INDUSTRIAL DEVELOPMENT

WHAT IS INDUSTRY

INDUSTRIAL REGULATIONS,

BEST MANAGEMENT PRACTICES,

SAND AND GRAVEL MINING,

AUTOMOTIVE SALVAGE/METAL SCRAP YARDS

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INDUSTRY = THE SEGMENT OF AN ECONOMY RELATED TO:

- Manufacturing,
- Extraction or processing of raw materials, or
- Construction

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Can be highly desirable to communities because:

- Generates employment opportunities
- Expands tax base
- Stimulates investment
- Stimulates local spending
- Can improve standards of living

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Industries also have the potential to cause environmental impacts because:

- they frequently use,
- manufacture,
- or produce

Materials that can cause pollution.

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Most industries will need NPDES permit from EPA (IEPA).

However, regulations may not fully protect water resources.

- Regulations are only “minimum standards”
- Compliance level varies from business to business
- Persistent pressure from industries to weaken regulations

Therefore, Important to have local knowledge of pollutants and protection measures

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NPDES General permits from EPA (IEPA) * 11 categories of industrial activity

1. Facilities subject to federal stormwater effluent discharge standards 40 CFR Parts 405-471
2. Heavy manufacturing (e.g. paper mills, chemical plants, petroleum refineries, steel mills)
3. Coal and mineral mining and oil and gas exploration and processing
4. Hazardous waste treatment, storage, or disposal facilities
5. Landfills, land application sites, and open dumps with industrial wastes
6. Metal scrapyards, salvage yards, automobile junkyards, and battery reclaimers
7. Steam electric power generating plants
8. Transportation facilities W/vehicle maint., equipment cleaning, airport deicing operations
9. Treatment works - domestic sewage (design flow of 1 million gallons a day or more)
10. Construction sites that disturb 5 acres or more. This category is permitted separately
11. Light manufacturing (e.g. food processing, printing/publishing, electronic and other electrical equipment manufacturing, and public warehousing and storage).

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Stormwater Pollution Protection Plan (SWPPP)

- Identifies potential sources of stormwater pollution
- Describes all stormwater Best Management Practices (BMPs) that will be used to prevent, reduce or treat stormwater pollution

!!!! A primary objective of stormwater BMPs is to prevent contact between potential pollutant source and rainfall or runoff !!!

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Stormwater Pollution Protection Plan (SWPPP)

Industrial Stormwater BMP's

Reference Materials

- **U.S. EPA Industrial Stormwater BMP Checklist**

https://www.epa.gov/npdes/industrial-stormwater-fact-sheet-series

- **Minnesota Industrial Stormwater BMP Guidebook**

https://www.pca.state.mn.us/sites/default/files/wq-strm3-26.pdf

- **Developing Your SWPPP: A Guide for Industrial Operators**

https://www.epa.gov/sites/production/files/2015-11/documents/swppp_guide_industrial_2015.pdf

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Potential Stormwater Pollutants

Current Stormwater Pollutants

- Copper, lead, zinc (automotive and building materials)
- Dioxin (general atmospheric)
- Phthalates (PVC, hydraulic fluids, atmospheric)
- PAHs (automotive, treated wood, atmospheric)
- Pesticides (landscaping)
- Nutrients (landscaping)

Legacy Pollutants

- PCBs (but still circulating)
- Mercury (but still circulating)
- Other Pesticides (e.g., DDT, chlordane)
- Lead (larger concentrations – older development)

Courtesy of Geosyntec

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Stormwater Pollution Protection Plan (SWPPP)

Identify potential sources of pollution

Describe all BMPs that will be used to prevent pollution

Courtesy of Geosyntec

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Stormwater BMP Hierarchy

1. **Elimination/Avoidance** - Eliminate use of pollutants, locate materials indoors, education, training and planning

2. **Minimization** - Litter control, street sweeping, secondary containment

3. **Mitigation** - Construction of treatment structures to remove pollutants from unavoidable stormwater impacts

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Stormwater BMP Hierarchy

Most BMP options can be further broken down into two categories:

1. **Non-Structural BMPs** – focus on changing behavior and management to prevent pollutants from exposure with stormwater runoff.

2. **Structural BMPs** - measures that control, manage or treat stormwater runoff and drainage (swales, dikes, ponds, filtration devices, infiltration basins, etc.)

Courtesy of Geosyntec

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Non-Structural BMPs – Avoid & Minimize Exposure

The first option for BMPs should be to prevent contact between rain, snow and runoff from pollutant sources and industrial activities

e.g. all activity inside building or shelter

If regulated industry can demonstrate that no industrial material or activity will be exposed to stormwater, they may be eligible for a <u>conditional exclusion</u> called a **No Exposure Certification**

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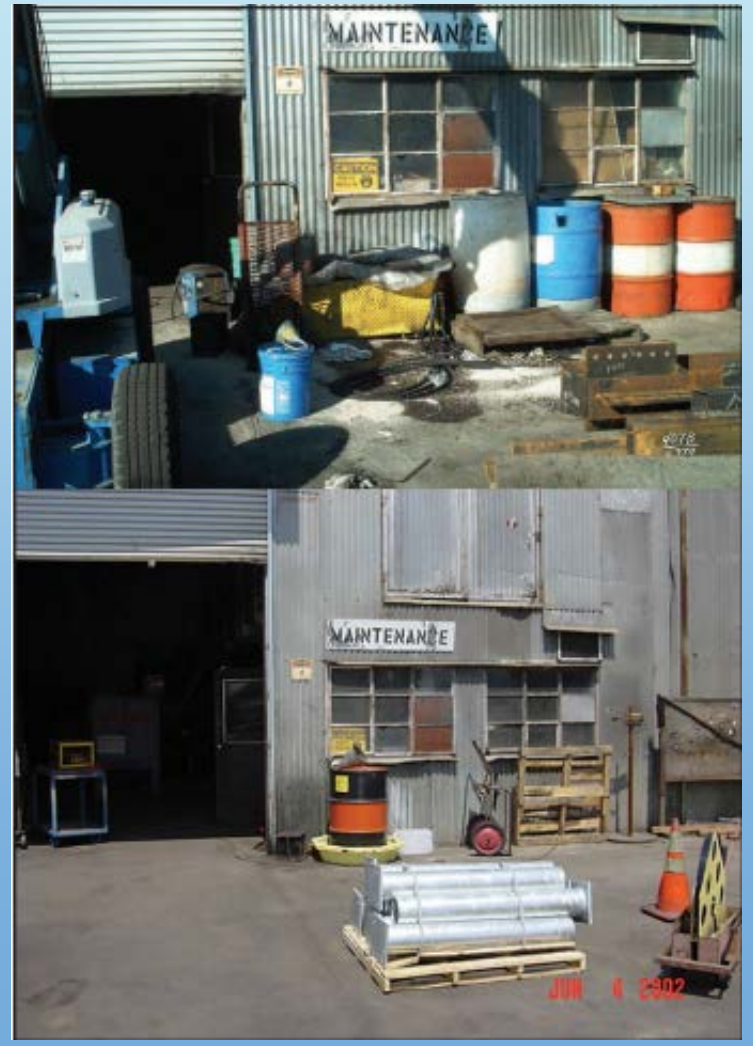
Non-Structural BMPs – Good Housekeeping



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Non-Structural BMPs – Closed Dumpsters

Closed lid dumpsters prevent contact with stormwater (one of the easiest BMPs)

Good housekeeping?

Open dumpsters collect & contaminate water

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Non-Structural BMPs – Soil Erosion Sediment Control

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Non-Structural BMPs – Spill Control and Containment

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Non-Structural BMPs – Cover Potential Pollutants

GOOD

55 gallon drums covered

NOT SO GOOD

55 gallon drums uncovered and some stored on ground

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Non-Structural BMPs – Containment

Fuel Storage Tanks
On Ground, No Containment

Fuel Storage Tanks
On Concrete Pad with
Secondary Containment

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Non-Structural BMPs – Inlet Protection

No Inlet Protection, Pollutants Go Into Sewer and Out To Waterways

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Non-Structural BMPs – Wash-Water Control

Any Toxins or Oil and Grease On Truck
Go Into Sewer and Into Waterways

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Non-Structural BMPs – Repair and Maintenance

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Non-Structural BMPs – Proper Salt Storage

Secondary containment for liquids

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Structural BMPs – Runoff Diversion

Constructed Diversion Berm

Geo-Textile Diversion

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Structural BMPs – Bio-Retention & Bio-Infiltration

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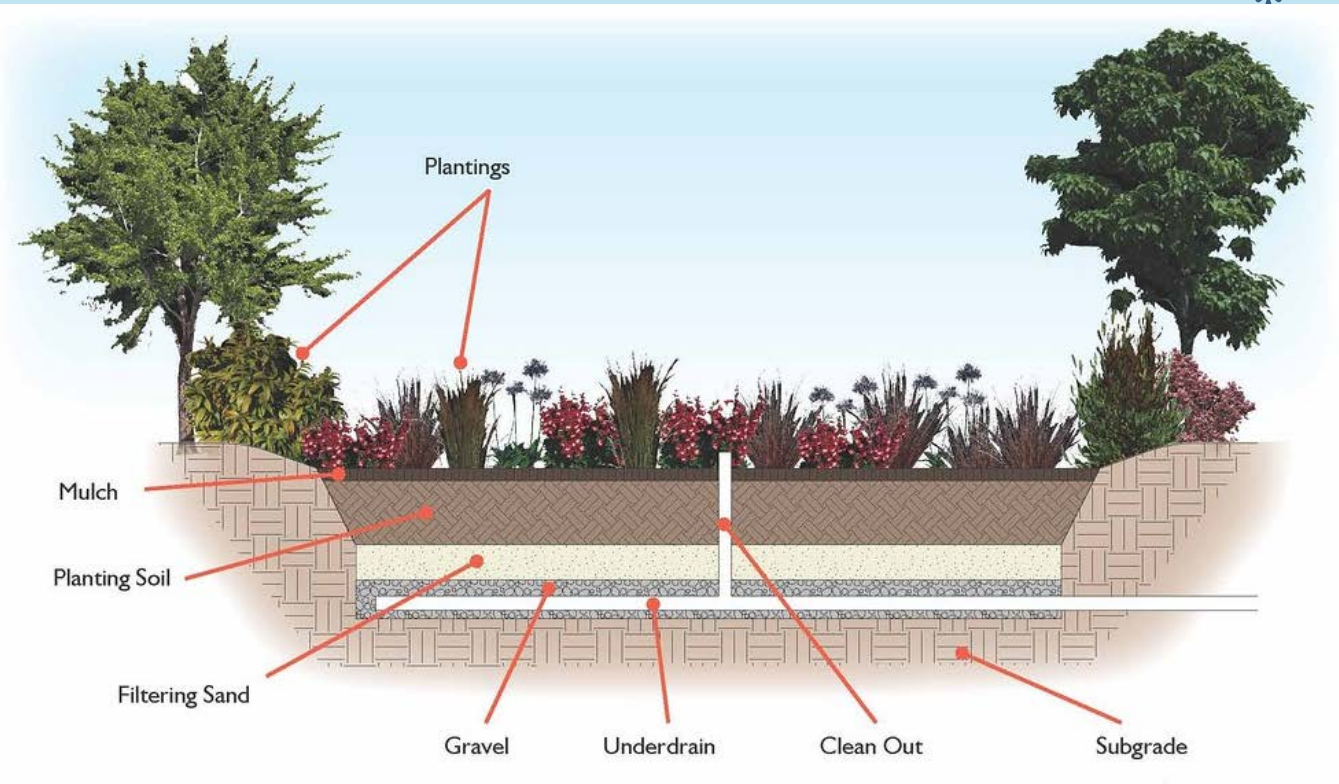

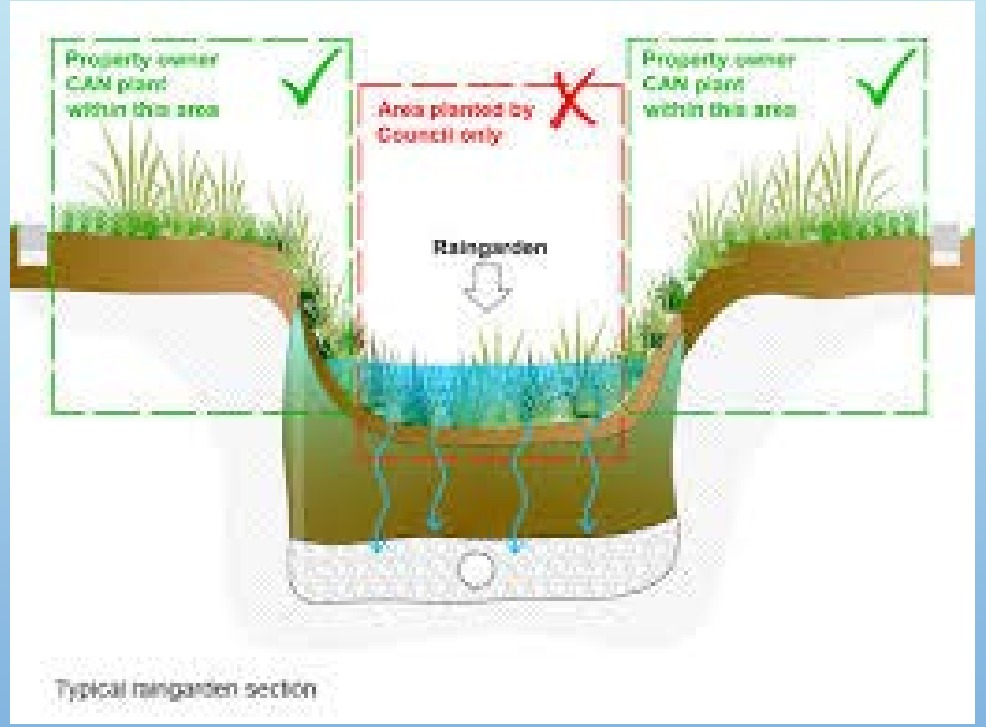

Raingarden
Bio-Retention

Raingarden
Bio-Infiltration

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Structural BMPs – Bioswale

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Bioswale

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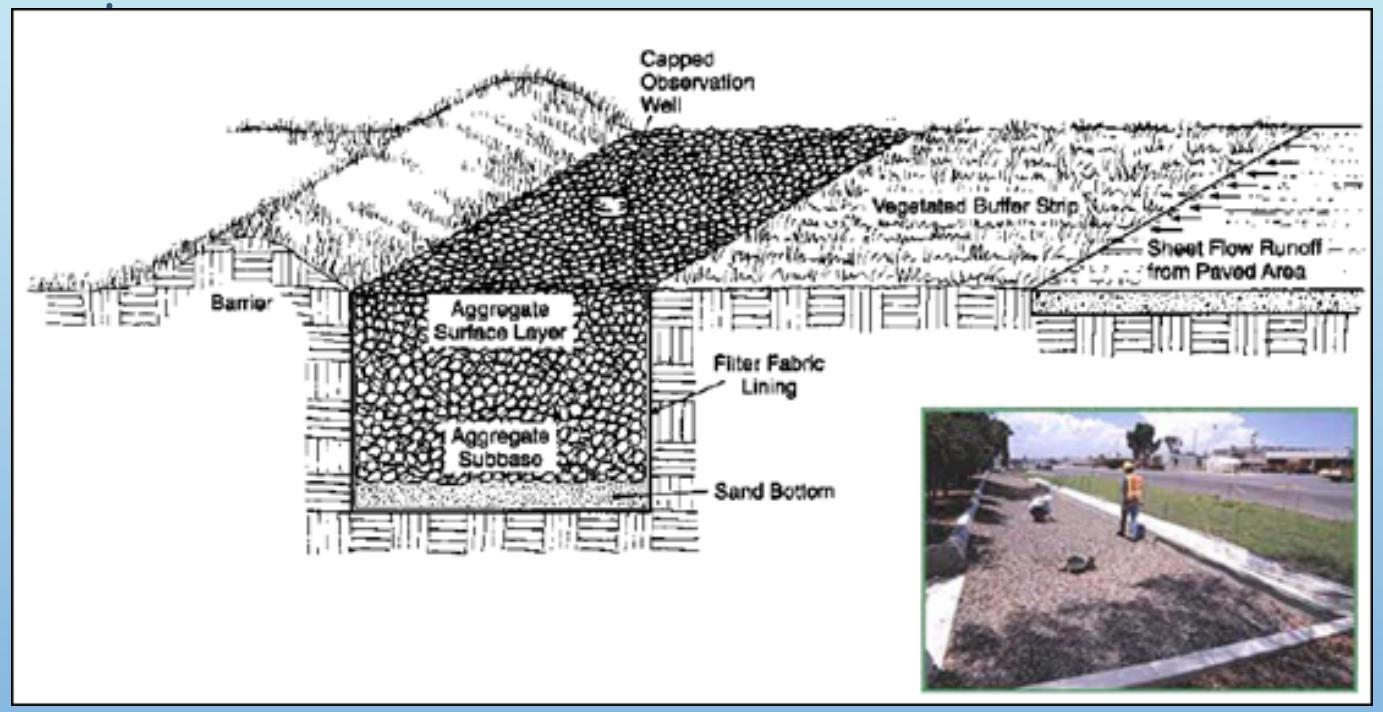
Structural BMPs – Infiltration

Infiltration System



Infiltration Trench with Vegetated Buffer

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Structural BMPs – Wetland Detention

Wetland Detention

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Wetland Detention
with
Vegetated Buffer

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Gravel Pits

- McHenry County has a lot of sand and gravel
- Supports a large mining industry
- Involves extracting, crushing, washing, sorting mined sand and gravel
- Processed material sold as construction material and transported

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Gravel Pits

- Industry is well established in the county
- Supports a large number of jobs
- Sand and gravel is needed for most construction projects
- Public benefits from local sources by keeping transportation costs low

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Gravel Pits

Groundwater Recharge removed

Excavating in the Aquifers

Mining has direct impacts and potential impacts to water resources

- Removal of trees, vegetation, soils
- Removes recharge areas that had filtered and stored groundwater
- Often involves excavating the aquifers and working in the groundwater
- Leaves the groundwater exposed and vulnerable to contamination

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Gravel Pits

Exposed groundwater vulnerable to:

- airborne pollutants
- Pollution from spills or leaks (vehicles, equipment, fuel/oil tanks, refueling)
- Any pollutant source imported into the mine

Mines that dump construction/demolition debris or uncontaminated fill are regulated by the IEPA under 35 IL. Admin. Code 1100

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Gravel Pits

- Water table in vicinity should not be lowered, unless actively drained
- McHenry County UDO requires water monitoring wells - No known contamination
- Mines can be reclaimed as farmland, residential development, parks, etc.

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Automotive Salvage & Metal Scrap Yards

- Benefits community/environment opportunity to safely dispose of metal to be reused or recycled rather than landfilled
- Local access can help reduce fly dumping
- High potential for contamination if materials are mishandled
- Common pollutants are solvents, heavy metals, fuels, antifreeze, hydraulic fluids, oil and grease

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Automotive Salvage & Metal Scrap Yards

BMPs Include

- Processing area with concrete pad, floor drain where fluids collected
- Segregate, label, and properly store all liquids
- Use secondary containment for liquids such as oil, gas, antifreeze
- Provide covered and sealed containment bins for shredded material

EPA Industrial Stormwater Fact Sheets

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, shearers, 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, shearers, 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

Identifies Activities and Pollutants

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.

Identifies Appropriate BMPs