practice good housekeeping measures such as frequent removal of debris, bark, and wood waste. Cleanup methods may include mobile sweepers, scrapers, brow logs, or scoops. <input type="checkbox"/> Use properly designed basins for collection, containment, and recycling of log spraying materials. <input type="checkbox"/> Use sedimentation measures such as silt fence to control sediment from leaving storage area. <input type="checkbox"/> Cover piles to prevent contact with stormwater (use roofs, canopies, soils, sheds, etc.). <input type="checkbox"/> For solid wastes use covered containers such as dumpsters or garbage cans that are durable, corrosion resistant, non-absorbent, and/or non-leaking.
Residual storage areas	<ul style="list-style-type: none"> <input type="checkbox"/> Locate stored residues away from drainage pathways and surface waters. <input type="checkbox"/> Avoid contamination of residues with oil, solvents, chemically treated wood, trash, etc. <input type="checkbox"/> Limit storage time of residues to prevent degradation and generation of leachates. <input type="checkbox"/> Divert stormwater around residue storage areas with vegetated swales, and/or berms. <input type="checkbox"/> Consolidate piles to minimize surface areas exposed to precipitation. <input type="checkbox"/> Spray surfaces with water to reduce windblown dust and residue particles. <input type="checkbox"/> Place materials on raised pads of compacted earth, clay, shale, or stone and collect and properly treat contaminated runoff and leachate. <input type="checkbox"/> Cover and/or enclose stored residues to prevent contact with precipitation using silos, van trailers, shed, roofs, buildings, or tarps. <input type="checkbox"/> Limit slopes of storage areas to minimize velocities of runoff which may transport residues. Keep slopes stabilized. <input type="checkbox"/> Use check dams in drainage ways. <input type="checkbox"/> Use steel or plastic drums that are rigid and durable, corrosion resistant, non-absorbent, watertight, and equipped with a close fitting cover. <input type="checkbox"/> Train employees in proper residuals management.
Loading and unloading areas; material handling areas	<ul style="list-style-type: none"> <input type="checkbox"/> Provide diversion berms, dikes or grassed swales around the perimeter of the area to limit run-on. <input type="checkbox"/> Slope the impervious concrete floor or pad to collect spills and leaks and convey them to proper containment and treatment. <input type="checkbox"/> Cover loading and unloading areas and perform these activities on an impervious pad at a dock with a door skirt. <input type="checkbox"/> Enclose material handling systems for wood wastes. <input type="checkbox"/> Cover materials entering and leaving areas. <input type="checkbox"/> Provide good housekeeping measures to limit debris. <input type="checkbox"/> Provide dust control. When controlling dust, sweep and/or apply water or materials which will not impact surface or ground water.

Table 2. BMPs for Potential Pollutant Sources at Timber Products Facilities (continued)

Pollutant Source	BMPs
Loading and unloading areas; material handling areas (continued)	<ul style="list-style-type: none"> <input type="checkbox"/> Provide paving in spill-prone areas to enable easy collection of spilled materials. <input type="checkbox"/> For rail transfer, use a drip pan installed within the rails to collect spillage from the tank. <input type="checkbox"/> Train employees in spill prevention and control.
Chemical storage areas	<ul style="list-style-type: none"> <input type="checkbox"/> Provide secondary containment around chemical storage areas. If containment structures have drains, ensure that the drains have valves, and that valves are maintained in the closed position. Institute protocols for checking/testing stormwater in containment areas prior to discharge. <input type="checkbox"/> Properly dispose of chemicals that are no longer in use. <input type="checkbox"/> Provide fluid level indicators. <input type="checkbox"/> Inventory fluids to identify leakage. <input type="checkbox"/> Locate storage areas away from high traffic areas and surface waters. <input type="checkbox"/> Develop and implement spill prevention, containment, and countermeasure (SPCC) plans. <input type="checkbox"/> Cover and/or enclose chemical storage areas. <input type="checkbox"/> Provide drip pads/pans to allow for recycling of spills and leaks. <input type="checkbox"/> Store and handle reactive, ignitable, or flammable liquids in compliance with applicable local fire codes, local zoning codes, and the National Electric Code. <input type="checkbox"/> Train employees in spill prevention and control.
Liquid fuel storage areas	<ul style="list-style-type: none"> <input type="checkbox"/> If area is uncovered, connect sump outlet to sanitary sewer (if possible) or an oil/water separator, catch basin filter, etc. If connecting to a sanitary sewer check with the system operator to ensure that the discharge is acceptable. If implementing separator or filter technologies ensure that regular inspections and maintenance procedures are in place. <p data-bbox="427 1184 636 1211">Above ground tanks</p> <ul style="list-style-type: none"> <input type="checkbox"/> Use secondary containment, such as dikes, with a height sufficient to contain a spill (the greater of 10 percent of the total enclosed tank volume or 110 percent of the volume contained in the largest tank). If containment structures have drains, ensure that the drains have valves, and that valves are maintained in the closed position. Institute protocols for checking/testing stormwater in containment areas prior to discharge. <input type="checkbox"/> Use double-walled tanks. <input type="checkbox"/> Keep liquid transfer nozzles/hoses in secondary containment area. <input type="checkbox"/> Include overflow protection. <input type="checkbox"/> Store drums indoors when possible. <input type="checkbox"/> Store drums, including empty or used drums, in secondary containment with a roof or cover (including temporary cover such as a tarp that prevents contact with stormwater). <input type="checkbox"/> Clearly label drum with its contents.
Wood surface protection and preserving activities	<ul style="list-style-type: none"> <input type="checkbox"/> Extend drip time in process areas before moving to storage areas. <input type="checkbox"/> Pave and berm areas used by equipment that has come in contact with treatment chemicals. <input type="checkbox"/> Dedicate equipment that is used for treatment activities to that specific purpose to prevent the tracking of treatment chemicals to other areas on the site. <input type="checkbox"/> Locate treatment chemical loading and unloading areas away from high traffic areas where tracking of the chemical may occur. <input type="checkbox"/> Provide drip pads under conveyance equipment from treatment process areas.

Table 2. BMPs for Potential Pollutant Sources at Timber Products Facilities (continued)

Pollutant Source	BMPs
Wood surface protection and preserving activities (continued)	<ul style="list-style-type: none"> <input type="checkbox"/> Provide frequent visual inspections of treatment chemical loading and unloading areas during and after activities occur to identify any spills or leaks needing cleanup. <input type="checkbox"/> Cover and/or enclose treatment areas or apply log treating chemicals on impervious containment pad. <input type="checkbox"/> Provide containment in treated wood storage areas. <input type="checkbox"/> Cover storage areas to prevent contact of treated wood products with precipitation. <input type="checkbox"/> Elevate stored, treated wood products to prevent contact with run-on/runoff. <input type="checkbox"/> Store freshly treated logs on impervious containment pad, in a building or under a roof. <input type="checkbox"/> Do not vent volatile or mist-laden exhaust containing log treating chemicals to the outside without proper collection or filtration. <input type="checkbox"/> Inspect processing areas, transport areas, and treated wood storage areas monthly to assess usefulness of practices to minimize the deposit of treatment chemicals on unprotected soils and in areas that will come in contact with stormwater discharges.
Vehicle and equipment maintenance, storage, and repair areas	<p data-bbox="428 850 646 884">Good Housekeeping</p> <ul style="list-style-type: none"> <input type="checkbox"/> Eliminate floor drains that are connected to the storm or sanitary sewer; if necessary, install a sump that is pumped regularly. Collected wastes should be properly treated or disposed of by a licensed waste hauler. <input type="checkbox"/> Prevent and contain spills and drips. <input type="checkbox"/> Use drip pans, drain boards, and drying racks to direct drips back into a fluid holding tank for reuse. <input type="checkbox"/> Drain all parts of fluids prior to disposal. Oil filters can be crushed and recycled. <input type="checkbox"/> Promptly transfer used fluids to the proper container; do not leave full drip pans or other open containers around the shop. Empty and clean drip pans and containers. <input type="checkbox"/> Dispose of greasy rags, oil filters, air filters, batteries, spent coolant, and degreasers properly. <input type="checkbox"/> Store batteries and other significant materials inside. <input type="checkbox"/> Label and track the recycling of waste material (e.g., used oil, spent solvents, batteries). <input type="checkbox"/> Maintain an organized inventory of materials. <input type="checkbox"/> Eliminate or reduce the number and amount of hazardous materials and waste by substituting non-hazardous or less hazardous materials. <input type="checkbox"/> Clean up leaks, drips, and other spills without using large amounts of water. Use absorbents for dry cleanup whenever possible. <input type="checkbox"/> Prohibit the practice of hosing down an area where the practice would result in the discharge of pollutants to a stormwater system. <input type="checkbox"/> Clean without using liquid cleaners whenever possible. <input type="checkbox"/> Conduct all cleaning at a centralized station so the solvents stay in one area. <input type="checkbox"/> If parts are dipped in liquid, remove them slowly to avoid spills. <input type="checkbox"/> Do not pour liquid waste into floor drains, sinks, outdoor storm drain inlets, or other storm drains or sewer connections. <p data-bbox="428 1766 646 1799">Minimizing Exposure</p> <ul style="list-style-type: none"> <input type="checkbox"/> Perform all cleaning operations indoors or under covering when possible. Conduct the cleaning operations in an area with a concrete floor with no floor drainage other than to sanitary sewers or treatment facilities. <input type="checkbox"/> If operations are uncovered, perform them on a concrete pad that is impervious and contained.

Table 2. BMPs for Potential Pollutant Sources at Timber Products Facilities (continued)

Pollutant Source	BMPs
Vehicle and equipment maintenance, storage, and repair areas (continued)	<p>Minimizing Exposure</p> <ul style="list-style-type: none"> <input type="checkbox"/> Park vehicles and equipment indoors or under a roof whenever possible and maintain proper control of oil leaks/spills. <input type="checkbox"/> Check vehicles closely for leaks and use pans to collect fluid when leaks occur. <p>Management of Runoff</p> <ul style="list-style-type: none"> <input type="checkbox"/> Use berms, curbs, or other diversion measures to ensure that stormwater runoff from other parts of the facility do not flow over the maintenance area. <input type="checkbox"/> Collect the stormwater runoff from the cleaning area and provide treatment or recycling. Discharge vehicle wash or rinse water to the sanitary sewer (if allowed by sewer authority), wastewater treatment, a land application site, or recycle on-site. DO NOT discharge washwater to a storm drain or to surface water. <p>Inspections and Training</p> <ul style="list-style-type: none"> <input type="checkbox"/> Inspect the maintenance area regularly for proper implementation of control measures. <input type="checkbox"/> Train employees on proper waste control and disposal procedures.

What if activities and materials at my facility are not exposed to precipitation?

The industrial stormwater program requires permit coverage for a number of specified types of industrial activities. However, when a facility is able to prevent the exposure of ALL relevant activities and materials to precipitation, it may be eligible to claim no exposure and qualify for a waiver from permit coverage.

If you are regulated under the industrial permitting program, you must either obtain permit coverage or submit a no exposure certification form, if available. Check with your permitting authority for additional information as not every permitting authority program provides no exposure exemptions.

Where do I get more information?

For additional information on the industrial stormwater program see www.epa.gov/npdes/stormwater/msgp.

A list of names and telephone numbers for each EPA Region or state NPDES permitting authority can be found at www.epa.gov/npdes/stormwatercontacts.

References

Information contained in this Fact Sheet was compiled from EPA’s past and present Multi-Sector General Permits and from the following sources:

- ◆ USEPA, Office of Wastewater Management. *NPDES Stormwater Multi-Sector General Permit for Industrial Activities (MSGP)*. www.epa.gov/npdes/stormwater/msgp
- ◆ USEPA, Office of Science and Technology. 1999. *Preliminary Data Summary of Urban Stormwater Best Management Practices*. EPA-821-R-99-012 www.epa.gov/OST/stormwater
- ◆ USEPA, Office of Water. 1999. *Storm Water Management Fact Sheet—Dust Control*. EPA 832-F-99-003. www.epa.gov/owm/mtb/dustctr.pdf