LAND USES AND BEST MANAGEMENT PRACTICES

Industrial Development

The term *industry* typically refers to the segment of an economy related to manufacturing, the extraction or processing of raw materials, or construction. Industrial development can be highly desirable for communities because it can generate employment opportunities, expand tax bases, stimulate further investment and increased local spending, and can improve standards of living. However, industries also have the potential to cause environmental impacts because they frequently use, manufacture, or produce materials that can cause pollution. Prior to implementation of Federal environmental regulations and increased environmental awareness that expanded in the 1970's, the contamination of air, water and soil from industrial sources was common. Some of the pollution from this period continues to persist today and is often referred to as legacy pollution.

There are now Federal, State and local regulations that direct industries on how to manage, treat and dispose of potential pollutants. Most industries that discharge into Waters of the U.S., or municipal storm sewers, will need a National Pollutant Discharge Elimination System (NPDES) permit from the EPA. Industries that discharge into municipal sanitary sewers may not need NPDES permits but could need permits from the municipality. These and other regulations have been effective at reducing pollution and raising awareness about pollution prevention. However, these regulations alone may not fully prevent pollution because regulations typically represent "minimum standards", the level of compliance may vary from business to business, there is persistent pressure from some industries to weaken regulations, and the limited number of regulatory staff are not able to closely monitor sites. Therefore, to protect water resources it is important for municipalities, businesses and individuals to understand the potential sources of pollution from local industries and the measures that can be taken to protect water resources.

McHenry County has lakes, rivers, streams and wetlands that are vital to the health of its culture, economy and environment. Of particular concern in McHenry County is the potential impact to shallow groundwater aquifers from pollution. McHenry County depends solely on groundwater for all of its potable water. Shallow sand and gravel aquifers currently provide most of the county's water supply M1, and due to limitations in other aquifers, will likely be the main source of water to support its future economic development. Since the sand and gravel is permeable, these aquifers can be highly susceptible to contamination because pollutants on, or near, the land surface are able to migrate downward into aquifers. Once pollutants reach the aquifer they may also move laterally, flowing as plumes that can travel long distances and contaminate large areas of groundwater aquifers. The county does draw some of its water from deep sandstone aquifers that are protected from localized pollution. However, the maximum amount of water that McHenry County can sustainably withdraw from the deep aquifers is already being pumped out M2. Additionally, based on studies by the Illinois State Water Survey communities in the southeast corner of the county may face supply issues in the future as desaturation in the sandstone aquifers continues to expand throughout northeast Illinois M3. Therefore, the sand and gravel aquifers need to be protected from pollution for McHenry County to meet future water demands.

Stormwater runoff is generated from rain and snowmelt events that flow over land or impervious surfaces, such as paved streets, parking lots, and building rooftops. The runoff picks up pollutants like trash, chemicals, oils, and dirt/sediment that can harm our rivers, streams, lakes, and groundwater. Industrial facilities often conduct activities or store materials in outdoor areas exposed to the elements.

This may include activities such as material storage and handling, vehicle fueling and maintenance, shipping and receiving, mineral extraction and processing, and salt storage, all of which can result in pollutants being exposed to precipitation and being carried off in stormwater runoff. Facilities may also have pollution from historical outdoor industrial activity or improper waste disposal that still remains exposed to precipitation. Additionally, accidental spills and leaks, improper waste disposal, and illicit connections to storm sewers may also lead to exposure of pollutants to stormwater.

The EPA National Pollutant Discharge Elimination System (NPDES) stormwater program regulates some stormwater discharges from three potential sources: municipal separate storm sewer systems (MS4s), construction activities, and industrial activities. Operators of these sources might be required to obtain an NPDES permit before they can discharge stormwater. NPDES permitting is designed to prevent stormwater runoff from washing harmful pollutants into local surface waters.

The EPA has identified six types of activities at industrial facilities that have the potential to be major sources of pollutants in stormwater M4:

- **Loading and Unloading Operations** - Loading and unloading operations can include pumping of liquids or gases from tankers to storage facilities, pneumatic transfer of dry chemicals, transfer by mechanical conveyor systems, or transfer of bags, boxes, drums or other containers by forklift or other material handling equipment. Material spills or losses in these areas can accumulate and be washed away during a storm.
- **Outdoor Storage** – Outdoor storage activities include storage of fuels, raw materials, by-products, intermediate products, final products, and process residuals. Materials may be stored in containers, on platforms or pads, in bins, boxes or silos, or as piles. Storage areas that are exposed to rainfall and/or runoff can contribute pollutants to stormwater when materials wash off, leak, or dissolve into solution.
- **Outdoor Process Activities** – Although many manufacturing activities are performed indoors, some activities, such as timber processing, rock crushing, and concrete mixing, occur outdoors. Outdoor processing activities can result in liquid spillage and losses of material solids, which makes associated pollutants available for discharge in runoff.
- **Dust or Particulate Generating Processes** – Dust or particulate generating processes include industrial activities with stack emissions or process dusts that settle on surfaces. Some industries, such as mines and gravel pits, cement manufacturing, and refractories, also generate significant levels of dust that can be mobilized in stormwater runoff.
- **Illicit Connections and Non-Stormwater Discharges** – Illicit connections of process wastes or other pollutants to stormwater collection systems, instead of to sanitary sewers, can be a significant source of stormwater pollution. Non-stormwater discharges include any discharge from the facility that is not generated by rainfall runoff (for example, wash water from industrial processes). With few exceptions, these non-stormwater discharges are prohibited.
- **Waste Management** - Waste management practices include everything from landfills to waste piles to trash containment. All industrial facilities conduct some type of waste management at their site, much of it outdoors, which must be controlled to prevent pollutant discharges in stormwater.

The Clean Water Act (Section 402(p)) requires that operators of "discharges associated with industrial activity" obtain a National Pollutant Discharge Elimination System (NPDES) permit. EPA regulations (40 CFR 122.26) define the 11 categories of industrial activity required to obtain NPDES permits, and specify the application requirements for these NPDES permits. To regulate stormwater discharges from these industrial activities, the EPA and authorized States issue NPDES general permits M5. The Illinois EPA is the agency authorized to issue NPDES general permits in Illinois.

Most industrial stormwater discharges are covered under *general NPDES permits*. The more intensive and time consuming individual NPDES permits are required for some facilities based on site-specific or industry-specific concerns. General permits are used primarily because they avoid the need to issue multiple permits, and instead only require a single permit to cover a large number of industrial facilities performing similar types of activities. To be covered under a general permit, an eligible operator of an industry must meet the terms of the general permit, develop a Stormwater Pollution Prevention Plan, comply with any special eligibility provisions, and submit a notice of intent (NOI) or permit application to the permitting authority (Illinois EPA).

Under Federal regulations, the U.S. EPA requires NPDES permit coverage for stormwater discharges from the following 11 categories of industrial activity M4:

- **Category One** (i): Facilities subject to federal stormwater effluent discharge standards in 40 CFR Parts 405-471
- **Category Two** (ii): Heavy manufacturing (for example, paper mills, chemical plants, petroleum refineries, and steel mills and foundries)
- **Category Three** (iii): Coal and mineral mining and oil and gas exploration and processing
- **Category Four** (iv): Hazardous waste treatment, storage, or disposal facilities
- **Category Five** (v): Landfills, land application sites, and open dumps with industrial wastes
- **Category Six** (vi): Metal scrapyards, salvage yards, automobile junkyards, and battery reclaimers
- **Category Seven** (vii): Steam electric power generating plants
- **Category Eight** (viii): Transportation facilities that have vehicle maintenance, equipment cleaning, or airport deicing operations
- **Category Nine** (ix): Treatment works treating domestic sewage with a design flow of 1 million gallons a day or more
- **Category Ten** (x): Construction sites that disturb 5 acres or more. This category is permitted separately and is not eligible for No Exposure Exclusion.
- **Category Eleven** (xi): Light manufacturing (For example, food processing, printing and publishing, electronic and other electrical equipment manufacturing, and public warehousing and storage).

As part of the NPDES permit application, the industry will typically need to prepare a Stormwater Pollution Prevention Plan (SWPPP). A SWPPP is a written document that identifies the potential sources of stormwater pollution at the industrial facility and a description of all stormwater controls the facility will implement to prevent pollutants from making their way into stormwater runoff. These actions are commonly referred to as industrial stormwater Best Management Practices (BMPs).

Industrial stormwater BMPs are pollution control measures designed to prevent, reduce or treat water pollution from industrial stormwater discharges. To protect water resources, it is imperative for facilities to implement the most appropriate BMPs to manage industrial stormwater pollution that could be generated on their site. As previously noted, the minimum standards proposed by an industry may not be completely sufficient to protect water quality. Therefore, it would be beneficial for staff, elected officials, or residents reviewing new industrial developments to understand potential risks from the development, know how to evaluate the BMPs being proposed, and possibly seek additional (or specific) industrial stormwater BMPs as part of their zoning approval process.

An important resource to assist in this effort are EPA Industrial Stormwater Fact Sheets (Stormwater Control Checklists) M6. The Fact Sheets/Checklists provide concise descriptions of potential sources of stormwater pollution associated with various industries, followed by specific BMPs to address each pollutant source. The EPA has developed Industrial Stormwater Fact Sheets/Checklists for 29 industrial Sectors:

- Sector A: Timber Products Facilities
- Sector B: Paper and Allied Products Manufacturing Facilities
- Sector C: Chemical and Allied Products Manufacturing and Refining
- **Sector D: Asphalt Paving and Roofing Materials, Manufacturers and Lubricant Manufacturers***
- **Sector E: Glass, Clay, Cement, Concrete, and Gypsum Product Manufacturing Facilities***
- Sector F: Primary Metals Facilities
- Sector G: Metal Mining (Ore Mining and Dressing) Facilities
- Sector H: Coal Mines and Coal Mining-Related Facilities
- Sector I: Oil and Gas Extraction Facilities
- **Sector J: Mineral Mining and Processing Facilities***
- Sector K: Hazardous Waste Treatment, Storage, or Disposal Facilities
- **Sector L: Landfills and Land Application Sites***
- **Sector M: Automobile Salvage Yards***
- **Sector N: Scrap Recycling and Waste Recycling Facilities***
- Sector O: Steam Electric Power Generating Facilities, Including Coal Handling Areas
- **Sector P: Motor Freight Transportation Facilities, Passenger Transportation Facilities, Petroleum Bulk Oil Stations and Terminals, Rail Transportation Facilities, and United States Postal Service Transportation Facilities***
- **Sector Q: Water Transportation Facilities with Vehicle Maintenance Shops and/or Equipment Cleaning Operations***
- **Sector R: Ship and Boat Building or Repair Yards***
- **Sector S: Vehicle Maintenance Areas, Equipment Cleaning Areas, or Deicing Areas Located at Air Transportation Facilities***
- Sector T: Treatment Works
- **Sector U: Food and Kindred Products Facilities***
- Sector V: Textile Mills, Apparel, and Other Fabric Product Manufacturing Facilities
- **Sector W: Wood and Metal Furniture and Fixture Manufacturing Facilities***

- **Sector X: Printing and Publishing Facilities***
- Sector Y: Rubber, Miscellaneous Plastic Products, and Miscellaneous Manufacturing Industries
- Sector Z: Leather Tanning and Finishing Facilities
- **Sector AA: Fabricated Metal Products Manufacturing Facilities***
- **Sector AB: Transportation Equipment, Industrial, or Commercial Machinery Manufacturing Facilities***
- Sector AC: Electronic and Electrical Equipment and Components, Photographic, and Optical Goods Manufacturing Facilities

**** Denotes Industrial Sectors that may relate to some industries that occur in McHenry County.***

The EPA Industrial Stormwater Fact Sheets/Checklists can be accessed from the U.S. EPA industrial stormwater website at: https://www.epa.gov/npdes/stormwater-discharges-industrial-activities

Industrial Stormwater Best Management Practices: Industrial Stormwater BMPs are pollution control measures designed to prevent or reduce the effects of pollutants on water resources from industrial stormwater discharges. Industries have a wide variety of BMP options, including schedules of activities, treatment devices, operating procedures, and practices to control industrial stormwater runoff, spillage or leaks, waste disposal or drainage from raw material storage. BMPs should be considered as a system or series of activities that may include multiple management options.

When evaluating BMP options the following hierarchy should be considered:

1. **Elimination/Avoidance** - Eliminating the use of pollutants, locating materials activities indoors, education, training and planning to prevent contact between rain, snow and runoff from pollutant sources and industrial activities
2. **Minimization** - Litter control, street sweeping; and secondary containment) to minimize potential impacts
3. **Mitigation** - Construction of treatment structures to remove pollutants from unavoidable stormwater impacts

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

- **Non-Structural BMPs** – Non-structural BMPs focus on changing behavior and management to prevent pollutants from exposure with stormwater runoff. These measures include moving materials inside a building or structure to reduce exposure, maintaining equipment, prohibiting certain practices, providing training, and implementing spill-prevention plans.
- **Structural BMPs** - Structural BMPs are measures that control, manage or treat stormwater runoff and drainage. Examples of structural BMPs include swales, dikes, ponds, filtration devices, and infiltration basins.

Non-Structural BMPs

Avoid and Minimize Exposure: When selecting control measures for a facility, industries should focus on controls that are geared toward eliminating or reducing pollutants at the source to prevent stormwater pollution. Another effective way to minimize stormwater pollution is to eliminate opportunities for stormwater to come into contact with industrial activities and polluting materials. Industries should look for opportunities to relocate industrial activities/materials to covered or contained areas; to properly store and transport any accumulated scrap or waste material; and to conduct day to day operations in ways that prevent accidental releases. Methods to avoid or reduce exposure include:

- Conducting industrial related activities in covered buildings or shelters
- Storing and managing industrial materials in covered buildings or shelters
- Using tarps or similar temporary covers until permanent storage is available
- Placing exposed material piles away from stormwater flows
- Consolidating similar materials into fewer locations to reduce management needs
- Maintaining vehicles and equipment to prevent leaks
- Storing vehicles indoors, or using drip pans, absorbent pads, or other materials if stored outside
- Draining fluids from equipment and vehicles that will be decommissioned or will remain unused for extended periods of time, and inspecting at least monthly
- Performing all vehicle and equipment cleaning operations indoors, under cover, or in bermed areas that prevent runoff and run-on and also that capture any overspray
- Using covered chutes or booms when loading and unloading materials
- Using spill/overflow protection equipment
- Placing stockpiles on impervious pads
- Installing vegetative areas upstream of stockpiles to infiltrate stormwater before it contacts any materials
- Installing vegetative areas downstream of stockpiles to slow down stormwater discharges after it contacts any materials
- Recycling unused materials to reduce stockpiling
- Managing operations to avoid buildup of dust or other deposits on exhaust vents and roof stacks

No Exposure - The first option for BMPs should be to prevent contact between rain, snow and runoff from pollutant sources and industrial activities such as manufacturing, processing, material storage areas, loading and unloading areas, dumpsters and other disposal areas, maintenance activities, and fueling operations by locating industrial materials and activities inside buildings or protecting them with storm resistant structures or coverings.

If a regulated industry (except Category 10, construction sites that disturb five or more acres) can demonstrate that no industrial material or activity will be exposed to stormwater at their facility, they may be eligible for a conditional exclusion called a No Exposure Certification M7. This exclusion eliminates the need for NPDES permitting for qualifying facilities for five years, unless changes occur that would result in exposure of industrial activities or materials.

To qualify for and maintain No Exposure Certification, 100% of significant materials and industrial activities must be sheltered from exposure 100% of the time. Significant materials and industrial activities include:

Significant Materials:	Industrial Activities:
Fuels, solvents, coolants, lubricants and cleaners	Outdoor storage activities
Raw, intermediate, and final products, metallic materials	Outside manufacturing areas, vehicle & equipment washing, maintenance and storage areas
Chemicals	Loading and unloading operations
Wastes and scrap materials	Substance transfer areas (including dumpsters, collection bins, garbage cans)
Hazardous materials/wastes	Outdoor manufacturing or processing activities
Processing or production operations	Significant dust or particulate generating activities
Machining fluids	Onsite waste disposal practices
Dust or residuals	Outside storage areas for raw materials, by-products, and finished products
Fueling stations	Grinding, cutting, degreasing, buffing, and brazing
Above-ground tanks for liquid storage	Industrial waste management areas (landfills, waste piles, treatment plants, disposal areas)

Common violations found at facilities attempting to certify for No Exposure Certification include M8:

- **Fueling of vehicles/equipment:** Land, air, water transportation sector facilities or other facilities with outdoor vehicle fueling. This is the most common violation for No Exposure sites
- **Uncovered/unplugged dumpsters**: Can leak unauthorized, contaminated discharge when stormwater gets in
- **Storing significant materials outdoors:** Chemicals, petroleum products, corrodible metals, used appliances, etc.
- **Industrial activities being conducted outdoors:** Mixing of wastes, loading/unloading of products, etc.
- **Dust/Particulates:** Facilities operating under an air permit but having particulate matter or visible deposits of residuals on the ground
- **Pollutants potentially mobilized by wind**: Windblown raw materials cause a condition of exposure. Materials sheltered from precipitation can still be deemed exposed if the materials can be mobilized by wind
- **Facilities with "partial" No Exposure**: The No Exposure Exclusion requires a facility to shelter 100% of its significant materials and activities 100% of the time
- **Metal processing facilities:** Large bins outside that are uncovered and contain scrap metal
- **Trash compactors:** Exposure occurs from hydraulic leaks, contents falling out of seams in equipment, or during loading or unloading
- **"Bag houses" or other particulate matter collection devices:** Particulate matter exposure frequently occurs

Refer to the *Illinois EPA General Storm Water NPDES Permit for Industrial Activity* webpage for more information about the No Exposure Certification. https://www2.illinois.gov/epa/topics/forms/water-permits/storm-water/Pages/industrial.aspx

*** Provide photo of above ground storage tank, equipped for fueling, that is uncovered and on permeable ground ***

Storm-Resistant Shelters - Storm-resistant shelters include completely roofed and walled buildings or structures. Some structures with only a top cover but no side coverings may be considered storm-resistant, provided any material under the structure is not subject to stormwater and subsequent runoff. Materials and activities may be sheltered with temporary covers such as tarpaulins, until permanent structures are created.

*** Provide photo or graphic showing storm resistant structure ***

There are some products and materials which can be stored outside and still fall within the No Exposure requirements, including:

- Final products meant to be used outdoors, such as concrete culverts or stop signs. Products that would mobilize in stormwater, such as rock salt, still need to be sheltered to prevent exposure.
- Non-deteriorated, tightly sealed (banded) drums, barrels, or tanks without operational taps or valves
- Non-deteriorated containers, racks, or wooden pallets used for the storage or conveyance of final products
- Lidded dumpsters
- Adequately-maintained vehicles

Good Housekeeping - Good housekeeping practices offer a practical and cost-effective way to maintain a clean and orderly facility to prevent or minimize potential pollution sources from coming into contact with stormwater. Good housekeeping practices also help to enhance safety and improve work environments.

- Implement careful material storage practices
- Maintain clean and well organized work areas
- Schedule routine cleanup operations including daily trash pick-up and sweeping
- Conduct routine inspection of erosion control measures
- Mowing/maintenance of vegetation
- Ensuring dumpster, scrap bin, and garbage can lids are closed
- Inspecting dumpsters, scrap bins, garbage cans, and storage areas for leaks, cracks, and other sources of exposure

*** provide photo of properly covered and or uncovered dumpster ***

Maintenance – A good maintenance program requires regular inspections, testing, and the preventive maintenance and repair of industrial equipment, vehicles, and industrial systems. Maintenance programs are intended to ensure that industrial equipment is kept in good operating condition and to prevent or minimize leaks and other releases of pollutants.

Spill Prevention and Response Procedures - Spills and leaks, together, are the largest source of industrial stormwater pollution M5. Even small spills or leaks can have cumulative effects that add up to a significant source of pollutants in stormwater discharge. The best approach is to prevent spills and leaks by maintaining a regular inspection and repair schedule, and correcting potential spill situations before a spill can occur. When a spill does occur, quick and effective response is the best way to prevent pollutants from reaching stormwater. Since parking lots and delivery areas typically slope to drains, grassy areas or waterways a rapid response may be critical to prevent a spill from becoming a release. Well planned, and practiced, spill prevention and response procedure enables facility staff to quickly and consistently respond to spills that may occur.

There is a large variety of equipment available today to help simplify spill prevention and response. Drip pans, spill containment trays, weighted drip pads, secondary containment systems, drain covers, and flexible dikes are examples of readily available products. Spill kits are a form of "active containment" that commonly contain a variety of absorbent products, including socks or booms to contain a spill; and mats, pillows or other dry materials to help absorb the contained spill. Most spill kits also have room to store basic tools and personal protective items to help keep workers safe during response. It is also important to establish and implement protocols to properly dispose of spilled product and clean up materials to prevent further contamination. Spill prevention and response procedures include:

- Identifying where past spills have occurred
- Identifying where spills have the greatest potential to occur
- Identifying potential discharge locations (including storm sewers, curb cuts, etc.) and establish procedures to safely plug discharge points to prevent a release
- Clearly labeling containers storing waste products such as "used oil", "spent solvents", etc., that could be susceptible to spills or leakage
- Identifying monitoring locations or surface waters that may be impacted by emergency firefighting techniques
- Using secondary containment and barriers such as drip pans, spill prevention trays, weighted mats, or other methods to prevent the discharge of pollutants
- Training employees in proper prevention and response techniques
- Properly staging spill clean-up kits near potential spill locations and training staff in their use
- Developing and implementing proper material handling, storage, and clean up procedures
- Posting contact information for all individuals who need to be notified in the event of a spill
- Promptly reporting and documenting any spills or leaks to appropriate individuals

*** provide photos of labeled containers, secondary containment, spill clean-up kit in industrial setting ***

*** Call out for gas station spills, spill response standards, proper disposal, and how to report spills or improper response ***

Deicer Storage – Salt and other chloride-based deicers are commonly used for snow/ice management. Chlorides are highly soluble in water and are a major pollutant in waterways. The concentration of chlorides is also increasing in groundwater and is becoming a greater threat to groundwater quality. Therefore, salt piles or piles of other deicer materials should be properly covered or enclosed and otherwise isolated from contact with stormwater. Optimal BMPs include:

- Locating salt storage and work areas on an impervious surface and properly elevated to prevent runoff from flowing toward stockpile
- Covering the salt piles under a permanent (preferable) or temporary cover to prevent exposure to rain, snow and wind. Temporary cover should extend beyond the pile and be properly weighted/secured to prevent exposure during all weather conditions.
- Regularly sweeping up loose salt from loading activity and return under cover
- Training staff about proper salt application and storage. McHenry County provides Sensible Salting workshops every fall.

*** Provide photo of salt storage structure ***

Soil Erosion Prevention, Sediment Control, and Runoff Management - Where soils are exposed to water, wind, or ice, erosion can result. Erosion occurs when these exposed soils loosen, become suspended in water or air, and are transported to another location. In general, soil erosion control measures, which prevent soil or sediment from becoming mobilized, should be used as the primary line of defense, while sediment control measures, which trap, infiltrate, or settle out mobilized sediments, should be used to back-up the erosion control measures. For instance, erosion control measures, include grading, seeding, mulching, and sodding, that prevent soil from becoming dislodged, should be considered first. Where sediment may be dislodged and potentially mobilized in stormwater runoff, sediment control measures that trap eroded sediment including silt fences, silt bags, sediment ponds, and stabilized entrances should be considered. The principle soil and sediment control actions include:

- Leave as much vegetation on-site as possible
- Minimize the length of time bare soil is exposed
- Stabilize disturbed soils as soon as possible
- Divert or prevent runoff from flowing across exposed areas
- Slow the runoff flowing across the site

Non-Stormwater Discharges – Unauthorized non-stormwater discharges cannot be released from a facility unless specifically authorized by a separate, individual NPDES permit. Unauthorized non-stormwater discharges need to be eliminated or directed to a sanitary sewer in compliance with all federal, state or local regulations. Facilities should evaluate for the presence of non-stormwater discharges and describe how unauthorized discharges were eliminated in their SWPPP. Unauthorized non-stormwater discharges may include:

- Domestic/industrial wastewater and process wastewater
- Wash water from vehicle and equipment and tank cleaning

- Non-contact cooling water
- Spills from any substance that may cause water pollution
- Dewatering discharges
- Sewage or Septic flows

Dust Control – Dust comes from smokestacks and vents, stockpiles, cleared ground, unimproved roads, and open areas. Construction activities, such as land grading for road construction and commercial, industrial or subdivision development, are also a frequent source of dust. Airborne dust particles pose a dual threat to the environment and human health. Dust can be carried offsite accelerating soil loss from disturbed areas, creating inhalation hazards for people and increasing the likelihood of sedimentation and water pollution. Methods to control dust include:

- Store all materials, products, and waste inside the facility
- Routinely clean vents and filters
- Spray ground surface with controlled amounts of uncontaminated water to dampen dust-generating areas
- Conduct regular sweeping

Mercury Minimization Plan – Mercury-containing devices may be present at any type of facility. Therefore, facilities should determine whether any mercury-containing sources are exposed to stormwater and develop a Mercury Minimization Plan. Mercury containing devices include:

- Fluorescent bulbs
- Mercury lamps
- Mercury switches
- Mercury thermometers, gauges, and other medical or scientific equipment
- Certain batteries

Employee Training Program - Many employees are not aware of the potential adverse impact the company's business may have on the environment or how their individual actions can affect those impacts. Without proper training they may not know how to recognize a problem, how to address a problem if it occurs, or how to report an incident through the proper channels.

To assist employees, facilities need to establish an effective educational training program that fully covers the contents of the facility SWPPP; the potential sources of stormwater pollution on site; control measures implemented to achieve compliance with applicable discharge requirements; spill containment, cleanup and disposal procedures; maintenance, monitoring, inspection, planning, reporting, and documentation requirements.

The EPA recommends that training be conducted for any applicable employees at least once a year and whenever a new employee starts M4. Documentation about the training, the instructors, and the attendees should be included with the facilities SWPPP. Training can be achieved by attending formal classes, in-house training sessions, and informal/on-the-job training.

At a minimum, the facility training program should include:

- Sources of pollutants and corresponding stormwater control measures at the facility
- A training schedule
- Documentation of training dates, who gave the training, and individuals attending

The following individuals should receive training:

- Personnel who are responsible for the design, installation, maintenance, and/or repair of controls (including pollution prevention measures)
- Personnel responsible for the storage and handling of chemicals and materials that could become contaminants in stormwater discharges
- Personnel who are responsible for conducting and documenting monitoring and inspections
- Personnel who are responsible for taking and documenting corrective actions

Structural BMPs

Structural BMPs to Manage Runoff: Structural stormwater BMPs are stationary features that divert, infiltrate, reuse, treat, or otherwise manage stormwater runoff to reduce the discharge of pollutants in stormwater. Appropriate measures are highly site-specific, but may include diversion dikes/berms, bio-swales, rain gardens and other bio-retention systems, forebays, constructed wetlands, infiltration, or media filters. Many of the most common structural BMPs for industrial stormwater consist of the same Low Impact Development (LID) practices that were discussed in the Green Infrastructure chapter of this document. Refer to Chapter ?? for more detailed information on green infrastructure and LID practices and maintenance requirements.

Structural BMPs and LID practices use soils, vegetation, microbes, stone/sand, or engineered materials to filter pollutants from stormwater, promote infiltration, and reduce runoff volume. These practices are widely accepted and can be very effective in filtering pollutants from stormwater. However, caution must be used to prevent unintended consequences when selecting LID strategies for industrial sites. For instance, infiltration of some polluted runoff without proper pretreatment could result in groundwater contamination. The type of structural BMP or LID practice will be dependent on factors such as the type/concentration of pollutants in the stormwater, the depth to water table, permeability of soils/geology, and proximity to sensitive resources such as wells or wellhead protection zones. Some of the structural BMPs that are designed to capture sediments or pollutants will periodically need to have accumulated sediments removed. Prior to removal, the sediments should be tested to determine the proper method to safely dispose of material in compliance with all regulatory requirements.

All structural BMPs will require maintenance to ensure they continue to function as designed over time. There is no such thing as a maintenance free BMP. All stormwater management systems, whether gray or green, require maintenance. This is particularly true for structural BMPs that include live vegetation or rely on biological activity for treatment. To maximize the environmental benefits and reduce the cost of projects over the long-term, structural BMPs should be designed with maintenance in mind. With good design, proper installation, appropriate maintenance structural BMPs should continue to function properly and yield expected water quality and environmental benefits, and protect communities' financial investment. Please refer to the Green Infrastructure and LID maintenance discussion in

Chapter ??? for more detailed information about maintenance. Common structural BMPs for industrial stormwater are discussed below:

Discharge Diversions - Diversion dikes, curbs, and berms are temporary or permanent structures installed to divert flows, store runoff, or limit stormwater run-on and runoff. The structures can be designed to prevent uncontaminated (or less contaminated) runoff from making contact with pollution sources. They can also be designed to collect runoff for later treatment or direct flow to other structural BMPs.

*** provide graphic of grading for diversion dike that illustrates diversion function ***

Constructed Infiltration System – There are several types of constructed infiltration systems, including infiltration trenches, infiltration basins, bio-retention systems and underground infiltration tanks. Infiltration systems are designed to capture and infiltrate stormwater runoff, recharge groundwater, and reduce pollutant loads. Unlike sedimentation systems that use gravity to settle out particles, infiltration systems are designed to store a particular volume of runoff long enough for it to infiltrate into the subsurface soils. Infiltration practices are applicable to sites with naturally permeable soils and a suitable distance to the seasonally high groundwater table, drinking water wells, wellhead protection zones, or other sensitive resources. Stormwater runoff is required to be routed through a pretreatment area to protect the groundwater quality. Infiltration should be avoided in areas with contaminated soils or groundwater.

*** Show photos/graphics of infiltration system designs ***

Bioswales – Bioswales (also called vegetated swales) are linear excavated swales, typically planted with native vegetation, which allow for the collection, conveyance, filtration and infiltration of stormwater. The vegetation helps reduce the velocity of the water, stabilize soil, and improve the ability for plants and soil to filter suspended sediments and pollutants from the water passing through. While the plants remove the large particles, microbes in the soil digest organic nutrients.

Biofiltration/Bioretention (Raingardens) – Biofiltration and Bioretention basins both consist of constructed, shallow depressions that use soil (natural soil, engineered media or mixed soil) and native vegetation to collect, temporarily store, and filter stormwater. The primary difference between the systems is that biofiltration systems are designed to infiltrate the treated runoff into the ground while bioretention systems typically have an underdrain that discharges treated runoff to sewers, BMPs as part of a treatment train, or other water bodies. Both systems are designed to function by mimicking certain physical, chemical, and biological processes that occur in the natural environment. These systems can include a wide variety of designs and are often called raingardens, planter boxes, or stormwater planters.

Sediment Forebay – Sediment forebays consist of a small pond or settling basin constructed to pre-treat runoff before it enters a larger detention basin. The purpose of the forebay is to provide retention for a portion of the first flush stormwater runoff - runoff at the beginning of a storm contains the most pollutants - and allow sediment to settle out from the incoming stormwater before it reaches the larger BMP. Forebays help isolate sediment deposition, provide additional water quality treatment, and facilitate the maintenance, effectiveness and lifespan of the larger BMP or stormwater detention facility. Since forebays collect sediment that will require periodic removal, planning for future access should be considered when designing the forebay.

Stormwater Detention Basins – Stormwater detention basins are designed to collect runoff during storms and release the water at a controlled rate. The primary function of detention basins is to reduce flooding downstream but they are also capable of providing limited water quality benefit by allowing sediments and suspended solids to settle out. Wet basins maintain a pool of water throughout the year and hold stormwater runoff following storms. Dry basins hold water for a short period of time and commonly dry out between storm events. Both systems allow suspended solids in stormwater to settle out. Wet basins tend to provide better water quality treatment because the permanent pool of water removes a broader range of pollutants and keeps the deposited material in the basin. Dry basins on the other hand tend to re-suspend sediments and pollutants during storm events.

Constructed Wetland Detention Basins (also called Naturalized Detention Basins) – In addition to providing the function of flood prevention, constructed wetland detention basins are designed to support wetland hydrology and vegetation that provides additional stormwater treatment over conventional basins. In wetland detention basins the flow rate is slowed by the vegetation, thereby increasing the settling of suspended solids while promoting biological treatment of runoff. As runoff flows through the constructed wetland, contact with the vegetation, root systems, and soil removes and breaks down nutrients and dissolved pollutants from the stormwater. Wetlands detention also provides wildlife habitat and can offer aesthetic values and opportunities for passive recreation. The retention time and pollutant removal can be extended further by constructing elevated berms in the basin that slows the rate of flow and forces water to travel longer distances within the basin before being discharged.

*** Provide collage of photos showing the BMPs referenced above ***

*** Callout for Johnsburg Walmart BMP basins ***

Constructed Media/Sand Filters – There are numerous designs for media filter systems that can treat stormwater through a variety of different filtering materials. The commonality is each system utilizes one or more forms of media, such as sand, gravel, peat, grass, soil, compost, or synthetic media to filter pollutants from stormwater. Selecting the right media is important, as each has different hydraulic requirements, pollutant-removal efficiencies, and clogging characteristics. Filter media may also incorporate adsorption media such as iron for phosphorus removal or activated carbon for organic materials.

Variants of systems include surface filters, underground filters and perimeter filters. Media filters commonly consist of two chambers including a pretreatment settling basin and a filter bed filled with sand or other absorptive filtering media. As stormwater flows into the first chamber, large particles settle out, and then finer particles and other pollutants are removed as stormwater flows through the filtering media in the second chamber.

As with all stormwater treatment practices, filtration systems need regular inspection and maintenance to ensure proper function and extend useable life. Maintenance can range from trash removal to complete removal and replacement of the filter media and underlying system. The primary failure mechanism for filtration systems is clogging due to build-up of sediment, litter, and debris. Clogging can result in long periods of standing water, flooding of surrounding areas, by-passing of the filter by untreated stormwater, or any combination thereof.

*** Provide graphic depicting Media/Sand Filter(s) ***

Proprietary Treatment Systems - Proprietary treatment systems are commercially-available systems designed to remove specific pollutants from stormwater runoff. Most proprietary stormwater treatment systems are installed underground and are best used at small facilities and areas where there is limited available land for other surface structural controls. Their performance and efficiency are dependent upon the flow rate of stormwater entering the system, and they can be overwhelmed during very high flow volumes.

There are many types and configurations of proprietary treatment systems. They generally fall into one of the following categories:

- Hydrodynamic systems (HDS) that utilize gravity or vortex separators
- Catch basin media inserts
- Filtration systems
- Infiltration systems

Hydrodynamic separators (Oil and Grit Separators) - Hydrodynamic separators (HDS), also commonly referred to as oil and grit separators, are widely deployed as stormwater treatment BMPs, both in stand-alone applications and as pretreatment devices in a treatment train. HDS provide good removal rates for high specific gravity suspended solids (such as sand, grit, and degraded asphalt), as well as free-floating oil and grease and trash and debris. HDS are very effective pretreatment for other BMPs such as stormwater ponds, bioretention, filter devices, detention structures, and infiltration, and can significantly extend the maintenance interval for these downstream measures. HDS can have high up-front costs but typically have relatively simple, low cost maintenance. Additionally, since HDS are typically installed underground, treatment can be provided without consuming valuable developable land.

HDS are typically vertically oriented cylinders (manholes) or multi-chambered rectangular vaults that contain a permanent pool of water in the treatment chamber. HDS may use special components such as baffles, weirs, and screens to direct the flow path, attenuate water velocity, and enhance the settling of particulates and the capture of oil and other floatables. Often HDS utilize internal bypass features to prevent or minimize resuspension and washout of previously captured pollutants.

The primary treatments mechanisms used in HDS are gravity separation and spill capture. High specific gravity particulates settle by gravity to the sump of the device, with low specific gravity oil, trash, and debris float to the surface and are trapped. Normally there is sufficient floatables storage for the device to capture and retain an oil or fuel spill of substantial volume until maintenance can be performed to recover the spilled hydrocarbons. Maintenance of HDS is typically performed with a vacuum truck to evacuate captured sediment and floatables from the unit.

*** provide graphic of oil and grit separator ***

Catch Basin Media Inserts - A catch basin insert, or manufactured inlet protection unit, is a devise that is typically installed in a storm drain inlet to provide water quality treatment through filtration or absorption. The inserts are designed to fit into the inlets catch basin and are configured to remove one or more of the following contaminants: coarse sediment, oil and grease, and litter and debris. Some units can also be designed to remove dissolved pollutants, heavy metals, volatile organic compounds,

pesticides, sulfides, and fine grained sediments. Design variations include tray filters installed around the perimeter of the inlet, filter bags placed around the perimeter of the inlet grate, and baskets that are set in the inlet.

Catch basin inserts are generally not considered adequate as a stand-alone BMP but rather to be used as a first flush, pre-treatment practice prior to a storm drain system, detention basin, infiltration practice, or some other form of stormwater treatment. They are usually applied in highly urbanized areas, where space is not available for other BMP options.

Unlike most other treatment BMPs, which must be designed and constructed specifically for their site, catch basin media inserts may be purchased directly from a vendor and installed by the user. To function properly the inlets should be designed for the correct "conveyance capacity" to handle the treatment area without causing flooding and the correct "treatment capacity" to ensure that the volume of water entering the inlet is treated. Since these systems require a long-term commitment to regular maintenance, it is important that the unit selected is properly located to provide easy access, is simple to use and maintain, and is built to be durable.

Catch basin media inserts will only function if they are inspected, cleaned and maintained on a regular basis. Maintenance will generally consist of removing the insert from the catch basin, emptying accumulated sediments, cleaning or replacing the filter media (if applicable), and re–installing the insert. The collected material should be properly disposed of based on the materials removed and state or federal regulations. While most material may be allowed to be disposed of as regular solid waste, materials with oil and grease or other pollutants may require disposal as a special waste.

*** provide photo/graphic of media insert system ***

Filtration Systems - Proprietary stormwater treatment devices which use a filter media may be of particular interest if a facility's sector requires monitoring for a particular pollutant. Manufacturers of filter-type stormwater treatment systems can supply different filter media to target different pollutants. Filter media can be selected to remove total suspended solids (TSS), phosphorus, hydrocarbons, metals or other constituents.

*** provide photo/graphic of a filtration system ***

Infiltration Systems - These proprietary system devices are sometimes buried underground so that the stormwater will drain through them on its way to water bodies or drainage ways. The chambers are sized to slow water as it passes through thereby allowing the grit to settle out. The grit collects in the bottom of the chamber and must be periodically cleaned out. Oil separators, skimmers and other oil-removal devices may be used to remove the oil separately from the sediments.

*** provide photo/graphic of stormceptor of similar system ***

Industrial Facility Types: McHenry County is home to a variety of industries involved in manufacturing, mineral extraction, materials processing, and transportation. These industries have the potential to provide economic opportunity as well as produce water pollution. It is a goal of McHenry County to promote sustainable business development while protecting water resources. As discussed above, the implementation of industrial stormwater BMPs is critical to achieving this goal.

In addition to the general industrial BMPs discussed above, the EPA Industrial Stormwater Checklists (Fact Sheets) can help to identify specific pollutant sources associated with these industries and provide suggestions for BMPs to address them. A brief description of industries found in McHenry County is provided below along with some of the key BMPs that could be considered to protect water resources.

Sand and Gravel Mining – As a result of historical glacial activity, McHenry County contains significant deposits of sand and gravel. The sand and gravel deposits support a large mining industry in McHenry County that extracts and processes the sand and gravel resources. The mining process involves extracting, crushing, washing and sorting the mined sand and gravel. The processed sand and gravel is then sold as material for construction. Sand and gravel is needed for almost any construction project including roads, buildings, construction fill, concrete and asphalt production, and in the production of finished materials like concrete blocks, bricks, and pipes. The sand and gravel mining industry is well established in McHenry County and supports a large number of jobs. Another primary benefit to the public is that having sources of sand and gravel close by helps keep construction costs down. Because of the weight of sand and gravel, costs for these materials increase exponentially the farther they have to be transported M9.

The sand and gravel areas that attract the mining industry are also important groundwater aquifers and aquifer recharge areas. The sand and gravel is porous which allows rain and snowmelt to infiltrate into the ground where it is stored in underground aquifers. McHenry County relies solely on groundwater for its potable water and these sand and gravel aquifers are the primary source of drinking water in the county M1. The layers of sand and gravel overlying the aquifers serve as recharge zones that help protect and maintain groundwater aquifers by regulating infiltration rates and filtering water that seeps through the ground to recharge the water table.

Sand and gravel mining has a number of direct impacts to water resources and a number of potential impacts. Initial direct impacts include the removal of trees, vegetation and soils that can help treat runoff and reduce localized flooding by intercepting, absorbing and filtering precipitation. The mining of sand and gravel removes the recharge layer for aquifers that previously stored water and provided filtration by removing pollutants as water slowly infiltrated through the soil. Mining operations also frequently involves extraction of sand and gravel below the water table thereby removing of all or parts of an aquifer. In these cases, the aquifer is exposed and groundwater may be used as the wash pond to clean the aggregate material. In other cases, stormwater may be collected and used to wash aggregate. Although the mining activity itself does not cause pollution, the exposed or shallow water table is vulnerable to contamination from airborne pollution sources, pollution from spills or leaks, or any pollutant sources that may be imported into the mine. Because of the large number of vehicles and pieces of equipment involved in sand and gravel mining, there is potential for pollution from spills or leaks from the operation, storage, maintenance, and refueling of the vehicles and pieces of equipment.

Historically, some mines allowed for the dumping of waste material such as fill from offsite sources, construction and demolition debris, and other material into the excavated mines. This activity is now regulated under 35 Ill. Adm. Code 1100 by the Illinois EPA, Bureau of Water which allows for the disposal of materials identified as clean construction or demolition debris (CCDD) and uncontaminated soil. CCDD means uncontaminated broken concrete without protruding metal bars, bricks, rock, stone, reclaimed or other asphalt pavement, or soil generated from construction/demolition activities. Uncontaminated soil means soil that does not contain contaminants in concentrations that pose a threat to human health and safety and the environment M10. Beginning July 1, 2008, no person can use CCDD as fill material in a current or former quarry, mine, or other excavation unless they have obtained a permit from the Illinois EPA. Mining operations that comply with the regulations follow specific guidelines to pre-certify fill material before it is accepted and to test samples from loads being trucked in to reduce the potential for contamination.

As long as water is not drained from the mine, the water table should maintain an equilibrium and not create a drop in regional water levels. Historically, gravel operations in McHenry County have not drained water from mines and therefore do not appear to have impacted the capacity of wells in their vicinity. However, without any state or federal regulations that prevent draining, mines could engage in this activity unless it is explicitly prohibited in the special use permits issued by the county or municipalities. Because of the increased risk of groundwater contamination from mining operations, the McHenry County Unified Development Ordinance (UDO) requires water quality monitoring to be conducted throughout the life of the mine. It is advised that municipalities also require monitoring for mines that are built or annexed into their boundaries.

Sand and gravel mining typically results in the presence of deep excavated pits, heavily disturbed ground, and sometimes open water ponds. In the past, mines were frequently abandoned, converted to dumps, or used for other purposes that may not be permitted today. Therefore, proper reclamation is necessary to put mined land into safe, productive use when a mine ceases operations. There are many options for reclamation design depending on the mines location, adjacent land uses, community goals, or other factors. For instance, mined land can be regraded, covered with topsoil, and converted to agricultural use. Recently, there has been increased interest in re-grading the mined land and water features for use as naturalized open space or recreational use. In these cases, the well data collected during mining operations will be important to confirm water quality standards and water levels. It is also critical for all parties (municipality or county, and the mining operator) to have a clear understanding of expectations and obligations for the mine reclamation.

A variety of BMP options are available to eliminate or minimize the presence of pollutants in stormwater discharges from mineral mining and processing facilities. To be effective, a combination or suite of BMPs will likely be needed. Many of the BMPs related directly to mining operations include the use of soil erosion and sediment control techniques, such as the installation of ditches, dikes and settling basins, to collect wash water and divert sediment laden runoff from being released. Other options include 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 spill prevention, control, and clean-up strategies; dust prevention and control; proper waste management practices and regular cleanup, collection and containment of debris in storage areas; 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.

Examples of BMPs for sand and gravel mining operations include:

- Place roads or other sources of sediment and pollution as far as possible from natural drainage areas, lakes, ponds, wetlands, or floodplains.
- Install dikes, curbs, and berms for discharge diversions.
- Install sediment settling ponds and siltation berms.
- Perform all fueling, repairs and maintenance of vehicles and equipment on a concrete pad that is impervious and contained (asphalt is not chemically resistant). Use berms, curbs, or similar means on the concrete pad to ensure that stormwater runoff from other parts of the facility does not flow over the maintenance area. If possible, perform these operations indoors or under cover.
- Use drip pans where leaks or spills of fuel can occur and where making and breaking hose connections.
- Use fueling hoses with check valves to prevent hose drainage after filling
- Discourage "topping off" of fuel tanks.
- Keep spill cleanup materials readily available and train personnel in their use. Clean up leaks, drips, and other spills immediately without using large amounts of water. Use absorbents for dry cleanup whenever possible. Properly dispose of spill and clean-up material (e.g. material collection service).
- Dispose of greasy rags, oil filters, air filters, batteries, spent coolant, and degreasers properly
- 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.
- Label and track the recycling of waste material (e.g., used oil, spent solvents, batteries).
- Collect the stormwater runoff from the cleaning area and provide treatment or recycling.

Refer to EPA Industrial Stormwater Factsheet/Checklist Sector J. Mineral Mining and Processing Facilities for more detailed BMP information.

<u>Automotive Salvage /Metal Scrap Yards:</u> Automotive salvage yards are also commonly referred to as junkyards or auto recycling centers. Salvage yards typically buy cars that are wrecked, unusable or in disrepair and remove all useable parts that can be resold as secondhand parts. When cars arrive at the salvage yard all fluids should be drained, recycled, or properly disposed of. After all useable parts have been removed, the cars are typically sold to metal recycling centers as scrap metal. Activities at automotive salvage yards that can impact stormwater and groundwater include vehicle dismantling; vehicle, equipment, and parts washing; vehicle and parts storage; fueling stations; equipment maintenance and storage; above ground storage tanks; and illicit connections to the storm sewer. Common pollutants are solvents, heavy metals, fuels, oil and grease.

Metal scrap yards/scrap recycling facilities typically purchase scrap metal from virtually anyone who will sell it (as opposed to wholesale/resale). They generally buy metal in quantities such as by the pound or by the ton and pay a base price depending on the type of metal. The metal is then resold to businesses that will recycle it. Common forms of metal brought to scrap yards include appliances, automotive scrap, garage scrap (lawnmowers, bicycles, grills, etc.), electronics, brass, cast iron, copper, lead, tin, and

steel. Activities at scrap and waste recycling facilities that can impact stormwater and groundwater include material loading and unloading, material storage and processing, unrecyclable or hazardous wastes accidently accepted with other wastes, equipment maintenance and storage, fueling stations and above ground storage tanks. Common pollutants are solvents, heavy metals, fuels, antifreeze, hydraulic fluids, oil and grease.

Having access to automotive salvage and scrap metal yards can benefit communities and environment by providing opportunities for residents to safely dispose of metal items so they can be effectively reused or recycled rather than having materials sent to landfills. This close access also helps reduce the incidence of fly dumping. However, these yards can also be a source of pollution and endanger the health of nearby communities if they are not properly maintained, monitored, and regulated. Environmental concerns regarding these facilities include M11:

- Petroleum Hydrocarbons: Vehicles and other motorized equipment contain motor oil, petroleum, gasoline and diesel fuels that contain petroleum hydrocarbons. Petroleum hydrocarbons are toxic to aquatic life and some are suspected or known carcinogens.
- Heavy Metals: Sources of heavy metals on salvage/scrap yards include corrosion of the vehicle and equipment parts, leakage of motor fluids, dismantling operations, and improper handling and storage of vehicle components. Vehicles/equipment are known to have nickel, aluminum, mercury, arsenic, lead and cadmium. Heavy metals can seep into groundwater and migrate to lakes, rivers, and streams through stormwater runoff.
- Acids: There are various acids present at salvage/scrap yards; especially from old vehicle/equipment batteries, solvents and degreasers. Acids significantly impact the chemistry of the soil, which can adversely affect plants and human health, and can create conditions toxic to soil organisms.
- Solids: Suspended solids can move offsite through stormwater runoff into lakes, rivers and streams, reducing clarity through the water column which can affect water temperature, plant growth and dissolved oxygen concentrations. Solids that settle to the water bodies can destroy aquatic habitat.

Examples of BMPs for automotive salvage yards and metal scrap yards include:

- Installation of a consolidated processing area, including a covered and bermed impermeable concrete surface equipped with a drain, where all fluids are collected for safe disposal
- Drain all fluids from vehicles or equipment upon arrival at the site. Segregate the fluids and properly store or dispose of them.
- Use secondary containment for stored liquids such as oil, gas and antifreeze, as well as for lead acid batteries. Provide secondary containment for all drums, empty or used, and all above ground tanks.
- If removing parts from vehicles in the yard is necessary, employ a catch sled, or tray to recover the majority of fluids which will be released. Place drip pans, large plastic sheets, or canvas under vehicles or equipment during maintenance and dismantling activities. Where drip pans are used, they should not be left unattended to prevent accidental spills.
- Promptly transfer used fluids to the proper container
- Do not pour liquid waste down floor drains, sinks, or outdoor storm drain inlets

- Store batteries on impervious surfaces. Curb, dike, or berm this area
- 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.
- Provide covered and sealed containment bins or equivalent for shredded material

Refer to EPA Industrial Stormwater Factsheet/Checklist Sector M: Automobile Salvage Yards and Sector N: Scrap Recycling and Waste Facilities for more detailed BMP information.

Industrial development serves as an important component of the county and its municipalities by providing jobs and economic opportunities. Industries also have the potential to cause pollution of air, water and soil that could adversely impact the health and economic well-being of those around them. With the proper implementation of BMPs, industries can prevent pollution and be beneficial members of the community.

Citations

M1 USGS SIR 2017-5112, Hydrogeology and Water Quality of Sand and Gravel Aquifers in McHenry County, Illinois, 2009–14, and Comparison to Conditions in 1979, page 2
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M3 ISWS CR 2015-02, Changing Groundwater Levels in the Sandstone Aquifers of Northern Illinois and Southern Wisconsin: Impacts on Available Water Supply http://hdl.handle.net/2142/90999
M4 USEPA Developing Your Stormwater Pollution Prevention Plan: A Guide for Industrial Operators, June 2015, EPA 833-B-09-002, page 2, 3, 22
M5 USEPA Developing Your Stormwater Pollution Prevention Plan: A Guide for Industrial Operators
M6 https://www.epa.gov/npdes/industrial-stormwater-fact-sheet-series
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M8 https://www.pca.state.mn.us/water/step-2-consider-certifying-no-exposure
M9 Northwest Herald, March 3, 2018, McHenry County mining, gravel pits a controversial part of local economy
M10 https://www2.illinois.gov/epa/topics/waste-management/waste-disposal/ccdd/Pages/default.aspx
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