



Richard M. Daley
Mayor



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Commissioner

APPENDIX DC-D

CHICAGO DEPARTMENT OF AVIATION BEST MANAGEMENT PRACTICES MANUAL



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Comments? Case Studies?
Lessons-Learned? New Technologies?
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Department of Aviation

Best Management Practices Manual Chicago O'Hare International Airport



Richard M. Daley Mayor
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For questions or comments regarding this BMP Manual, contact 773.686.3485

BMP Fact Sheet: Introduction/Definitions	BMP No.	Cover Sheet
APPLICABILITY		
City of Chicago O'Hare International Airport		
<p>Best Management Practice (BMP) - Practices or measures used to reduce the amount of pollution. BMPs may take the form of a procedure, activity or physical structure. The BMPs presented in this manual are specifically developed to reduce potential discharges of pollutants to the surface waters surrounding Chicago O'Hare International Airport.</p> <p>Biodegradable - The ability to break down or decompose under natural conditions and processes.</p> <p>Chock - A block or wedge used to keep rolling vehicles in place.</p> <p>Dike - An embankment to confine or control water, often built along the banks of a river to prevent overflow of lowlands; a levee.</p> <p>Discharge - A release or flow of storm water or other substance from a conveyance or storage container.</p> <p>Industrial Activity - Activity associated with manufacturing and processing of products, raw material storage areas, waste materials, by-products used or created by the facility, material handling sites, refuse sites, sites used for the application or disposal of process waste water, storage and maintenance of material handling equipment, vehicle maintenance (vehicle rehabilitation, mechanical repairs, painting, fueling, lubrication and washing), residual treatment, storage or disposal areas, recycling of materials, shipping and receiving areas, areas where industrial activity has taken place in the past, and significant materials remain and are exposed to storm water.</p> <p>Inlet - An entrance into a ditch, storm sewer, or other waterway.</p> <p>Oil/Water Separator - A device installed, usually at the entrance to a drain, which removes oil and grease from water flows entering the drain.</p> <p>Secondary Containment - Structures, usually dikes or berms, surrounding tanks or other storage containers and designed to catch spilled material from the storage containers.</p> <p>Significant Materials - raw materials, fuels, solvents, detergents, finished materials, chemicals, pesticides, fertilizers, and waste products that have the potential to be released with storm water discharge.</p> <p>SPCC - Spill Prevention Control and Countermeasures Plan. Plan consisting of structures and management plans to prevent and respond to spills of hazardous substances as defined in the Clean Water Act.</p>		

**BMP Fact Sheet:
Introduction/Definitions**

BMP No.

Cover Sheet

Definitions (cont.)

Storm Drain - A slotted opening leading to an underground pipe or an open ditch for carrying surface runoff.

Storm Water - Runoff from a storm event, snow melt runoff, and surface runoff and drainage.

Surface Water - All water naturally open to the atmosphere (rivers, lakes, reservoirs, streams, wetlands, impoundments, seas, estuaries, etc.); also refers to springs, wells, or other collectors which are directly influenced by surface water.

Tarp - A sheet of waterproof canvas or other material used to cover and protect materials, equipment, or vehicles.

Underground Storage Tanks (USTs) - Storage tanks with at least 10 percent or more of their storage capacity underground (the complete regulatory definition is contained within 40 CFR part 280.12).

Waste - Unwanted materials left over from a manufacturing or other process.

LEGEND

- △ Designates a preferred practice or control measure for implementation of the BMP. New construction or renovated facilities should incorporate this BMP.
- Designates a minimum requirement necessary to conform with the BMP.

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BEST MANAGEMENT PRACTICES

GENERAL

BMP Fact Sheet: Equipment/Vehicle Washing	BMP No.	001
APPLICABILITY	TARGET CONSTITUENTS	
This BMP should be implemented at all facilities where vehicles are washed as well as where pressure washing of equipment and miscellaneous items is performed.	<ul style="list-style-type: none"> • Oil and Grease • Sediment • Toxic Organic Compounds • Surfactants 	
PRACTICES	<p><u>Washing Procedures</u> Facilities can comply with this BMP by two options.</p> <p><i>Option 1 - Indoor Vehicle Washing (Preferred Practice)</i></p> <p>△ <i>All vehicle and equipment washing should be completed indoors in designated areas (see Figure 1).</i></p> <ul style="list-style-type: none"> □ Wash waters from vehicle wash areas/operations should be discharged to the sanitary sewer and should be prevented from entering a storm drain. □ Where wash waters tend to run out of the indoor area through a doorway, curbing should be installed along the doorway to minimize the escaping of wash water (see Figure 1). □ Storm drains in the vicinity of the washing area should be protected during the washing activities (see BMP No. 020). <p><i>Option 2 - Outdoor Vehicle Washing</i></p> <ul style="list-style-type: none"> □ A permanent or temporary dike should be constructed around the vehicle or equipment washing area. □ The wash waters in the diked area should be collected and discharged to a sanitary sewer or hauled away for offsite disposal. □ Storm drains in the vicinity of the washing area should be protected during the washing activities (see BMP No. 020). 	

FIGURES



Figure 1 - Indoor vehicle washing operation with water retention curbing.

BMP Fact Sheet: Equipment/Vehicle Fueling	BMP No.	002				
APPLICABILITY This BMP covers all operations where diesel fuel and gasoline are dispensed into equipment and vehicles (excluding aircraft).	TARGET CONSTITUENTS <ul style="list-style-type: none"> • Oil and Grease • Toxic Organic Compounds 					
PRACTICES	<p><u>Structural Controls</u></p> <ul style="list-style-type: none"> △ <i>Preferred Practice: Where possible, a canopy should be present over the fueling area to limit storm water contact with the fueling area (see Figure 1).</i> □ If storm water drains are present within 50 feet of a vehicle fueling area the drains should be: (1) connected to a dead end sump, or (2) equipped with an oil/water separator, or (3) covered with an inlet protection mat or boom during fueling activities. □ Fueling areas and portable fueling vehicles should display a sign similar to below: 					
<p>If a fuel spill occurs:</p> <p style="text-align: center;">***SAFETY FIRST***</p> <p style="text-align: center;">Immediately Contact O'Hare Command Center 773/894-9111</p> <p style="text-align: center;">Keep all sources of ignition away from the spill</p> <p>For any spill:</p> <ul style="list-style-type: none"> • Stop the flow, shut down power to pumps, close valves. • Use absorbents to contain product and protect storm drains. • Prevent spilled product from going off-site. • Follow direction of Chicago Fire Department. 						
<p>Note: For United and American the sign should be modified to have employees first contact on-site emergency coordinators who will then notify the O'Hare Command Center, as follows:</p> <table style="width: 100%; border: none;"> <tr> <td style="width: 60%;">American Airlines:</td> <td style="text-align: right;">24-hour Emergency Contact 773/686-4631</td> </tr> <tr> <td>United Airlines:</td> <td style="text-align: right;">Station Control Center 773/601-4222</td> </tr> </table> <ul style="list-style-type: none"> □ Fueling areas should be paved with impermeable concrete to reduce infiltration of petroleum product spills (see Figure 2). 			American Airlines:	24-hour Emergency Contact 773/686-4631	United Airlines:	Station Control Center 773/601-4222
American Airlines:	24-hour Emergency Contact 773/686-4631					
United Airlines:	Station Control Center 773/601-4222					

PRACTICES (cont.)

- Dispenser hoses should be equipped with automatic shutoff nozzles and breakaway couplings.
- An emergency dispenser shutoff switch should be installed in the fueling area. The shutoff switch should be marked by a sign which is readily visible from the dispenser area.

Operations and Maintenance

- Dispensing equipment including pumps and hoses should be inspected periodically for evidence of deterioration, leaks, or malfunction.
- Where any irregularities are noticed in a fuel dispensing system, the system should be investigated, and if the basis of the irregularity cannot be determined, a qualified person should be promptly contacted to repair the system.
- A Spill Control Kit should be present in the fueling area (see BMP No. 018).
- All spills should be cleaned in accordance with the applicable site specific SPCC plan. Spilled materials and used absorbent materials are to be properly disposed in accordance with federal, state and local regulations. The responsible party should retain waste manifests and make such documentation available for inspection.

FIGURES



Figure 1 - Fueling area with canopy.

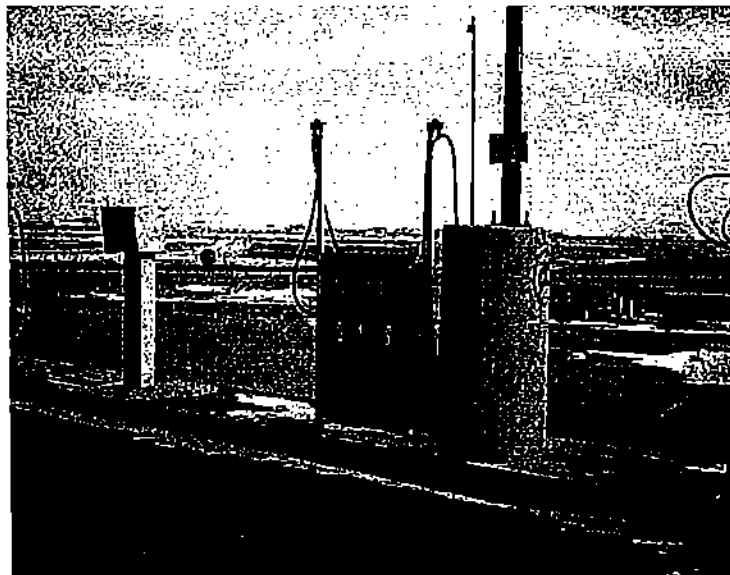


Figure 2 - Concrete paved fueling area.

BMP Fact Sheet: Equipment/Vehicle Maintenance	BMP No.	003
APPLICABILITY	TARGET CONSTITUENTS	
This BMP applies to maintenance activities including vehicle and equipment fluid changes and mechanical repairs. This BMP applies to maintenance activities that have the potential for a release of liquid products (oil, grease, lubricants, antifreeze, transmission oil, brake fluid, window washing fluid, etc.).	<ul style="list-style-type: none"> • Oil and Grease • Toxic Organic Compounds 	
PRACTICES	<p><u>Maintenance Procedures</u></p> <ul style="list-style-type: none"> △ <i>Where possible, vehicle and equipment maintenance should be performed indoors (see Figure 1).</i> □ Floor drains in indoor maintenance areas should discharge to the sanitary sewer and not to the storm sewer system. □ Where wash waters tend to flow out of the building through doors or maintenance bays, curbs should be installed along such doors or bays to contain floor wash waters in the maintenance area. □ Outdoor maintenance activities with spill potential should be avoided. □ Outdoor maintenance should be performed in a designated area which is paved with impervious concrete. The maintenance area should be a minimum of 50 feet from any storm drain inlet. □ Any spills or residues from maintenance activities should be cleaned up immediately upon completion of the work. Spilled materials/used absorbents are to be properly disposed in accordance with federal, state and local regulations. The responsible party should retain waste manifests and make such documentation available for inspection. □ Where grinding or sanding operations are conducted, dust and other particulate matter should be swept up immediately upon completion of the work. □ Oily parts should never be placed directly on the ground and instead should be placed in drip pans or on absorbent pads (see Figure 2). □ Part washing should never be performed outdoors. □ A Spill Control Kit should be readily accessible to the maintenance area (see BMP No. 18). 	

FIGURES

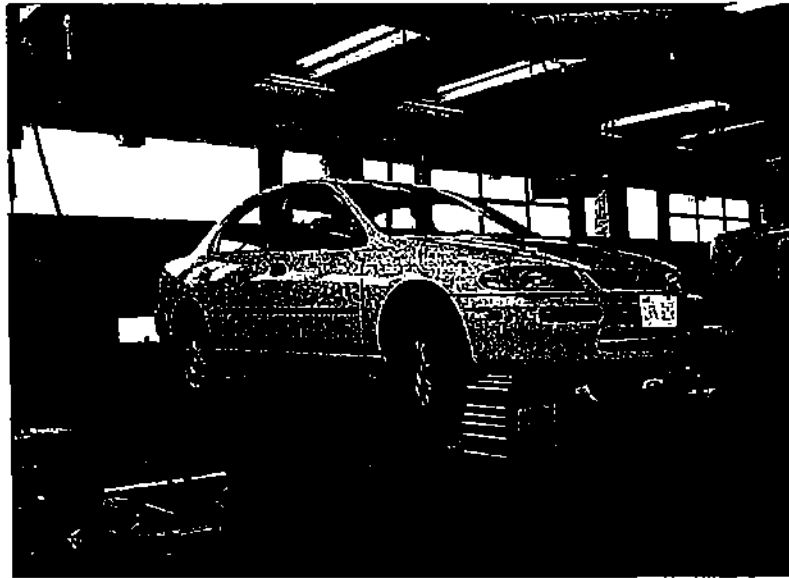


Figure 1 - Vehicle maintenance performed indoors.



Figure 2 - Oily maintenance parts on drip pans.

BMP Fact Sheet: Equipment/Scrap Material Storage	BMP No.	004
APPLICABILITY This BMP covers the outdoor storage of obsolete equipment and scrap material that has the potential to impart pollutants if exposed to storm water. Materials meeting this criteria are those that have residues or may otherwise be degraded by storm water. Representative example materials include: 1) engine, transmission or drive line components with oil/grease residue; 2) scrap metal from machining operations with cutting oil residue; and 3) paper or cardboard products or other materials that may degrade and release pollutants when exposed to storm water.	TARGET CONSTITUENTS <ul style="list-style-type: none"> • Oil and Grease • Toxic Organic Compounds • Metals 	
PRACTICES <u>General</u> <ul style="list-style-type: none"> Δ <i>Preferred Practice: Every attempt should be made to minimize the quantity of equipment and scrap metal stored outside exposed to storm water.</i> <u>Motorized Equipment</u> (Tugs, loaders, forklifts, ground equipment, etc). <ul style="list-style-type: none"> □ Motorized equipment may be stored outdoors provided all enclosures are in place so that contact of storm water with fluid containing components is minimized. □ Out-of-service motorized equipment stored longer than 24-hours should be provided with a covering (i.e., stored under a roof, overhang, canopy, or tarp) to protect any exposed fluid containing component. □ Prior to outdoor storage of any engine, transmission, or similar mechanical component, all fuel, engine oil, transmission fluid, antifreeze, and any other fluids should be drained. The exterior of the equipment should be stored under an overhang, canopy, tarp or otherwise protected to prevent exposure to storm water. □ Motorized equipment should be maintained so that drips or leaks of any fluid will be minimal. Where a piece of equipment is prone to drips or leaking fluids, drip pans should be used and maintained to contain the leaking fluid (see Figure 1). □ Where out-of-service equipment is intended to be repaired or reused, fluids may remain in the equipment to protect against corrosion provided the exterior is cleaned and all other protections cited are in place to prevent leakage (refer to above-listed practices). 		

PRACTICES (cont.)

- Equipment which has the potential to leak fluids should be inspected periodically. Where leaks are noted, additional fluid draining or drip pans should be used to mitigate future leaks. Leaked fluids should be cleaned up with absorbent materials and properly disposed.

Non-Motorized Equipment

(Baggage carts, dollies, tow bars, mobile stairs, etc.)

- Non-motorized equipment designed for outdoor use is not subject to the requirements of this BMP provided the equipment has no fluid containing components exposed to storm water.

Scrap Materials

(Miscellaneous materials, materials awaiting recycling , tires, etc.)

- △ *Preferred Practice: Scrap materials that have the potential to degrade, corrode, or release pollutants should be stored on pallets, racks, shelving or otherwise elevated so that storm water contact is minimized (see Figure 2).*
- Scrap materials that are not clean, exhibit a residual pollutant, or are corroded, should be stored under an overhang, canopy, tarp or otherwise protected so they will not be exposed to storm water.
- Scrap material that can degrade (i.e., paper, cardboard, wood, etc.) should only be stored outdoors for a period of time that does not allow for breakdown and or decay of the material such that storm water would be impacted.
- Scrap material storage areas should be inspected periodically (i.e. monthly) to ensure that materials are not contributing pollutants to storm water.

FIGURES

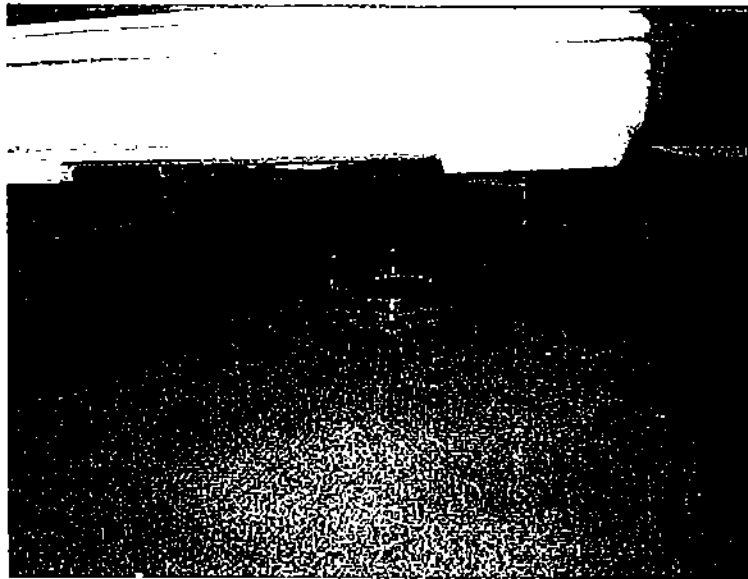


Figure 1 - Drip pan under leaking equipment.

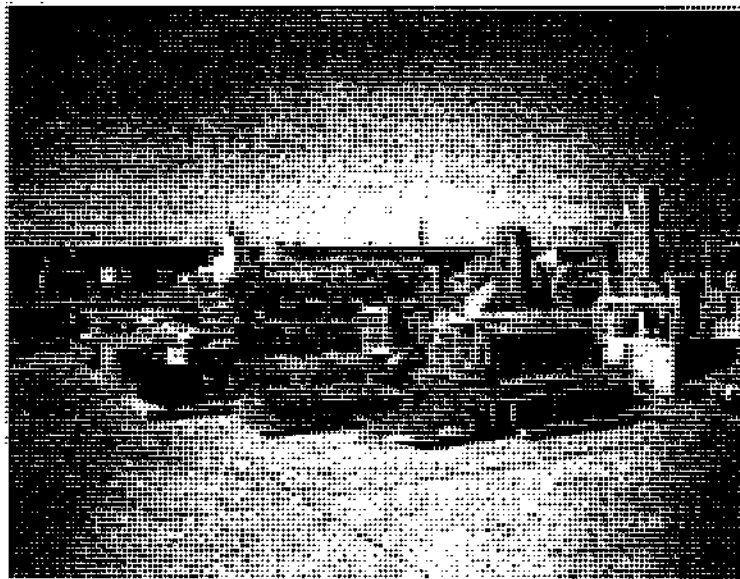


Figure 2 - Equipment stored on pallets.

BMP Fact Sheet: Vehicle Parking	BMP No.	005
APPLICABILITY This BMP applies to ground equipment, bus, and commercial vehicle parking areas including car rental facilities. Employee and customer parking areas are not subject to this BMP. This BMP also applies to wrecked vehicle storage. A wrecked vehicle is one that has any engine, transmission, drive train, or other fluid containing component exposed to storm water.	TARGET CONSTITUENTS <ul style="list-style-type: none"> • Oil and Grease • Toxic Organic Compounds 	
PRACTICES <u>Vehicle Parking Requirements</u> <ul style="list-style-type: none"> □ Vehicles should be inspected periodically (i.e. weekly) for evidence of leaking fluids. □ Where evidence of a leak from a vehicle is observed, the vehicle should be repaired as soon as practical. □ Where immediate maintenance of a leaking vehicle is not practical, a drip pan should be used to contain the leaking fluids until the vehicle can be repaired. □ Where leakage from a vehicle does result in spillage or staining, the area should be cleaned with an enzyme cleaning agent or biodegradable cleaner. Residual materials should be containerized and properly disposed. Never flush spilled materials into a storm sewer. <u>Wrecked Vehicle Storage</u> <ul style="list-style-type: none"> □ Wrecked vehicles should be stored indoors or under an overhang, canopy, tarp, or otherwise protected so that they will not be exposed to storm water (Figure 1). □ Prior to outdoor storage of any wrecked vehicles, all fuel, engine oil, transmission fluid, antifreeze, and any other fluids should be drained, if it is determined that a threat of leakage exists. □ Where a vehicle part (i.e., engine or transmission) is intended for reuse, fluids may remain in the equipment to protect against corrosion, provided the exterior is cleaned and all other protections cited are in place to prevent leakage. □ Where a vehicle has any potential to leak fluids after it has been drained, drip pans should be used to contain such leaks. 		

**BMP Fact Sheet:
Vehicle Parking**

BMP No.

005

PRACTICES (cont.)

- Wrecked vehicles which have any potential to leak fluids should be inspected periodically (i.e., weekly). Where leaks are noted, additional fluid draining or drip pans should be used to mitigate future leaks. Leaked fluids should be cleaned up with absorbent materials and properly disposed.

FIGURES

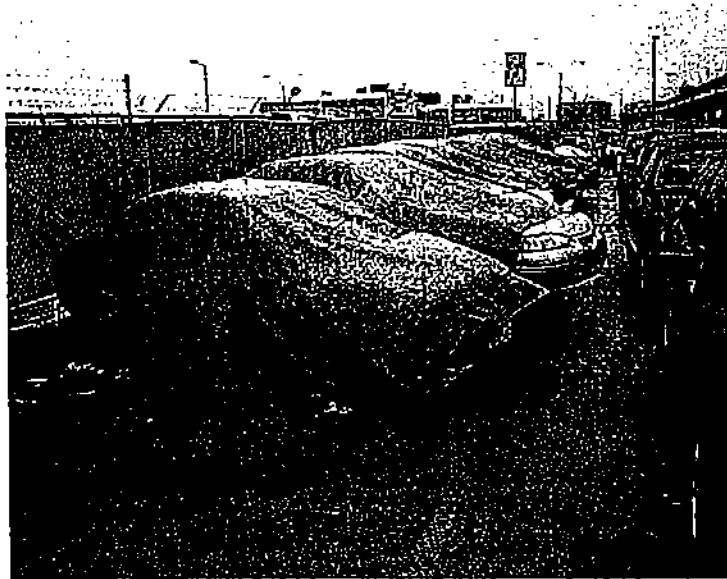


Figure 1 – Wrecked vehicles covered with tarps.

BMP Fact Sheet: Aircraft Fueling	BMP No.	006
APPLICABILITY	TARGET CONSTITUENTS	
This BMP applies to all aircraft fueling activities.	<ul style="list-style-type: none"> • Oil and Grease • Toxic Organic Compounds 	
PRACTICES	<p><u>Fueling Procedures</u></p> <ul style="list-style-type: none"> □ Aircraft fueling should be performed in the Terminal area that discharges to the South Detention Pond. □ When performing maintenance activities in the Hangar area, aircraft de-fueling is allowed. Aircraft should only re-fuel with enough fuel to taxi back to the Terminal area. A Spill Control Kit should be in the vicinity of the de-fueling/fueling activity. □ Where fueling is completed from a mobile source, a Spill Control Kit should be present on the truck or in the vicinity of fueling operations. □ Storm drains and discharge outfalls should be determined for each fueling area. Fueling/de-fueling procedures should not be performed within 50 feet* of any storm drain. If fueling/de-fueling within 50 feet is unavoidable, the catch basin should be protected during these operations. □ Spill response should be performed in accordance with the ORD Spill Response Guide. □ Fuel transfer valves and hoses should be inspected periodically. Where damage or deterioration is observed, the equipment should be taken out of service until repaired. <p>* 50 foot radius is based on previous airport spill experience as reported by the Chicago Fire Department.</p>	

BMP Fact Sheet: Aircraft Washing		BMP No.	007
APPLICABILITY	TARGET CONSTITUENTS		
This BMP applies to all aircraft washing activities.	<ul style="list-style-type: none"> • Oil and Grease • Toxic Organic Compounds • Surfactants 		
PRACTICES	<p><u>Aircraft Washing Procedures</u></p> <ul style="list-style-type: none"> □ Where possible, aircraft washing should be performed inside a hangar where wash waters enter a sanitary drain connected to an oil/water separator. If any storm drains are present in the vicinity of the washing area, the drains should be protected in accordance with BMP No. 020. □ When performed outdoors, all storm drains within 50 feet of the washing area should be protected in accordance with BMP No. 020. Further, a permanent or temporary dike should be used to contain the wash waters. The wash waters should be collected with a vacuum truck and transported offsite for proper treatment or disposal. 		

BMP Fact Sheet: Aircraft Maintenance		BMP No.	008
APPLICABILITY	TARGET CONSTITUENTS		
This BMP applies to all aircraft maintenance activities including fluid changes and mechanical repairs.	<ul style="list-style-type: none"> • Oil and Grease • Toxic Organic Compounds 		
PRACTICES	<p><u>Maintenance Procedures</u></p> <ul style="list-style-type: none"> △ <i>Preferred Practice: Where possible, aircraft maintenance with spill potential should be performed indoors.</i> □ Floor drains in indoor maintenance areas should discharge to the sanitary sewer and not to the storm sewer. □ Where wash waters tend to flow out of the building through doors or maintenance bays, curbs should be installed along such doors or bays to contain floor wash waters in the maintenance area. □ Outdoor maintenance activities with spill potential should be avoided. □ When outdoor maintenance is conducted, it should be performed in a designated area which is paved with impervious concrete. □ A mobile spill response cart with absorbent materials and other devices should be available in the vicinity of the aircraft during outdoor maintenance activities for spill response. In the event of a spill, storm drains within 100 feet of the area should be immediately protected (See BMP No. 020). □ Oily parts should not be placed directly on the ground and instead should be placed in drip pans or on absorbent pads. □ Parts washing should not be performed outdoors. 		

BMP Fact Sheet: Aircraft Deicing	BMP No.	009
APPLICABILITY	TARGET CONSTITUENTS	
This BMP applies to all aircraft deicing activities.	<ul style="list-style-type: none"> • Toxic Organic Compounds 	
PRACTICES		
<u>Aircraft Deicing Procedures</u>		
<ul style="list-style-type: none"> □ Deicing should be performed in designated areas of the airport which discharge to the north or south detention basins; the Terminal Gates, the Southwest Cargo Area, the Hangar Area and the Scenic Hold Pad. 		
<u>Aircraft Deicing Procedures on the Military Ramp (General Aviation/North Cargo Area)</u>		
<ul style="list-style-type: none"> □ Deicing must take place in the designated deicing area as defined by DOA (see Deicing Pad Map). □ Non-General Aviation aircraft should enter and exit the designated area under tow. □ Deicing of General Aviation aircraft may be performed on the Signature Ramp or designated deicing area. □ After an aircraft is deiced on the Deicing Pad, the aircraft may not return to the Military Ramp. □ The Deicing Pad is used on a first come first serve basis. 		
<u>EMERGENCY</u> deicing conditions approved by the Department of Aviation at the Military Area:		
<ol style="list-style-type: none"> 1) Snow or ice is blocking the engine ports and the engine needs to be used. 2) The aircraft controls have snow or ice on them and they need to be tested prior to leaving the area. 3) Wet, heavy snow is anticipated while aircraft are parked in these areas. The heavy snow on the tail of the aircraft could cause it to upend, therefore, after deicing the aircraft, an anti-icer would be applied. 		
<p>When deicing occurs in this area, a temporary dike or other contaminant method should be used around the aircraft prior to the deicing activities. Deicing fluids should be collected with a vacuum truck or other method and properly disposed. Storm drains should be protected during deicing activities (see BMP No. 20).</p>		
<p>*After deicing occurs in this area, DOA Operations should be notified at 686-2255.</p>		
<ul style="list-style-type: none"> □ Unused aircraft deicing fluids should not be discharged to the storm sewers. 		

BMP Fact Sheet:		BMP No.	
Underground Storage Tanks (USTs)			010
APPLICABILITY	TARGET CONSTITUENTS		
<p>This BMP applies to underground storage tanks (USTs) used to store petroleum products and hazardous substances. USTs are regulated by federal, state and local regulations. This BMP concerns only issues related to storm water pollution prevention and does not assure compliance with all regulations applicable to USTs including SPCC requirements as stated in 40 CFR 112.</p>		<ul style="list-style-type: none"> • Oil and Grease • Toxic Organic Compounds 	
PRACTICES			
<u>UST Equipment</u>			
<ul style="list-style-type: none"> □ USTs should be equipped with an overfill prevention valve which restricts flow when tank capacity reaches 90 percent. □ Each UST fill port should be equipped with a containment bucket with a minimum capacity of 5 gallons. □ Transfer valves which extend above ground surface should be protected from traffic with concrete posts (see Figure 1). Such transfer valves should be enclosed in a secondary containment curb. □ UST vent pipes should be equipped with a device to prevent overfill through the vent pipes. □ A Spill Control Kit should be present in the vicinity of the fill/pumpout port or fuel dispenser island. (see Figure 2). 			
<u>Bulk Material Transfer</u>			
<ul style="list-style-type: none"> □ A facility representative familiar with this BMP and relevant sections of the site-specific SPCC plan should be present during all UST product deliveries and pumpout. □ If any storm drains are present within a 50 ft. radius of the delivery/pumpout, they should be protected in accordance with BMP No. 020. □ A system of UST inventory control and record-keeping should be implemented to prevent overfilling. □ All spills should be cleaned up in accordance with the ORD Spill Response Guide. 			

FIGURES

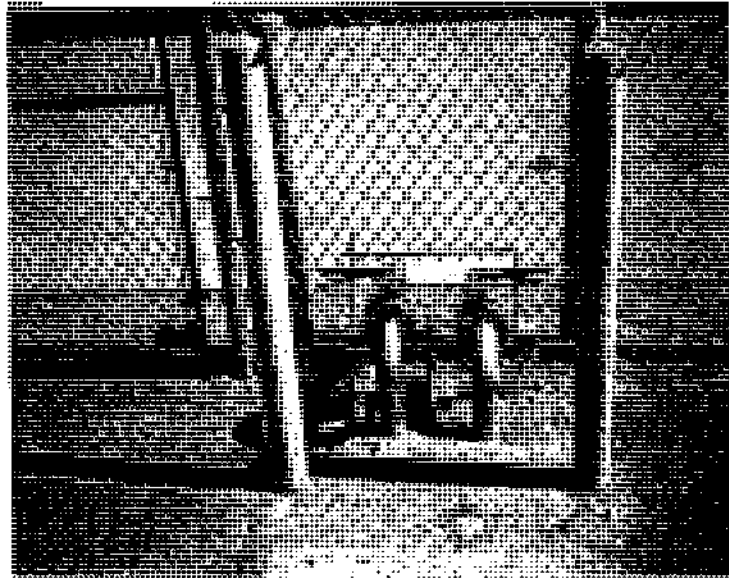


Figure 1 - Transfer valves protected with concrete posts.



Figure 2 - Spill control kit near fuel fill/pumpout port.

FIGURES

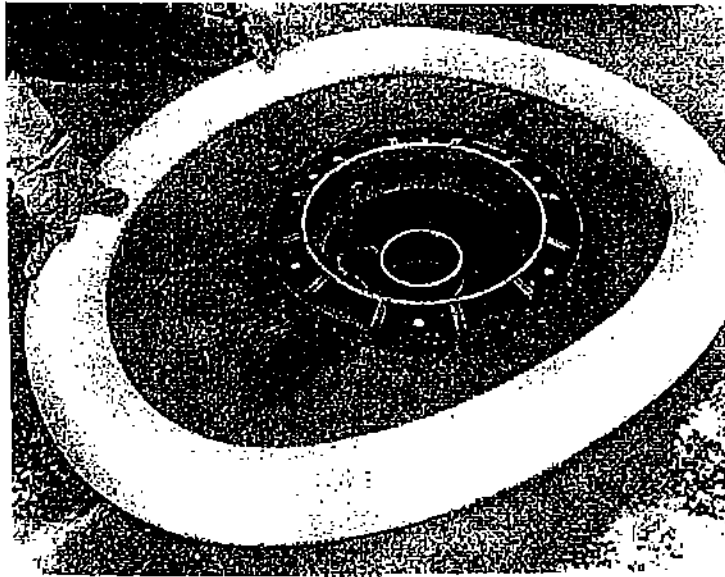


Figure 3 - Temporary secondary containment around fill port.

BMP Fact Sheet: Aboveground Storage Tanks (ASTs)	BMP No.	011
APPLICABILITY This BMP applies to aboveground storage tanks (ASTs) used to store petroleum products and hazardous substances. ASTs are regulated by federal, state and local regulations. This BMP concerns only issues related to storm water pollution prevention and does not assure compliance with all regulations applicable to ASTs.	TARGET CONSTITUENTS <ul style="list-style-type: none"> • Oil and Grease • Toxic Organic Compounds 	
PRACTICES <u>AST Equipment</u> <ul style="list-style-type: none"> □ All ASTs shall be in compliance with applicable Spill Prevention, Control and Countermeasure (SPCC) Regulations (40 CFR Part 112). Also refer to the Chicago O'Hare International Airport Spill Prevention Program document. □ If feasible, construct a canopy over containment area to minimize accumulation of rainwater (see Figure 2). <u>Bulk Material Transfer</u> <ul style="list-style-type: none"> □ A facility representative familiar with this BMP and relevant sections of the site-specific SPCC plan should be present during all AST product deliveries and pumpouts. □ If delivery/pumpout is being performed outside of the South Detention Basin (see South Detention Basin Map), temporary secondary containment such as booms or dikes, should be placed around the perimeter of the delivery or pumper truck. Secondary containment should be of a capacity to contain the volume of the largest single compartment with sufficient freeboard to contain precipitation. □ If any storm drains are present within a 50 ft radius of the delivery/pumpout, they should be protected in accordance with BMP No. 020. □ A Spill Control Kit should be present in the vicinity of the AST (see BMP No. 018). □ A system of AST inventory control and record keeping should be implemented to prevent overfilling. □ All spills should be cleaned up in accordance with the ORD Spill Response Guide. Residual materials should be properly disposed. 		

FIGURES

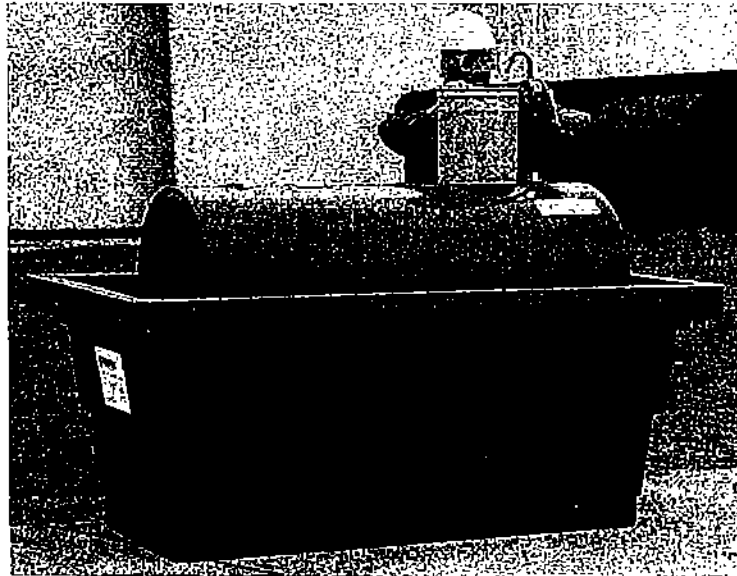


Figure 1 - AST in secondary containment dike.

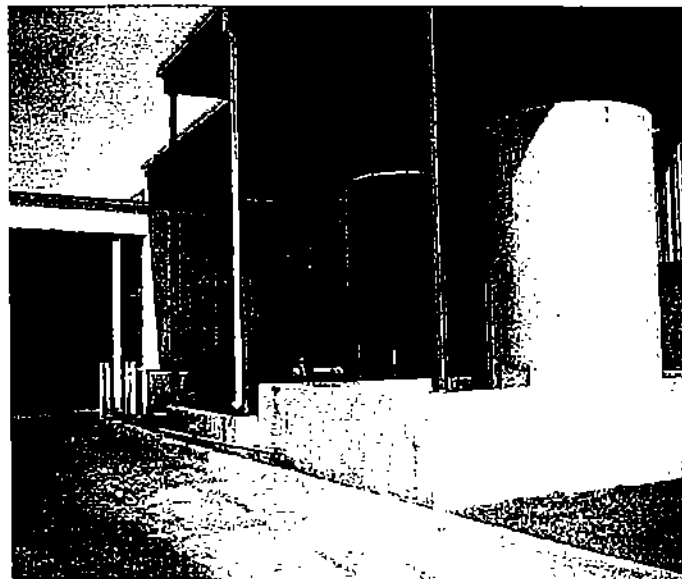
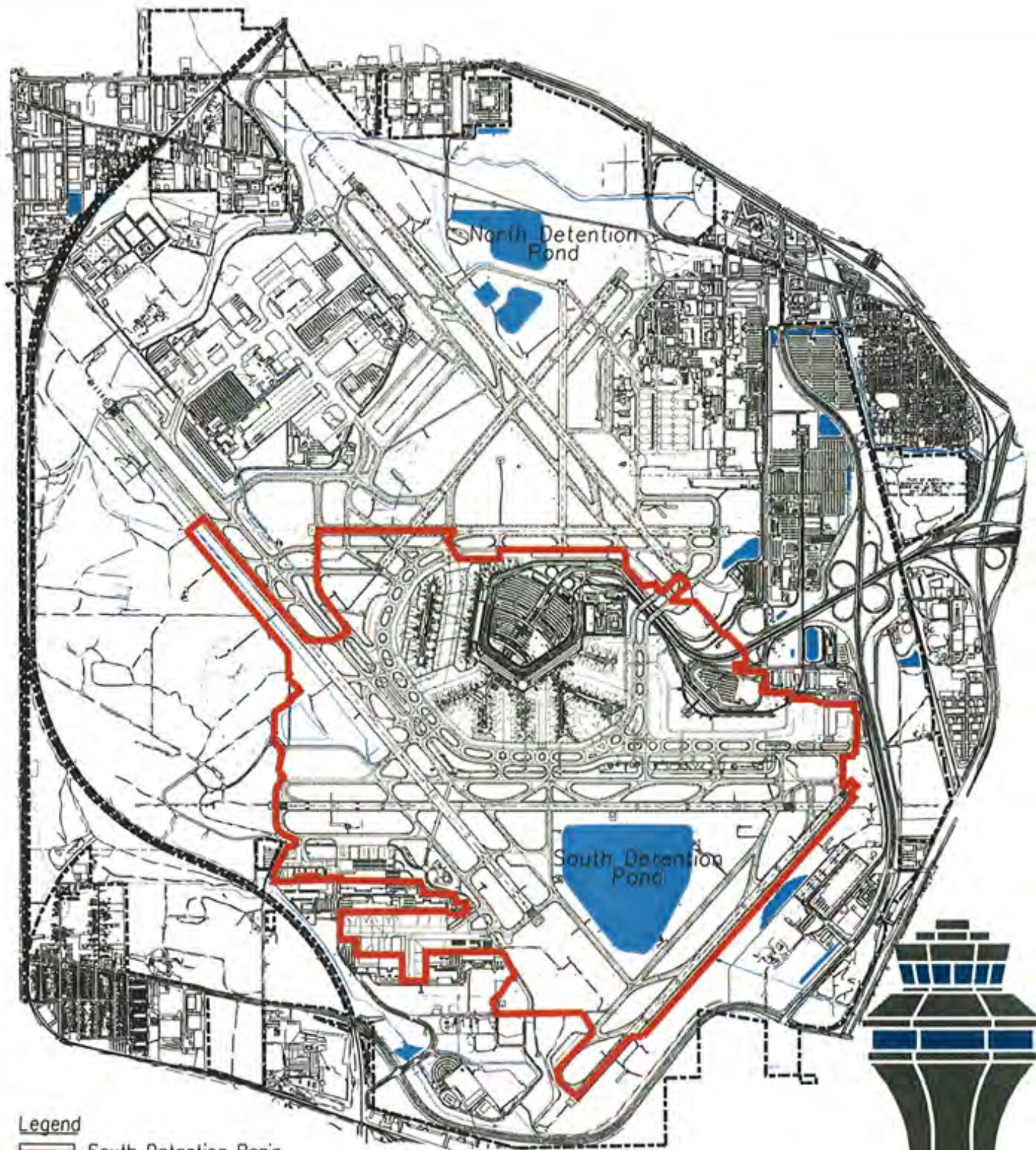


Figure 2 - Canopy over secondary containment dike.



Chicago O'Hare International Airport
 Richard M. Daley • Mayor

Department of Aviation
 Thomas R. Walker • Commissioner

Harding ESE

BEST MANAGEMENT PRACTICES MANUAL
 FOR ORD

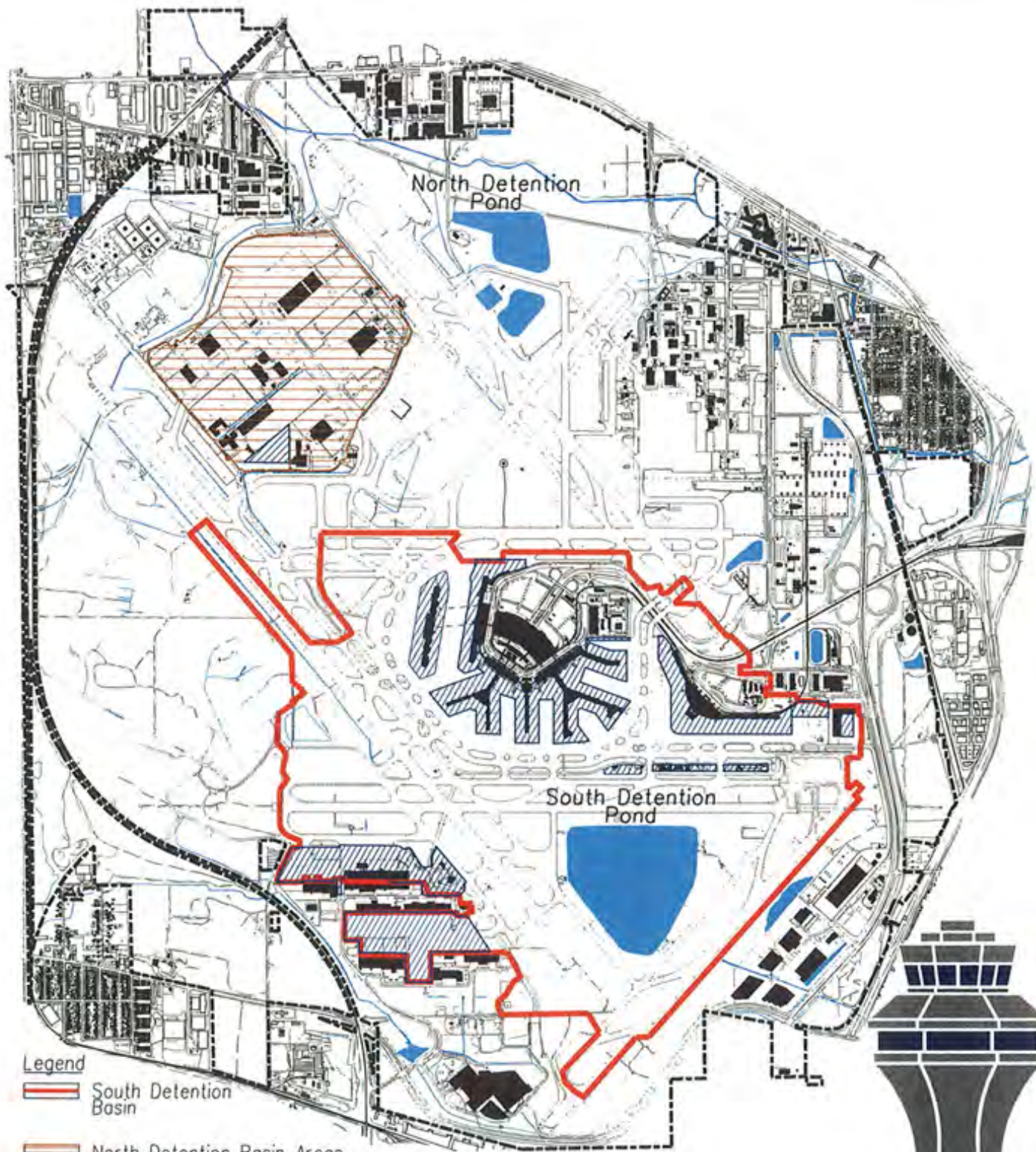
BMP #11-
 South Detention Basin

Date: August 13, 2002




Scale: 1" = 2800'-0"



BMP Fact Sheet: Mobile Tank Trucks	BMP No.	012
APPLICABILITY This BMP applies to mobile or portable oil storage tank trucks used to transport petroleum products and hazardous substances to stationary ASTs and USTs. This BMP also applies to mobile fuelers and mobile deicers used to service aircraft on airport property. This BMP concerns only issues related to storm water pollution prevention and does not assure compliance with all rules and regulations applicable to mobile tank trucks.	TARGET CONSTITUENTS <ul style="list-style-type: none"> • Oil and Grease • Toxic Organic Compounds 	
PRACTICES <u>Mobile Tank Trucks</u> In accordance with SPCC regulations (40 CFR Part 112.8 (b)(11), mobile fueling trucks are included as aboveground storage tanks (ASTs) and therefore all unattended mobile tank trucks are subject to secondary containment regulations. <ul style="list-style-type: none"> △ <i>Preferred Practice: When unattended, mobile fuel trucks must be parked in the South Detention Basin drainage area. The South Detention Basin area drains to oil/water separators and therefore, is considered to have secondary containment.</i> □ When unattended, mobile fuel trucks must be parked at least 50 feet away from any existing building (National Fire Protection Association 407). □ If parked outside of the South Detention Basin drainage area, an unattended mobile fuel truck must be parked in an area of secondary containment (see Mobile AST Parking Area Map). Secondary containment should be of a capacity to contain the entire volume of the single largest tank compartment within the secondary containment area. □ Overnight parking of mobile fuel trucks is prohibited in the area southeast of Post 11 that drains to the north. △ <i>Preferred Practice: During non-deicing season, (May-September), mobile deicing trucks should be emptied of all residual deicing fluid and stored in conformance with BMP 004 "Equipment/Scrap Material Storage".</i> □ Unattended mobile deicing trucks containing product must be parked in the North or South Detention Basin drainage area (see Mobile AST Parking Area Map) or in an area with a secondary containment structure. □ Mobile or portable storage tank trucks should be equipped with a spill kit including a storm drain cover (see BMP No. 018). 		



Legend

-  South Detention Basin
-  North Detention Basin Areas available for deicing truck parking
-  Areas available for fuel truck and deicing truck parking

Chicago O'Hare International Airport
Richard M. Daley • Mayor

Department of Aviation
Thomas R. Walker • Commissioner

Harding ESE

BEST MANAGEMENT PRACTICES MANUAL Date: December 18, 2002
FOR ORD

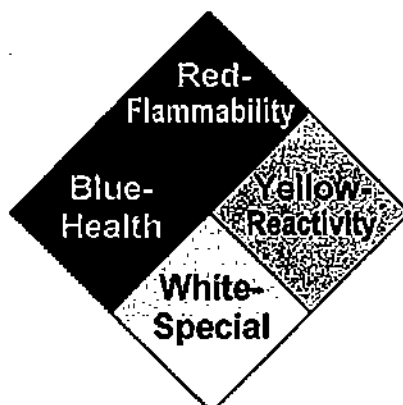
BMP #12-
Mobile AST Parking Areas

Scale: 1" = 3800' 0"



BMP Fact Sheet: Chemical Handling/Storage	BMP No.	013
APPLICABILITY This BMP applies to activities where chemicals are stored or transferred from their shipment containers to smaller containers for employee use.	TARGET CONSTITUENTS <ul style="list-style-type: none"> • Oil and Grease • Toxic Organic Compounds 	
REQUIREMENTS		
<p><u>Labeling</u></p> <ul style="list-style-type: none"> △ <i>Preferred Practice: Use the National Fire Protection Association (NFPA) system (Figure 1) or the Hazardous Materials Identification System (HMIS) (Figure 2) to provide instant hazard recognition for employees and emergency responders. This system will be used as a minimum standard for all hazardous material labeling of ASTs, USTs (where possible) and outdoor areas of chemical storage.</i> □ Each employer will maintain a list of all the hazardous chemicals used on the premises. □ Each container containing a hazardous chemical will be labeled with the identity and the appropriate hazard warning of the contents. Containers containing hazardous chemicals, when received from a supplier or shipped to a customer, will also have the name and address of the manufacturer or the responsible party. □ It is the responsibility of the employer to assure that the identity and the hazard warnings are placed on all containers that have been transferred from the original drum or container. (OSHA Hazard Communication Standard (HCS) 29 CFR1910.1200). <p><u>Handling and Storage</u></p> <ul style="list-style-type: none"> □ Material transfer from drums or other large container into smaller containers for employee use should be completed indoors. A Spill Control Kit should be present in proximity to the material transfer area (see BMP No. 018). □ Drip pans should be placed underneath each dispenser nozzle (Figure 3). □ Where waste oils or other materials are poured into drums, a drum funnel should be used (Figure 4). □ When employees transfer materials from their shipment container, only containers with covers or caps should be used outdoors. The container material should be compatible with the chemical stored. □ Use of open containers should be limited to specific indoor maintenance activities where a closed container is not practical. Open containers should only be used with a drip pan and should not be used for storage. □ When not in use, small containers should be stored indoors or in a cabinet or containment structure located underneath a canopy. □ All containers should be appropriately labeled as to their contents. 		

FIGURES



		Health (Blue)
4	Danger	May be fatal on short exposure. Specialized protective equipment required
3	Warning	Corrosive or toxic. Avoid skin contact or inhalation
2	Warning	May be harmful if inhaled or absorbed
1	Caution	May be irritating
0		No unusual hazard
		Flammability (Red)
4	Danger	Flammable gas or extremely flammable liquid
3	Warning	Flammable liquid flash point below 100 degrees F
2	Caution	Combustible liquid flash point of 100 degrees to 200 degrees F
1		Combustible if heated
0		Not combustible
		Reactivity (Yellow)
4	Danger	Explosive material at room temperature
3	Danger	May be explosive if shocked, heated under confinement or mixed with water
2	Warning	Unstable or may react violently if mixed with water
1	Caution	May react if heated or mixed with water but not violently
0	Stable	Not reactive when mixed with water
		Special Notice Key (White)
W		Water reactive
Oxy		Oxidizing Agent

Figure 1- NFPA Diamond and Rating Summary

FIGURES**Hazardous Materials Identification System (HMIS)**

Route of Entry	3 Health
Health Hazards	
Physical Hazards	
Target Organs	
	4
	3 Reactivity
	G Protective Equipment

*Health (Blue), *Flammability (Red), *Reactivity (Yellow), *Protective Equipment (White)

The HMIS label, Like the NFPA 704 diamond, provides hazardous information. Color for type of hazard and numbers for the degree of the hazard, four being the most hazardous.

In addition the HMIS system provides information on the type of personal protective equipment (PPE) that should be used when handling this material. In this category a letter is used to indicate what combination of PPE should be used.

- A = Safety glasses
- B = Safety glasses, gloves
- C = Safety glasses, gloves, chemical apron
- D = Face shield, gloves, chemical apron
- E = Safety glasses, gloves, dust respirator
- F = Safety glasses, gloves, chemical apron, dust respirator
- G = Safety glasses, gloves, vapor respirator
- H = Splash goggles, gloves, chemical apron, vapor respirator
- I = Safety glasses, gloves, dust and vapor respirator
- J = Splash goggles, gloves, chemical apron, dust and vapor respirator
- K = Air line hood or mask, gloves, full chemical suit, boots
- X = Ask Supervisor

Finally, the HMIS label also provides information regarding Route of entry, health hazards, physical hazards, and target organs. This information is found to the left of the other hazard information.

FIGURES

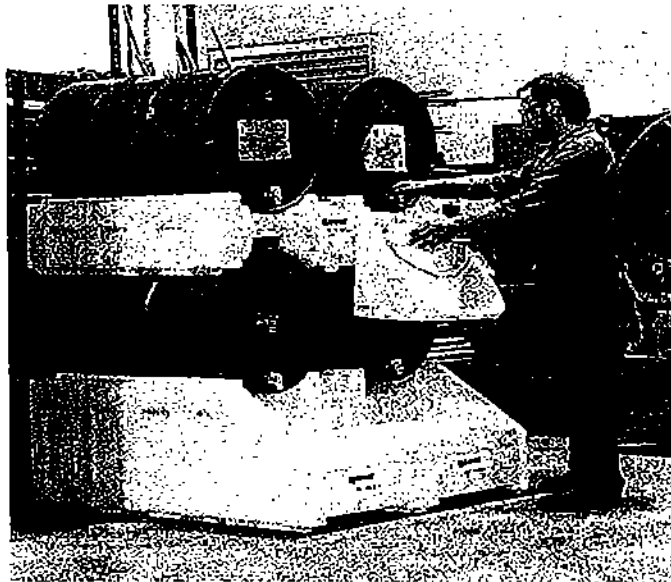


Figure 3 - Drip containment underneath drum dispense nozzle.

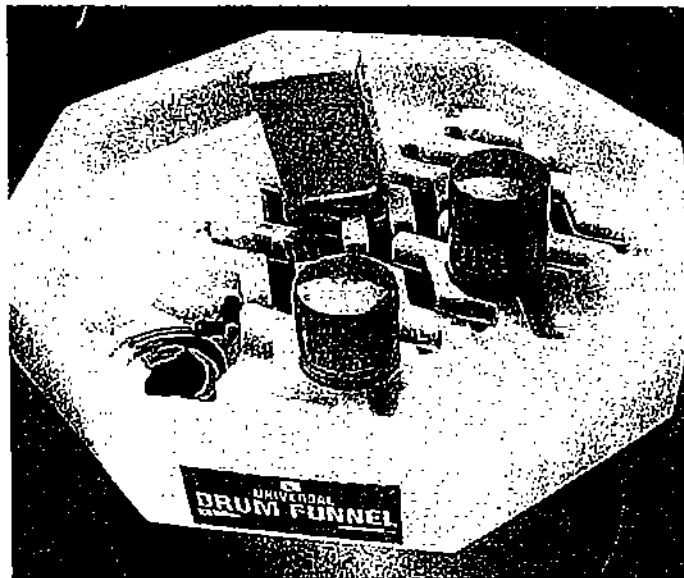


Figure 4 - Drum funnel.

BMP Fact Sheet: Drum Storage	BMP No.	014
APPLICABILITY This BMP applies to all facilities where drums of petroleum products or other substances are stored. Full drums are those actively used for product storage. Used empty drums are those where more than 90% of the original product has been removed. Storage of hazardous materials/wastes in drums is regulated by federal, state and local regulations. This BMP concerns only issues related to storm water pollution prevention and does not assure compliance with all regulations applicable to drum storage.	TARGET CONSTITUENTS	
PRACTICES	<p>All drum storage should be in compliance with applicable Spill Prevention Control and Countermeasure (SPCC) regulations (40 CFR Part 112.7).</p> <p><u>Indoor/ Outdoor Drum Storage</u></p> <ul style="list-style-type: none"> △ <i>Preferred Practice: Where feasible, drums should be stored indoors with secondary containment.</i> □ Drums should be labeled as to their contents and stored on an impervious concrete pad. □ Eliminate unnecessary drum storage where possible (i.e. excess product storage, obsolete produce, empty drum storage). □ Drums should be stored with adequate aisle space to allow inspection of each drum and to clean leaks or spills, as needed. □ Drum openings and/or bung-holes should be capped when not in use. □ A Spill Control Kit should be kept in the drum storage area (see BMP No. 018). □ The drums and drum storage area should be kept free of spillage and staining. <p><u>Used Empty Drums</u></p> <ul style="list-style-type: none"> △ <i>Preferred Practice: Where feasible, used empty drums should be stored indoors.</i> □ Empty drums should be stored with drum lids attached, bung holes capped, and labeled 'EMPTY'. □ Used drums not intended for reuse should be removed as soon as practical but in no case longer than one year. 	

FIGURES

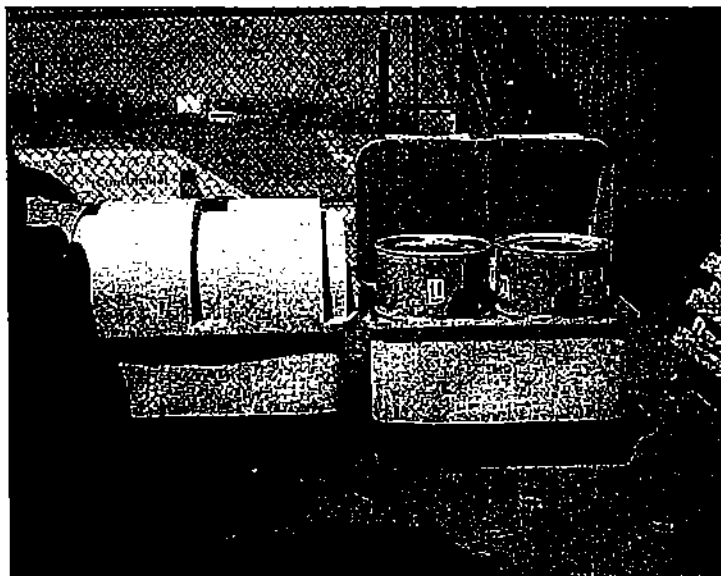


Figure 1 - Drum storage with secondary containment and cover.



Figure 2 - Drums stored indoors on spill pallet.

BMP Fact Sheet: Battery Storage		BMP No.	015
APPLICABILITY	This BMP covers the storage of batteries.	TARGET CONSTITUENTS	
		<ul style="list-style-type: none"> • Acids • Metals 	

PRACTICES

Storage Requirements

- Δ *Preferred Practice: Batteries should be stored indoors.*
- Where outdoor battery storage is used, the batteries should be protected from contact with storm water by use of a covered enclosure, roof overhang, canopy, or tarp.
- When batteries are stored outdoors, a secondary containment pallet should be used (Figure 1).

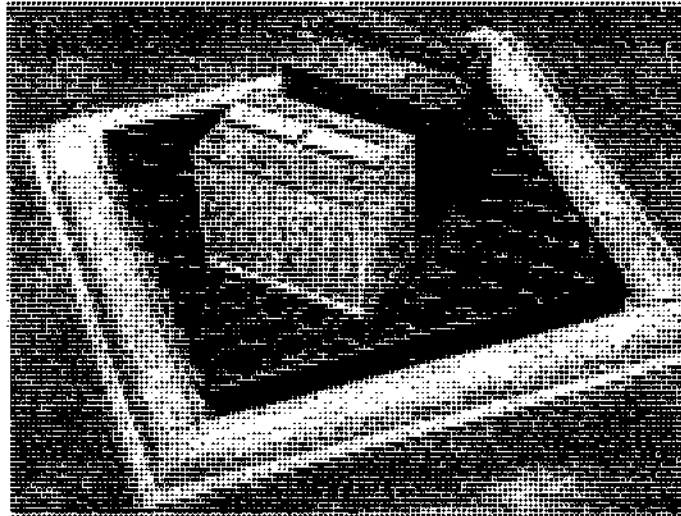


Figure 1 – Battery storage pad

BMP Fact Sheet: Floor Washdown	BMP No.	016
APPLICABILITY	TARGET CONSTITUENTS	
This BMP applies to interior floor washing activities.	<ul style="list-style-type: none"> • Oil and Grease • Toxic Organic Compounds • Surfactants 	
PRACTICES	<p><u>Floor Washdown Procedures</u></p> <ul style="list-style-type: none"> □ Where indoor areas are sprayed down, the wash waters should not be directed outdoors. The wash waters should be directed to a sanitary sewer. □ Where floor cleaning machines are used, the wash waters should not be discharged into a storm sewer. □ If any storm drains are present in the vicinity of the washing area, they should be protected in accordance with BMP No. 020. 	

BMP Fact Sheet: Truck Loading/Unloading		BMP No.	017
APPLICABILITY		TARGET CONSTITUENTS	
This BMP applies where materials are delivered to or shipped from the facility via trucks.		<ul style="list-style-type: none"> • Oil and Grease • Toxic Organic Compounds 	
PRACTICES			
<p><u>Loading/Unloading Requirements</u></p> <ul style="list-style-type: none"> □ Cargo which has the potential for liquid release should be placed indoors as soon as possible to avoid contact with storm water. □ Where possible, truck loading and unloading should be conducted at a loading dock and not in an open lot. This reduces the possibility of a spill during loading/unloading operations. □ Truck docks should be protected from storm water by use of a canopy or overhang (see Figure 1). Alternatively, door skirts can be used (see Figure 2). Door skirts reduce storm water contact with materials and reduce the possibility that dropped or spilled materials would impact storm water. □ Drivers are required to apply their emergency brake during loading/unloading. Dock locks and/or wheel chocks should be used. These practices reduce the possibility of a spill caused by accidental movement of the truck during loading/unloading. □ A Spill Control Kit should be present in proximity to the loading/unloading area (See BMP No. 018). □ Storm drains in the vicinity of the loading/unloading area should be protected if a spill occurs (see BMP No. 020). □ If a spill occurs in a loading/unloading area without storm drains, the spill must be confined to a diked area, containerized and disposed of properly. 			

FIGURES



Figure 1 - Covered loading dock.



Figure 2 - Loading dock with door skirts.

BMP Fact Sheet: Spill Control Kits & Spill Response	BMP No.	018
APPLICABILITY	TARGET CONSTITUENTS	
Spill Control Kits meeting the specifications outlined in this BMP should be present at locations specified in BMP No. 002, BMP No. 011, BMP No. 012, BMP No. 013, BMP No. 014, BMP No. 017 and BMP No. 021.	<ul style="list-style-type: none"> • Oil and Grease • Toxic Organic Compounds 	
PRACTICES	<ul style="list-style-type: none"> □ Spill Control Kits should be selected based on the area of their intended use. Material quantities will vary depending on the size of potential spills. Spill Control Kits are intended only as a first response measure in the event of a spill. Refer to the site specific SPCC Plan for additional response actions. □ Recommended contents for Spill Control Kits (Figure 1) are as follows: <ul style="list-style-type: none"> • Granular/loose absorbent (i.e., oil dry) ⁽¹⁾⁽²⁾ • Absorbent pillows/pads ⁽²⁾ • Absorbent booms/socks ⁽²⁾ • Non-sparking shovel and/or push broom • Personal Protective Equipment (PPE), including coveralls, goggles and gloves ⁽³⁾ • Storm drain protection devices <p>Notes:</p> <ol style="list-style-type: none"> 1) Granular absorbents are preferred over absorbent pillows/pads in areas subject to foreign object debris (FOD) restrictions. 2) Where gasoline or jet fuel spills are possible, static dissipative absorbents (absorbents with polypropylene textiles that are designed to dissipate electricity) should be used. Other absorbent types should be selected with respect to the type of hazardous materials involved (i.e. acids, corrosives, bases, fuel/petroleum). 3) Exact PPE requirements should be determined for each location when the spill kit is assembled. <ul style="list-style-type: none"> □ Spill Control Kit materials should be stored in such a manner as to prevent precipitation from damaging absorbent materials. □ Spill Control Kits should be stored in areas where they are easily accessible and clearly identified with a sign. □ Where two or more BMPs requiring a Spill Control Kit apply at a facility, the same Spill Control Kit can meet the requirements for both BMPs provided that it is easily accessible to both locations. □ Periodic inspections (i.e., quarterly) should be made of each Spill Control Kit to ensure that all required materials are present and in usable condition. The results of such inspections should be documented. 	

BMP Fact Sheet: Spill Control Kits & Spill Response	BMP No.	018
APPLICABILITY This BMP applies to any spill, leak, or release of fuel, oil or chemical substance from anywhere at Chicago O'Hare International Airport. This BMP was developed to assist in the prevention or mitigation of the impact of spills to storm water.	TARGET CONSTITUENTS <ul style="list-style-type: none"> • All Pollutants 	
PRACTICES (Cont.)		
<p>All spills will be immediately reported by the person who detected the spill to the O'Hare Communications Center (OCC) at 773-894-9111. American Airlines and United Airlines employees will contact their company's internal operations and communication center, which will notify the OCC. The OCC will dispatch the Chicago Fire Department, a DOA Supervisor, the Chicago Police Department and Airport Group International (AGI), as appropriate. Tenants should NOT notify the CFD or AGI directly. The caller will be asked to provide information regarding name, employer, location, type of material, volume/area of spilled material, direction of movement and actions being taken.</p>		
<div style="border: 1px solid black; padding: 10px;"> <p>Personnel should only undertake spill response activities for which they have been properly trained.</p> </div>		
<u>When any spill occurs:</u>		
<ul style="list-style-type: none"> □ Notify anyone in surrounding area and follow directions of the Chicago Fire Department. □ An absorbent material should be applied to the area of the spill. Protect any storm drain inlets that may be impacted by the spill by application of absorbent materials, booms, or socks. □ The resulting contaminated absorbent materials should be placed in a container or dumpster which is protected from storm water (i.e., covered dumpster or 55-gal drum). Used absorbent materials should be promptly disposed of in accordance with federal, state and local regulations. (Note: absorbents used to control petroleum product spills would typically require disposal as a "special waste" material, not general refuse). □ All spill response and follow-up reporting should be performed in accordance with the ORD Spill Response Guide. 		
<u>Spill Reporting:</u>		
<ul style="list-style-type: none"> □ Various local, state and federal government agencies require verbal notification in the event of a release. □ The OCC will automatically notify the appropriate agencies if the release is applicable. □ Tenants/FBO who are responsible parties will be responsible for all follow up reporting to appropriate agencies. □ Refer to the O'Hare Spill Response Guide for appropriate reporting procedures. 		
<div style="border: 1px solid black; padding: 5px;"> <p>In cases where spills result from the fueling of an aircraft, the carrier is considered the responsible party.</p> </div>		

BMP Fact Sheet: Good Housekeeping		BMP No.	019
APPLICABILITY	TARGET CONSTITUENTS		
This BMP applies to all facilities.	<ul style="list-style-type: none"> • Oil and Grease • Toxic Organic Compounds • Floatable Materials 		
PRACTICES	<p><u>Good Housekeeping Procedures</u></p> <ul style="list-style-type: none"> □ Facility grounds should be kept free of litter and debris. □ When a spill of solid material such as powder or pellets occurs, the spill should be swept up immediately. □ When feasible, existing oil staining should be cleaned up. An enzyme type cleaner or biodegradable cleaner can be used to assist in degrading the oil stains. The wash waters generated during the oil stain cleaning should be contained with a temporary dike structure and collected. Wash waters should be discharged into the sanitary sewer. □ All spill response should be performed in accordance with the procedures described in the site specific SPCC Plan. When a minor spill occurs it should be cleaned up with absorbent material. Liquid spills should never be washed down the storm drain. <p><u>Pallet Storage</u></p> <ul style="list-style-type: none"> □ Pallets should not be stored in areas subject to flooding or ponding during heavy rain. □ Prior to outdoor storage, each pallet should be inspected for evidence of chemical residue or staining. If chemical residue or staining is present the pallet should not be stored outdoors. <p><u>Used Tire Storage</u></p> <ul style="list-style-type: none"> □ Used tires should not be stored in areas subject to flooding or ponding during heavy rain. □ Used tires stored outdoors should be covered with a tarp or under a roof overhang, if feasible. 		

PRACTICES (Cont.)

General Waste Storage

This covers the outdoor storage of non-hazardous general wastes including general refuse, food wastes, and recyclable materials such as aluminum cans and paper scrap.

- Waste receptacles stored outdoors should be completely covered so that the contents of the receptacle will not be exposed to storm water.
- Waste receptacles that receive material that may yield liquids should be leak proof or stored in such a manner that the liquid can be collected and properly disposed. Do not discharge liquids into a storm sewer.
- Where general waste (i.e., food waste, waste with chemical/oily residue, or degradable material) has the potential to impart pollutants to storm water the waste receptacles should be provided with a cover to prevent exposure. Dumpsters with covers (see Figure 1) or rolloff boxes with a tarp may be used. Alternatively, receptacles may be located under a canopy, roof overhang or otherwise protected.
- All waste materials which have the potential to leak fluids such as oil cans or filters should be drained and wiped clean of fluids before being placed in a waste receptacle.
- Waste hauling should be scheduled so that waste receptacles do not overflow.

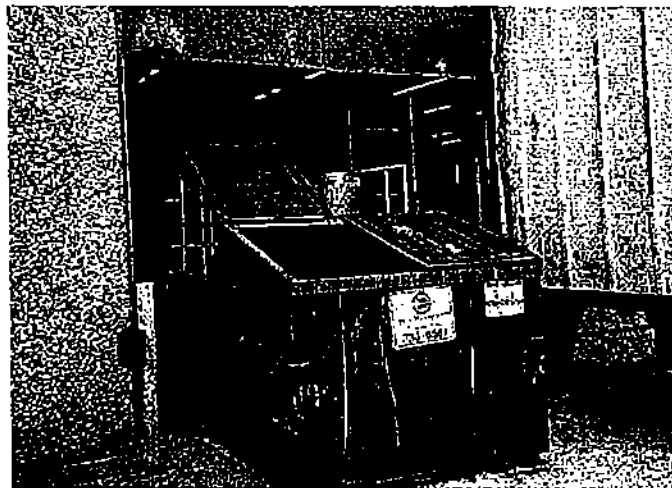


Figure 1 - Waste dumpster with lids.

BMP Fact Sheet: Storm Drain Protection	BMP No.	020
APPLICABILITY	TARGET CONSTITUENTS	
<p>This BMP applies where certain high risk activities are performed in the vicinity of storm drains. Storm Drain Inlet protection is required by BMP No. 001, BMP No. 003, BMP No. 007, BMP No. 008, BMP No. 009, BMP No. 010, BMP No. 011, BMP No. 013, BMP No. 016 and BMP No. 201.</p>	<ul style="list-style-type: none"> • Oil and Grease • Toxic Organic Compounds 	
PRACTICES		
<p><u>Storm Drain Inlet Protection Requirements</u></p> <ul style="list-style-type: none"> □ Prior to engaging in the activities described in the above referenced BMPs, storm drains should be identified that could be impacted in the event of a spill. The number of storm drain inlet devices available in the Spill Control Kit should be adequate to protect all identified storm drains. □ In the event of a release from an activity that could impact a storm drain, the storm drain should be blocked so that the released material will not enter the storm sewer system. □ Storm drains can be protected using a drain mat (see Figure 1) or a temporary dike (see Figure 2). 		

FIGURES



Figure 1 – Mat for storm drain protection.

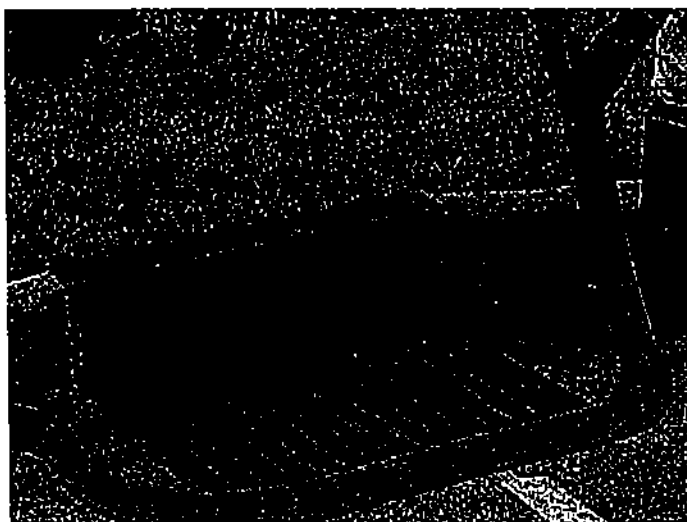


Figure 2 – Temporary dike used for storm drain protection.

BMP Fact Sheet: Cargo Handling & Transport Across Airfield of Hazardous Materials	BMP No.	021
APPLICABILITY This BMP applies to the handling & transport of hazardous material cargo loaded and unloaded from airplanes and transported across the airfield (e.g., plane to plane, plane to other transport vehicle, plane to cargo bays, etc.)	TARGET CONSTITUENTS	<ul style="list-style-type: none"> • Oil and Grease • Toxic Organic Compounds
PRACTICES <u>Cargo Handling/ Transport Procedures</u> <ul style="list-style-type: none"> △ <i>Preferred Practice: Use the International Air Transport Association (IATA) regulations regarding Dangerous Goods/ Hazardous Materials during cargo movement/handling across the airfield, which can be found in the International Civil Aviation Organization (ICAO) Technical Instructions Manual.</i> □ All loading, unloading and storage functions performed by a carrier in the course of transporting a hazardous material in commerce are regulated under the Department of Transportation (DOT) Hazardous Materials Regulations (HMR) 49 CFR Part 171-180. □ If hazardous materials are used or moved from one area on airport property to another area on airport property and stay solely within the confines of the airport, the HMR does not apply. □ The shipper (not the handler) must ensure that these items comply with DOT's HMR for ground transport as well as by air. □ All links in the transportation chain must know what they are transporting, how to properly load and handle goods and what to do if an incident or accident occurs. □ Cargo which has the potential for liquid release should be placed indoors as soon as possible to avoid contact with storm water. □ Cargo should be stored indoors with adequate aisle space to facilitate inspection of the containers so that it is possible to quickly respond to a leak from one of the containers. □ A Spill Control Kit meeting the requirements of BMP No. 018 should be present in all cargo handling areas. 		

BMP Fact Sheet: Disposal of Water Containing Glycol		BMP No.	022
APPLICABILITY	TARGET CONSTITUENTS		
<p>This BMP applies to DOA and airport tenants in the disposal of water containing glycol. This BMP is directed towards DOA, airlines, and contractors who collect used or spilled aircraft deicing fluids. This BMP does not apply to actual aircraft deicing or runway/taxiway deicing activities.</p>		<ul style="list-style-type: none"> • Biological Oxygen Demand • Total Dissolved Solids 	
PRACTICES	<ul style="list-style-type: none"> △ <i>Preferred Practice: Water containing glycol should be discharged into a sanitary sewer.</i> □ Water containing glycol should not be discharged into a storm sewer. □ Tenants and DOA Operations should obtain approval by DOA-Environmental Section prior to disposal of water containing glycol into a storm drain connected to the North or South Detention Basins. 		

BMP Fact Sheet: Trench Drain and Oil/Water Separator Cleaning	BMP No.	023
APPLICABILITY	TARGET CONSTITUENTS	
<p>This BMP applies to periodic cleaning of trench drains at Chicago O'Hare International Airport. This BMP includes trench drains, triple catch basins and oil/water separators located near industrial activity areas and/or where there is potential for a chemical spill.</p>	<ul style="list-style-type: none"> • All Constituents 	
PRACTICES		
<ul style="list-style-type: none"> □ Tenants are responsible for all trench drains, triple catch basins and oil/water separators that are included in their lease line. □ Tenants and DOA should have a complete understanding of their trench drain and sanitary sewer connection(s). Questions regarding trench drain and sanitary sewer connections should be addressed to DOA Environmental Section at 773-686-3485. □ Inspections of the trench drains should be performed at least on a monthly basis. Inspection records should be completed and should include: the name of the inspector, date, time, visual observations, corrective actions, and an implementation schedule for corrective actions. □ Regular cleaning of trench drains should be performed on an annual basis or more frequently if necessary. Cleaning should consist of pumping out the catch basin and taking residual material offsite for proper disposal. 		
Triple Catch Basins & Oil/Water Separators		
<ul style="list-style-type: none"> □ Triple catch basins and oil/water separators should also be inspected on a regular basis (i.e. monthly) for excess accumulated oil, grease, and other floating debris. Accumulated material should be pumped out of the triple catch basins or oil/water separators and properly disposed of in accordance with federal, state and local regulations. □ Discharge from the triple catch basin or the oil/water separator to the sanitary sewer should be monitored for oil sheen. □ Facility maintenance personnel should maintain their triple catch basins and oil/water separators according to the manufacturer's recommended guidelines. 		

BMP Fact Sheet: Pesticide, Fertilizer, and Herbicide		BMP No.
Application		024
APPLICABILITY	TARGET CONSTITUENTS	
This BMP applies to pesticide, fertilizer, and herbicide application to landscaped areas at Chicago O'Hare International Airport. This BMP was developed to limit the potential for storm water pollution from pesticide, fertilizer, and herbicide application.	<ul style="list-style-type: none"> • Excessive Nutrients 	
PRACTICES		
<ul style="list-style-type: none"> △ <i>Preferred Practice: Follow the manufacturer's recommended guidelines for pesticide, fertilizer, and herbicide storage and application. Fertilizers, pesticides, and herbicides should not be stored in a manner which allows exposure to storm water.</i> □ Fertilizers, pesticides, and herbicides should not be applied before an expected rainfall unless specified in the manufacturer's recommended guidelines. □ Conduct soil testing (as necessary) to determine the amount of nutrients needed for a healthy landscape. Over-application of fertilizers may damage the landscape. □ Never wash spilled fertilizers, pesticides, or herbicides into the street and storm drains. 		

BMP Fact Sheet: Training		BMP No.	025
APPLICABILITY		TARGET CONSTITUENTS	
This BMP provides a list of training requirements and guidelines to assist in implementation of BMPs at Chicago O'Hare International Airport.		<ul style="list-style-type: none"> • All Pollutants 	
PRACTICES	<ul style="list-style-type: none"> □ Employee training programs shall inform personnel at all levels of their responsibility under the SWPPP. Employees responsible for activities with the potential to release pollutants to the storm sewer should be trained in the requirements of applicable BMPs. □ Training sessions will address topics such as spill response, good housekeeping, material management, and deicing procedures. □ Training sessions will be implemented on a site specific basis. □ Training sessions should be conducted annually at a minimum. □ All training sessions should be documented (i.e. log of BMP training). These logs may include name of personnel, date of training and sign-off by supervisor and employee. □ Training logs should be retained and updated on a regular (annual and 'new hire') basis. □ Training is required only on BMPs applicable for site operations. 		

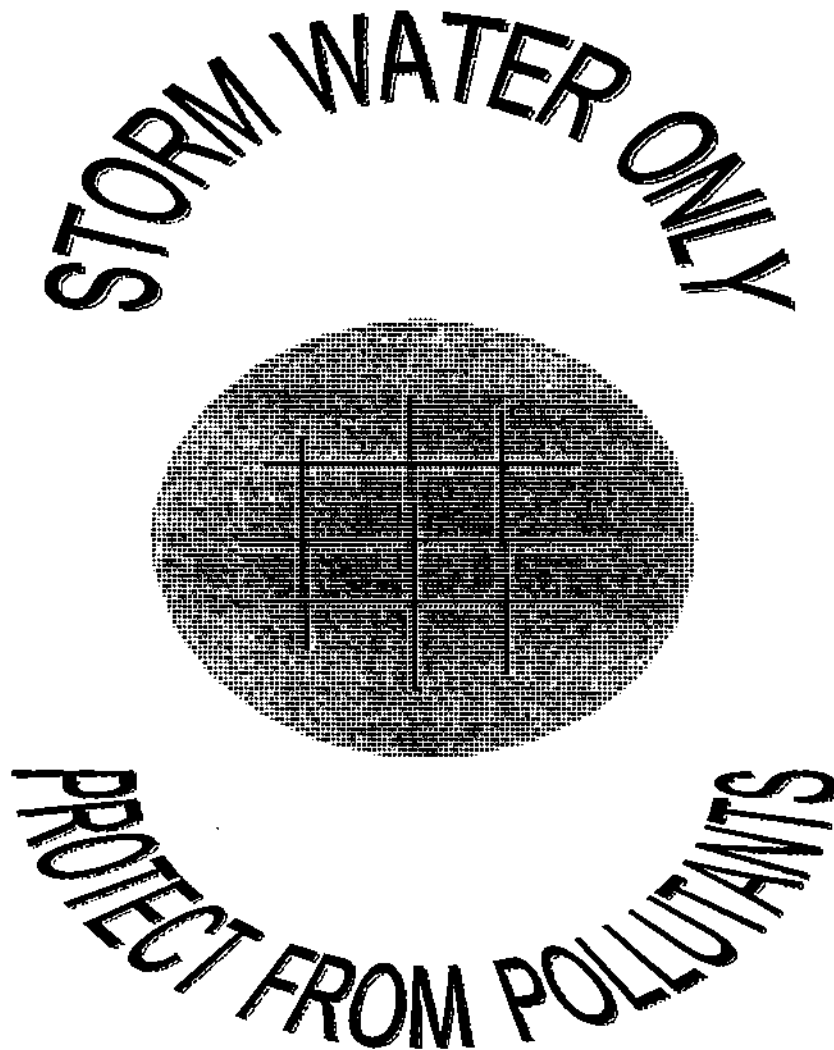
BEST MANAGEMENT PRACTICES

DEPARTMENT OF AVIATION

BMP Fact Sheet: Storm Drain Identification		BMP No.	101
APPLICABILITY	TARGET CONSTITUENTS		
This BMP should be implemented in areas of the airport where industrial activity takes place. Implementation will be the responsibility of the City of Chicago, Department of Aviation.	<ul style="list-style-type: none"> All Constituents 		

PRACTICES

Storm drain inlets should be identified by stenciling of the following labels at each storm drain inlet:



Color Code:

- Blue Lettering - Storm drains leading to surrounding creeks
- Orange Lettering - Storm drains discharging to the South Detention Basin.
- Green Lettering - Storm drains discharging to the North Detention Basin.

BMP Fact Sheet: Airfield Deicing		BMP No.	102
APPLICABILITY	TARGET CONSTITUENTS		
This BMP applies to all airfield deicing activities.	<ul style="list-style-type: none"> • Ammonia • Total Dissolved Solids 		
PRACTICES			
<p><u>Airfield Runway/Taxiway Deicing Procedures</u></p> <p>Mechanical means, such as brooms and plows, should be used to remove the maximum amount possible of snow and ice.</p> <ul style="list-style-type: none"> □ Excess snow and ice should be removed prior to application of deicing agents. (Preferably to less than 1/8 inch.) □ Slush or soft ice should be removed with rubber cutting edges prior to deicing agent application. □ Airfield anti-icing may be appropriate in specific locations since anti-icing pavements prior to freezing conditions reduces the bonding of ice to pavements, thereby subsequently requiring the application of less deicing fluid. <i>(The impacts of anti-icing operationally critical airfield pavements must be considered and coordinated given that anti-icing is a two-step process versus deicing which is a one-step process.)</i> □ DOA may consider alternative airfield deicing compounds for the purpose of reducing chemical usage and/or reducing the impacts to storm water quality. The effectiveness and safety of alternative airfield deicing compounds must be assessed prior to use. □ Deicing/anti-icing chemicals should be applied to airfields at the recommended rates to avoid application of excessive amounts. □ Deicing/anti-icing application equipment should be calibrated at the start of each season to help ensure that the appropriate amount of deicer/anti-icer is applied. □ Inspecting, repairing, and maintaining deicing equipment prior to and during the deicing season will help ensure that this equipment is in working order when needed and reduce the potential for equipment failure that may carry with it a possibility of uncontrolled release of deicing/anti-icing compounds. <div style="border: 1px solid black; padding: 5px; margin-top: 20px;"> <p>Note: The application of deicing fluid is prohibited on the Military Ramp.</p> </div>			

BMP Fact Sheet: Sanitary and Storm Sewer Manhole		BMP No.	103
Inspection			
APPLICABILITY	<p>This BMP applies to routine sanitary and storm sewer manhole inspection, maintenance, and repair at Chicago O'Hare International Airport. This BMP was developed to prevent clogging and to remove accumulated pollutants from the sanitary and storm sewer manholes.</p>	TARGET CONSTITUENTS	<ul style="list-style-type: none"> ▪ All constituents
PRACTICES		<p><u>Sanitary and Storm Sewer Drain Inspection</u></p> <ul style="list-style-type: none"> □ Catch basins, storm drains, and sanitary drains should be inspected at least once per year. Inspection should help determine if any illicit connections to the storm sewers exist and determine if the drains need to be cleaned or repaired. <p><u>Sanitary and Storm Sewer Drain Maintenance and Repair</u></p> <ul style="list-style-type: none"> □ Catch basins, storm drains, and sanitary drains on roadways and underneath overpasses should be routinely cleaned to minimize clogging and remove accumulated debris. Cleaning can be performed manually with a shovel, bucket loader, vacuum eductor, or a vacuum attachment to a street sweeper (Figure 1). Cleaning should be performed once per year, or more frequently if necessary. Records should be maintained for all cleaning activity. □ Any structural deterioration in the drains should be repaired or replaced immediately. □ Accumulated sediment from the catch basin should be properly disposed off airport property in accordance with federal, state, and local regulations. At minimum, all sediment removed from airside sewers should be considered as a special waste based on the potential for glycol contamination. Analytical testing of such sediment should be evaluated on a case-by-case basis depending on specific landfill disposal requirements. 	

BMP Fact Sheet:	BMP No.	
Sanitary and Storm Sewer Manhole Inspection		103

FIGURES



Figure 1 - The Vactor truck is used to periodically clean out sanitary and storm sewer manholes.

BMP Fact Sheet: Street Sweeping	BMP No.	104
APPLICABILITY This BMP applies to periodic dry sweeping of streets and parking lots at Chicago O'Hare International Airport. This BMP was developed to limit the amount of trash, litter, and particulate matter from entering the storm drains.	TARGET CONSTITUENTS <ul style="list-style-type: none"> All constituents 	
PRACTICES <u>Street Sweeping</u> <ul style="list-style-type: none"> Dry sweeping of all DOA scheduled air and landside sweeper routes should be performed on a regular basis. Dry sweeping should be conducted often when generation of more particulate matter than usual is expected. <div data-bbox="456 1058 1243 1766" data-label="Image"> </div>		

BMP Fact Sheet: Runway Maintenance		BMP No.	105
APPLICABILITY	TARGET CONSTITUENTS		
This BMP applies to the maintenance of runways at Chicago O'Hare International Airport. Repeated aircraft take-off and landings result in residual tire debris build-up on the runways. This build-up can reduce friction levels on the runway. This BMP was developed to assist in meeting the requirements set forth by FAA AC 150/5320-12B and 150/5320-12C for removing tire debris, performing friction testing and other runway maintenance.	<ul style="list-style-type: none"> • Heavy Metals • Biological Oxygen Demand • COD • Total Dissolved Solids • pH 		
PRACTICES	<p><u>Removal of Tire Debris on Runways</u></p> <ul style="list-style-type: none"> △ <i>Preferred Practice: High pressure washing using only water is a preferred practice for rubber removal from the runway. High pressure water jets (30,000-40,000 psi) are directed at the pavement surface to remove the rubber particulates. This process is performed as needed but no more than two times per year (April-November) on all runways at O'Hare except Runway 9R-27L.</i> □ After a high pressure washer has removed the rubber residue from the surface, a vacuum sweeper immediately follows and collects the wash water and debris off the runway in order to limit the potential for storm water pollution. □ All wash water collected is discharged to a sanitary sewer or taken offsite for proper disposal. <p><i>Chemical Removal (Runway 9R-27L only)</i></p> <ul style="list-style-type: none"> □ Runway 9R-27L is comprised of a special asphalt mix, therefore tire debris is removed using a chemical (Avion 50). The chemical is sprayed onto the runway, a scrubber truck immediately follows removing the tire debris, and a vacuum sweeper collects the residual waste water and tire debris. This process is performed once a year. □ All residual waste water resulting from the chemical application/scrubbing of the runway is collected immediately using a vacuum sweeper and is discharged to a sanitary sewer or taken offsite for proper disposal. □ Chemical removal should be avoided when rain is ongoing or imminent. 		

BMP Fact Sheet:		BMP No.	
Landside Elevated Parking Structure			106
- Level 6			
APPLICABILITY		TARGET CONSTITUENTS	
<p>This BMP applies to the application of urea to level 6 of the elevated parking structure. The elevated parking structure is generally not subject to the use of runway or aircraft deicing fluids.</p>		<ul style="list-style-type: none"> • Ammonia • Salinity • Total Dissolved Solids 	
PRACTICES	<p>During the course of the snow melting or deicing within and on the elevated parking structures, the following BMPs should be implemented:</p> <ul style="list-style-type: none"> □ Urea will be used as a deicing agent only on level 6 or within the elevated parking structures. □ Roadways and all surface parking areas will receive salt as the preferred deicing agent. □ Urea will be applied to Level 6 of the elevated parking structures for snow melting during snow falls of less than two inches. □ If a snow fall exceeds two inches, the application of urea will be discontinued. □ Snow in excess of two inches will be removed from Level 6, during which time no urea will be applied. □ After all snow has been removed from Level 6, urea will be applied to prevent icing and potential slip and fall injuries, as needed. □ Selection of deicing agents for the elevated parking structures should consider the potential pollution impact. □ DOA is investigating alternative deicing agents to reduce the use of salt on roadways and surface parking areas. 		

BMP Fact Sheet: Landside Roadway & Parking Lot Deicing	BMP No.	107
APPLICABILITY	TARGET CONSTITUENTS	
This BMP applies to the use of deicing agents on landside roadways and parking lots at Chicago O'Hare International Airport. This BMP was developed to minimize the potential for storm water pollution due to deicing agents.	<ul style="list-style-type: none"> • Total Dissolved Solids • Salinity 	
PRACTICES	<p><u>General</u></p> <ul style="list-style-type: none"> △ <i>Preferred Practice: Remove as much snow as possible by mechanical means (e.g. plowing) before using deicing agents.</i> <p><u>Roadsalt</u></p> <ul style="list-style-type: none"> □ Pre-wetting, or applying water or deicing solution to road salt before or during application, uses less road salt and may be as effective as road salt alone. <p><u>Handling and Storage</u></p> <ul style="list-style-type: none"> △ <i>Preferred Practice: All bulk quantity road salt should be stored in order to minimize contact with storm water.</i> □ Road salt may be stored in a concrete bunker elevated above ground level to prevent storm water from entering the salt pile. The bunker should be covered by a lean-to type canopy. □ After each bulk salt delivery and salt truck loading, any road salt which has been spilled or tracked outside the storage area should be returned to the storage unit with a front end loader or other equipment. Any residual salt should be cleaned up following the snow event. □ DOA is investigating alternative deicing agents to reduce the use of salt on roadways and surface parking areas. 	

BEST MANAGEMENT PRACTICES

BMPs that also apply to
CONSTRUCTION ACTIVITIES

BMP Fact Sheet: Paving and Grinding Operations	BMP No.	201
APPLICABILITY This BMP applies to paving, surfacing, resurfacing, saw-cutting, or seal coating of existing asphalt/concrete at Chicago O'Hare International Airport. This BMP was developed to assist in the prevention or mitigation of pollutants to storm water.	TARGET CONSTITUENTS <ul style="list-style-type: none"> • Oil and Grease • Sediment • Surfactants 	
PRACTICES <p><u>Paving Operations</u></p> <ul style="list-style-type: none"> □ Paving operations, including asphalt roadway or parking lot work, should be avoided when rain is ongoing or imminent. □ If work during rainfall is unavoidable, efforts should be made to minimize the potential for pollutants entering the storm drain. (Refer to BMP No. 020) □ When paving involves asphaltic concrete (AC), the following steps shall be implemented to prevent the discharge of grinding residue, uncompacted or loose AC, tack coats, equipment cleaners, or unrelated paving materials: <ul style="list-style-type: none"> □ Prevent sand or gravel from washing into storm drains and creeks by sweeping where practical. □ AC grindings, pieces, or chunks used in embankments must not be allowed to enter any storm drains or creeks. Apply temporary perimeter controls until structure is stabilized or permanent controls are in place. □ Collect and remove all broken asphalt and recycle when practical; otherwise dispose of properly. <p><u>Grinding Operations and Runway Grooving</u></p> <ul style="list-style-type: none"> □ Cutting or creating grooves in existing or new pavement on the runway is an effective technique for providing skid resistance and prevention of hydroplaning during wet weather. The groover (concrete saw) simultaneously collects the waste slurry as it is cutting the runway surface. □ The collected waste slurry should be taken off site for proper disposal. The waste slurry should not be allowed to drain into the storm sewers or into the grass shoulders adjacent to the runway. The waste slurry must be removed from the runway surface, as described above. 		

BMP Fact Sheet: Soil and Erosion Control		BMP No.	202
APPLICABILITY		TARGET CONSTITUENTS	
This BMP applies to all development activities greater than one acre at Chicago O'Hare International Airport.		<ul style="list-style-type: none"> • Sediments • Trace Chemicals & Metals 	
PRACTICES	<p>The DOA has procured Illinois Environmental Protection Agency NPDES Permit #ILR105869, issued May 14, 1998 and effective through May 31, 2003. This permit will be made available to all contractors, who must agree to the standards set therein.</p> <p>Details on soil erosion and sediment control measures, NPDES permits, and SWPP Plans can be found in the DOA, NPDES and SWPP Plan Guidelines Manual, August 2001, prepared by the Airport Owners Representatives.</p> <p>All projects more than one acre will include soil erosion and sediment control measures and have a Storm Water Pollution Prevention Plan (SWPPP) prepared by the design engineer and signed by the implementing contractor.</p> <p>In addition, the following practices are presented here:</p> <ul style="list-style-type: none"> □ The Illinois Urban Manual is to be referenced in the design aspects of erosion and sedimentation control. □ All activities at the airport should be performed in a manner to minimize soil erosion and prevent the introduction of sediment into wetlands and surrounding waterways. This applies to all construction projects that modify the existing vegetative cover and the underlying soils to the extent that there is a risk of soil erosion and/or introduction of sediment into wetlands and waterways. □ The design engineer will reference the specific pollution prevention site controls in all project plans and specifications. The plans will also include specific descriptions regarding the responsibilities of the developer's construction contractor to install, monitor, and maintain proposed pollution prevention facilities. □ Developers and contractors will control soil erosion and sedimentation during the construction period until the construction is complete and the site is permanently stabilized to manage stormwater and prevent soil erosion and sedimentation. □ Sedimentation control measures shall be installed before any significant grading or filling is initiated on the site to prevent the movement of eroded sediments off site or into the channel. 		

PRACTICES (Cont.)

- The construction area shall be minimized to preserve the maximum vegetation possible. Construction shall be scheduled to minimize the time soil is exposed and unprotected. In no case shall the existing vegetation be destroyed, removed, or disturbed more than 15 days prior to the initiation of improvements.

- Temporary and/or permanent soil stabilization shall be applied to denuded areas as soon as possible. As a minimum, soil stabilization shall be provided within 15 days after final grade is reached on any portion of the site, and within 15 days to denuded areas which may not be at final grade but will remain undisturbed for longer than 60 days.