

# MARYLAND DEPARTMENT OF THE ENVIRONMENT

1800 Washington Boulevard Baltimore Maryland 21230  
(410) 537-3000 1-800-633-6101 <http://www.mde.state.md.us>

## FACT SHEET

Tentative Determination General Discharge Permit No. 11-CM  
NPDES Permit No. MDG85  
Surface Coal Mines and Related Facilities

### Background

General permits are discharge permits issued for classes of discharges which are the result of particular operations or treatment processes with similar effluent characteristics. The permit provides effluent limitations and conditions that the discharges must meet, and is subject to the same compliance responsibilities as individual discharge permits. The Maryland Department of the Environment (Department) improves the efficiency of its National Pollution Discharge Elimination System (NPDES) Permit Program by issuing general permits to cover similar types of discharges and, at the same time, provides a service to the regulated community by reducing the time necessary to obtain a permit.

This general permit addresses a variety of discharges from surface coal mines and related facilities. Both federal (U.S. Environmental Protection Agency (EPA) Regulations at 40 CFR Part 122 and 434) and state (COMAR 26.08.04) regulations require discharge permits; specifically, state regulations require that all discharges of wastes or wastewater regardless of volume shall be authorized by a discharge permit. This includes discharges to surface or ground waters. Federal regulations address discharges to surface waters only.

The Department is revising this permit to clarify eligible discharges based on inquiries since the last permit was issued. These changes include: inclusion of surface remining areas, items required under the application process, submission of a site map at time of application, revised reapplication/application dates, addition of settleable solids and temperature limits for active mining discharges, temperature limits for post mining reclamation areas, requirement to complete a storm water pollution prevention plan at time of application, and TMDL and anti-degradation conditions. Changes included within this proposed permit are clarified below.

### Facilities subject to this permit

This permit covers discharges to surface and ground waters of the State of Maryland from Surface Coal Mines and related facilities. This includes any coal mine at which the extraction of coal is taking place or is planned to be undertaken and to coal preparation plants and associated areas.

### Eligible Discharges

Discharges result from ground water infiltration, storm water and process water in active mine drainage, post-mining areas and coal preparation plants and associated areas. Water is used in the mining of coal primarily for dust suppression (i.e., haul roads, continuous minters, conveyor belts, coal stockpiles in some cases, etc.) and equipment cooling. Coal mines often occupy hundreds of acres of land subject to a high amount of precipitation. Water that enters mine areas because of precipitation, ground water infiltration, and surface runoff is a hindrance; removal of water from the active mining area is required at most mines to ensure the continuity, efficiency and safety of the mining operation.

Water use in coal preparation differs from that in coal mining. Here, water is intentionally introduced into the coal preparation process. Unit operations such as wet screening, tables, jigs, cyclones, gravity separation, heavy media separation and froth flotation require water. Water is also used for dust control, equipment cooling and as a medium to transport coal between unit operations.

This permit authorizes discharges from all new and existing discharges of storm water runoff and ground water seepage to surface waters of this state from surface coal mines, including active mining areas, access roads, coal mine reclamation areas, and associated coal storage and loading areas (tipples). This permit also covers storm water from independent tipples and coal preparation plants. This permit authorizes discharges from coal re-mining facilities. The wastewater from surface coal mines and related facilities contains iron, manganese, variable pH, solids, fluctuation in temperature, selenium, and various metals.

Regarding re-mining sites, the eligibility pertains to locations where the operator is willing to accept the limits of this permit. For sites that need to operate under the shelter of the re-mining regulations, an individual permit is the only option.

This permit sets numerical limits on the concentration of the above-mentioned pollutants of concern. The limits are based on what has been demonstrated to be technologically achievable and adequate to protect water quality. This permit contains operational requirements, such as inspection routines and erosion prevention. This permit limits these parameters both directly and indirectly, by establishing end-of-pipe numerical limits and by requiring operational measures to prevent the generation of pollutants or their entrainment in the discharge. If there are other significant pollutants likely to be discharged from a facility, then the Department may require an individual permit for that facility. New facilities may not be eligible for coverage under this permit if they discharge to a stream(s) on the state's 303(d) list, or to a stream(s) for which a Total Maximum Daily Load(s) (TMDL) has been established.

### **Origins of the numerical limits**

Maryland permits include limits based on protection of water quality standards and available technology. Because a general permit applies to facilities in many parts of the state, it must reflect the most stringent conditions necessary to protect water quality.

Water quality-based limits are derived from water quality criteria, which the Department establishes in its regulations, [COMAR](http://www.dsd.state.md.us/comar/) 26.08.02 (<http://www.dsd.state.md.us/comar/>). Water quality criteria describe the physical and chemical conditions to support water contact recreation, fishing, aquatic life, wildlife, use as public water supply, and consumption of fish and shellfish.

The control of settleable solids and pH during rainfall periods is required under 40CFR434. These limitations will apply for increases in overflows resulting from rainfall events (or snowmelts of equivalent volumes) less than or equal to the 10-year, 24-hour storm. If a larger event occurs, operators will be required to comply with a pH limitation. Facilities will not be required to have a pond which can contain the runoff from a 10-year, 24-hour storm in order to qualify for the alternate limitations; rather, facilities are eligible for these alternate limitations regardless of the type of treatment facility. pH must be controlled for all storms regardless of their size. Settleable solids were selected for regulation because pond performance during precipitation or increased flows due to snowmelt is more consistent with regard to this parameter than for total suspended solids effluent levels.

The major sources of wastewater in coal mining include precipitation, surface runoff, ground water infiltration, and effluents from coal preparation plants. No process water is used in the

mining phase, except for minor consumption in dust suppression, pump coolants, and firefighting needs. Therefore, pollution abatement in this industry must be approached differently than other industries with reliance on operating and management practices for wastewater source control as well as end-of-pipe treatment technologies. In the preparation phase, water is used to clean the raw coal. Water usage is typically 350 gallons per ton sand and is laden with coal and refuse fines which must be removed prior to discharge or reuse.

### **Discharge specific limits**

- A. Turbidity:** This permit limits active mining area discharges to 100 NTU's as a daily maximum, and 50 NTU's as a monthly average. The numeric limit is the maximum value for water quality protection in accordance with effluent limitations established in 40CFR434. Turbidity is a measure of water clarity; how much the material suspended in water decreases the passage of light through the water. Turbidity can affect the color of the water. Higher turbidity increases water temperatures because suspended particles absorb more heat. This in turn reduces the concentration of dissolved oxygen (DO) because warm water holds less DO than cold. Higher turbidity also reduce the amount of light penetrating the water, which reduces photosynthesis and the production of DO. Suspended materials can clog fish gills, reducing resistance to disease in fish, lowering growth rates, and affecting egg and larval development. As the particles settle, they can blanket the stream bottom, especially in slower waters, and smother fish eggs and benthic macroinvertebrates. Sources of turbidity include: soil erosion, waste discharge, eroding stream banks, and excessive algal growth.
- B. Total Suspended Solids:** This permit limits active mining area discharges to 70 mg/L as a daily maximum, and 35 mg/L as a monthly average. The numeric limits are representative of the "Best Practicable Control Technology Available" (BPT) and "Best Available Technology Economically Achievable" (BAT) requirements for these types of discharges pursuant to 40CFR434. Suspended solids result from erosion of scarified areas, where vegetation has been removed. The level of sediment concentration in runoff is a function of: slope of the area, residual vegetation, soil type, surface texture, drainage area, precipitation intensity and duration, existing soil moisture, and particle or aggregate size. The number and interaction of these variables render wide variations in raw wastewater from day to day in any one mine, and from mine to mine in a given region. The phenomena responsible for the formation of acid mine drainage in the active mining area can also operate within the coal storage pile. The outer layer of a coal pile (to a depth of approximately one foot) is subject to slacking. Slacking refers to rapid changes in moisture content brought about by alternating sun and rain. This often opens up fresh surfaces and accelerates oxidation. Although organic leaching rates are very low, specific inorganic coal components such as calcium, magnesium, and toxic metals may be contained in the wastewater. Erosion of waste coal fragments can result in high suspended solid levels.
- C. Iron & Manganese:** These two nonconventional pollutants require control. These are effectively reduced by application of Best Professional Technology (BPT). Therefore the Department uses the EPA promulgated BAT limits for iron and manganese equivalent to the BPT levels. The permit limits active mining area discharges for Total Iron to 6.0 mg/L as a daily maximum, and 3.0 mg/L as a monthly average. The permit limits active mining area discharges for Total Manganese to 4.0 mg/L as a daily maximum, and 2.0 mg/L as a monthly average. Monitoring of manganese is only required when wastewater is acid or ferruginous mine drainage. The permittee shall indicate on each monthly monitoring report if a neutralizing agent is being used to treat acid or ferruginous mine drainage.

- D. pH:** The discharge of acidic wastewater to surface waters can kill aquatic life, and discharges to ground water can damage the potability of the water supply. Because of the natural buffering capacity of the receiving waters, the Department chose to apply technology limits (6.0 to 9.0 standard units) only on the assumption that there would be enough buffering capacity in any receiving water to accommodate the slight difference between this range and the water quality standard of 6.5 to 8.5. The discharge cannot cause the pH of the receiving stream to fluctuate more than 1.0 standard unit over a 24-hour period. Additionally, if there is a TMDL limit assigned to a facility that limit shall supersede the limits of 6.0-9.0 standard units.
- E. Settleable Solids:** For precipitation events less than the 10-year, 24-hour storm event, a settleable solids effluent limit of 0.5 mg/L daily maximum not to be exceeded applies for most mining operations. This is limited to reclamation areas, access roads, non-controlled surface mine drainage and discharges from preparation plants. The numeric limit is representative of the BPT and BAT requirements for these types of discharges pursuant to 40CFR434 - Appendix A.
- F. Temperature & Temperature Difference:** The previous permit addressed temperature only in the ineligibility requirements (Part I.C.2), stating that a discharge that causes an exceedance in the water quality criteria was not eligible for coverage. That situation would probably continue to need an individual permit. However, most coal surface mining discharges, even when they are most of the flow of the receiving stream, are not going to cause water quality standards to be violated. Therefore, with this new permit, temperature is treated as any other parameter of concern, by setting a numerical limit. The limits are the receiving water quality criteria for Use I, I-P, III, II-P, IV, or IV-P waters from COMAR 26.08.02.03-3. As allowed by COMAR 26.08.03.03, the limits ultimately apply to the edge of a 50-foot mixing zone, if that zone is necessary. So depending on the temperature of the effluent, compliance may be monitored at the edge of the zone, at the end of the pipe, internally, or, if the stream exceeds its own criteria, then that must be measured too. To make all these caveats workable for the data storage system (ICIS), we have devised a simple formula to boil down multiple monitoring results into one number. We named this “temperature difference” and it should not be mistaken as change in temperature (delta T).
- G. Monitoring without limits:** This permit also includes monitoring of various parameters of concern without limits. Such effluent characterization is required by 40CFR122.21(k)(5)(vi) for new facilities, 40CFR122.21(g)(7)(vi) for existing mining facilities, and 40CFR122.26(c)(1)(i)9G) for new storm water source. The primary value if this requirement is to determine the toxicity of the effluent considering the material mined, to ensure that there are no discharges of toxic quantities. Samples are to be taken once per year of coverage using method ICP/MS for metals.
- H. Selenium:** It is not certain that selenium is associated with the coal deposits mined in Maryland. However, selenium is so associated with Appalachian coal mining that the Department is compelled to resolve this with real-time data. The specific limit is the state’s fresh water acute standard for protection of aquatic life. Acute is used because of the short duration of most of these discharges. The water quality standard is applied at the end of pipe because these discharges are often the entire flow of the receiving stream. There are no doubt sites where this is not true, but determination of dilution and mixing zone specifications for toxic substances (because of the complexity of mixing zone requirements, variability of effluent and stream flow) are beyond the scope of this general permit.

One method used to determine compliance with a discharge permit is for permittees to submit monitoring results of their discharge. The results are to be submitted on a Discharge Monitoring

Report (DMR) as provided by the Department with registration under this permit. The samples and measurement must be taken at such a time to be representative of the quantity and quality of the discharge during the specified monitoring periods. These samples must be analyzed in accordance with 40 CFR 136, except where identified otherwise. The permit requires quarterly submission of DMRs. Permittees must submit the name and address of the laboratory performing analyses within 30 days of registration under this permit. If the permittee changes laboratories during the permit term, the Department shall be notified within 30 days in writing.

### **Additional Permit Requirements**

#### Site Map

The Department requires a site map to be submitted with an application. The map must identify the locations of all discharge points, any significant structures, as well as any surface waters within a quarter-mile of the discharge location. The map must also provide the sampling point of the wastewater. In all cases, the discharge locations shall correspond to those identified on the application.

#### Storm Water Pollution Prevention Plan

The primary objective of the plan is to identify ongoing or potential sources of pollution to storm water and to optimize Best Management Practices (BMPs), such as storing materials under cover or controlling the flow by adding storm water mitigation technologies, in order to minimize pollutants in storm water runoff. The description of the facilities specific BMPs and potential sources of pollution are to be provided in a written plan and maintained on site for the life of the permit.

### **Additional Changes to Permit Language**

In addition to the changes identified above, the Department has made updates to various standard permit conditions. The updated standard permit conditions include, but are not limited to: requirements to obtain coverage under an individual permit, as necessary; termination of coverage under a permit; continuation of an expired general permit; the definitions for estimated flow, impaired water, and total maximum daily load (TMDL); notice of intent (application) requirements; submission of notifications once registered under the permit; reporting of laboratory performing analysis; facility operation and maintenance; permit modification; and Civil Penalties for Violations of Permit Conditions.

Also modified in this permit are the requirements for transfer of authorization under this permit from 'non-transferable to a person' to 'non-transferable to a change in location'. This ensures the Department is not authorizing a discharge at a new location without appropriate review through submission of a new application.

This permit adds language to support the requirement of submitting monitoring information digitally using the NetDMR system.

Lastly, this permit provides a description on how antidegradation considerations are accomplished.

### **Obtaining Registration under this Permit**

#### Application

Applications (NOI) must include a site map and the appropriate fee. Other elements that comprise a complete NOI are described in the NOI section of the permit. Application fees are unchanged at this time from the previous permit and range from \$175-\$3,100.

Registration

Upon review and approval of the required items identified above, the Department will provide a letter identifying the registration number and include a copy of the Discharge Monitoring Report (DMR) for use, as applicable.