Industrial Stormwater

Fact Sheet Series

Sector H: Coal Mines and Coal Mining-Related Facilities

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What is the NPDES stormwater permitting program for industrial activity?

Activities, such as material handling and storage, equipment maintenance and cleaning, industrial processing or other operations that occur at industrial facilities are often exposed to stormwater. The runoff from these areas may discharge pollutants directly into nearby waterbodies or indirectly via storm sewer systems, thereby degrading water quality.

In 1990, the U.S. Environmental Protection Agency (EPA) developed permitting regulations under the National Pollutant Discharge Elimination System (NPDES) to control stormwater discharges associated with eleven categories of industrial activity. As a result, NPDES permitting authorities, which may be either EPA or a state environmental agency, issue stormwater permits to control runoff from these industrial facilities.

What types of industrial facilities are required to obtain permit coverage?

This fact sheet specifically discusses stormwater discharges from coal mines and coal mining-related facilities as defined by Standard Industrial Classification (SIC) Major Group Code 12. Facilities and products in this group fall under the following categories, all of which require coverage under an industrial stormwater permit if discharges of stormwater have come into contact with any overburden, raw material, intermediate products, finished product, byproduct or waste products located on the site of such operations:

- Bituminous coal and lignite surface mining (SIC 1221)
- Bituminous coal underground mining (SIC 1222)
- Anthracite mining (SIC 1231)
- Coal mining services (SIC 1241)

An industrial stormwater permit is required for stormwater discharges associated with coal mining activities from the following areas:

- Haul roads
- Access roads
- Railroad spurs, sidings, and internal haulage lines
- Conveyor belts, chutes, and aerial tramway haulage areas
- Equipment storage and maintenance yards
- Coal handling buildings and structures
- Inactive coal mines and related areas

A stormwater permit generally is not appropriate for the following types of coal mines:

- Sites or parts of sites which are determined to cause or contribute to water quality standards violations
- Active facilities and those under reclamation, which have discharges subject to effluent limitation guidelines under NPDES, including other non-stormwater discharges such as from floor drains in maintenance buildings and preparation plant areas
- Inactive coal mines located on Federal lands, unless an operator can be identified
- Pollutant seeps or underground drainage from inactive coal mines and refuse disposal areas that do not result from precipitation events.

For these types of sites, contact the EPA or state NPDES permitting authority to determine if and what type of discharge permit may be necessary.

What does an industrial stormwater permit require?

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

What pollutants are associated with activities at my facility?

Pollutants conveyed in stormwater discharges from active haul roads, access roads, and rail lines; inactive coal mines; and coal mining-related facilities will vary. There are a number of factors that influence to what extent significant materials from coal mines and coal mining-related facilities can affect water quality.

- Geographic location
- Hydrogeology
- Topography
- Extent of impervious surfaces (e.g., concrete or asphalt)
- Type of ground cover (e.g., vegetation, crushed stone, or dirt)
- Outdoor activities (e.g., material storage, loading/unloading, vehicle maintenance)
- Type of coal extracted
- Mineralogy of the extracted resource and the surrounding rock (overburden)
- How the coal was extracted
- Size of the operation
- Type, duration, and intensity of precipitation events
- Historical activities (e.g., past mining activities)

The activities, pollutant sources, and pollutants detailed in Table 1 are commonly found at coal mines and coal mining-related facilities.

Table 1. Common Activities, Pollutant Sources, and Associated Pollutants at Coal Mine and Coal Mining-Related Facilities

Activity	Pollutant Source	Pollutant
Road and Rail Construction and Maintenance - Active Sites	Surface grading and exposure of soils	Dust, Total suspended solids (TSS), Total dissolved solids (TDS), turbidity, pH and oil and grease
Raw or Waste Material Transportation	Material spills	Dust, TSS, TDS, turbidity, sulfates, and iron
Mining and Processing Activities at Inactive Coal Mines	Raw Material Storage	Dust, TSS, TDS, turbidity, pH sulfates, iron
	Overburden Storage	Dust, TSS, TDS, turbidity, sulfates, iron, pH
	Disposal Areas	Dust, TSS, TDS, turbidity, pH, oil & grease
	Surface and Underground Mines	Dust, TSS, TDS, turbidity, pH sulfates, iron
	Materials Handling and Loading/ Unloading	Dust, TSS, TDS, turbidity, pH sulfates, iron
Equipment/Vehicle Maintenance	Fueling Activities	Diesel fuel, gasoline, oil, chemical oxygen demand (COD)
	Parts cleaning	Solvents, oil, heavy metals, acid/ alkaline wastes
	Waste disposal of oily rags, oil and gas filters, batteries, coolants, decreases	Oil, heavy metals, solvents, acids, COD
Reclamation Activities	Site preparation for stabilization	Dust, TSS, TDS, turbidity, pH

Acid mine drainage can be a problem at coal mining operations in certain areas. In general, the problems of acid mine drainage are confined to western Maryland, northern West Virginia, Pennsylvania, western Kentucky, and along the Illinois-Indiana border. Acid mine drainage from coal mines is not a problem in the West because the coals and overburden contain little pyrite, the precursor for acid mine drainage, and because of low annual precipitation.

Stormwater discharges from inactive and abandoned coal mines, preparation, refuse disposal sites, haul roads, and other inactive mining-related areas may also contain substantial amounts of pollutants including acids, suspended solids, dissolved solids, iron, manganese, and traces of other metals due to the lack of sediment and erosion control measures.

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 coal mines and coal mining-related facilities. However, mining facilities are often dissimilar to other types of industrial facilities because they may be situated in remote locations, and/or operate only seasonally or intermittently, yet need year-round stormwater management controls. 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 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.

- Sweeping (where practical)
- Covering storage areas
- Immediately clean up leaks and spills
- Watering haul roads to minimize dust generation
- Conserving/preserving vegetation
- Regularly scheduled inspections of potential problem areas

Minimizing Exposure

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

Erosion and Sediment Control

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

Most active coal mining areas are subject to the sediment and erosion control requirements under the Surface Mining Control and Reclamation Act (SMCRA).

SMCRA Requirements

Hydrologic Balance (30 CFR 816.42): discharges from areas disturbed by surface mining activities must meet all applicable State and Federal water quality laws and regulations including effluent limitations promulgated by EPA under 40 CFR Part 434.

Sediment control measures(30 CFR 816.45): must be designed, constructed and maintained using the best technology currently available to prevent, to the extent possible, additional contributions of sediment to streamflow or to runoff outside the permit area. The regulations note that sediment control methods should include but not be limited to: retaining sediment within disturbed areas; diverting runoff away from disturbed areas; diverting runoff using protected channels or pipes through disturbed areas so as not to cause additional erosion; and using straw dikes, riprap, check dams, mulches, vegetative sediment filters, dugout ponds, and other measures that reduce overland flow velocity, reduce runoff volume, or trap sediment.

Discharge structures (30 CFR 816.47): Discharges from sediment ponds, impoundments, and diversions must be controlled by energy dissipaters, riprap channels, and other devices, where necessary, to minimize disturbance to the hydrologic balance.

These primary requirements for mining related areas are subject to SMCRA authority. For more information contact your state regulatory authority or the Office of Surface Mining (**www.osmre.gov/osm.htm**).

Management of Runoff

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

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

BMPs Focused on Coal Mines and Related Facilities

EPA has identified a wide variety of BMPs that may be used specifically to mitigate discharges of contaminants at coal mines. Many of the practices focus on sediment and erosion control and are similar to BMPs used in the construction industry. For more details on the use and implementation of these practices you are encouraged to obtain a copy of one or more the many good sediment and erosion control books available on the market. The following categories describe best management practice options for reducing pollutants in stormwater discharges at active coal mines and for inactive mines.

- **Discharge Diversions.** Discharge diversions provide the first line of defense in preventing the contamination of discharges. Discharge diversions are temporary or permanent structures installed to divert flow, store flow, or limit stormwater run-on and runoff.

  Diversion structures have several objectives. First, they should be designed to prevent otherwise uncontaminated (or less contaminated) water from crossing disturbed areas or areas containing significant amounts of contaminated materials, reducing contact between run-on and pollutants. These measures may be particularly effective for inactive coal mine sites by directing flows away from potential contaminants. Second, diversion structures can be used to collect or divert waters for later treatment, if necessary. Factors such as the size of the area to be controlled and the type and nature of materials exposed and nature of precipitation events limit the usefulness of these control measures.

  Diversion dikes, curbs, and berms are temporary or permanent diversion structures that contain or direct the flow of runoff. These structures may be used to surround and isolate areas of concern, diverting flow around piles of overburden and storage areas, to minimize discharge contact with pollutants and to limit the volume of contaminated water discharged from the confined areas.

- **Drainage/Stormwater Conveyance Systems.** Drainage or stormwater conveyance systems can provide either a temporary or a permanent management practice that functions to channel water away from eroded or unstabilized areas without causing erosion. The use of drainage systems as a permanent measure may be most appropriate in areas with extreme slopes, areas subject to high velocity runoff, and other areas where the establishment of substantial vegetation is infeasible or impractical. Some examples of drainage/stormwater conveyance systems include:
  - *Lined channels or gutters*
  - *Open top box culverts and waterbars*
  - *Rolling dips and road sloping*
  - *Roadway surface water deflectors*
  - *Culverts*
- **Runoff Dispersion.** Drainage systems are most effective when used in conjunction with runoff dispersion devices designed to slow the flow of water discharged from a site. These devices also aid stormwater infiltration into the soil and flow attenuation. Some examples of velocity dissipation devices include:
  - *Check dams*
  - *Rock outlet protection*
  - *Level spreaders*
  - *Serrated slopes and benched slopes*
  - *Contouring*
  - *Drop structures*
- **Sediment Control and Collection.** Structural practices are used to control and collect sediment, limiting or preventing its transportation offsite. Several methods of removing sediment from site runoff involve methods previously discussed, supplemented by a trapping or storage device. Structural practices such as straw bale dikes, silt fences, brush barriers or vegetated areas can be used temporarily to filter or diffuse stormwater runoff.

  Structural practices are typically low in cost; however, they require periodic maintenance and removal of sediment to remain functional. As such, they may not be appropriate for permanent use at inactive mines. These practices may be effectively used as temporary measures along haul roads and access roads. Several examples of sediment control and collection BMPs include:
  - *Geotextiles (plastic matting, plastic netting, erosion control blankets)*
  - *Mulching (mulch-straw, wood chips)*
  - *Gabions, riprap, and native rock retaining walls*
  - *Biotechnical stabilization*
  - *Vegetated buffer strips*
  - *Silt fence/filter fence*
  - *Siltation berms*
  - *Brush sediment barriers*
  - *Sediment traps or catch basins*
  - *Sediment/settling ponds*
- **Vegetation Practices.** Vegetation practices involve establishing a sustainable ground cover by temporary or permanent seeding, mulching, sodding, and other such practices. A vegetative cover reduces the potential for erosion of a site by: absorbing the kinetic energy of raindrops

which would otherwise impact soil; intercepting water so it can infiltrate into the ground instead of running off and carrying contaminated discharges; and by slowing the velocity of runoff to promote on-site deposition of sediment.

Typically, the costs of vegetative controls are low relative to other discharge mitigation practices. Given the limited capacity to accept large volumes of runoff, and potential erosion problems associated with large concentrated flows, vegetative controls should typically be used in combination with other management practices.

- **Capping.** Capping or sealing of waste materials is designed to prevent infiltration, as well as to limit contact between discharges and potential sources of contamination. Ultimately, capping should reduce or eliminate the presence of capped materials or byproducts (e.g. acid mine drainage) in the discharges. Reducing infiltration also reduces the potential for seepage and leachate generation.

  In some cases, capping contaminant sources may be the most cost effective control measure for some discharges from inactive coal facilities. Depending on the type of management practices chosen the cost to eliminate the pollutant source may be very high. Once completed, however, maintenance costs will range from low to nonexistent.

  The use of capping depends on the level of control desired, the materials available, and cost considerations. Many common materials may be effective including common soil, clay, and/or synthetic liners. Generally, soil will provide appreciable control for the lowest cost. Synthetic liners or clay may be appropriate to cover materials known to have a significant potential to impact water quality.

- **Treatment.** In some cases (e.g., low pH and/or high metals concentrations), sediment and erosion controls BMPs may not be adequate to produce an acceptable quality of stormwater discharge. Under those circumstances additional physical or chemical treatment systems may be necessary to protect the receiving waters. Treatment focuses on reducing or removing pollutants from a discharge as opposed to BMPs that emphasize keeping the water from becoming contaminated. These practices are usually the most resource intensive as they often entail significant construction costs and require monitoring and maintenance on a frequent and regular basis.

  The amount of maintenance required for treatment would depend on the method selected. High maintenance treatment techniques require periodic manpower to operate and maintain but may be lower in initial costs. Low maintenance cost techniques may have higher initial capital costs but operate with little long-term maintenance after they are implemented.

  An example of a high maintenance technology that is found at coal mining facilities is chemical/physical treatment. The most common type of chemical/physical treatment involves the addition of limestone to reduce the acidity of the discharge and/or remove metals. Metals may be removed from stormwater by raising the pH of the stormwater to precipitate them out as hydroxides. Typically, the pH of the wastewater must be raised to 9 to 12 standard units in order to achieve the desired precipitation of metals. After metals precipitation, the addition of some form of acid or carbon dioxide may be required to reduce the pH to acceptable levels. Polymer addition may be required to enhance the settling characteristics of the metal hydroxide precipitate and sludge generated in the process must be periodically removed from the treatment unit. In general, this practice requires significant operator participation to ensure proper neutralization and/or precipitation and thus may not be cost effective for most stormwater discharges.

  The use of artificial wetlands is another method of treating stormwater from inactive coal mines. There has been extensive research on the use of artificial wetlands as a means of mitigating acid mine drainage. They can be an effective system for improving water quality either alone or in conjunction with other treatment practices. The complex hydrologic, biological, physical, and chemical interactions that take place within a wetland result in a natural reduction and cleansing of influent pollutants. Wetland processes are able to filter

sediments, and absorb and retain chemical and heavy metal pollutants through biological degradation, transformation, and plant uptake.

Artificial wetlands are designed to maintain a permanent pool of water. Properly installed and maintained retention structures (also known as wet ponds) and artificial wetlands will be most cost-effective when used to control runoff from larger, intensively developed sites. These artificial wetlands are created to provide treatment can also provide a wildlife habitat, and may enhance recreation and landscape amenities.

The use of natural wetlands as part of the treatment system is inappropriate because many are considered to be waters of the United States. Discharges to natural wetlands in this category must meet the requirements of the permit at the outfall. Therefore, the necessary controls, or BMPs, must be provided prior to discharging the stormwater runoff to natural wetlands or any other receiving waters.

BMPs for Site Activities

The following four areas include those land disturbance areas at active and inactive coal mining facilities that require the implementation of BMPs.

- **Haul Roads and Access Roads.** Placement of haul roads or access roads should occur as far as possible from natural drainage areas, lakes, ponds, wetlands or floodplains where soil will naturally be less stable for heavy vehicle traffic. If a haul road must be constructed near water, as little vegetation as possible should be removed from between the road and the waterway, as vegetation is a useful buffer against erosion and is an efficient sediment collection mechanism. The width and grade of haul or access roads should be minimal and should be designed to match natural contours of the area. Construction of haul roads should be supplemented by BMPs that divert runoff from road surfaces, minimize erosion, and direct flow to appropriate channels for discharge to treatment areas. Existing haul roads and nearby ditches, without BMPs, can be altered or modified to accommodate the construction of BMPs.
- **Equipment/Vehicle Fueling and Maintenance.** Fueling and maintenance activities should be conducted indoors or under cover on an impermeable surface. Berms, curbs, or similar means should be used to ensure that stormwater runoff from other parts of the facility does not flow over maintenance and fueling areas. Runoff from fueling and maintenance areas should be collected and treated or recycled. Proper waste management and spill prevention and response procedures should be implemented. Select good housekeeping procedures to minimize the amount of contaminated runoff generated (e.g., use dry cleanup methods, use drip pans, and drain parts of fluids before disposal). Conduct inspections of fueling areas to prevent problems before they occur.
- **Surface Mines.** BMPs can be used to control total suspended solids levels in runoff from unvegetated areas. These can include sediment/settling ponds, check dams, silt fences, and straw bale barriers.
- **Overburden and Raw Material Piles.** Overburden and topsoil should be stabilized, recontoured if necessary, and vegetated (even if only on a temporary basis). Surface waters and stormwater should be diverted around the piles.
- **Reclamation Activities.** When a coal seam is depleted and operations cease, a mine site must be reclaimed according to appropriate state or federal standards. Closure activities typically include restabilization of disturbed areas such as access or haul roads, pits, and sedimentation ponds. Overburden and topsoil stockpiles may be used to fill in a pit. Recontouring and revegetation should be performed to stabilize soils and prevent erosion.

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

Implement BMPs, such as those listed below in Table 2 for the control of pollutants at coal mines and coal mining-related facilities, to minimize and prevent the discharge of pollutants in stormwater. Identifying weaknesses in current facility practices will aid the permittee in determining appropriate BMPs that will achieve a reduction in pollutant loadings. BMPs listed in Table 2 are broadly applicable to coal mines and coal mining-related facilities; however, this is not a complete list and you are recommended to consult with regulatory agencies or a stormwater engineer/consultant to identify appropriate BMPs for your facility.

Table 2. BMPs for Potential Pollutant Sources at Coal Mine and Coal Mining-Related Facilities

Activity	BMPs
Site preparation: haul roads and access roads	❑ Construction of haul roads should be supplemented by BMPs that divert runoff from road surfaces, minimize erosion, and direct flow to appropriate channels for discharge to treatment areas: - Install dikes, curbs, and berms for discharge diversions. - Install conveyance systems such as channels, gutters, culverts, rolling dips and road sloping, and roadway water deflectors. - Install turnouts (i.e., extensions of roadside ditches) to direct stormwater into well stabilized areas. - Use check dams, rock outlet protection, level spreaders, stream alternation, and drop structures for runoff dispersion. ❑ Install gabions, riprap, native rock retaining walls, straw bale barriers, sediment traps/catch basins, and vegetated buffer strips for sediment control and collection. ❑ Keep as much vegetation as possible when building roads and seed as necessary. ❑ Place as far as possible from natural drainage areas, lakes, ponds, wetlands, or floodplains. ❑ Width and grade of roads should be as small as possible to meet regulatory requirements and designed to match the natural contours of the area. ❑ Frequently inspect all stabilization and structural erosion control measures and perform all necessary maintenance and repairs.
Mineral extraction: Pits/quarries or underground mines	❑ Install dikes, curbs, and berms for discharge diversions to control run-off and run-on. ❑ Install conveyance systems such as channels and gutters to control run-off and run-on. ❑ Use serrated slopes, benched slopes, contouring, and stream alteration to avoid discharge from, a pit. ❑ Install sediment ponds, check dams, straw bale barrier, and siltation berms. ❑ Keep as much vegetation as possible when excavating and seed as necessary to minimize the amount of exposed soils.
Mineral extraction and processing: Overburden, waste rock, and raw material piles	❑ Overburden, topsoil, raw material, intermediate and final product stockpiles should be located away from surface waters and other sources of run-on, as well as geologically unstable areas. ❑ Install dikes, curbs, and berms for discharge diversions to control run-off and run-on. ❑ Install conveyance systems such as channels and gutters to control run-off and run-on. ❑ Use serrated slopes, benched slopes, contouring, and stream alteration around piles for runoff dispersion. ❑ Install plastic matting and netting, erosion control blankets, mulch straw, and/or compaction to control erosion. ❑ Stabilize and recontour piles as necessary. ❑ Vegetate as many piles as possible, even if temporary (involves topsoiling, seedbed preparation, and/or seeding). ❑ Install sediment/settling ponds, silt fences, and siltation berms to control sediment transport.

Table 2. BMPs for Potential Pollutant Sources at Coal Mine and Coal Mining-Related Facilities (continued)

Activity	BMPs
Reclamation	❑ Install dikes, curbs, and berms for discharge diversions. ❑ Install conveyance systems such as channels and gutters. ❑ Use check dams, rock outlet protection, level spreaders, stream alternation, drop structures, serrated slopes, benched slopes, contouring, and stream alteration for runoff dispersion. ❑ Install gabions, riprap, native rock retaining walls, straw bale barriers, sediment traps/catch basins, biotechnical stabilization, silt fences, siltation berms, brush sediment barriers and vegetated buffer strips for sediment control and collection. ❑ Recontouring and vegetation should be performed to stabilize soils and prevent erosion in mined out portions or inactive areas of the site as active mining moves to new areas (includes topsoiling, seedbed preparation, and seeding). ❑ If a quarry is being converted into a reservoir or recreational area, disturbed areas above the quarry rim must still be reclaimed. ❑ Use containment (capping, plugging, and grouting). ❑ Use overburden and topsoil stockpiles to fill in a pit/quarry (when practical).
Fueling activities	❑ Conduct fueling operations (including the transfer of fuel from tank trucks) on an impervious or contained pad or under a roof or canopy where possible. Covering should extend beyond spill containment pad to prevent rain from entering. ❑ When fueling in uncovered area, use a concrete pad (not asphalt which is not chemically resistant to the fuels being handled). ❑ 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. ❑ Keep spill cleanup material readily available. Clean up spills and leaks immediately. ❑ Minimize/eliminate run-on onto fueling areas with diversion dikes, berms, curbing, surface grading or other equivalent measures. ❑ Collect stormwater runoff and provide treatment or recycling. ❑ Use dry cleanup methods for fuel area rather than hosing the fuel area down. Follow established practices for sweeping up absorbents as soon as spilled substances have been absorbed. ❑ Perform preventive maintenance on storage tanks to detect potential leaks before they occur. ❑ Inspect the fueling area to detect and correct potential problems, including routine maintenance on equipment. ❑ Train personnel on fueling procedures established in the SWPPP. ❑ Provide curbing or posts around fuel pumps to prevent collisions during vehicle ingress and egress. ❑ Discourage "topping off" of fuel tanks.
Equipment/vehicle maintenance	Good Housekeeping ❑ Eliminate floor drains that are connected to the storm or sanitary sewer; if necessary, install a sump that is pumped regularly. Collected wastes should be pumped to a wastewater treatment system or removed from the site by a licensed waste hauler. ❑ Use drip plans, drain boards, and drying racks to direct drips back into a fluid holding tank for reuse.

Table 2. BMPs for Potential Pollutant Sources at Coal Mine and Coal Mining-Related Facilities (continued)

Activity	BMPs
Equipment/vehicle maintenance (continued)	Good Housekeeping (continued) ❑ Drain all parts of fluids prior to disposal. Oil filters can be crushed and recycled. Promptly transfer used fluids to the appropriate waste container(s); do not leave full drip pans or other open containers around the shop. Empty and clean drip pans and containers. ❑ Dispose of greasy rags, oil filters, air filters, batteries, spent coolant, and degreasers properly. ❑ Store batteries and other significant materials inside. ❑ Label and track the recycling of waste material (e.g., used oil, spent solvents, batteries). ❑ Maintain an organized inventory of materials. ❑ Eliminate or reduce the amount of hazardous materials used and amount of waste by substituting nonhazardous or less hazardous materials. ❑ Clean up leaks, drips, and other spills without using large amounts of water. ❑ Prohibit the practice of hosing down an area where the practice would result in the exposure of pollutants to stormwater. ❑ Clean without using liquid cleaners whenever possible. ❑ Do all cleaning at a centralized station so the solvents stay in one area. ❑ If parts are dipped in liquid, remove them slowly to avoid spills. ❑ Do not pour liquid waste down floor drains, sinks, outdoor storm drain inlets, or other storm drains and/or sewer connections. Minimizing Exposure ❑ Perform all cleaning operations indoors or under covering when possible. Conduct the cleaning operations in an area with a concrete floor with no floor drainage other than to sanitary sewers or treatment facilities. ❑ If operations are uncovered, perform them on a concrete pad that is impervious and contained. ❑ Park vehicles and equipment indoors or under a roof whenever possible where proper control of oil leaks/spills is maintained and exposure to stormwater is prevented. ❑ Watch vehicles closely for leaks and use pans to collect fluid when leaks occur. Management of Runoff ❑ Use berms, curbs, or other diversion measures to ensure that stormwater runoff from other parts of the facility does not flow over the maintenance area. ❑ Collect the stormwater runoff from the cleaning area and provide treatment or recycle runoff. Discharge vehicle wash or rinse water to the sanitary sewer (if allowed by sewer authority), wastewater treatment, a land application site, or recycled on-site. DO NOT discharge washwater to a storm drain or to surface water. Inspections and Training ❑ Inspect the maintenance area regularly for proper implementation of control measures. ❑ Train employees on waste control and disposal procedures identified in the SWPPP.

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

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

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

Where do I get more information?

For additional information on the industrial stormwater program see **www.epa.gov/npdes/stormwater/msgp**.

A list of names and telephone numbers for each EPA Region or state NPDES permitting authority can be found at **www.epa.gov/npdes/stormwatercontacts**.

References

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

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