

# INDUSTRIAL STORMWATER

## FACT SHEET SERIES

### *Sector N: Scrap Recycling and Waste Recycling Facilities*



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### ***What is the NPDES stormwater 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 various industries including scrap recycling and waste recycling facilities as defined by Standard Industrial Classification (SIC) Major Group Code 50 (5093). Facilities and products in this group fall under the following categories, all of which require coverage under an industrial stormwater permit:

- ◆ *Scrap and waste recycling facilities (non-source separated, non-liquid recyclable materials)* engaged in processing, reclaiming, and wholesale distribution of scrap and waste materials such as ferrous and nonferrous metals, paper, plastic, cardboard, glass, and animal hides.
- ◆ *Waste recycling facilities (liquid recyclable materials)* engaged in reclaiming and recycling liquid wastes such as used oil, antifreeze, mineral spirits, and industrial solvents.
- ◆ *Recycling facilities* that only receive source-separated recyclable materials primarily from non-industrial and residential sources (i.e., common consumer products including paper, newspaper, glass, cardboard, plastic containers, aluminum and tin cans); including recycling facilities commonly referred to as material recovery facilities (MRF).

### ***What does an industrial stormwater permit require?***

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

### What pollutants are associated with activities at my facility?

Pollutants conveyed in stormwater discharges from scrap recycling and waste recycling 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

Each scrap recycling and waste recycling facility is unique in regards to sources, type, and volume of contaminated stormwater discharges. Sources of pollutants other than stormwater, such as illicit connections, spills, and other improperly dumped materials, may increase pollutant loadings in discharges. Each of the three types of facilities included in the scrap recycling and waste recycling facilities group are dissimilar from one another in the operations and types of materials handled. As a result, there is variation in pollutants for which BMPs may be necessary to address.

The activities, pollutant sources, and pollutants detailed in Table 1 are commonly found at scrap recycling and waste recycling facilities.

**Table 1. Common Activities, Pollutant Sources, and Associated Pollutants at Scrap Recycling and Waste Recycling Facilities**

Activity	Pollutant Source	Pollutant
<i>Scrap and Waste Recycling Facilities (non-source separated, non-liquid recyclable materials)</i>		
Stockpiling and storage of materials (including loading and unloading)	Leaking of various fluids from used automotive engines, radiators, brake fluid reservoirs, transmission housings, other vehicle parts, and lead-acid from batteries	PCBs, oil and grease, lubricants, paint pigments or additives, heavy metals, ionizing radioactive isotopes, transmission and brake fluids, fuel, battery acid, lead acid, antifreeze, benzene, chemical residue, heating oil, petroleum products, solvents, ionizing radioactive isotopes, infectious/bacterial contamination, asbestos, metals, total Kjeldahl nitrogen (TKN), battery acid, oily wastes, chemical residue
	Deterioration/corrosion of materials	
Material processing: Air pollution equipment (including incinerators, furnaces, wet scrubbers, filter houses, and bag houses)	Normal equipment operations that include the collection and disposal of filter bag material and ash, process wastewater from scrubbers, accumulation of particulate matter around leaking joint connections, malfunctioning pumps and motors (e.g., leaking gaskets, seals or pipe connections, leaking oil-filled transformer casings)	Hydraulic fluids, oils, fuels, grease and other lubricants, accumulated particulate matter, chemical additives, and PCBs from oil-filled electrical equipment.

**Table 1. Common Activities, Pollutant Sources, and Associated Pollutants at Scrap Recycling and Waste Recycling Facilities (continued)**

Activity	Pollutant Source	Pollutant
Material processing: Combustion engines	Spills and/or leaks from fuel tanks, spills/leaks from oil/hydraulic fuel reservoirs, faulty/leaking hose connections, worn gaskets, leaking transmissions, crankcases, and brake systems (if applicable), leaking battery casings and/or corroded terminals	Accumulated particulate matter, oil/lubricants, gas/diesel fuel, fuel additives, antifreeze (ethylene glycol), battery acid, and products of incomplete combustion
Material processing: Material handling systems (forklifts, cranes, and conveyors)	Spills and leaks from fuel tanks, hydraulic and oil reservoirs due to malfunction parts (e.g., worn gaskets and parts, leaking hose connections, and faulty seals).	Hydraulic fluids, oils, fuels and fuel additives, grease and other lubricants, accumulated particulate matter, chemical additives, mercury, lead, battery acid
	Damaged or faulty electrical switches (mercury filled).	
	Damaged or leaking battery casings, including exposed corroded battery terminals.	
	Damaged or worn bearing housings	
Material processing: Stationary scrap processing facilities (balers, briquetters, shredders, shears, compactors, engine block/cast iron breakers, wire chopper, turnings crusher)	Leaks from hydraulic reservoirs, hose and fitting connections, worn gaskets, spills or leaks from fuel tanks, particulates/residue from scrap processing, malfunctioning pumps and motors (e.g., leaking gaskets, seals or pipe connections, leaking oil-filled transformer casings)	Heavy metals (e.g., zinc, copper, lead, cadmium, chromium) and hydraulic fluids, PCBs
Material processing: Hydraulic equipment and systems, balers/briquetter, shredders, shears, compactors, engine block/cast iron breaker, wire chopper, turnings crusher	Particulate/residue from material processing, spills and/or leaks from fuel tanks, spills/leaks from oil/hydraulic fuel reservoirs, faulty/leaking hose connections/fittings, leaking gaskets	Hydraulic fluids/oils, lubricants, particulate matter from combustion engines, PCBs (oilfilled electrical equipment components), heavy metals (nonferrous, ferrous)
Material processing: Electrical control systems (transformers, electrical switch gear, motor starters)	Oil leakage from transformers, leakage from mercury float switches, faulty detection devices	PCBs, mercury (float switches), ionizing radioactive material (fire/smoke detection systems)
Material processing: Torch cutting	Residual/accumulated particulates	Heavy metal fragments, fines
Material handling systems	Spills and/or leaks from fuel tanks, spills/leaks from oil/hydraulic fuel reservoirs, faulty/leaking hose connections/fittings, leaking gaskets	Accumulated particulate matter (ferrous and nonferrous metals, plastics, rubber, other), oil/lubricants, PCBs (electrical equipment), mercury (electrical controls), lead/battery acids
Vehicle maintenance	Parts cleaning, waste disposal of rags, oil filters, air filters, batteries, hydraulic fluids, transmission fluids, brake fluids, coolants, lubricants, degreasers, spent solvents	Gas/diesel fuel, fuel additives, oil/lubricants, heavy metals, brake fluids, transmission fluids, chlorinated solvents, arsenic
Vehicle fueling	Spills and leaks during fuel transfer, spills due to "topping off" tanks, runoff from fueling areas, washdown of fueling areas, leaking storage tanks, spills of oils, brake fluids, transmission fluids, engine coolants	Gas/diesel fuel, fuel additives, oil, lubricants, heavy metals
Vehicle and equipment cleaning and washing	Washing and steam cleaning	Solvent cleaners, oil/lubricants/additives, antifreeze (ethylene glycol)

**Table 1. Common Activities, Pollutant Sources, and Associated Pollutants at Scrap Recycling and Waste Recycling Facilities (continued)**

Activity	Pollutant Source	Pollutant
<i>Waste Recycling Facilities (liquid recyclable materials)</i>		
Drum/individual container storage and handling	Leaks or spills due to faulty container/drum integrity (e.g., leaking seals or ports). Container materials incompatible with waste material. Improper stacking and storage of containers	Mineral spirits, industrial solvents, immersion cleaners, dry cleaner, solvents, paint solvents, spent antifreeze
Return and fill stations	Leaks, spills, or overflows from tanker truck transfer of wastes and hose drainage. Leaking pipes, valves, pumps, worn or deteriorated gaskets or seals	Mineral spirits, industrial solvents, immersion cleaners, dry cleaner, solvents, paint solvents, spent antifreeze
Storage tank operations	Overfill of storage tanks, leaking pipes, valves, worn or deteriorated pumps seals. Leaking underground storage tanks.	Mineral spirits, industrial solvents, immersion cleaners, dry cleaner, solvents, paint solvents, spent antifreeze
Material handling equipment	Leaking fuel lines, worn gaskets, leaking hydraulic lines and connections	Fuel, hydraulic fluid, oil and grease
Vehicle and equipment maintenance (if applicable)	Replacement of fluids such as transmission and brake fluids, antifreeze, oil and other lubricants, washdown of maintenance areas, dumping fluids down floor drains connected to storm sewer system, outside storage of fluids and oily rags and waste material	Oil and grease, fuel, accumulated particulate matter, antifreeze
Vehicle or equipment washing (if applicable)	Wash water or steam cleaning	Oil, detergents, chlorinated solvents, suspended solids and accumulated particulate matter
<i>Recycling Facilities</i>		
Unknowing acceptance of nonrecyclable materials and/or small quantities of household hazardous wastes	Inbound recyclable materials	Dependant on material
Outdoor material storage	Deterioration of wastepaper and unprocessed aluminum beverage containers	Biochemical oxygen demand (BOD)
Processing and storage	Illicit connections or improper dumping to floor drains discharging to a storm sewer system  Washing down tipping floor areas	Dependant on material
Vehicle maintenance	Replacement of fluids such as transmission and brake fluids, antifreeze, oil and other lubricants, washdown of maintenance areas, dumping fluids down floor drains connected to storm sewer system, outside storage of fluids and oily rags and waste material	Oil and grease, gas/diesel fuel, accumulated particulate matter, antifreeze (ethylene glycol)

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

BMPs must be selected and implemented to address the following:

### **Good Housekeeping Practices**

Good housekeeping is a practical, cost-effective way to maintain a clean and orderly facility to prevent potential pollution sources from coming into contact with stormwater. It includes establishing protocols to reduce the possibility of mishandling materials or equipment and training employees in good housekeeping techniques. Common areas where good housekeeping practices should be followed include trash containers and adjacent areas, material storage areas, vehicle and equipment maintenance areas, and loading docks. Good housekeeping practices must include a schedule for regular pickup and disposal of garbage and waste materials and routine inspections of drums, tanks, and containers for leaks and structural conditions. Practices also include containing and covering garbage, waste materials, and debris. Involving employees in routine monitoring of housekeeping practices has proven to be an effective means of ensuring the continued implementation of these measures.

### **Minimizing Exposure**

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

### **Erosion and Sediment Control**

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

### **Management of Runoff**

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

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

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

Implement BMPs, such as those listed below in Table 2 for the control of pollutants at scrap recycling and waste recycling 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 scrap recycling and waste recycling 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 Scrap Recycling and Waste Recycling Facilities**

Activity	BMPs
<i>Scrap and Waste Recycling Facilities (non-source separated, non-liquid recyclable materials)</i>	
Inbound recyclable and waste material control	<ul style="list-style-type: none"> <li data-bbox="483 926 1435 1031">❑ Provide information/education to suppliers of scrap and recyclable waste materials on draining and properly disposing of residual fluids (e.g., from vehicles and equipment engines, radiators and transmissions, oil filled transformers, and individual containers or drums), prior to delivery to your facility.</li> <li data-bbox="483 1052 1435 1108">❑ Create a written list of materials that will not be accepted at the facility and materials that will be accepted, but require special handling procedures.</li> <li data-bbox="483 1129 1435 1186">❑ Train employees engaged in the inspection and acceptance of inbound recyclable materials.</li> <li data-bbox="483 1207 1435 1283">❑ Inspect incoming materials for items on the prohibited materials/ special handling list. Have truck drivers picking up loads offsite conduct preliminary inspections for items on the list before hauling.</li> <li data-bbox="483 1304 1435 1331">❑ Check incoming scrap materials for potential fluid contents and batteries.</li> <li data-bbox="483 1352 1435 1457">❑ Drain all fluids from vehicles upon arrival at the site. Segregate the fluids and properly store or dispose of them. Drain fluids only in designated area over impervious surfaces or drip pans. Contain the area to prevent stormwater run-on and runoff. Cover area with roofs or tarps.</li> <li data-bbox="483 1478 1435 1505">❑ Keep waste streams separate (e.g., waste oil and mineral spirits).</li> <li data-bbox="483 1526 1435 1602">❑ Store liquid wastes, including used oil, in materially compatible and non-leaking containers and disposed or recycled in accordance with RCRA. Nonhazardous substances that are contaminated with a hazardous substance are considered a hazardous substance.</li> <li data-bbox="483 1623 1435 1650">❑ Recycle antifreeze, gasoline, used oil, mineral spirits, and solvents.</li> <li data-bbox="483 1671 1435 1728">❑ Dispose of greasy rags, oil filters, air filters, batteries, spent coolant, and degreasers properly.</li> <li data-bbox="483 1749 1435 1776">❑ Label and track the recycling of waste material (e.g., used oil, spent solvents, batteries).</li> <li data-bbox="483 1797 1435 1824">❑ Drain oil filters before disposal or recycling.</li> <li data-bbox="483 1845 1435 1873">❑ Store cracked batteries in a nonleaking secondary container.</li> <li data-bbox="483 1894 1435 1950">❑ 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.</li> <li data-bbox="483 1971 1435 1999">❑ Do not pour liquid waste down floor drains, sinks, or outdoor storm drain inlets.</li> </ul>



**Table 2. BMPs for Potential Pollutant Sources at Scrap Recycling and Waste Recycling Facilities (continued)**

Activity	BMPs
Inbound recyclable and waste material control (continued)	<ul style="list-style-type: none"> <li><input type="checkbox"/> Plug floor drains that are connected to the storm or sanitary sewer. If necessary, install a sump that is pumped regularly.</li> <li><input type="checkbox"/> Inspect the maintenance area regularly for proper implementation of control measures.</li> <li><input type="checkbox"/> Filter stormwater discharges with devices such as oil/water separators.</li> <li><input type="checkbox"/> Train employees on proper waste control and disposal procedures.</li> <li><input type="checkbox"/> Establish and implement procedures to educate auto scrap providers of need to remove mercury switches from hood and trunk lighting units and anti-lock break system units.</li> </ul>
Outside scrap material storage: (liquids)	<ul style="list-style-type: none"> <li><input type="checkbox"/> Use drip pans under all vehicles and equipment waiting for processing.</li> <li><input type="checkbox"/> Store batteries on impervious surfaces. Curb, dike, or berm this area.</li> <li><input type="checkbox"/> Confine storage to designated areas.</li> <li><input type="checkbox"/> Cover all storage areas with a permanent (e.g., roofs) or temporary cover (e.g., canvas tarps).</li> <li><input type="checkbox"/> Install diversion devices such as curbing, berms, containment trenches, culverts, or dikes around storage areas.</li> <li><input type="checkbox"/> Install oil/water separators, sumps, and dry absorbents for areas where potential sources of residual fluids are stockpiled (e.g., automobile engine storage areas).</li> <li><input type="checkbox"/> Inspect the storage yard for filled drip pans and other problems regularly.</li> <li><input type="checkbox"/> Train employees on procedures for storage and inspection items.</li> </ul>
Scrap material storage: (bulk solid materials)	<ul style="list-style-type: none"> <li><input type="checkbox"/> Minimize runoff from coming into areas where significant materials are stored (e.g., diversion structures such as curbing, berms, containment trenches, surface grading, and elevated concrete pads) or other equivalent measure.</li> <li><input type="checkbox"/> Use adsorbents or collect leaks or spills of oil, fuel, transmission, and brake fluids (e.g., dry absorbent, drip pans).</li> <li><input type="checkbox"/> Locate spill pans under stored vehicles.</li> <li><input type="checkbox"/> Install media filters such as catch basin and sand filters.</li> <li><input type="checkbox"/> Install oil/water separator in storage areas with vehicle transmissions and engines.</li> <li><input type="checkbox"/> Provide nonrecyclable waste storage bins and containers.</li> <li><input type="checkbox"/> Conduct periodic inspections. Conduct preventative maintenance as necessary.</li> <li><input type="checkbox"/> Provide equipment operator training to minimize damage to controls (e.g., curbing and berms).</li> </ul>
Other storage: (lightweight materials)	<ul style="list-style-type: none"> <li><input type="checkbox"/> Maintain good integrity of all storage containers.</li> <li><input type="checkbox"/> Install safeguards (such as diking or berming) against accidental releases.</li> <li><input type="checkbox"/> Inspect storage tanks to detect potential leaks and perform preventive maintenance.</li> <li><input type="checkbox"/> Inspect piping systems (pipes, pumps, flanges, couplings, hoses, and valves) for failures or leaks.</li> <li><input type="checkbox"/> Train employees on proper filling and transfer procedures.</li> </ul>
Scrap processing operations	<ul style="list-style-type: none"> <li><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).</li> <li><input type="checkbox"/> Provide cover over hydraulic equipment and combustion engines. Provide dry-cleanup materials (e.g., dry-adsorbents, drip pans, etc.) to prevent contact of hydraulic fluids, oils, fuels, etc., with stormwater runoff.</li> </ul>

**Table 2. BMPs for Potential Pollutant Sources at Scrap Recycling and Waste Recycling Facilities (continued)**

Activity	BMPs
Scrap processing operations (continued)	<ul style="list-style-type: none"> <li><input type="checkbox"/> Site process equipment on elevated concrete pads or provide runoff diversion structures around process equipment, berms, containment trenches surface grading, or other equivalent measure. Discharge runoff from within bermed areas to a sump, oil/water separator, media filter, or discharge to sanitary sewer.</li> <li><input type="checkbox"/> Stabilize high traffic areas (e.g., concrete pads, gravel, and pavement around processing equipment) where practicable.</li> <li><input type="checkbox"/> Provide alarm, pump shutoff, or sufficient containment for hydraulic reservoirs in the event of a line break.</li> <li><input type="checkbox"/> Provide site gages or overflow protection devices for all liquid and fuel storage reservoirs and tanks.</li> <li><input type="checkbox"/> Schedule frequent cleaning of accumulated fluids and particulate residue around all scrap processing equipment.</li> <li><input type="checkbox"/> Schedule frequent inspections of equipment for spills or leakage of fluids, oil, fuel, and/or hydraulic fluids due to malfunctioning, worn, or corroded parts or equipment.</li> <li><input type="checkbox"/> Conduct routine preventive maintenance of equipment per original manufacturer's equipment (OME) recommendations. Replace worn or malfunctioning parts.</li> <li><input type="checkbox"/> Conduct periodic maintenance and clean out of all sumps, oil/water separators, and/or media filters. Dispose of residual waste materials properly (e.g., according to RCRA).</li> <li><input type="checkbox"/> Install retention/detention ponds or basins, sediment traps, vegetated swales or strips for pollutant settling/filtration.</li> <li><input type="checkbox"/> Establish spill prevention and response procedures, including employee training.</li> <li><input type="checkbox"/> Provide training to equipment operators on how to minimize exposure of runoff to scrap processing areas.</li> </ul>
Scrap lead acid battery program	<ul style="list-style-type: none"> <li><input type="checkbox"/> Store batteries indoors on an impervious surface. Raise batteries off the floor with pallets or store in covered, leak-proof containers.</li> <li><input type="checkbox"/> Separate all scrap batteries from other scrap materials.</li> <li><input type="checkbox"/> Establish procedures for the collection, storage, handling, and disposition of cracked or broken batteries in accordance with applicable Federal regulations (e.g., RCRA).</li> <li><input type="checkbox"/> Establish special handling procedures for cracked or broken batteries. Neutralize acid leaks with sodium carbonate, soda ash, or other absorbent materials.</li> <li><input type="checkbox"/> Establish inspection and acceptance procedures for scrap lead-acid batteries. Provide supplier training on acceptance practices for scrap batteries.</li> <li><input type="checkbox"/> Provide employee training on the safe handling, storage, and disposition of scrap batteries.</li> </ul>
Supplies for Process Equipment	<ul style="list-style-type: none"> <li><input type="checkbox"/> Locate storage drums containing liquids, including oils and lubricants indoors. Alternatively, site palletized drums and containers on an impervious surface and provide sufficient containment around the materials. Provide sumps and/or oil/water separators, if necessary.</li> <li><input type="checkbox"/> Conduct periodic inspections of containment areas and containers/drums for corrosion.</li> <li><input type="checkbox"/> Perform preventive maintenance of BMPs, as necessary.</li> <li><input type="checkbox"/> Instruct employees on proper material handling and storage procedures.</li> </ul>
Vehicle and equipment maintenance	<p>Good Housekeeping</p> <ul style="list-style-type: none"> <li><input type="checkbox"/> Plug floor drains that are connected to the storm or sanitary sewer; if necessary, install a sump that is pumped regularly.</li> <li><input type="checkbox"/> Maintain an organized inventory of materials used in the maintenance shop.</li> </ul>



**Table 2. BMPs for Potential Pollutant Sources at Scrap Recycling and Waste Recycling Facilities (continued)**

Activity	BMPs
Vehicle and equipment maintenance (continued)	<p>Good Housekeeping (continued)</p> <ul style="list-style-type: none"> <li><input type="checkbox"/> Use drip plans, drain boards, and drying racks to direct drips back into a sink or fluid holding tank for re-use.</li> <li><input type="checkbox"/> Drain all parts of fluids prior to disposal. Oil filters can be crushed and recycled.</li> <li><input type="checkbox"/> 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.</li> <li><input type="checkbox"/> Dispose of greasy rags, oil filters, air filters, batteries, spent coolant, and degreasers properly.</li> <li><input type="checkbox"/> Label and track the recycling of waste material (e.g., used oil, spent solvents, batteries).</li> <li><input type="checkbox"/> Maintain an organized inventory of materials.</li> <li><input type="checkbox"/> Eliminate or reduce the number or amount of hazardous materials and waste by substituting nonhazardous or less hazardous materials.</li> <li><input type="checkbox"/> Clean up leaks, drips, and other spills without using large amounts of water.</li> <li><input type="checkbox"/> Prohibit the practice of hosing down an area where the practice would result in the exposure of pollutants to stormwater.</li> <li><input type="checkbox"/> Clean without using liquid cleaners whenever possible.</li> <li><input type="checkbox"/> Do all cleaning at a centralized station so the solvents stay in one area.</li> <li><input type="checkbox"/> If parts are dipped in liquid, remove them slowly to avoid spills.</li> <li><input type="checkbox"/> Do not pour liquid waste down floor drains, sinks, outdoor storm drain inlets, other storm drains, or sewer connections.</li> </ul> <p>Minimizing Exposure</p> <ul style="list-style-type: none"> <li><input type="checkbox"/> Perform all cleaning operations indoors or under covering when possible. Conduct the cleaning operations in an area with a concrete floor with no floor drainage other than to sanitary sewers or treatment facilities.</li> <li><input type="checkbox"/> If operations are uncovered, perform them on concrete pad that is impervious and contained.</li> <li><input type="checkbox"/> Park vehicles and equipment indoors or under a roof whenever possible where proper control of oil leaks/spills is maintained and exposure to stormwater is prevented.</li> <li><input type="checkbox"/> Watch vehicles closely for leaks and use pans to collect fluid when leaks occur.</li> </ul> <p>Management of Runoff</p> <ul style="list-style-type: none"> <li><input type="checkbox"/> Use berms, curbs, or similar means to ensure that stormwater runoff from other parts of the facility does not flow over the maintenance area.</li> <li><input type="checkbox"/> Collect the stormwater runoff from the cleaning area and providing 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 recycled on-site. DO NOT discharge washwater to a storm drain or surface water.</li> </ul> <p>Inspections and Training</p> <ul style="list-style-type: none"> <li><input type="checkbox"/> Inspect the maintenance area regularly for proper implementation of control measures.</li> <li><input type="checkbox"/> Train employees on proper waste control and disposal procedures.</li> </ul>

**Table 2. BMPs for Potential Pollutant Sources at Scrap Recycling and Waste Recycling Facilities (continued)**

Activity	BMPs
Vehicle fueling	<ul style="list-style-type: none"> <li><input type="checkbox"/> Conduct fueling operations (including the transfer of fuel from tank trucks) on an impervious or contained pad or under a roof or canopy where possible. Covering should extend beyond spill containment pad to prevent rain from entering.</li> <li><input type="checkbox"/> When fueling in uncovered area, use a concrete pad (not asphalt which is not chemically resistant to the fuels being handled).</li> <li><input type="checkbox"/> Use drip pans where leaks or spills of fuel can occur and where making and breaking hose connections.</li> <li><input type="checkbox"/> Use fueling hoses with check valves to prevent hose drainage after filling.</li> <li><input type="checkbox"/> Use spill and overflow protection devices.</li> <li><input type="checkbox"/> Clean up spills and leaks immediately.</li> <li><input type="checkbox"/> Minimize/eliminate run-on onto fueling areas with diversion dikes, berms, curbing, surface grading or other equivalent measures.</li> <li><input type="checkbox"/> Collect stormwater runoff and provide treatment or recycling.</li> <li><input type="checkbox"/> Use dry cleanup methods for fuel area rather than hosing the fuel area down.</li> <li><input type="checkbox"/> Perform preventive maintenance on storage tanks to detect potential leaks before they occur.</li> <li><input type="checkbox"/> Inspect the fueling area to detect problems before they occur.</li> <li><input type="checkbox"/> Train personnel on proper fueling procedures.</li> <li><input type="checkbox"/> Provide curbing or posts around fuel pumps to prevent collisions during vehicle ingress and egress.</li> <li><input type="checkbox"/> Discourage "topping off" of fuel tanks.</li> </ul>
Outdoor vehicle parking and storage	<ul style="list-style-type: none"> <li><input type="checkbox"/> Cover vehicle and equipment storage areas.</li> <li><input type="checkbox"/> Use drip pans under all equipment and vehicles waiting maintenance.</li> <li><input type="checkbox"/> Conduct inspections of storage and parking areas for leaks and filled drip pans.</li> <li><input type="checkbox"/> Provide employee training.</li> </ul>
Vehicle and equipment washing	<ul style="list-style-type: none"> <li><input type="checkbox"/> Designate an area for cleaning activities.</li> <li><input type="checkbox"/> Use detergent or water-based cleaning systems in place of organic solvent degreasers.</li> <li><input type="checkbox"/> Use phosphate-free biodegradable detergents.</li> <li><input type="checkbox"/> Avoid washing parts or equipment outside.</li> <li><input type="checkbox"/> Use auto shutoff valves on washing equipment.</li> <li><input type="checkbox"/> Provide vehicle wash rack with dedicated sediment trap and oil/water separator.</li> <li><input type="checkbox"/> Install curbing, berms, or dikes around cleaning areas.</li> <li><input type="checkbox"/> Inspect cleaning area regularly.</li> <li><input type="checkbox"/> Train employees on proper washing procedures.</li> <li><input type="checkbox"/> Contain steam cleaning washwaters. Discharge to sanitary sewer in compliance with POTW pre-treatment standards, dispose via licensed waste hauler, or discharge under an applicable NPDES permit.</li> </ul>

**Table 2. BMPs for Potential Pollutant Sources at Scrap Recycling and Waste Recycling Facilities (continued)**

Activity	BMPs
Vehicle and equipment painting (where applicable)	<ul style="list-style-type: none"> <li><input type="checkbox"/> Conduct sanding and painting in nonexposed areas (e.g., under cover) in accordance with OSHA standards.</li> <li><input type="checkbox"/> Minimize overspraying.</li> <li><input type="checkbox"/> Clean up accumulated particulate matter.</li> <li><input type="checkbox"/> Dispose or recycle paint, solvents, and thinner properly.</li> <li><input type="checkbox"/> Keep paint and solvents away from traffic areas.</li> <li><input type="checkbox"/> Conduct periodic inspections of paint spraying areas.</li> <li><input type="checkbox"/> Provide training on control procedures for employees.</li> </ul>
Erosion and sediment control	<ul style="list-style-type: none"> <li><input type="checkbox"/> Minimize run-on from adjacent properties using diversion dikes, berms, or equivalent.</li> <li><input type="checkbox"/> Trap sediment at down gradient locations and outlets serving unstabilized areas. This may include filter fabric fences, gravel outlet protection, sediment traps, vegetated or riprap swales, vegetated strips, diversion structures, catch-basin filters, and retention/detention basins or equivalent.</li> <li><input type="checkbox"/> Stabilize all high traffic areas, including all vehicle entrances and exit points. Conduct periodic sweeping of all traffic areas. Conduct inspections of BMPs.</li> <li><input type="checkbox"/> Perform preventative maintenance as needed on BMPs.</li> <li><input type="checkbox"/> Provide employee training on the proper installation and maintenance of erosion and sediment controls.</li> </ul>
<i>Waste Recycling Facilities (liquid recyclable materials)</i>	
Individual drum/container storage	<ul style="list-style-type: none"> <li><input type="checkbox"/> Ensure container/drums are in good condition. Store waste materials in materially compatible drums. Use containers that meet National Fire Protection Association (NFPA) guidelines.</li> <li><input type="checkbox"/> Put individual containers on pallets. Limit stack height of individual containers/drums. Provide straps, plastic wrap, or equivalent around stacked containers to provided stability.</li> <li><input type="checkbox"/> Label/mark drums. Segregate hazardous and flammable wastes. Comply with NFPA guidelines for segregation of flammable wastes.</li> <li><input type="checkbox"/> Provide adequate clearance to allow material movement and access by material handling equipment.</li> <li><input type="checkbox"/> Provide semipermanent or permanent cover over wastes.</li> <li><input type="checkbox"/> Establish clean up procedures, including the use of dry adsorbents, in the event of spills or leaks. Prohibit washing down of material storage areas. Disconnect or seal all floor drains from storm sewer system.</li> <li><input type="checkbox"/> Provide secondary containment, dikes, berms, containment trench, sumps, or other equivalent measure, in all storage areas. Provide proper sizing of containment with sufficient capacity for precipitation.</li> <li><input type="checkbox"/> Develop SPCC procedures for all liquid container storage areas. Ensure employees are familiar with SPCC procedures. Schedule/conduct periodic employee training.</li> </ul>
Bulk liquid storage	<ul style="list-style-type: none"> <li><input type="checkbox"/> Use welded pipe connections versus flange connections. Inspect all flange gaskets for deterioration.</li> <li><input type="checkbox"/> Apply corrosion inhibitors to exposed metal surfaces.</li> <li><input type="checkbox"/> Provide high level alarms for storage tanks.</li> <li><input type="checkbox"/> Provide redundant piping, valves, pumps, motors, as necessary, at all pumping stations. Provide manually activated shutoff valves in the event of spill. Install visible and/or audible alarms in the event of a spill.</li> </ul>

**Table 2. BMPs for Potential Pollutant Sources at Scrap Recycling and Waste Recycling Facilities (continued)**

Activity	BMPs
Bulk liquid storage (continued)	<ul style="list-style-type: none"> <li><input type="checkbox"/> Install manually activated drainage valves, or equivalent, versus flapper-type drain valves.</li> <li><input type="checkbox"/> Provide adequate security against vandalism and tampering.</li> <li><input type="checkbox"/> Provide secondary containment around all bulk storage tanks, including berms, dikes, surface impoundments, and/or equivalent. Ensure surfaces of secondary containment areas are adequately sealed to prevent leaks.</li> <li><input type="checkbox"/> Provide stationary boxes around all return and fill stations to eliminate/minimize hose drainage and minor waste transfer spills.</li> </ul>
Waste transfer areas	<ul style="list-style-type: none"> <li><input type="checkbox"/> Provide cover over liquid waste transfer areas.</li> <li><input type="checkbox"/> Provide secondary containment or equivalent measures around all liquid waste transfer facilities.</li> <li><input type="checkbox"/> Establish cleanup procedures for minor spills including the use of dry absorbents or a wet vacuum system.</li> <li><input type="checkbox"/> Train employees on proper transfer procedures and spill response.</li> </ul>
Vehicle and equipment maintenance (if applicable)	<i>See BMPS under Scrap and Waste Recycling Facilities above</i>
Vehicle and equipment washing (if applicable)	<ul style="list-style-type: none"> <li><input type="checkbox"/> Avoid washing parts or equipment outside.</li> <li><input type="checkbox"/> Use phosphate-free biodegradable detergents.</li> <li><input type="checkbox"/> Provide vehicle wash rack with dedicated sediment trap and oil/water separator.</li> <li><input type="checkbox"/> Use auto shut-off valves on washing equipment.</li> <li><input type="checkbox"/> Use detergent or water-based cleaning systems in place of organic solvent degreasers.</li> <li><input type="checkbox"/> Designate an area for cleaning activities.</li> <li><input type="checkbox"/> Contain steam cleaning washwaters or discharge under an applicable NPDES permit.</li> <li><input type="checkbox"/> Ensure that washwaters drain well.</li> <li><input type="checkbox"/> Inspect cleaning area regularly.</li> <li><input type="checkbox"/> Install curbing, berms, or dikes around cleaning areas.</li> <li><input type="checkbox"/> Train employees on proper washing procedures.</li> </ul>
<i>Recycling Facilities</i>	
Inbound recyclable materials control	<ul style="list-style-type: none"> <li><input type="checkbox"/> Provide public education brochures to inform suppliers of recyclable materials which are acceptable and which are not.</li> <li><input type="checkbox"/> Educate curbside pick-up drivers on acceptable materials. Reject unacceptable materials at the source.</li> <li><input type="checkbox"/> Clearly marking public drop-off containers regarding which materials can be accepted.</li> <li><input type="checkbox"/> Develop procedures for handling and disposal of non-recyclable material.</li> <li><input type="checkbox"/> Implement employee training.</li> <li><input type="checkbox"/> Provide totally-enclosed drop-off containers for public.</li> </ul>
Storage	<ul style="list-style-type: none"> <li><input type="checkbox"/> Conduct processing operations indoors. Clean up residual fluids.</li> <li><input type="checkbox"/> Schedule routine preventive maintenance on all processing equipment.</li> <li><input type="checkbox"/> Store equivalent of the average daily volume of recyclable materials indoors.</li> <li><input type="checkbox"/> Direct tipping floor washwaters to sanitary sewer system if permitted by local sanitary authority.</li> </ul>

**Table 2. BMPs for Potential Pollutant Sources at Scrap Recycling and Waste Recycling Facilities (continued)**

Activity	BMPs
Storage (continued)	<ul style="list-style-type: none"> <li><input type="checkbox"/> Provide good housekeeping.</li> <li><input type="checkbox"/> Disconnect all floor drains from storm sewer system.</li> <li><input type="checkbox"/> Prohibit illicit discharges and illegal dumping to floor drains that are connected to the storm sewer.</li> </ul>
Outdoor material storage	<ul style="list-style-type: none"> <li><input type="checkbox"/> Provide totally enclosed drop-off containers for the public.</li> <li><input type="checkbox"/> Store only processed materials (i.e., baled plastic, aluminum, and glass cullet).</li> <li><input type="checkbox"/> Provide covers over containment bins, dumpsters, and roll-off boxes.</li> <li><input type="checkbox"/> Use tarpaulins or covers over bales of wastepaper.</li> <li><input type="checkbox"/> Provide dikes and curbs around bales of recyclable wastepaper.</li> <li><input type="checkbox"/> Divert surface water runoff away from outside material storage areas.</li> <li><input type="checkbox"/> Conduct regularly scheduled sweeping of storage areas to minimize particulate buildup.</li> <li><input type="checkbox"/> Provide containment pits with sumps pumps that discharge to sanitary sewer system. Prevent discharge of residual fluids to storm sewer.</li> </ul>
Residual non-recyclable materials	<ul style="list-style-type: none"> <li><input type="checkbox"/> Store residual non-recyclable materials in covered containers for transport to a proper disposal facility.</li> <li><input type="checkbox"/> Bale residual non-recyclable materials and cover with tarpaulin or equivalent.</li> </ul>
Vehicle fueling	<ul style="list-style-type: none"> <li><input type="checkbox"/> Conduct fueling operations (including the transfer of gas/diesel fuel from tank trucks) on an impervious, contained pad, or under a roof or canopy where possible. Covering should extend beyond spill containment pad to prevent rain from entering.</li> <li><input type="checkbox"/> When fueling in uncovered area, use concrete pad (not asphalt which is not chemically resistant to the fuels being handled).</li> <li><input type="checkbox"/> Use drip pans where leaks or spills of gas/diesel fuel can occur and where making and breaking hose connections.</li> <li><input type="checkbox"/> Use fueling hoses with check valves to prevent hose drainage after filling.</li> <li><input type="checkbox"/> Clean up spills and leaks immediately.</li> <li><input type="checkbox"/> Minimize/eliminate run-on onto fueling areas with diversion dikes, berms, curbing, surface grading or other equivalent measures.</li> <li><input type="checkbox"/> Collect stormwater runoff and provide treatment or recycling.</li> <li><input type="checkbox"/> Use dry cleanup methods for fuel area rather than hosing the fuel area down.</li> <li><input type="checkbox"/> Perform preventive maintenance on storage tanks to detect potential leaks before they occur.</li> <li><input type="checkbox"/> Inspect the fueling area to detect problems before they occur.</li> <li><input type="checkbox"/> Train personnel on proper fueling procedures.</li> <li><input type="checkbox"/> Provide curbing or posts around fuel pumps to prevent collisions during vehicle ingress and egress.</li> <li><input type="checkbox"/> Discourage "topping off" of gas/diesel fuel tanks.</li> </ul>
Illicit connection to storm sewer	<ul style="list-style-type: none"> <li><input type="checkbox"/> Plug all floor drains if it is unknown whether the connection is to storm sewer or sanitary sewer systems. Alternatively, install a sump that is pumped regularly.</li> <li><input type="checkbox"/> Perform dye testing to determine if interconnections exist between sanitary water system and storm sewer system.</li> <li><input type="checkbox"/> Update facility schematics to accurately reflect all plumbing connections.</li> </ul>

**Table 2. BMPs for Potential Pollutant Sources at Scrap Recycling and Waste Recycling Facilities (continued)**

Activity	BMPs
Illicit connection to storm sewer (continued)	<ul style="list-style-type: none"> <li><input type="checkbox"/> Install a safeguard against vehicle washwaters and parts cleaning waters entering the storm sewer unless permitted.</li> <li><input type="checkbox"/> Maintain and inspect the integrity of all underground storage tanks, replace when necessary.</li> <li><input type="checkbox"/> Train employees on proper disposal practices for all materials.</li> </ul>
Equipment/vehicle maintenance	<p data-bbox="483 558 695 583">Good Housekeeping</p> <ul style="list-style-type: none"> <li><input type="checkbox"/> Plug floor drains that are connected to the storm or sanitary sewer; if necessary, install a sump that is pumped regularly.</li> <li><input type="checkbox"/> Use drip pans, drain boards, and drying racks to direct drips back into a sink or fluid holding tank for re-use.</li> <li><input type="checkbox"/> Drain all parts of fluids prior to disposal. Oil filters can be crushed and recycled.</li> <li><input type="checkbox"/> 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.</li> <li><input type="checkbox"/> Dispose of greasy rags, oil filters, air filters, batteries, spent coolant, and degreasers properly.</li> <li><input type="checkbox"/> Label and track the recycling of waste material (e.g., used oil, spent solvents, batteries).</li> <li><input type="checkbox"/> Maintain an organized inventory of materials.</li> <li><input type="checkbox"/> Eliminate or reduce the number and amount of hazardous materials and waste by substituting nonhazardous or less hazardous materials.</li> <li><input type="checkbox"/> Clean up leaks, drips, and other spills without using large amounts of water. Use absorbents for dry cleanup whenever possible.</li> <li><input type="checkbox"/> Prohibit the practice of hosing down an area where the practice would result in the discharge of pollutants to the stormwater collection system.</li> <li><input type="checkbox"/> Clean without using liquid cleaners whenever possible.</li> <li><input type="checkbox"/> Do all cleaning at a centralized station so the solvents stay in one area.</li> <li><input type="checkbox"/> If parts are dipped in liquid, remove them slowly to avoid spills.</li> <li><input type="checkbox"/> Do not pour liquid waste into floor drains, sinks, outdoor storm drain inlets, other storm drains, or sewer connections.</li> </ul> <p data-bbox="483 1388 695 1413">Minimizing Exposure</p> <ul style="list-style-type: none"> <li><input type="checkbox"/> Perform all cleaning operations indoors or under covering when possible. Conduct the cleaning operations in an area with a concrete floor with no floor drainage other than to sanitary sewers or treatment facilities.</li> <li><input type="checkbox"/> If operations are uncovered, perform them on concrete pad that is impervious and contained.</li> <li><input type="checkbox"/> Park vehicles and equipment indoors or under a roof whenever possible and maintain proper control of oil leaks/spills.</li> <li><input type="checkbox"/> Check vehicles closely for leaks and use pans to collect fluid when leaks occur.</li> </ul> <p data-bbox="483 1703 727 1728">Management of Runoff</p> <ul style="list-style-type: none"> <li><input type="checkbox"/> Use berms, curbs, or similar means to ensure that stormwater runoff from other parts of the facility does not flow over the maintenance area.</li> <li><input type="checkbox"/> Collect the stormwater runoff from the cleaning area and provide treatment or recycling. 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 surface water.</li> </ul>



**Table 2. BMPs for Potential Pollutant Sources at Scrap Recycling and Waste Recycling Facilities (continued)**

Activity	BMPs
Equipment/vehicle maintenance (continued)	Inspections and Training <input type="checkbox"/> Inspect the maintenance area regularly for proper implementation of control measures. <input type="checkbox"/> Train employees on proper waste control and disposal procedures.
Outdoor Vehicle and Equipment Storage	<input type="checkbox"/> Inspect area for leaking engines, chipping/corroding bumpers, chipping paint, galvanized metal

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

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

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

### **Where do I get more information?**

For additional information on the industrial stormwater program see [www.epa.gov/npdes/stormwater/msgp](http://www.epa.gov/npdes/stormwater/msgp).

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

### **References**

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

- ◆ King County, Natural Resources and Parks, Water and Land Resources Division. 2004. King County Stormwater Pollution Prevention Manual.  
<http://dnr.metrokc.gov/wlr/dss/sppm.htm>
- ◆ U.S. EPA, Office of Science and Technology. 1999. Preliminary Data Summary of Urban Stormwater Best Management Practices. EPA-821-R-99-012.  
[www.epa.gov/OST/stormwater/](http://www.epa.gov/OST/stormwater/)
- ◆ U.S. EPA, Office of Wastewater Management. *NPDES Stormwater Multi-Sector General Permit for Industrial Activities (MSGP)*.  
[www.epa.gov/npdes/stormwater/msgp](http://www.epa.gov/npdes/stormwater/msgp)
- ◆ U.S. EPA. The National Vehicle Mercury Switch Recovery Program.  
[www.epa.gov/mercury/switch.htm](http://www.epa.gov/mercury/switch.htm)
- ◆ Wisconsin Department of Natural Resources. “General Permit to Discharge under the Wisconsin Pollutant Discharge Elimination System, Recycling of Scrap and Waste Materials.”  
<http://dnr.wi.gov/org/caer/cea/assistance/scrap/stormwater/scrap/permit.pdf>