

INDUSTRIAL STORMWATER

FACT SHEET SERIES

Sector F: Primary Metals 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 primary metals facilities as described by Standard Industrial Classification (SIC) Major Group 33. Facilities and products in this group fall under the following categories, all of which require coverage under an industrial stormwater permit:

- ◆ Steel works, blast furnaces, and rolling and finishing mills, including: steel wiredrawing and steel nails and spikes; cold-rolled steel sheet, strip, and bars; and steel pipes and tubes (SIC 3312-3317)
- ◆ Iron and steel foundries including: gray and ductile iron, malleable iron, steel investment, and steel foundries, not elsewhere classified (SIC 3321-3325)
- ◆ Primary smelting and refining of nonferrous metals including: primary smelting and refining of copper and primary production of aluminum (SIC 3331-3339)
- ◆ Secondary smelting and refining of nonferrous metals (SIC 3341)
- ◆ Rolling, drawing, and extruding of nonferrous metals including: rolling, drawing, and extruding of copper; aluminum extruded products; rolling, drawing, and extruding of nonferrous metals, except copper and aluminum; and drawing and insulating of nonferrous wire (SIC 3351-3357)
- ◆ Nonferrous foundries (castings) including: aluminum die-castings, nonferrous die-castings, except aluminum, aluminum foundries, copper foundries, and nonferrous foundries, except copper and aluminum (SIC 3363-3369)
- ◆ Miscellaneous primary metal products, not elsewhere classified, including metal heat treating (SIC 3398 and 3399)

What does an industrial stormwater permit require?

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

What pollutants are associated with activities at my facility?

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

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

Although operations at primary metals facilities may vary considerably, the elements with potential impact on stormwater discharges are fairly uniform and consistent. Facilities may include considerable areas of raw and waste material storage such as coal, coke, metal, ores, sand, scale, scrap, and slag. Processes generally involve furnaces for heating and melting metals or for producing coke, any of which may result in significant particulate emissions. Due to the nature of their operations, some facilities will have large areas of exposed soil and heavy vehicle traffic which can lead to erosion.

Several major activities and materials present at primary metals facilities that can contribute to pollutants including:

- ◆ Raw material storage and handling activities
- ◆ Process activities related to furnace operations, casting rolling, and extruding
- ◆ Waste material storage, handling, and disposal
- ◆ Erosion and sediment loss from unstabilized plant areas

The activities, pollutant sources, and pollutants detailed in Table 1 are commonly found at primary metals facilities.

Table 1. Common Activities, Pollutant Sources, and Associated Pollutants at Primary Metals Facilities

Activity	Pollutant Source	Pollutant
Material storage and handling	Metal product stored outside such as foundry returns, scrap metal, turnings, fines, ingots, bars, pigs, wire including materials coated with oil to prevent corrosion or residual chemicals from cleaning or treating	Residual or protective oil and grease, metals, total suspended solids (TSS), chemical oxygen demand
	Outdoor storage or handling of fluxes	pH (limestone)
	Storage of poles, bins, or material handling of coke or coal	(COD)
	Storage or handling of casting sand or refractory (from piles, hoppers, or bins)	TSS, pH, metals, phenolic compounds
	Leaks and spills of acids or solvents from drums or tanks	TSS, pH, toxicity depending on material
Vehicle and equipment fueling and maintenance	Vehicle fueling and maintenance or outdoor storage tanks and drums of gas, diesel, kerosene, lubricants, solvents	Oil and grease, diesel, gasoline, TSS, antifreeze
Waste materials (handling, storage, and disposal)	Slag or dross stored or disposed of outside in poles or drums	Metals, pH
	Fly ash, particulate emissions, dust collector sludges and solids, baghouse waste	TSS
	Storage and disposal of waste sand or refractory rubble in poles outside	TSS, metals, misc. "wet" sand additives
	Machining waste - fines, turnings, oil, borings, gates, sprues, scale	TSS, metals, Oil and grease
	Obsolete equipment stored outside	Oil and grease, metals
	Landfilling or open pit disposal of wastes on-site	Metals, cyanide, cadmium, arsenic, hexavalent chromium, or halogenated or chlorinated solvents
Furnace operations and pollution control equipment	Losses during charging of coke ovens or sintering plants and from particulate emissions	TSS, particulates, metals, volatiles, pH
	Fugitive emissions from poorly maintained or malfunctioning baghouses, scrubbers, electrostatic precipitators, cyclones	TSS, metals
	Wastewater treatment operations exposed to precipitation	TSS, metals
	Particulate emissions from blast furnaces, electric arc furnaces, induction furnaces	TSS, Oil and grease, ammonia-N, cyanide, phenolic compounds, dissolved iron, toxic organic pollutants, metals (depending on operation)
Rolling, casting, and finishing operations	Exposure of wastewater used for cooling or descaling related to rolling	Oil and grease, pH, TSS, metals, COD
	Storage of products outside after painting, pickling, or cleaning operations	pH, solvents, metals
	Casting cooling or shakeout	TSS, metals
	Losses of particulate matter from machining operations (grinding, drilling, boring, cutting)	Metals, TSS, Oil and grease
Plant yards	Areas of the facility with unstabilized soils subject to erosion and sediment loss	TSS
Illicit discharges	Improper connection of floor, sink, or process wastewater drains to storm sewers	Dependent on source

Note: Activities may have additional pollutant sources that contain PFAS and can come into contact with stormwater discharges. Per- and polyfluoroalkyl substances (PFAS) are a group of man-made chemicals that include PFOA, PFOS, GenX, and many other chemicals.

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 primary metal 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.

There are six main areas of concern related to primary metals facilities including:

- ◆ Material storage and handling
- ◆ Waste material storage, handling, and disposal
- ◆ Furnace, oven, and related pollution control activities
- ◆ Rolling, extruding, casting, and finishing operations
- ◆ Plant yards
- ◆ Illicit connections

As there are significant variations site to site in regard to activities and significant materials found at primary metals facilities, a variety of options may be applicable to eliminate or minimize the presence of pollutants in stormwater discharges from these facilities.

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.

Specific good housekeeping practices for primary metals facilities include:

- ◆ Developing a cleaning/maintenance program for all impervious areas of the facility where particulate matter, dust, or debris may accumulate (especially in loading/unloading, storage, handling and processing areas)
- ◆ Paving areas where vehicle traffic or material storage occur but where vegetative or other stabilization methods are not practicable. Paving these areas allow good housekeeping measures to be practiced and make spills easier to clean up.

Industrial facilities can conduct activities that use, store, manufacture, transfer, and/or dispose of PFAS containing materials. Successful good housekeeping practices to minimize PFAS exposure to stormwater could include inventorying the location, quantity, and method of storage; using properly designed storage and transfer techniques; providing secondary containment around chemical storage areas; and using proper techniques for cleaning or replacement of production systems or equipment.

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. Another example could include locating PFAS-containing materials and residues away from drainage pathways and surface waters.

Specific exposure minimization practices for primary metals facilities include:

- ◆ Moving materials inside under roof or cover
- ◆ Establishing scheduled removal of wastes to minimize storage on-site

Due to the large size of many primary metals facilities, source controls may not be practical. In some cases, it may not be feasible to cover or otherwise protect large areas of material storage or exposed plant yards. Deposition of particulates from furnace or other process emissions may be relatively diffuse over a large area of the facility and very difficult to control. In these cases management practices such as settling basins, retention or detention ponds, or recycle ponds can provide effective treatment of runoff. For smaller areas, filter fabric, or other types of filters may be appropriate. In areas where oil and grease is a concern, end-of-pipe treatment may be appropriate and should be considered.

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. Incorporating treatment like granular activated carbon may be helpful to remove certain pollutants like PFAS.

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 primary metals 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 primary metals 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 Primary Metals Facilities

Pollutant Source	BMP
Metal product storage (outside) such as foundry returns, scrap metal, turnings, fines, ingots, bars, pigs, wire	<ul style="list-style-type: none"> <input type="checkbox"/> Confine storage to designated and labeled areas outside of drainage pathways and away from surface waters. <input type="checkbox"/> Provide temporary cover (e.g., tarps) for the storage area. <input type="checkbox"/> Minimize material storage through effective inventory and shipping controls. <input type="checkbox"/> Minimize run-on from adjacent properties with diversion dikes, berms, curbing, surface grading or other equivalent measures. <input type="checkbox"/> Stabilize areas with exposed soil with diversion dikes, berms, curbing, concrete pads, etc.
Storage or handling of fluxes	<ul style="list-style-type: none"> <input type="checkbox"/> Store fluxes in covered hoppers, silos, or indoors and protect from wind-blown losses. <input type="checkbox"/> Stabilize areas surrounding storage and material handling areas. <input type="checkbox"/> Establish schedule for sweeping on a regular basis.
Storage piles, bins, or material handling of coke and coal	<ul style="list-style-type: none"> <input type="checkbox"/> Confine storage to designated and labeled areas outside of drainage pathways and away from surface waters <input type="checkbox"/> Where possible store coke and coal under cover or indoors and protect from wind-blown losses. <input type="checkbox"/> Practice good stockpiling practices such as: storing materials on concrete or asphalt pads; surrounding stockpiles with diversion dikes or curbs to limit run-on and to slow runoff. <input type="checkbox"/> Trap particulates originating in coke or coal storage or handling areas with filter fabric fences, gravel outlet protection, sediment traps, vegetated swales, buffer strips of vegetation, catch-basin filters, retention/detention basins or equivalent. <input type="checkbox"/> Minimize quantities of coke or coal stored on-site through implementation of effective inventory control. <input type="checkbox"/> Practice good housekeeping measures such as frequent removal of dust and debris. Cleanup methods may include mobile sweepers, scrapers, or scoops. <input type="checkbox"/> Train employees in good housekeeping measures.
Storage or handling of casting sand	<ul style="list-style-type: none"> <input type="checkbox"/> Confine storage to designated and labeled areas outside of drainage pathways and away from surface waters <input type="checkbox"/> Store raw sand in silos, covered hoppers, or indoor whenever possible. <input type="checkbox"/> Cover storage pile with tarp or awning. <input type="checkbox"/> Practice good stockpiling practices such as: storing materials on concrete or asphalt pads; surrounding stockpiles with diversion dikes or curbs to limit run-on and to slow runoff. <input type="checkbox"/> Install sediment basins, silt fence, vegetated filter strips, or other sediment removal measures downstream/downslope. <input type="checkbox"/> Minimize quantities of sand stored onsite through implementation of effective inventory control.
Vehicle and equipment fueling	<ul style="list-style-type: none"> <input type="checkbox"/> Conduct fueling operations (including the transfer of fuel from tank trucks) on an impervious or contained pad or under a roof or canopy where possible. Covering should cover extend beyond spill containment pad to prevent rain from entering. <input type="checkbox"/> When fueling in uncovered area, use concrete pad (asphalt is not chemically resistant to the fuels being handled). <input type="checkbox"/> Use drip pans where leaks or spills of fuel can occur and where making and breaking hose connections. <input type="checkbox"/> Use fueling hoses with check valves to prevent hose drainage after filling. <input type="checkbox"/> Keep spill cleanup material readily available. Clean up spills and leaks immediately.

Table 2. BMPs for Potential Pollutant Sources at Primary Metals Facilities (continued)

Pollutant Source	BMP
Vehicle and equipment fueling (continued)	<ul style="list-style-type: none"> <input type="checkbox"/> Minimize/eliminate run-on into fueling areas with diversion dikes, berms, curbing, surface grading or other equivalent measures. <input type="checkbox"/> Collect stormwater runoff and provide treatment or recycling. <input type="checkbox"/> Use dry cleanup methods for fuel area rather than hosing down the fuel area. Follow procedures for sweeping up absorbent as soon as spilled substance have been absorbed. <input type="checkbox"/> Provide curbing or posts around fuel pumps to prevent collisions from vehicles. <input type="checkbox"/> Discourage topping off of fuel tanks. <input type="checkbox"/> Regularly inspect and perform preventive maintenance on fuel storage tanks to detect potential leaks before they occur. <input type="checkbox"/> Inspect the fueling area for leaks and spills. <input type="checkbox"/> Train personnel on vehicle fueling BMPs.
Vehicle maintenance	<p>Good Housekeeping</p> <ul style="list-style-type: none"> <input type="checkbox"/> Eliminate floor drains that are connected to the storm or sanitary sewer; if necessary, install a sump that is pumped regularly. Collected wastes should be properly treated or disposed of by a licensed waste hauler. <input type="checkbox"/> Do all cleaning at a centralized station so the solvents stay in one area. <input type="checkbox"/> If parts are dipped in liquid, remove them slowly to avoid spills. <input type="checkbox"/> Use drip pans, drain boards, and drying racks to direct drips back into a fluid holding tank for reuse. <input type="checkbox"/> Drain all parts of fluids prior to disposal. Oil filters can be crushed and recycled. <input type="checkbox"/> Promptly transfer used fluids to the proper container; do not leave full drip pans or other open containers around the shop. Empty and clean drip pans and containers. <input type="checkbox"/> Clean up leaks, drips, and other spills without using large amounts of water. Use absorbents for dry cleanup whenever possible. <input type="checkbox"/> Prohibit the practice of hosing down an area where the practice would result in the discharge of pollutants to a stormwater system. <input type="checkbox"/> Do not pour liquid waste into floor drains, sinks, outdoor storm drain inlets, or other storm drains or sewer connections. <input type="checkbox"/> Maintain an organized inventory of materials. <input type="checkbox"/> Eliminate or reduce the number and amount of hazardous materials and waste by substituting nonhazardous or less hazardous materials. <input type="checkbox"/> Label and track the recycling of waste material (e.g., used oil, spent solvents, batteries). <input type="checkbox"/> Store batteries and other significant materials inside. <input type="checkbox"/> Dispose of greasy rags, oil filters, air filters, batteries, spent coolant, and degreasers in compliance with RCRA regulations. <p>Minimizing Exposure</p> <ul style="list-style-type: none"> <input type="checkbox"/> Perform all cleaning operations indoors or under covering when possible. Conduct the cleaning operations in an area with a concrete floor with no floor drainage other than to sanitary sewers or treatment facilities. <input type="checkbox"/> If operations are uncovered, perform them on a concrete pad that is impervious and contained.

Table 2. BMPs for Potential Pollutant Sources at Primary Metals Facilities (continued)

Pollutant Source	BMP
Vehicle maintenance (continued)	<p>Minimizing Exposure (continued)</p> <ul style="list-style-type: none"> <input type="checkbox"/> Park vehicles and equipment indoors or under a roof whenever possible and maintain proper control of oil leaks/spills. <input type="checkbox"/> Check vehicles closely for leaks and use pans to collect fluid when leaks occur. <p>Management of Runoff</p> <ul style="list-style-type: none"> <input type="checkbox"/> Use berms, curbs, grassed swales or other diversion measures to ensure that stormwater runoff from other parts of the facility does not flow over the maintenance area. <input type="checkbox"/> Collect the stormwater runoff from the cleaning area and provide treatment or recycling. Discharge vehicle wash or rinse water to the sanitary sewer (if allowed by sewer authority), wastewater treatment, a land application site, or recycle on-site. DO NOT discharge washwater to a storm drain or to surface water. <p>Inspections and Training</p> <ul style="list-style-type: none"> <input type="checkbox"/> Inspect the maintenance area regularly to ensure BMPs are implemented. <input type="checkbox"/> Train employees on waste control and disposal procedures.
Vehicle and equipment storage and parking	<ul style="list-style-type: none"> <input type="checkbox"/> Store vehicles and equipment inside. <input type="checkbox"/> Install berms and dikes in storage areas. <input type="checkbox"/> Use absorbents and dry cleanup. <input type="checkbox"/> Clean pavement surface to remove oil and grease. <input type="checkbox"/> Use drip pans under all vehicles and equipment waiting for maintenance. <input type="checkbox"/> Cover the storage area with a roof. <input type="checkbox"/> Inspect the storage yard for filling drip pans and other problems regularly. <input type="checkbox"/> Train employees on procedures for storage and inspection items.
Storage tanks or drums of gas, diesel, kerosene, lubricants, solvents	<ul style="list-style-type: none"> <input type="checkbox"/> Store tanks and drums inside when possible. <input type="checkbox"/> Store drums, including empty or used drums, in secondary containment with a roof or cover (including temporary cover such as a tarp that prevents contact with precipitation). <input type="checkbox"/> Provide secondary containment, such as dikes or portable containers, with a height sufficient to contain a spill (the greater of 10 percent of the total enclosed tank volume or 110 percent of the volume contained in the largest tank). <input type="checkbox"/> Clearly label drum with its contents. <input type="checkbox"/> Establish regular inspection of all tanks and drums for leaks, spills, corrosion, damage, etc. <input type="checkbox"/> Use dry cleanup methods when possible <input type="checkbox"/> Utilize effective inventory control to reduce the volume of chemicals stored on-site. <input type="checkbox"/> Prepare and train employees in dealing with spills and leaks properly.
Slag or dross stored or disposed of in piles or drums	<ul style="list-style-type: none"> <input type="checkbox"/> Confine storage to designated and labeled areas outside of drainage pathways and away from surface waters <input type="checkbox"/> Collect waste waters used for granulation of slag and direct to a treatment facility. (These are not allowed under this section.) <input type="checkbox"/> Store slag and dross indoors, under cover, or in sealed containers. <input type="checkbox"/> Establish regular disposal of slag or dross to minimize quantities stored and handled on-site.

Table 2. BMPs for Potential Pollutant Sources at Primary Metals Facilities (continued)

Pollutant Source	BMP
Slag or dross stored or disposed of in piles or drums (continued)	<ul style="list-style-type: none"> <input type="checkbox"/> Minimize run-on to slag storage areas with diversion dikes, berms, curbing, or vegetated swales. <input type="checkbox"/> Trap particulates originating in slag storage areas with silt fences, gravel outlet protection, sediment traps, vegetated swales, buffer strips of vegetation, catch-basin filters, and/or retention/detention basins or equivalent.
Fly ash, particulate emissions, dust collector sludges and solids, baghouse dust	<ul style="list-style-type: none"> <input type="checkbox"/> Store all dusts and sludges indoors to prevent contact with precipitation or losses due to wind. <input type="checkbox"/> Establish regular disposal schedule to minimize quantities stored and handled on-site. <input type="checkbox"/> Inspect all residue hauling vehicles for proper covering over the load, adequate gate sealing, and overall integrity of the body or container.
Storage and disposal of waste sand or refractory rubble in piles	<ul style="list-style-type: none"> <input type="checkbox"/> Move piles under cover or tarps whenever possible. <input type="checkbox"/> Establish regular disposal schedule to minimize quantities stored on-site. <input type="checkbox"/> Stabilize areas of waste product storage and perform regular sweeping of area.
Scrap processing activities (shredding etc.)	<p>Good Housekeeping</p> <ul style="list-style-type: none"> <input type="checkbox"/> Schedule frequent cleaning of accumulated fluids and particulate residue around all scrap processing equipment. <input type="checkbox"/> Conduct routine preventive maintenance of equipment per original manufacturer's equipment (OME) recommendations. Replace worn or malfunctioning parts. <input type="checkbox"/> Conduct periodic maintenance and clean out of all sumps, oil/water separators, media filters. Dispose of residual waste materials properly, e.g., according to RCRA. <input type="checkbox"/> Provide alarm, pump shutoff, or sufficient containment for hydraulic reservoirs in the event of a line break. <input type="checkbox"/> Provide site gages or overfill protection devices for all liquid and fuel storage reservoirs and tanks. <input type="checkbox"/> Provide containment bins or equivalent for shredded material, especially lightweight materials such as fluff (preferably at the discharge of these materials from the air classification system). <p>Minimizing Exposure</p> <ul style="list-style-type: none"> <input type="checkbox"/> Where practicable, locate process equipment (e.g., balers, briquetters, small compactors) under cover. <input type="checkbox"/> Provide diversion berms, dikes or grassed swales around the perimeter of the area to limit run-on. <input type="checkbox"/> Provide cover for hydraulic equipment and combustion engines. <p>Erosion and Sediment Control</p> <ul style="list-style-type: none"> <input type="checkbox"/> Stabilize high traffic areas around processing equipment (e.g., concrete pads, gravel, and pavement) where practicable. <p>Management of Runoff</p> <ul style="list-style-type: none"> <input type="checkbox"/> Site process equipment on elevated concrete pads or provide runoff diversion structures, berms, containment trenches or surface grading around process equipment. Discharge runoff from within bermed areas to a sump, oil/water separator, media filter or discharge to sanitary sewer. <input type="checkbox"/> Provide dry cleanup materials (e.g., dry-absorbents, drip pans, etc.) to prevent contact of hydraulic fluids, oils, fuels, etc., with stormwater runoff.

Table 2. BMPs for Potential Pollutant Sources at Primary Metals Facilities (continued)

Pollutant Source	BMP
Scrap processing activities (shredding etc.) (continued)	<p>Inspections and Training</p> <ul style="list-style-type: none"> <input type="checkbox"/> Provide training to equipment operators on how to minimize run-on to scrap processing areas. <input type="checkbox"/> Schedule frequent inspections of equipment for signs of spills, leakage of contents, oil, fuel, hydraulic fluids. <input type="checkbox"/> Establish and implement spill prevention and response procedures, including employee training.
Storage of machining waste – fines, turnings, oil, borings, gates, sprues, scale	<ul style="list-style-type: none"> <input type="checkbox"/> Store all wastes indoors or in sealed drums, covered dumpsters, etc. <input type="checkbox"/> Confine storage to designated and labeled areas outside of drainage pathways and away from surface waters. <input type="checkbox"/> Stabilize areas of waste product storage and perform regular sweeping and cleaning of any residues. <input type="checkbox"/> Use sand filters or other end-of-pipe treatment as back-up measures for outfalls draining areas where oil is potentially present. <input type="checkbox"/> Minimize run-on from adjacent properties and stabilized areas with diversion dikes, berms, curbing, concrete pads, etc.
Storage of obsolete equipment	<ul style="list-style-type: none"> <input type="checkbox"/> Where possible, dispose of unused equipment properly, or move indoors. <input type="checkbox"/> Confine storage to designated and labeled areas outside of drainage pathways and away from surface waters <input type="checkbox"/> Cover obsolete equipment with a tarp, awning or roof. <input type="checkbox"/> Provide diversion berms, dikes or grassed swales around the perimeter of the area to limit run-on. <input type="checkbox"/> Place equipment on a concrete pad. <input type="checkbox"/> Use sand filters or other end-of-pipe treatment as back-up measures for outfalls draining areas where oil is potentially present.
Material handling equipment such as conveyors, trucks, pallets, hoppers, etc.	<ul style="list-style-type: none"> <input type="checkbox"/> Schedule frequent inspections of equipment for signs of spills or leakage. <input type="checkbox"/> Inspect for accumulation of particulate matter on and around equipment and clean. Where possible cover these areas to prevent losses to wind and precipitation. <input type="checkbox"/> Store pallets, hoppers, etc. which have residual materials on them under cover, with tarps, or inside.
Charging of coke ovens or sintering plants.	<ul style="list-style-type: none"> <input type="checkbox"/> Cover any exposed areas related to furnace charging/material handling activities. <input type="checkbox"/> Stabilize areas around all material handling areas and establish regular sweeping. <input type="checkbox"/> Route runoff from particulate generating operations to sediment traps, vegetated swales, buffer strips of vegetation, catch-basin filters, retention/detention basins or equivalent.
Blast furnaces, electric arc furnaces, induction furnaces and emissions control equipment including baghouses, scrubbers, electrostatic precipitators, cyclones	<ul style="list-style-type: none"> <input type="checkbox"/> Use dust collection systems (e.g., bag houses) to collect airborne particles generated as a result of handling operations. <input type="checkbox"/> Promptly dispose of waste materials from dust collection systems and other operations. <input type="checkbox"/> Remove spilled material and settled dust from paved portions of the facility by shoveling and sweeping on a regular basis <input type="checkbox"/> Periodically clean material handling equipment and vehicles to remove accumulated dust and residue. <input type="checkbox"/> Route runoff from particulate generating operations to sediment traps, vegetated swales, buffer strips of vegetation, catch-basin filters, retention/detention basins or equivalent.

Table 2. BMPs for Potential Pollutant Sources at Primary Metals Facilities (continued)

Pollutant Source	BMP
Blast furnaces, electric arc furnaces, induction furnaces and emissions control equipment including baghouses, scrubbers, electrostatic precipitators, cyclones (continued)	<ul style="list-style-type: none"> <input type="checkbox"/> Establish schedule for inspection and maintenance of all pollution control equipment—check for any particulate deposition from leaks, spills, or improper operation of equipment. <input type="checkbox"/> Train employees in good housekeeping, inspection and maintenance of emission control equipment, spill prevention and control.
Storage of products outside after machining, painting, pickling, or cleaning operations	<ul style="list-style-type: none"> <input type="checkbox"/> Confine storage to designated and labeled areas outside of drainage pathways and away from surface waters <input type="checkbox"/> Store all materials inside or under cover whenever possible. <input type="checkbox"/> Prevent run-on to product storage areas through curbs, berms, dikes, etc. <input type="checkbox"/> Use sand filters or other end-of-pipe treatment as back-up measures for outfalls draining areas where oil is potentially present. <input type="checkbox"/> Remove residual chemicals from intermediate or finished products before storage or transport outside. <input type="checkbox"/> Stabilize storage areas and establish sweeping schedule.
Casting cooling or shakeout operations exposed to precipitation or wind	<ul style="list-style-type: none"> <input type="checkbox"/> Perform all pouring, cooling, and shakeout operations indoors in areas with roof vents to trap fugitive particulate emissions. <input type="checkbox"/> Recycle into process as much casting sand as possible.
Landfilling or open pit disposal of wastes on-site	<p>Application of fertilizers, herbicides, pesticides</p> <ul style="list-style-type: none"> <input type="checkbox"/> Conform to all applicable Federal, State, and local regulations when using these products. <input type="checkbox"/> Strictly follow recommended application rates and methods (i.e., do not apply in excess of vegetative requirements). <input type="checkbox"/> Have materials such as absorbent pads easily accessible to clean up spills. <input type="checkbox"/> Provide protected storage areas for pesticides, herbicides, fertilizer, and other significant materials. <input type="checkbox"/> Inspect and maintain all containers used for outdoor chemical materials storage to prevent leaking. <input type="checkbox"/> Train employees in proper application procedures and spill response. <p>Exposure of waste at open face</p> <ul style="list-style-type: none"> <input type="checkbox"/> Minimize the area of exposed open face as much as is practicable. <input type="checkbox"/> Divert flows around open face using structural measures such as dikes, berms, swales, and pipe slope drains. <input type="checkbox"/> Inspect erosion and sedimentation controls every 7 days. <input type="checkbox"/> Maintain the integrity and effectiveness of any intermediate or final cover (including repairing the cover as necessary to minimize the effects of settlement, sinking and erosion). <p>Uncontrolled leachate</p> <ul style="list-style-type: none"> <input type="checkbox"/> Frequently inspect leachate collection system and landfill for leachate leaks. <input type="checkbox"/> Maintain landfill cover and vegetation. <input type="checkbox"/> Maintain leachate collection system. <input type="checkbox"/> Maintain all elements of leachate collection and treatment systems to prevent commingling of leachate with stormwater.

Table 2. BMPs for Potential Pollutant Sources at Primary Metals Facilities (continued)

Pollutant Source	BMP
Landfilling or open pit disposal of wastes on-site (continued)	<p>Waste tracking</p> <p><input type="checkbox"/> Clean wheels and exterior of trucks or other equipment as necessary to minimize waste tracking (but contain any wash waters [process wastewaters]).</p>
Areas of the facility with unstabilized soils subject to erosion	<p><input type="checkbox"/> Minimize run-on from adjacent properties and stabilized areas to areas with exposed soil with diversion dikes, berms, vegetated swales, etc.</p> <p><input type="checkbox"/> Stabilize all high traffic areas including all vehicle entrances, exits, loading, unloading, and vehicle storage areas.</p> <p><input type="checkbox"/> Conduct periodic sweeping of all traffic areas.</p> <p><input type="checkbox"/> Trap sediment originating in unstabilized areas using silt fences, gravel outlet protection, sediment traps, vegetated swales, buffer strips of vegetation, catch-basin filters, retention/detention basins or equivalent.</p> <p><input type="checkbox"/> Inspect and maintain all BMPs on a regular basis.</p> <p><input type="checkbox"/> Provide employee training on proper installation and maintenance of sediment and erosion controls.</p>
Illicit connections to storm sewers	<p><input type="checkbox"/> Inspect and test all floor, sink, and process wastewater drains for proper connection to treatment facilities and remove any improper connections to storm sewer or receiving waters.</p>

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

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

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

Where do I get more information?

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

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

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