

# INDUSTRIAL STORMWATER

## FACT SHEET SERIES

### *Sector 5: Vehicle Maintenance Areas, Equipment Cleaning Areas, or Deicing Areas Located at Air Transportation 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 airports, airport terminals, airline carriers, and establishments as defined by Standard Industrial Classification (SIC) Major Group 45. Facilities and products in this group fall under the following categories, all of which require coverage under an industrial stormwater permit:

- ◆ Servicing, repairing, or maintaining aircraft and ground vehicles
- ◆ Equipment cleaning and maintenance (including vehicle and equipment rehabilitation mechanical repairs, painting, fueling, lubrication)
- ◆ Deicing/anti-icing operations which conduct the above described activities

The operator and the tenants of the airport that conduct industrial activities as described above and which have stormwater discharges are required to apply for coverage under an NPDES stormwater permit for the discharges from their areas of operation. The airport management and tenants of the airport are encouraged to apply as co-permittees under a permit, and to work in partnership in the development and implementation of a stormwater pollution prevention plan.

Non-stormwater discharges, including discharges from aircraft, ground vehicle and equipment washwaters, dry weather discharges from airport deicing/anti-icing operations, and dry weather discharges resulting from runway maintenance are not required to obtain coverage under an industrial stormwater permit. Dry weather discharges are generated from processes other than those described in the definition of stormwater. The definition of stormwater includes stormwater runoff, snow melt runoff, and surface runoff and drainage.

### ***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](http://www.epa.gov/npdes/stormwater) and click on “Industrial Activity.”

**What pollutants are associated with my facilities activities?**

Pollutants conveyed in stormwater discharges from air transportation facilities will vary. Generally, the concern with the use of ethylene and propylene glycols is that they exert high oxygen demands when released into receiving waters. Additionally, the concentration of nitrogen and possibly ammonia are the concern with the respect to deicing/anti-icing operations where urea is used. 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 air transportation facilities.

**Table 1. Common Activities, Pollutants Sources, and Associated Pollutants at Air Transportation Facilities**

Activity	Pollutant Source	Pollutant
Aircraft deicing/ anti-icing	Runoff of spent deicing chemicals (e.g. ethylene glycol or propylene glycol) from aircraft exteriors	Biochemical oxygen demand (BOD)
Runway deicing/ anti-icing	Runoff of spent deicing chemicals (e.g. ethylene or propylene glycol, urea, potassium or sodium acetate, potassium or sodium formate) from deicing areas	BOD, nitrogen, ammonia
Aircraft servicing	Spills or leaks during servicing	Engine oil, hydraulic fluid, fuel, lavatory waste
Aircraft fueling	Spills and leaks during fuel transfer, spills due to “topping off” tanks, runoff from fueling areas, washdown of fueling areas, leaking storage tanks	Jet fuel, fuel additives, oil, lubricants, heavy metals
Aircraft, ground vehicle, and equipment maintenance and washing	Spills and leaks during maintenance	Engine oils, hydraulic fluids, transmission oil, radiator fluids, and chemical solvents
	Disposal of waste parts	Batteries, oil, fuel filters, oily rags
	Spent washwater	TSS, metals, fuel, hydraulic fluid, oil, lavatory waste
Runway maintenance	Materials removed from runway surface	Tire rubber, oil and grease, paint chips, jet fuel
	Chemicals used to clean the runway surface	Chemical solvents

## ***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 air transportation 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.

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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 air transportation 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 air transportation 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 Air Transportation Facilities**

Pollutant Source	BMPs
Deicing/anti-icing aircraft	<ul style="list-style-type: none"> <li data-bbox="440 842 1433 898"><input type="checkbox"/> Establish a centralized aircraft deicing station with containment of surface and subsurface drainage.</li> <li data-bbox="440 909 1433 1329"><input type="checkbox"/> To reduce deicing fluid applied:                             <ul style="list-style-type: none"> <li data-bbox="480 947 1433 974">- Forced-air deicing systems</li> <li data-bbox="480 982 1433 1010">- Computer-controlled fixed-gantry systems</li> <li data-bbox="480 1018 1433 1045">- Infrared technology</li> <li data-bbox="480 1054 1433 1081">- Hot water</li> <li data-bbox="480 1089 1433 1117">- Varying glycol content to air temperature</li> <li data-bbox="480 1125 1433 1152">- Enclosed-basket deicing trucks</li> <li data-bbox="480 1161 1433 1188">- Mechanical methods</li> <li data-bbox="480 1197 1433 1224">- Solar radiation</li> <li data-bbox="480 1232 1433 1260">- Hangar storage</li> <li data-bbox="480 1268 1433 1295">- Aircraft covers</li> <li data-bbox="480 1304 1433 1331">- Thermal blankets fro MD-80s and DC-9s</li> </ul> </li> <li data-bbox="440 1346 1433 1373"><input type="checkbox"/> Apply deicing fluid and anti-icer to planes on deicing pads if available.</li> <li data-bbox="440 1388 1433 1444"><input type="checkbox"/> Apply anti-icer to aircraft that will be parked overnight to make it easier to remove accumulated snow and ice in the morning.</li> <li data-bbox="440 1459 1433 1516"><input type="checkbox"/> Apply anti-icer to aircraft immediately after deicing to provide extended hold-over time prior to take-off.</li> <li data-bbox="440 1530 1433 1558"><input type="checkbox"/> Ensure that stormwater inlets are blocked when deicing/anti-icing during dry weather.</li> <li data-bbox="440 1572 1433 1629"><input type="checkbox"/> Use mechanical vacuum systems or other devices to collect aircraft deicing runoff from the apron surface for proper disposal.</li> <li data-bbox="440 1644 1433 1701"><input type="checkbox"/> Dispose collected aircraft deicing runoff to sanitary sewage facility (if allowed by sewer authority), on-site treatment, or recycle (resell or reuse).</li> <li data-bbox="440 1715 1433 1772"><input type="checkbox"/> Use portable tanks, retention and detention ponds for temporary storage of collected deicing runoff.</li> <li data-bbox="440 1787 1433 1843"><input type="checkbox"/> Collect contaminated runoff in a wet pond for biochemical decomposition (be aware of attracting wildlife that may prove hazardous to flight operations).</li> <li data-bbox="440 1858 1433 1885"><input type="checkbox"/> Recover and recycle/dispose of unused deicing fluids in deicing trucks.</li> <li data-bbox="440 1900 1433 1957"><input type="checkbox"/> Recover deicing materials when applied during non-precipitation events (e.g., covering storm sewer inlets, using booms, installing absorptive interceptors in the drains, etc.) to prevent materials from later contaminating stormwater.</li> </ul>

**Table 2. BMPs for Potential Pollutant Sources at Air Transportation Facilities (continued)**

Pollutant Source	BMPs
Deicing/anti-icing runways and pads	<ul style="list-style-type: none"> <li><input type="checkbox"/> Evaluate and optimize present chemical application rates</li> <li><input type="checkbox"/> Use sand where possible to enhance friction.</li> <li><input type="checkbox"/> Plow and broom runways prior to application of deicing chemicals.</li> <li><input type="checkbox"/> Heat solid deicers and sand prior to application.</li> <li><input type="checkbox"/> Install and calibrate devices to meter the amount of pavement deicer being applied.</li> <li><input type="checkbox"/> Emphasize anti-icing operations which minimize the need to deice.</li> <li><input type="checkbox"/> Install runway ice detection systems (“pavement sensors”) to monitor pavement temperatures.</li> <li><input type="checkbox"/> Pre-wet with liquid deicers to improve adhesion of solid deicers to the iced surface.</li> <li><input type="checkbox"/> Use deicers which have less of an environmental impact (e.g. sodium formate and potassium acetate as opposed to urea and glycol).</li> <li><input type="checkbox"/> Ensure proper handling and disposal of unused deicing chemicals in vehicles.</li> <li><input type="checkbox"/> Use ice detection systems.</li> <li><input type="checkbox"/> Use airport traffic flow strategies and departure slot allocation systems.</li> </ul>
Aircraft, ground vehicle, and equipment maintenance areas (including aircraft service areas)	<p>Good Housekeeping</p> <ul style="list-style-type: none"> <li><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 disposal company.</li> <li><input type="checkbox"/> Prevent and contain spills and drips.</li> <li><input type="checkbox"/> Do all cleaning at a centralized station so the solvents stay in one area.</li> <li><input type="checkbox"/> Remove any parts that are dipped in liquid slowly to avoid spills.</li> <li><input type="checkbox"/> Use drip pans, drain boards, and drying racks to direct drips back into a fluid holding tank for reuse.</li> <li><input type="checkbox"/> Drain all parts of fluids prior to disposal. Oil filters can be crushed and recycled.</li> <li><input type="checkbox"/> Transfer used fluids to the proper container promptly; do not leave full drip pans or other open containers around the shop. Empty and clean drip pans and containers.</li> <li><input type="checkbox"/> Clean up leaks, drips, and other spills without using large amounts of water. Use absorbents for dry cleanup whenever possible.</li> <li><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.</li> <li><input type="checkbox"/> Prohibit pouring liquid waste into floor drains, sinks, outdoor storm drain inlets, or other storm drains or sewer connections.</li> <li><input type="checkbox"/> Maintain an organized inventory of materials.</li> <li><input type="checkbox"/> Eliminate or reduce the number and amount of hazardous materials and waste by substituting nonhazardous or less hazardous materials.</li> <li><input type="checkbox"/> Label and track the recycling of waste material (e.g., used oil, spent solvents, batteries).</li> <li><input type="checkbox"/> Store batteries and other significant materials inside.</li> <li><input type="checkbox"/> Dispose of greasy rags, oil filters, air filters, batteries, spent coolant, and degreasers in compliance with RCRA regulations.</li> </ul>

**Table 2. BMPs for Potential Pollutant Sources at Air Transportation Facilities (continued)**

Pollutant Source	BMPs
Aircraft, ground vehicle, and equipment maintenance areas (including aircraft service areas) (continued)	<p>Minimizing Exposure</p> <ul style="list-style-type: none"> <li><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.</li> <li><input type="checkbox"/> If operations are uncovered, perform them on a concrete pad that is impervious and contained.</li> <li><input type="checkbox"/> Park vehicles and equipment indoors or under a roof whenever possible and maintain proper control of oil leaks/spills.</li> <li><input type="checkbox"/> Check vehicles closely for leaks and use pans to collect fluid when leaks occur.</li> </ul> <p>Management of Runoff</p> <ul style="list-style-type: none"> <li><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.</li> <li><input type="checkbox"/> Collect the stormwater runoff from the cleaning area and provide treatment or recycling.</li> <li><input type="checkbox"/> 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.</li> </ul> <p>Inspections and Training</p> <ul style="list-style-type: none"> <li><input type="checkbox"/> Inspect the maintenance area regularly to ensure BMPs are implemented.</li> <li><input type="checkbox"/> Train employees on waste control and disposal procedures.</li> <li><input type="checkbox"/> Inspect the maintenance area regularly for proper implementation of control measures.</li> <li><input type="checkbox"/> Train employees on proper waste control and disposal procedures.</li> </ul>
Aircraft, ground vehicle, and equipment cleaning areas	<ul style="list-style-type: none"> <li><input type="checkbox"/> Perform all cleaning operations indoors.</li> <li><input type="checkbox"/> Confine activities to designated areas outside drainage pathways and away from surface waters.</li> <li><input type="checkbox"/> If washing outdoors, cover the cleaning operation and ensure that all washwaters drain to the intended collection system.</li> <li><input type="checkbox"/> Use phosphate-free biodegradable detergents.</li> <li><input type="checkbox"/> Contain and recycle washwaters.</li> <li><input type="checkbox"/> Collect stormwater runoff from the cleaning area and provide treatment or recycling.</li> <li><input type="checkbox"/> Inspect cleaning area regularly to ensure BMPs are implemented and maintained.</li> <li><input type="checkbox"/> Train employees on proper washing procedures.</li> </ul>
Aircraft, ground vehicle, and equipment storage areas	<ul style="list-style-type: none"> <li><input type="checkbox"/> Store aircraft, ground vehicles and equipment indoors.</li> <li><input type="checkbox"/> Cover the storage area with a roof.</li> <li><input type="checkbox"/> Store aircraft, ground vehicles, and equipment awaiting maintenance in designated areas only.</li> <li><input type="checkbox"/> Park leaking deicing trucks in contained areas.</li> <li><input type="checkbox"/> Install perimeter drains, berms, and dikes around storage areas to limit run-on.</li> <li><input type="checkbox"/> Use absorbents for dry cleanup for spills and leaks.</li> <li><input type="checkbox"/> Use drip pans under all vehicles and equipment for the collection of fluid leaks.</li> <li><input type="checkbox"/> Clean pavement surface to remove oil and grease without using large amounts of water.</li> </ul>

**Table 2. BMPs for Potential Pollutant Sources at Air Transportation Facilities (continued)**

Pollutant Source	BMPs
Aircraft, ground vehicle, and equipment storage areas (continued)	<ul style="list-style-type: none"> <li><input type="checkbox"/> Regularly sweep area to minimize debris on the ground.</li> <li><input type="checkbox"/> Provide dust control if necessary. When controlling dust, sweep and/or apply water or materials that will not impact surface or ground water.</li> <li><input type="checkbox"/> Inspect the storage yard for filling drip pans regularly to ensure BMPs are implemented.</li> <li><input type="checkbox"/> Train employees on procedures for storage and inspection items.</li> </ul>
Material storage areas	<ul style="list-style-type: none"> <li><input type="checkbox"/> Store materials indoors.</li> <li><input type="checkbox"/> Maintain good integrity of all storage containers (e.g., used oils, hydraulic fluids, spent solvents, waste aircraft fuel).</li> <li><input type="checkbox"/> Create a centralized storage area for waste materials.</li> <li><input type="checkbox"/> Cover and/or enclose chemical storage areas (including temporary cover such as a tarp that prevents contact with precipitation).</li> <li><input type="checkbox"/> Provide secondary containment around chemical storage areas.</li> <li><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.</li> <li><input type="checkbox"/> Locate storage areas away from high traffic areas and surface waters.</li> <li><input type="checkbox"/> Inspect storage tanks and piping systems (pipes, pumps, flanges, couplings, hoses, and valves) for failures or leaks and perform preventive maintenance.</li> <li><input type="checkbox"/> Plainly label all containers.</li> <li><input type="checkbox"/> Maintain an inventory of fluids to identify leakage.</li> <li><input type="checkbox"/> Provide fluid level indicators.</li> <li><input type="checkbox"/> Properly dispose of chemicals that are no longer in use.</li> <li><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.</li> <li><input type="checkbox"/> Provide drip pads/pans where chemicals are transferred from one container to another to allow for recycling of spills and leaks.</li> <li><input type="checkbox"/> Develop and implement spill plans or spill prevention, containment, and countermeasure (SPCC) plans, if required for your facility.</li> <li><input type="checkbox"/> Train employees in spill prevention and control and proper materials management.</li> </ul>
Airport fuel system and fueling areas	<ul style="list-style-type: none"> <li><input type="checkbox"/> Conduct fueling operations (including the transfer of fuel to tank trucks) on an impervious or contained pad and under a roof or canopy where possible. Covering should extend beyond spill containment pad to prevent rain from entering.</li> <li><input type="checkbox"/> When fueling in uncovered area, use concrete pad (asphalt is not chemically resistant to the fuels being handled).</li> <li><input type="checkbox"/> Develop and implement a system to report any spill exceeding 5 feet in any direction or which has entered the storm drainage system.</li> <li><input type="checkbox"/> Use drip pans and absorptive materials beneath aircraft during fueling operations where leaks or spills of fuel can occur and where making and breaking hose connections.</li> <li><input type="checkbox"/> Use fueling hoses with check valves to prevent hose drainage after filling.</li> <li><input type="checkbox"/> Insure that storm water valves, plugs and similar appurtenances are closed during fuel transfer operations.</li> </ul>

**Table 2. BMPs for Potential Pollutant Sources at Air Transportation Facilities (continued)**

Pollutant Source	BMPs
Airport fuel system and fueling areas (continued)	<ul style="list-style-type: none"> <li><input type="checkbox"/> Provide spill kits on all fuel trucks, at fueling stations, in each hangar and at strategic locations. Each kit should have at a minimum, loose absorbent, pigs, broom and shovel. Store used materials in individual sealed container and labeled to ensure proper handling and disposal as a hazardous material.</li> <li><input type="checkbox"/> Keep spill cleanup materials readily available.</li> <li><input type="checkbox"/> Clean up spills and leaks immediately.</li> <li><input type="checkbox"/> Use dry cleanup methods for fuel areas rather than hosing down the fuel area. Sweep up absorbents as soon as spilled substances have been absorbed.</li> <li><input type="checkbox"/> Use spill and overflow protection devices.</li> <li><input type="checkbox"/> Minimize run-on of stormwater into the fueling area by grading the area such that stormwater only runs off.</li> <li><input type="checkbox"/> Collect stormwater runoff and provide treatment or recycling.</li> <li><input type="checkbox"/> Provide curbing or posts around fuel pumps to prevent collisions from vehicles.</li> <li><input type="checkbox"/> Regularly inspect and perform preventive maintenance on fuel storage tanks to detect potential leaks before they occur.</li> <li><input type="checkbox"/> Inspect the fueling area for leaks and spills.</li> <li><input type="checkbox"/> Do not allow "topping off" of the fuel in the receiving equipment.</li> <li><input type="checkbox"/> Train personnel on vehicle fueling BMPs.</li> </ul>
Storing liquid fuels	<ul style="list-style-type: none"> <li><input type="checkbox"/> If area is uncovered, connect sump outlet to sanitary sewer (if allowed by the sewer authority) 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.</li> <li><input type="checkbox"/> Develop and implement spill plans.</li> <li><input type="checkbox"/> Train employees in spill prevention and control.</li> </ul> <p data-bbox="440 1276 651 1308">Above ground tanks</p> <ul style="list-style-type: none"> <li><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).</li> <li><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.</li> <li><input type="checkbox"/> Use double-walled tanks with overflow protection.</li> <li><input type="checkbox"/> Keep liquid transfer nozzles/hoses in secondary containment area.</li> </ul> <p data-bbox="440 1612 708 1644">Portable containers/drums</p> <ul style="list-style-type: none"> <li><input type="checkbox"/> Store drums indoors when possible.</li> <li><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).</li> <li><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).</li> <li><input type="checkbox"/> Clearly label drum with its contents.</li> </ul>
Deicing chemical loading areas	<ul style="list-style-type: none"> <li><input type="checkbox"/> Store bulk aircraft deicing fluids in contained areas.</li> <li><input type="checkbox"/> Load deicing trucks in contained areas.</li> </ul>

## ***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](http://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](http://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:

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- ◆ Orange County, California, Watershed & Coastal Resources Division. "Airplane Maintenance and Repair." [www.ocwatersheds.com/StormWater/documents\\_bmp\\_existing\\_development.asp](http://www.ocwatersheds.com/StormWater/documents_bmp_existing_development.asp)
- ◆ Pierce County Washington Public Works and Utilities. 2002. "Stormwater Pollution Prevention Manual: A Guide to Best Management Practices for Industries, Businesses, and Homeowners." [www.co.pierce.wa.us/pc/services/home/envIRON/water/wq/bmpmanual.htm](http://www.co.pierce.wa.us/pc/services/home/envIRON/water/wq/bmpmanual.htm)
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