Minnesota Pollution Control Agency

Sector N: Scrap Recycling and Waste Recycling Facilities

Industrial Stormwater Pollution Prevention

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The Industrial Stormwater Multi-Sector General Permit (permit) is designed to reduce the quantity of pollutants that enter our storm drains, lakes, rivers and wetlands. Sector N is described by Standard Industrial Classification (SIC) code 5093. Sector N includes auto wreckers engaged in dismantling automobiles for scrap. However, facilities engaged in dismantling cars for the purpose of selling secondhand parts fall within Sector M.

The permit requires development of a written Stormwater Pollution Prevention Plan (SWPPP). The SWPPP assesses the potential sources of pollutants in stormwater runoff and identifies measures that will be implemented at your facility to minimize discharge of these pollutants in runoff from the site.

Pollutants from common activities

Scrap and waste recycling facilities (non-liquid)

Activity	Pollutant source	Pollutant*
Unknowing acceptance of non-recyclable materials and/or household hazardous wastes	Inbound recyclable materials such as ferrous and non ferrous metals, paper, plastic, cardboard, glass, and animal hides	Dependent on material
Outdoor material storage	Deterioration of wastepaper and unprocessed aluminum beverage containers	Carbonaceous biochemical oxygen demand (CBOD)
Processing and storage	Illicit connections or improper dumping to floor drains discharging to a storm sewer system	Dependent on material
	Washing down tipping floor areas	
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), chemical oxygen demand (COD)
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), pH, oil/lubricants, PCBs (electrical equipment), mercury (electrical controls), lead/battery acids

* Monitoring parameters are underlined. Not all subsectors require monitoring for the full set of parameters. Check your subsector in the permit for monitoring requirements.

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Scrap and waste recycling facilities (non-liquid), continued

Activity	Pollutant source	Pollutant*
Stockpiling, storage, and wholesale distribution of materials (including loading and unloading	Ferrous and non ferrous metals, paper, plastic, cardboard, glass, animal hides and leaking of various fluids from used automotive engines, radiators, brake fluid reservoirs, transmission housings, 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, pH, infectious/bacterial contamination, asbestos, metals (e.g. iron, lead), total Kjeldahl nitrogen, oily wastes, chemical residue
	Deterioration/corrosion of materials	
Processing and reclaiming: air pollution equipment, combustion engines, materials handling systems, scrap processing equipment, hydraulic equipment, electrical control systems, torch cutting	Normal equipment operations, accumulation of particulate matter around leaking joints or processing areas, spills and/or leaks from tanks, reservoirs, faulty/leaking connections, damaged mercury switches, leaking batteries, malfunctioning pumps and motors, faulty electronic detection devices, shredders	Hydraulic fluids, oils, fuels, lubricants, PCBs, accumulated particulate matter, chemical additives, mercury, lead battery acid and heavy metals (e.g. zinc, copper, lead, iron, aluminum, cadmium, chromium), ionizing radioactive material (fire/smoke detection systems)

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Waste recycling facilities (liquid)

Activity	Pollutant source	Pollutant*
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, (COD)
Return and fill stations	Leaks, spills, or overflows from tanker truck transfer of wastes and hose drainage, leaking pipes, valves, and pumps, worn or deteriorated gaskets or seals	
Storage tank operations	Overfill of storage tanks, leaking pipes, valves, worn or deteriorated pumps or seals, leaking underground storage tanks	
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, COD, fuel, accumulated particulate matter, antifreeze
Vehicle or equipment washing (if applicable)	Wash water or steam cleaning	Oil, detergents, chlorinated solvents, total suspended solids and accumulated particulate matter

*Monitoring parameters are underlined. Not all subsectors require monitoring for the full set of parameters. Check your subsector in the permit for monitoring requirements.

Adapted from EPA-833-F-05-029

Pollution prevention practices

Implementation of pollution prevention (P2) practices will minimize or eliminate contact of pollutants with stormwater thereby, reducing pollutants in stormwater discharges and downstream water resources. There are four general practices that contribute significantly to P2 at scrap and waste recycling facilities:

- Confine material handling and storage, processing operations and equipment/vehicle maintenance activities indoors to the greatest extent feasible. Confine outdoor storage and activities to designated areas that are covered, away from high traffic areas, outside of drainage pathways and on impervious surfaces.
- Regularly clean areas used for material handling, processing operations, and vehicle/equipment maintenance using dry cleanup methods rather than wet (e.g. sweeping, squeegee and dust pan, reusable socks, vacuums, and as a last step loose granular absorbents).
- Provide secondary containment around all bulk and liquid storage tanks, including berms, containment trenches, sumps, or other equivalent measures. Ensure surfaces of secondary containment areas are properly sized and adequately sealed.
- Plug drains or use diversion devices to prevent spilled materials and liquid waste (including wash water) from entering floor drains, outdoor storm drains, or other storm drain or sewer connections.

The following is a list of activity-specific pollution prevention practices that can also be implemented and incorporated into a facility's SWPPP. At any time, consider the benefits and feasibility of achieving the No Exposure Exclusion. For more information, go to http://www.pca.state.mn.us/noexposure.

Inbound material control

- Create a written list of materials that will not be accepted at the facility and materials that will be accepted, but which require special handling procedures. Reject all non-acceptable materials at the source.
- Train drivers responsible for pickup of recycled material to conduct preliminary inspections for items on the list before hauling.
- Train personnel engaged in the inspection and acceptance of inbound recyclable materials to inspect materials for items on the prohibited materials/special handling list, potential fluid contents and batteries.
- Provide information and education measures (e.g. brochures) to inform suppliers about acceptable and non-acceptable materials and about draining and properly reusing, recycling, or disposing of residual fluids.
- Clearly mark public drop-off containers regarding which materials can be accepted.
- Keep waste streams separate.

Cover loading/unloading areas to prevent rainwater washoff of spilled materials. Impervious pads allow easy cleanup.

Liquid waste transfer areas

- Provide cover as well as secondary containment or equivalent measures around all liquid waste transfer facilities.

Spill cleanup

- Establish spill prevention and response procedures.
- Locate spill cleanup materials near potential spill areas.
- Ensure that you meet all your spill prevention and response procedure requirements as described in the permit.

Liquid storage in containers

- Ensure container/drums are in good condition. Store waste materials in materials-compatible containers.

- Put individual containers on pallets. Limit stack height of individual containers/drums. Provide straps, plastic wrap, or equivalent around stacked containers to provide stability.
- Label/mark drums. Segregate hazardous and flammable wastes.
- Provide adequate clearance to allow material movement and access by material handling equipment.

Liquid storage in bulk

- Use welded pipe connections versus flange connections. Inspect all flange gaskets for deterioration.
- Apply corrosion inhibitors to exposed metal surfaces.
- Provide high level alarms for storage tanks. Install visible and/or audible alarms in the event of a spill.
- Provide redundant piping, valves, pumps, motors, as necessary, at all pumping stations.
- Install manually activated drainage valves, or the equivalent, versus flapper-type drain valves.
- Provide adequate security against vandalism and tampering.
- Provide stationary boxes around all return and fill stations to eliminate/minimize hose drainage and minor waste transfer spills.

Store waste and/or recyclable materials in materially compatible containers. Keep the area free and clear of debris, and keep lids closed.

Outdoor storage

- Cover all outdoor storage areas with a permanent or temporary cover.
- Conduct regularly-scheduled sweeping of storage areas to minimize particulate buildup.
- Keep materials separate and confined as feasible.

Illicit connection to storm sewer

- If unknown, perform dye testing to determine if interconnections exist between sanitary water system and storm sewer system.
- Update facility schematics to accurately reflect all plumbing connections.

Processing

- Store equivalent of the average daily volume of recyclable materials indoors.
- Schedule routine preventive maintenance on all processing equipment.

Scrap processing operations

- Provide containment bins or equivalent for shredded material, turnings, and shavings.
- Stabilize high traffic areas (e.g., concrete pads, gravel, and pavement around processing equipment) where practicable.
- Conduct periodic maintenance and cleanout of all sumps, oil/water separators, and/or media filters.

Photo Credit Brad Shorr

Conduct processing operations indoors. Wherever possible, store baled wastepaper indoors; if outdoors, provide cover to minimize contact with stormwater.

Training

- Train employees on storage and inspection of items, processing steps, operation of equipment, filling and transfer of liquids, spill cleanup, and their role in implementation of the SWPPP.
- Ensure that you meet all your training requirements as described in the permit.

Inspections

- Schedule and conduct frequent inspections of drums, tanks and piping systems (pipes, pumps, flanges, couplings, hoses, and valves) for corrosion or leaks, and conduct preventive maintenance.
- Ensure that you meet all your inspection requirements as described in the permit.

Stormwater treatment best management practices

In addition to P2 practices, down-gradient stormwater treatment acts as a second line of defense against pollution of downstream waterbodies. Stormwater treatment best management practices (BMPs) are engineered structures intended to protect water quality by treatment of stormwater runoff and/or mitigate the effects of increased stormwater runoff peak rate, volume and velocity. These BMPs should be used down-gradient of areas where P2 activities have been fully implemented. For specific guidance on stormwater treatment BMPs, see the *Minnesota Stormwater Manual* and the *Industrial Stormwater BMP Guidebook*.

- Several stormwater treatment BMPs are often designed with infiltration as the primary treatment mechanism; for example, bioretention/rain gardens, filter strips and infiltration trenches. Some industrial sectors may not be allowed to build new or expand their infiltration systems. All can use existing infiltration systems. Check Part VII of the permit for sector specific infiltration requirements.

Cold climate considerations

- Minnesota contains challenging climatic conditions that require thoughtful pollution prevention, maintenance, stormwater design and operation. Cold weather, snow and ice cause extended storage of precipitation and pollutants in the snowpack and also cause changes in the land surface and conveyance network. Pollution prevention activities that can help minimize the impact of cold climate include the items listed below.
- Inspecting containers/drums throughout the winter to be sure they withstand cold climate corrosion.
- Handling with care recyclables that have been exposed to freezing temperatures in order to avoid flaking, splintering, or other particulate-generating processes.
- Cleaning up paved surfaces (e.g. sweeping) throughout the winter and before snow melts.
- Keeping significant materials away from paved surface and out of accumulated or dumped snow.
- Using judicious amounts of de-icing and anti-skid chemicals and fewer additives in road salt.
- Storing plowed snow outside of stormwater treatment BMPs to ensure treatment capacity of BMPs is available during snowmelt.
- Covering winter salt storage areas to prevent contact with stormwater.

Groundwater pollution potential

Sector N activities have the potential to cause groundwater contamination due to pollutants such as solvents, fuels, antifreeze, hydraulic fluids and heavy metals in stormwater runoff. Groundwater contamination is of greatest concern when there is a high water table and in karst regions. A water table that is close to the surface can allow pollutants to enter the groundwater system quickly, which does not allow for pollutant levels to be reduced in the soil. Karst is a distinctive region characterized by integrated drainage, and largely shaped by the dissolving action of water on limestone. Over time, this process creates unusual surface and subsurface features ranging from sinkholes, springs and disappearing streams, to complex underground drainage systems and caves. Water and pollutants can flow rapidly through these features to wells and streams.

Extra precautions are needed in these areas to limit groundwater contamination; confine storage, fueling, transfer, and processing activities indoors or to impervious areas that are disconnected from permeable areas (e.g. by berming). Stormwater treatment BMPs used downstream of pollution prevention practices should also be designed with sensitivity to the local groundwater conditions.

Resources

Industrial Stormwater Multi-Sector General Permit. MPCA. When complete will be found: http://www.pca.state.mn.us/water/stormwater/stormwater-i.html

Stormwater Program for Industrial Sites. MPCA. http://www.pca.state.mn.us/water/stormwater/stormwater-i.html

BMP Guidebook. MPCA. When complete will be found: http://www.pca.state.mn.us/water/stormwater/stormwater-i.html

No Exposure Certification Factsheet. MPCA. http://www.pca.state.mn.us/publications/wq-strm3-13.pdf

Minnesota Stormwater Manual. MPCA Stormwater Steering Committee. http://www.pca.state.mn.us/water/stormwater/stormwater-manual.html

Industrial Stormwater Fact Sheet Series, Sector N: Scrap Recycling and Waste Recycling Facilities. U.S. EPA Office of Water. http://www.epa.gov/npdes/pubs/sector_n_scraprecycling.pdf

Low Impact Development for Businesses. MPCA.

http://www.pca.state.mn.us/programs/sbeap-lid.html