



Partnering with business and industry to maintain quality small-town atmosphere.

What Is Stormwater Runoff and What Are Its Impacts?

Stormwater runoff is water from rain or snowmelt that does not immediately infiltrate into the ground and flows over or through natural or man-made storage or conveyance systems. When undeveloped areas are converted to land uses with impervious surfaces such as buildings, parking lots, and roads, the natural hydrology of the land is altered and can result in increased surface runoff rates, volumes, and pollutant loads.

Stormwater runoff picks up industrial pollutants and typically discharges them directly into nearby waterbodies or indirectly via storm sewer systems. Runoff from areas where industrial activities occur can contain toxic pollutants (e.g., heavy metals and organic chemicals) and other pollutants such as trash, debris, and oil and grease, when facility practices allow exposure of industrial materials to stormwater. This increased flow and pollutant load can impair waterbodies, degrade biological habitats, pollute drinking water sources, and cause flooding and hydrologic changes to the receiving water, such as channel erosion.

Industrial facilities typically perform a portion of their activities in outdoor areas exposed to the elements. This may include activities such as material storage and handling, vehicle fueling and maintenance, and shipping and receiving, all of which can result in pollutants being exposed to precipitation and capable of being carried off in stormwater runoff. Also, facilities may have performed industrial activities outdoors in the past and materials from those activities still remain exposed to precipitation. In addition, accidental spills and leaks, improper waste disposal, and illicit connections to storm sewers may also lead to exposure of pollutants to stormwater.¹

Six Types of Activities that have Potential to be Pollutants in Stormwater

1. 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.

2. 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 solid materials wash off or materials dissolve into solution.

3. 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.

4. 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, cement manufacturing, and refractories, also generate significant levels of dust that can be mobilized in stormwater runoff.

5. 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.

¹From "Developing Your Stormwater Pollution Prevention Plan: A Guide for Industrial Operators," by Environmental Protection Agency, 2009, EPA 833-B-09-002

²From "Best Management Practices For Industrial Storm Water Pollution Control," by Sacramento Stormwater Management Program.

6. 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.¹

Stormwater Pollution Prevention

1. Prevent water from contacting working areas

Shipping areas, outdoor equipment, material storage areas, vehicle maintenance spaces, and working areas of all sorts are subject to contamination with raw materials, process liquids, grease, oily wastes, vehicle fluids, heavy metals, and miscellaneous potential pollutants. If you prevent stormwater, wash water, or water from other sources from contacting areas exposed to pollutants, you will be less likely to discharge pollutants into your storm drains.

- Keep rainfall from directly contacting working areas, by installing roofs, placing structures, or moving industrial operations indoors.
- Prevent run-on stormwater from contacting industrial areas, indoors or out by using properly designed berms or grading. Run-on is water that flows across the industrial area. It picks up pollutants as it flows.
- Avoid practices where you use water that later enters the storm drains. For instance, washing in outdoor areas. Most of these practices, including many that were acceptable in the past, are now considered to be "illegal dumping" of non-storm water to the storm drain.

2. Keep pollutants off surfaces that come into contact with water.

Evaluate your site carefully to identify all areas that are contacted by storm water, wash water, cooling water that is otherwise unpolluted, or other water that is allowed to be discharged to the storm drain. Then take special care to keep pollutants off these surfaces. That means controlling minor leaks and spills that you might otherwise overlook, and taking a close look at your operating routines and equipment to determine whether any substances are exposed to storm water that do not need to be.

3. Manage stormwater before it is discharged to the storm drain.

If you can't avoid adding pollutants to stormwater, you may need to remove pollutants to meet water quality requirements before discharge. Stormwater control regulations consider treatment as a last resort and emphasize source control options because they are usually less costly and more effective in the long run.²

Stormwater Millersburg Permit Requirements

Federal and state storm water regulations now require many kinds of industrial facilities to take steps to prevent stormwater pollution.² Below is a list of permits that may be required in the City of Millersburg.

- City of Millersburg Grading permit
- City of Millersburg Post Construction Stormwater Quality permit
- City of Millersburg Erosion Control permit
- NPDES 1200-C permit



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