

INDUSTRIAL STORMWATER

FACT SHEET SERIES

Sector D: Asphalt Paving and Roofing Materials Manufacturers and Lubricant Manufacturers



U.S. EPA Office of Water
EPA-833-F-06-019
December 2006

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 discusses stormwater discharges from asphalt paving and roofing materials manufacturers and lubricant manufacturers as described by Standard Industrial Classification (SIC) Major Group 29. Only facilities that perform the following operations require coverage under an industrial stormwater permit:

- ◆ Asphalt paving mixtures and blocks (SIC 2951)
- ◆ Asphalt felts and coatings (SIC 2952)
- ◆ Lubricating oils and lubricating oils and greases (SIC 2992)
- ◆ Products of petroleum and coal not elsewhere classified (SIC 2999)

Not discussed in this fact sheet are renderers of fats and oils (see Fact Sheet U (EPA-833-F-06-036) for food and kindred products), oil recycling facilities (see Fact Sheet N (EPA-833-F-06-029) for scrap recycling facilities), or petroleum refining facilities.

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 asphalt, roofing materials, and lubricants 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 asphalt paving and roofing materials manufacturers and lubricant manufacturing facilities.

Table 1. Common Activities, Pollutant Sources, and Associated Pollutants at Asphalt Paving and Roofing Materials Manufacturers and Lubricant Manufacturing Facilities

Activity	Pollutant Source	Pollutant
<i>Asphalt Paving and Roofing Materials</i>		
Outdoor stockpiling of materials	Exposure of aggregate (sand, stone, limestone, gravel, etc.) to precipitation	Total suspended solids (TSS), total dissolved solids (TDS) biochemical oxygen demand (BOD5), chemical oxygen demand (COD), oil and grease (O&G), benzene, methylene blue active substances (MBAS), metals, pH
Storage of materials in above-ground tanks	Leakage from tanks	TSS, TDS, BOD5, COD, O&G, benzene, MBAS, metals, pH
Transport of materials by a conveyor or front-end loader	Exposed materials and potential spills	TSS, TDS, BOD5, COD, O&G, benzene, MBAS, metals, pH
<i>Lubricating Oils and Greases</i>		
Storage of raw materials	Spills and leaks of materials from tank farms or 55-gallon drums	Petroleum or synthetic-based stocks and various additives, O&G, pH
Vehicle and equipment maintenance	Parts cleaning, waste disposal of rags, oil filters, air filters, batteries, hydraulic fluids, transmission fluids, brake fluids, coolants, lubricants, degreasers, spent solvents	Gas/diesel fuel, fuel additives, oil/lubricants, heavy metals, brake fluids, transmission fluids, chlorinated solvents, arsenic
Vehicle and equipment fueling	Spills and leaks during fuel transfer, spills due to "topping off" tanks, runoff from fueling areas, washdown of fueling areas, leaking storage tanks, spills of oils, brake fluids, transmission fluids,	Gas/diesel fuel, fuel additives, oil, lubricants, heavy metals

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 asphalt paving and roofing materials manufacturers and lubricant manufacturing 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.

BMPs must be selected and implemented to address the following:

Good Housekeeping Practices

Good housekeeping is a practical, cost-effective way to maintain a clean and orderly facility to prevent potential pollution sources from coming into contact with stormwater. It includes establishing protocols to reduce the possibility of mishandling materials or equipment and training employees in good housekeeping techniques. Common areas where good housekeeping practices should be followed include trash containers and adjacent areas, material storage areas, vehicle and equipment maintenance areas, and loading docks. Good housekeeping practices 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 the continued implementation of these measures.

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 asphalt paving and roofing materials manufacturers and lubricant 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 asphalt paving and roofing materials manufacturers and lubricant 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 Asphalt Paving and Roofing Materials Manufacturers and Lubricant Manufacturing Facilities

Pollutant Source	BMPs
Material storage, handling, and processing	<ul style="list-style-type: none"> <li data-bbox="423 804 1435 835">❑ Cover material storage and handling areas with an awning, tarp, or roof. <li data-bbox="423 846 1435 905">❑ Confine storage to designated and labeled areas outside of drainage pathways and away from surface waters <li data-bbox="423 915 1435 1005">❑ Practice good stockpiling practices such as: storing materials on concrete or asphalt pads; surrounding stockpiles with diversion dikes or curbs; and revegetating areas used for stockpiling in order to slow runoff. <li data-bbox="423 1016 1435 1106">❑ Use curbing, diking, or channelization around material storage, handling and processing areas to divert run-on around areas where it can come into contact with material stored or spilled on the ground. <li data-bbox="423 1117 1435 1176">❑ Utilize secondary containment measures such as dikes or berms around asphalt storage tanks and fuel oil tanks. <li data-bbox="423 1186 1435 1245">❑ Use dust collection systems (i.e., baghouses) to collect airborne particles generated as a result of material handling operations or aggregate drying. <li data-bbox="423 1255 1435 1287">❑ Promptly dispose of waste materials from dust collection systems and other operations. <li data-bbox="423 1297 1435 1356">❑ Remove spilled material and dust from paved portions of the facility by shoveling and sweeping on a regular basis. <li data-bbox="423 1367 1435 1398">❑ Utilize catch basins to collect potentially contaminated stormwater. <li data-bbox="423 1409 1435 1467">❑ Develop and implement spill prevention plans to prevent contact of runoff with spills of significant materials. <li data-bbox="423 1478 1435 1537">❑ Clean material handling equipment and vehicles to remove accumulated dust and residue on a regular basis. <li data-bbox="423 1547 1435 1579">❑ Use a detention pond or sedimentation basin to reduce suspended solids. <li data-bbox="423 1589 1435 1621">❑ Use an oil/water separator to reduce the discharge of oil/grease. <li data-bbox="423 1631 1435 1663">❑ Maintain up-to-date material inventory. <li data-bbox="423 1673 1435 1705">❑ Maintain dry, clean floors and ground surfaces. <li data-bbox="423 1715 1435 1822">❑ Train employees in good housekeeping, spill prevention and control, and materials management procedures.

Table 2. BMPs for Potential Pollutant Sources at Asphalt Paving and Roofing Materials Manufacturers and Lubricant Manufacturing Facilities (continued)

Pollutant Source	BMPs
Storage of Petroleum, synthetic-based stocks and additives	<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. <input type="checkbox"/> Develop and implement spill plans. <input type="checkbox"/> Train employees in spill prevention and control. <p>Above ground tanks</p> <ul style="list-style-type: none"> <input type="checkbox"/> Provide 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). <input type="checkbox"/> 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 with overflow protection. <input type="checkbox"/> Keep liquid transfer nozzles/hoses in secondary containment area. <p>Portable containers/drums</p> <ul style="list-style-type: none"> <input type="checkbox"/> Keep liquid transfer nozzles/hoses in secondary containment area. <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 precipitation). <input type="checkbox"/> Provide secondary containment, such as dikes or portable containers, 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). <input type="checkbox"/> Clearly label drum with its contents.
Vehicle and equipment fueling	<ul style="list-style-type: none"> <input type="checkbox"/> Conduct fueling operations (including the transfer of fuel from tank trucks) on an impervious or contained pad or under a roof or canopy where possible. Covering should extend beyond spill containment pad to prevent rain from entering. <input type="checkbox"/> When fueling in uncovered area, use a concrete pad (asphalt is not chemically resistant to the fuels being handled). <input type="checkbox"/> Use drip pans where leaks or spills of fuel can occur and where making and breaking hose connections. <input type="checkbox"/> Use fueling hoses with check valves to prevent hose drainage after filling. <input type="checkbox"/> Use spill and overflow protection devices. <input type="checkbox"/> Keep spill cleanup material readily available. Clean up spills and leaks immediately. <input type="checkbox"/> Minimize/eliminate run-on into fueling areas with diversion dikes, berms, containment trenches, curbing or other equivalent measures. <input type="checkbox"/> Collect stormwater runoff and provide treatment or recycling. <input type="checkbox"/> Use dry cleanup methods for fuel area rather than hosing down the fuel area. Follow procedures for sweeping up absorbents as soon as spilled substances have been absorbed. <input type="checkbox"/> Provide curbing or posts around fuel pumps to prevent collisions from vehicles. <input type="checkbox"/> Discourage "topping off" of fuel tanks. <input type="checkbox"/> Regularly inspect and perform preventive maintenance on fuel storage tanks to detect potential leaks before they occur. <input type="checkbox"/> Inspect the fueling area for leaks and spills. <input type="checkbox"/> Train employees on vehicle fueling BMPs.

Table 2. BMPs for Potential Pollutant Sources at Asphalt Paving and Roofing Materials Manufacturers and Lubricant Manufacturing Facilities (continued)

Pollutant Source	BMPs
Vehicle and equipment maintenance	<p>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"/> Do 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"/> 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"/> 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"/> Do not pour liquid waste into floor drains, sinks, outdoor storm drain inlets, or other storm drains or sewer connections. <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 nonhazardous or less hazardous materials. <input type="checkbox"/> Label and track the recycling of waste material (e.g., used oil, spent solvents, batteries). <input type="checkbox"/> Store batteries and other significant materials indoors. <input type="checkbox"/> Dispose of greasy rags, oil filters, air filters, batteries, spent coolant, and degreasers in compliance with RCRA regulations. <p>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 concrete pad that is impervious and contained. <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, grassed swales or other diversion measures to ensure that stormwater runoff from other parts of the facility does 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 onsite. 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 to ensure BMPs are implemented. <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 current Multi-Sector General Permits and from the following sources:

- ◆ City of Phoenix, Street Transportation Department, Storm Water Management Section. 2004. Prevent Stormwater Contamination Best Management Practices for: Section D - Asphalt Paving and Roofing Materials and Lubricant Manufacturers. SIC Codes: 2951, 2952, 2992, 2999. <http://phoenix.gov/STREETS/asphroof.pdf>
- ◆ New Jersey Department of Environmental Protection, Division of Water Quality. "Stormwater Discharge General Permits: Hot Mix Asphalt Producers (HMAP) General Permit (R4)." www.nj.gov/dep/dwq/gp_stormwater.htm#asphalt
- ◆ Orange County, California, Watershed & Coastal Resources Division. Concrete and Asphalt Production, Application, and Cutting. www.ocwatersheds.com/StormWater/documents_bmp_existing_development.asp#ind
- ◆ Pierce County Washington, Public Works and Utilities. "Best Management Practices for Commercial and Industrial Activities." www.co.pierce.wa.us/xml/services/home/environ/water/cip/swmmanual/stakeholders/SWMM%20V4-C4_1.pdf
- ◆ USEPA. 1992. Stormwater Management for Industrial Activities: Developing Pollution Prevention Plans and Best Management Practices. EPA-832-R-92-006. www.epa.gov/npdes/stormwater
- ◆ 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 Wastewater Management. NPDES Stormwater Multi-Sector General Permit for Industrial Activities (MSGP). www.epa.gov/npdes/stormwater/msgp