

## NONMETALLIC MINING OPERATIONS

Fact Sheet/Memo for WPDES Permit No. WI-0046515-5

June 30, 2009

### SUMMARY

Due to the wide variety of nonmetallic mining (NMM) facilities in Wisconsin, this general permit has significant complexity. However, there are two overarching goals for mining wastewater and storm water contaminant discharges from nonmetallic mining facilities: (1) **prevent pollution of water when possible** (salt, petroleum products, solvents, etc.), and (2) control sediment and suspended solids discharges as much as possible by **seeping excess water into the mining site**.

Facilities engaged in nonmetallic mining activities must apply for and obtain a WPDES permit that regulates discharges of pollutants as provided in chapter 283, Wis. Statutes. These discharges include contaminants from exposure of nonmetallic mining operations to storm water, and wastewater contaminants directly related to the mining and processing activities. Concrete product operations contiguous to (or within) the mining site can also be covered under this permit when the nonmetallic mine permittee is legally responsible for the concrete plant's wastewater and storm water discharges. Physical controls, such as pollution prevention or treatment best management practices, are required to minimize the discharge of storm water contaminants to natural wetlands, surface water resources or groundwater. These operations are encouraged, to the maximum extent practicable, to divert water carrying sediment to seepage areas on the mining site to allow the sediment to be retained as the water seeps in to the ground. For dissolving pollutants, such as petroleum products or salt, source area pollution prevention practices are preferred to minimize contaminant contact and mixing with the wastewater and storm water; however, treatment best management practices may also be needed if contamination can not be prevented. All active operations are required to perform annual facility site compliance inspections to confirm pollution source locations, site drainage patterns, and that best management practices are implemented and maintained. Permittees that only have earthen material contamination of storm water and discharge to acceptable on-site seepage areas (that do not include discharges to protected wetlands under Ch. NR 103, Wis. Adm. Code) are exempted from the storm water pollution prevention plan (SWPPP) requirements of the permit. All other nonmetallic mining and concrete product operations are required to develop and implement a SWPPP, including preparation of a site drainage map, identification of potential pollutant sources, implementation of pollutant prevention and pollutant treatment best management practices as needed, and quarterly visual inspections. This permit also authorizes the discharge of wastewater directly related to the process of nonmetallic mining, such as mine dewatering wastewater, equipment washwater, mining material or concrete material washwaters, contact and noncontact cooling water, vehicle washwater or other similar wastewaters.

### DESCRIPTION OF OPERATIONS COVERED UNDER THIS GENERAL PERMIT

This general permit (GP) has been written to authorize and regulate discharges of storm water and process wastewater contaminants from operations whose primary income producing activity is nonmetallic mining which includes, with some exceptions, broken and crushed stone, dimension stone, construction sand and gravel, and industrial sand operations. Clay pit and rotten granite operations may be covered by this GP when no other site specific limits are necessary to regulate contaminant discharge from such facilities. Operations whose primary income producing activity falls under SIC code 3281 (cut stone and stone product manufacturing) may be covered under this permit for process wastewater discharges but additional permit coverage under the **Tier 1 Industrial Storm Water discharge permit (WI-S067849)** is needed as specified in s. NR 216.21, Wis. Adm. Code.

Wastewater discharges from concrete operations located within or contiguous to the mining site can also be covered under this permit when the nonmetallic mine operator (the permit holder) is legally responsible for all of the wastewater and storm water discharges from both facilities. When these discharges are covered under the NMM GP, neither the Tier II storm water permit nor the Concrete Product Operations general permit (WI-0046507-5) are needed. Only concrete product wastewaters eligible for the concrete product GP, such as cooling water, condensate, material washwater, and equipment washwater, may be discharged under the NMM permit. See the fact sheet/memo for the Concrete Products GP (WI-0046507-5) for additional details about the types of concrete product wastewaters that may be discharged under a general permit and those that are excluded. An individually drafted permit may be needed if a facility has no other options for discharge of wastewater excluded from the GP.

The NMM GP contains requirements that are equivalent to those in the WPDES general permit for discharges of "Wastewater from the Outside Washing of Vehicles, Equipment, and Other Objects" (WI-0059153-3). Therefore, washing of vehicles or other objects on the nonmetallic mining site does not require separate coverage under the outside washing GP. The NMM permit requires that wastewater from the outside washing of vehicles, equipment, and other objects be diverted to seepage areas to the maximum extent practicable. Biodegradable soaps shall be used, and road deicing solids should be removed before washing. Any contaminant residue from the washing activities (such as dirt) should be periodically removed so can not be carried off-site with storm water. Wastewater from the use of petroleum or halogenated hydrocarbon degreasing agents may not be discharged under this GP; oily wastewater from engine or other degreasing operations should be segregated for alternate treatment or disposal options.

After obtaining basic information about wastewater sources and contaminants proposed to be discharged, the Department will determine if this GP adequately regulates all of the contaminants in the proposed discharge. An individual WPDES permit may be required for any operation when it is deemed necessary by the Department, such as when a proposed discharge does not meet all of the GP applicability criteria, or when a site specific water quality based effluent limit is needed to protect water quality. An additional GP may be issued to a facility if other types of wastewater discharges (such as from potable water treatment or groundwater remediation) are present. If an individual site specific WPDES permit needs to be drafted for an operation, the Department usually will cover all the facility's wastewater discharges in a specific permit.

Most nonmetallic mining (NMM) operations covered under this permit are site locations where mining, washing, crushing or product distribution activities occur during the year. However, portable nonmetallic mining operations can also be covered under the permit. These portable operations are basically groupings of mobile equipment, also referred to as "spreads," that travel from site to site processing materials. Permit coverage for these mobile operations requires contaminant control as specified in a storm water pollution prevention plan (SWPPP) and monitoring of process wastewater discharges (such as washwaters) from the portable equipment. When a portable mining spread covered under this permit will be discharging process wastewaters to off-site surface water resources (and the outfall is not included under the mining site's GP), the Department needs to be notified of the discharge location prior to beginning the discharge.

Types of NMM production related wastewater covered under this permit include wastewater from dewatering of mining areas to remove excess water (from storm water or groundwater), aggregate and equipment washing, noncontact cooling of machinery or boilers, and dust control. The pumping of mine dewatering wastewater off the mining site is required to be monitored in accordance with section 5 of the permit. The pumping of storm water to seepage areas (the recommended Best Management Practice) within the mining site is not required to be monitored. Nonmetallic mining processes and the wastewater they generate are described in the following paragraphs.

### Crushed Stone Operations (SIC 1422, 1423, and 1429)

Crushed stone pertains to rock which has been reduced in size after mining. This includes, but is not limited to, riprap, fluxing stone, terrazzo, and stucco dash. Approximately 3/4 of all crushed stone is limestone. Most crushed stone is mined from open quarries by drilling and/or blasting techniques. Blasting in smaller operations may be done with dynamite, but in most sizable operations ammonium nitrate-fuel oil mixtures (AN/FO) are used. Discharges from crushed stone operations may include: mine dewatering, wash water, NCCW (non-contact cooling water), scrubber water, dust suppression water, and flotation process water. Similar types of wastewaters are produced by other nonmetallic mining operations discussed in succeeding pages. A discussion of each type of water follows.

NCCW	The largest use of noncontact cooling water is for crusher bearing, dryer, pump and air compressor cooling.
Mine Dewatering	Water will enter the mine area from three sources; direct precipitation, storm runoff, and groundwater intrusion. Water contacting the mine materials or disturbed overburden may become contaminated. Storm water and runoff can also become contaminated through contact with storage piles, process equipment, and dust that are emitted during processing.
Scrubber Water	Wet scrubbers may be used for air pollution control on dryers, crushers, grinding mills, screens, conveyors and packaging equipment.
Dust Suppression	Operations may spray water to control dust at crushers, conveyor transfer points, discharge chutes and stockpiles. This water is usually low volume and is either evaporated or absorbed on the product.
Washwater	The crushed stone may be washed by adding spray bars to the final screening operation after crushing.
Flotation	The flotation process may be used to remove impurities from marble or other carbonaceous rock. The material is transported from the quarry to the processing facility where it is crushed, screened (or wet milled), and fed to flotation cells. Impurities are removed in the overflow and the product is collected from the underflow. It is further wet milled to achieve a more uniform particle size, dried, and shipped. The flotation agents used in this process include: organic amines, fatty acids, and pine oils. This general permit <u>does not authorize</u> discharge of flotation process wastewater.

### Dimension Stone Operations (SIC 1411)

Dimension stone is defined as: specially cut or shaped stone for use in buildings, monuments, memorial stones, grave stones, curbing, and other construction or special uses. Principal dimension stones include granite, marble, limestone, slate, and sandstone. Less common dimension stones include diorite, basalt, mica schist, quartzite, and diabase. Dimension stone is quarried by the following six primary methods: drilling, chiseling, sawing, exploding, jet piercing, and splitting.

Drilling is frequently for dimension stone operations. Drilling shallow holes and inserting wedges or explosives is one method of quarrying dimension stone. A second drilling method includes drilling deeper holes and removing the stone between the holes (broaching). Water may be used to

control dust, wash away stone chips, and cool the drill.

Chiseling is accomplished by channel machines in quarries. A channel machine is a long, semi-automated, multiple-head chisel machine run by electricity or steam. The stone chips created during chiseling must be constantly washed away with water. Channel machines are primarily used to quarry limestone.

Sawing with wire saws is used to quarry granite and limestone. Generally, a water slurry of hard sand or silicon carbide is used with the saw.

Explosives, primarily black powder, may be used to quarry slate, marble, and mica schist.

Jet piercing is used to quarry granite. Fuel oil, forced under pressure through a nozzle, produces a high velocity jet flame of over 5000EF. Combining the flame with a stream of water cuts a channel through the rock by disintegration.

Splitting is done by inserting a wedge in drilled holes and striking it with a sledge hammer. Following the quarry operation, the stone blocks are processed. The initial processing step is sawing the blocks into slabs. Sawing is accomplished with gang saws (large hack saws), wire saws, and rotating diamond saws. Water may be used for dust control, particle removal, and cooling. Final finishing operations using water are limited to polishing of granite, marble, and to some extent dolomitic limestone. This wastewater may contain high levels of suspended solids.

### **Construction Sand and Gravel Operations (SIC 1442)**

Sand and gravel consist predominantly of silica but often contains varying amounts of other minerals such as iron oxides, mica, shale and feldspar. Three basic methods of sand and gravel extraction are practiced: (1) dry pit mining above the water table; (2) wet pit mining by a dragline or barge-mounted dredging equipment both above and below the water table; and (3) dredging from public waterways. Processing typically consists of sand and gravel separation, screening, crushing, sizing, and stock piling. The following is a description of the processing practices that correspond to the three methods of extraction.

**Dry Process -** Water is not needed for dry processing of sand and gravel. Incidental water may be used for noncontact cooling of crusher bearings and for dust suppression. Dust suppression water either remains with the product or evaporates. Mine dewatering may be needed to lower the water table prior to dry processing.

**Wet Process -** In wet processing water is used to separate, wash, and classify sand and gravel. Incidental water may be used for noncontact cooling and dust suppression. First, the material is washed as it passes over vibrating or revolving screens. The sand fraction removed is classified by settling velocity in water filled troughs. The finest particles overflow the classifier into the wastewater. The product from the screening and classifying process is dewatered and stockpiled.

A small number of facilities (not authorized to discharge under this general permit) must remove deleterious particles occurring in the deposit prior to washing and screening. Particles considered undesirable are soft fragments, thin and friable particles, shale, argillaceous sandstones and limes, porous and unsound cherts, coated particles, coal, lignite and other low density impurities. Heavy-media separation (sink-float) is used for the separation of these materials

based on differing specific gravities. The process consists of floating the lightweight material from a heavy "liquid" which is formed by suspension of finely ground heavy ferro-magnetic materials such as magnetite and/or ferrosilicon in water. The "floated" impurities and the "sink" product (sand and gravel) are passed over separate screens where the magnetite and/or ferrosilicon are removed by magnetic separation and recycled. The impurities are usually disposed of in seepage pits. The product is then routinely washed and sized.

- Dredging - The raw material is extracted from public waterways using a floating, movable dredge which excavates the bottom sand and gravel deposit by one of the following general methods: a suction dredge with or without cutter-heads, a clamshell bucket, or a bucket ladder dredge. After the sand and gravel is brought on-board, primary sizing and/or crushing is accomplished with vibrating or rotary screens, and cone or gyratory crushers. Oversize boulders are returned to the waterway. Some clamshell and ladder bucket dredges do not produce process water because there is no on-board washing. Suction line dredges bring up the raw material as a slurry, remove the aggregate, and can return clear water to the river. The material may be processed on board (as described for wet processing) or it may be loaded onto a tow-barge which is tied alongside the dredge. The barge is transported to a land-based processing facility where the material is processed similar to that described for wet processing of sand and gravel.

### **Industrial Sand Operations (SIC 1446)**

Industrial sand includes highly pure, nearly monomineralic deposits of silica. Basic production operations are classification and removal of impurities. Industrial sand can be divided into the following four subcategories based on the level of technology required for removal of impurities and the end use of the sand: dry process, wet process, flotation process, and acid leaching process.

- Dry Process - No water is used to wash or classify the sand. Usually sand is extracted from beaches or crushed from sandstone. Following drying and cooling, the sand is classified by screening. For air pollution control, the facility may use dry collectors, such as cyclones and baghouses, or wet scrubbers. Incidental water uses may include noncontact cooling water for crusher bearings.
- Wet Process - Water is used to transport, wash and initially screen the sand. The sand is dried, cooled, and screened. NCCW may be used for crusher bearings.
- Flotation - Discharges from facilities that process industrial sand by the flotation process are not authorized by this general permit. The three flotation techniques are: (1) acid flotation to effect removal of iron oxide and ilmenite impurities, 2) alkaline flotation to remove aluminate bearing materials, and 3) hydrofluoric acid flotation for removal of feldspar.
- Acid Leaching - Discharges from facilities that process industrial sand by the acid leaching process are not authorized by this general permit. The acid leaching process pertains to the removal of iron from feldspathic sand for use in glass manufacturing. A strong hydrochloric acid or sulfuric acid is used.

## ACTIVITIES NOT COVERED BY THE PERMIT

**Ineligible Process Wastewater** - As described in the above paragraphs, facilities with discharges of wastewater from crushed stone flotation, construction sand and gravel heavy liquid separation, industrial sand flotation, and industrial sand acid leaching cannot be covered by this GP. These process wastewaters can contain varying concentrations of pollutants that may require Water Quality Based Effluent Limitations (WQBEL) or Best Professional Judgment (BPJ) treatment based limits not contained in this permit. Facilities with discharges of these wastewaters need to be regulated by an individual, site specific permit. Concrete product waters specifically excluded from the concrete products GP, such as, wastewater from the kiln dust process or washwater from a surface treated with a retarder, are also not covered by this GP.

**Washwater Not Otherwise Eligible for WPDES Permit No. WI-0059153-3** - Discharges of washwater that could not be covered under the WPDES general permit for "Wastewater from the Outside Washing of Vehicles, Equipment, and Other Objects" (WI-005915-3) such as washwater containing significant levels of petroleum products or halogenated hydrocarbon degreasing agents, is not to be discharged under this permit. These types of washwaters need additional treatment and specific limits for volatile organic compounds, petroleum products or Polynuclear Aromatic Hydrocarbons.

**Wastewater from Ion Exchange Water Treatment Units** - The brines and rinse waters from regeneration of ion exchange water treatment units have extremely high chloride levels that would exceed the ch. NR 140, Wis. Adm. Code groundwater standards (ES 250 mg/L and PAL 125 mg/L) and NR 105 surface water criteria for chlorides (acute 1514 mg/L and chronic 395 mg/L) and possibly other pollutants. The amount of water softened should be limited to only that needed in the boiler or the steam system (frequently needed for curing concrete products). Ion exchange regeneration wastewater (brine) may not be discharged under this GP. Department watershed program staff should be contacted for alternate discharge options for ion exchange regeneration wastewater.

**Contaminated Sediments** - Facilities operating in areas where the Department has determined that the sediments are contaminated are not covered by this GP. Wastewater discharges from NMM operations at these sites are likely to contain contaminants (petroleum products, PCB's, etc.) that require effluent limitations and test frequencies specified in an individually drafted WPDES permit.

**Biocides** - Biocides are usually toxic to aquatic life and normally require regulation by an site specific individually drafted permit that would contain a limitation on the amount of biocide used or discharged. Facilities discharging wastewater treated with biocides can not be covered under this GP. However, uncontaminated water from a municipal water supply may be discharged due to the expected dissipation of halogens that may be present in the municipal water supply.

**Wetlands** - Discharges covered under this permit shall meet the wetland protection requirements of ch. NR 103, Wis. Adm. Code, and shall not significantly adversely impact wetlands. For a discharge with potential to impact wetlands, an operation will need to submit information that allows the Department to determine if the discharge meets Ch. NR 103 Wis. Adm. Code requirements. Note that s. NR 103.06(4), contains exemptions for sedimentation basins, storm water detention basins and artificial wetlands within active nonmetallic mining operations.

**Outstanding and Exceptional Resource Waters** - Discharges directly to outstanding and exceptional resource waters are not authorized by this permit. Regulation of discharges to outstanding and exceptional resource waters requires an individual permit which provides the discharge limitations and frequent monitoring necessary to protect these types of high quality receiving waters.

**Surface Water Standards, Antidegradation, and Groundwater Standards** – Section NR 106.05, Wis. Adm. Code, establishes when site specific permit limits are required for contaminants with Wisconsin water quality criteria. Discharges from facilities eligible for this permit are typically not expected to have contaminants that would exceed surface water or groundwater site specific standards. However, if a nonmetallic mining discharge would have a reasonable potential to exceed surface or groundwater pollutant criteria, site specific permit limits would be needed to protect aquatic life and human health. An example of this would be a mine dewatering discharge that contains copper and zinc due to exposure of ore containing those minerals during mine excavation. Discharges that have a potential to violate surface water quality standards or groundwater quality standards require regulation by an individual, site specific permit. Also, operations eligible for this permit may not contain any of the 22 bioaccumulating toxic substances indicated in tables 8 and 9 of NR 105, Wis. Adm. Code that are prohibited for discharge to the Great Lakes watershed. If a nonmetallic mining operation would proposed a new or significantly increased pollutant discharge, evaluation of the proposed increase would begin via notification to the Department in a new request for general permit coverage or via notification of a planned change under standard requirement 6.6 of the permit. Upon notification of the proposed new or increased discharge, the Department would evaluate the proposed new or increased pollutant discharge amount to insure the antidegradation requirements of NR 207 are met. In a case where significant lowering of water quality is proposed, the Department may require the permittee to evaluate a variety of options to insure there is no significant lowering of water quality occurs in the receiving water, such as improved wastewater treatment effectiveness, wastewater reuse, directing the discharge to a seepage area, an alternate discharge location, process changes to reduce the pollutant discharge level, pollutant prevention activities, etc

#### REQUIREMENTS FOR ALL DISCHARGES

**Dikes and Berms** - Leakage through or over dikes or berms may cause sloughing or washouts; the integrity of the containment area must be maintained. Water flowing out of a bermed or diked area shall be through structures or channels designed to withstand the force of flowing water.

**Adequate Design** - As specified in Ch. NR 205, operations with a wastewater disposal or treatment facility are required to be capable of withstanding the water from a storm having a 10-year, 24-hour event frequency which falls within the area of the treatment/disposal system. Precipitation must be taken into account in designing the hydraulic capacity of exposed settling systems. This design parameter is common to industrial treatment facilities in Wisconsin. Solids removal systems must also have sufficient capacity to allow an adequate hydraulic retention time for effective solids settling.

**Dust Suppression Wastewater for Roads** - Collected storm water and process wastewater that contains only inert materials (clean soil, aggregate material, etc.) and no other contaminants may be used for dust suppression. Such dust suppression water is not subject to monitoring. Dust suppression operations shall be controlled so there is no overland water flow resulting in significant runoff to natural wetlands or surface water resources. Additives used to improve the effectiveness of dust suppression should be selected to prevent groundwater and storm water runoff contamination.

**Water Treatment Additives** - Water treatment additives can vary from innocuous to highly toxic. The permit allows the use of non-biocide compounds that are innocuous. Non-biocide water treatment additives are defined, for the purposes of this permit, as those additives which are primarily used to control corrosion or prevent deposition of scale, and which do not exhibit any residual toxic effects on receiving water. Facilities shall submit information regarding the toxicity of a water treatment additive, so the Department can determine if it is allowable and won't negatively impact aquatic life or groundwater. The Department shall also be informed when significant changes in additive use would raise the potential for negative impacts on aquatic life or human health. Facilities are required to maintain records of additive

use for Department inspection. Recording additive use will provide documentation for the facility and the Department to verify that the wastewater additive is being used and discharged in accordance with the permit requirements.

**Requirements for Discharges to 303(d) Listed Impaired Surface Waters** - If a facility discharges a pollutant of concern to an 303(d) listed impaired water body, the pollutant levels in the discharge needs to be reduced as much as possible as part of an overall state effort to reduce the pollutant loading to impaired water bodies. The 303(d) list of Wisconsin impaired water bodies may be identified by contacting the Department or by searching for the 303(d) list on the Department's Internet site. The current link to the 303(d) list is: <http://dnr.wi.gov/org/water/wm/wqs/303d/>. The most common pollutant of concern for nonmetallic mining operations will be a total suspended solids (TSS) discharge to a sediment impaired water body. Contact the Department or utilize the internet link above to find an MS excel spreadsheet list or county based maps showing Wisconsin 303(d) listed waters impaired by sediment.

The permit requires that an annual check be conducted, by February 15<sup>th</sup> each calendar year (the same date the annual discharge monitoring report is due), to determine whether the permittee discharges wastewater or contaminated storm water to a section 303(d) listed impaired water body. If so, a written section needs to be added to the storm water pollution prevention plan, within 180 days of the annual check, that specifically identifies control measures and practices that will collectively be used to reduce, with the goal of eliminating, the pollutant(s) of concern levels in the *storm water* discharge that contributes to the impairment of the water body. The pollution prevention plan shall also explain why these control measures and practices were chosen as opposed to other alternatives. The discharge of a pollutant of concern from a mining *production related wastewater* should also be evaluated to determine whether additional control measures and practices could be used to reduce, with the goal of eliminating, the discharge of pollutant(s) of concern that contribute to the impairment of the water body. The permittee should keep a record of the amount of pollutant discharge reduction that has been achieved. The exact amount of pollutant reduction needed by each point source discharger will be established in a future State and Federal Approved Total Daily Maximum Load (TMDL) allocation approved by the Department.

Federal Statutes, 40 CFR 122.4, prohibit the issuance of a WPDES permit to a new source or new discharger that will contribute to a violation of a water quality standard in a 303(d) listed water. Also, an increased discharge of a pollutant of concern that would cause or contribute to a violation of a water quality standard in a 303(d) listed water is not be allowed. Therefore, this general permit specifies that a permittee may not establish a new mining wastewater or new storm water runoff pollutant of concern discharge to an impaired water body or significantly increase the discharge of a pollutant of concern to an impaired water body unless the new or increased discharge does not contribute to the receiving water impairment, or the new discharge is consistent with a Department approved total maximum daily load (TMDL) allocation for the impaired water body. For a new nonmetallic mining operation requesting coverage under this general permit, the Department will evaluate the proposed new pollutant discharge amount and receiving water to determine if the above requirement can be met. A variety of options may be available to insure any proposed new discharge does not contribute to the receiving water impairment such as on-site capture of the pollutant of concern, an alternate discharge location, wastewater reuse opportunities, directing the discharge to a seepage area, enhanced treatment options so the discharge would meet the water quality standard, etc.

If an existing nonmetallic mining operation would proposed a significant increase in a pollutant of concern discharge to an impaired water body, the process would start via notification to the Department of a planned change under standard requirement 6.6 of the permit. Upon notification of the proposed increase, the permittee and the Department would evaluate the proposed increased pollutant discharge amount and receiving water to determine if the above requirement can be met. A variety of options may be available to

insure any proposed increased pollutant discharge does not contribute to the receiving water impairment such as on-site capture of the pollutant of concern, an alternate discharge location, wastewater reuse opportunities, directing the discharge to a seepage area, enhanced treatment options so the discharge would meet the water quality standard, etc.

**Requirements for Discharges to Surface Waters Covered by a TMDL Load Allocation** - This part of the permit requires that a permittee conduct an annual check, by February 15<sup>th</sup>, each calendar year, to determine whether its facility discharges mining wastewater or storm water to a water body that has a State and Federal Approved Total Daily Maximum Load (TMDL) allocation. If so, the permittee would be required to assess whether the TMDL wasteload allocation for the facility's discharge is being met through the existing wastewater treatment and storm water pollution prevention plan controls or whether additional control measures are necessary. Within 180 days of the annual check that determines a facility discharges to a TMDL allocated water body, a permittee that is included in a State and Federal Approved TMDL shall submit to the Department a proposed implementation plan for the wastewater and storm water discharges that meets the requirements of the State and Federal Approved TMDL wasteload allocation for the facility. The proposed TMDL implementation plan shall specify any feasible pollution prevention and wastewater treatment improvements that could be made and specify any revisions or redesigns that could be implemented to increase the effectiveness of the permittee's storm water pollution prevention controls so the wasteload allocation can be met. The TMDL implementation plan shall also specify a time schedule for implementation of the pollutant controls necessary to meet the wasteload allocation for the facility.

As of June 30, 2009, the Department is aware of only one TMDL, the Fond Du Lac County Parsons Creek TMDL, that contains a wasteload allocation for existing nonmetallic mining operations. The Parsons Creek TMDL is not considered to be final in Wisconsin at this time due to the commitment by the Department for an additional 30 day public comment period on the point source allocations for the nonmetallic mining discharges to Parsons Creek. The point source allocations for the quarries were added to the Parsons Creek TMDL after the public meeting and after the public comment period. Also, confusion regarding the quarry discharge amounts, frequency and outfall locations resulted in the point source allocations being assigned to incorrect nonmetallic mining facilities.

The Department is currently developing an implementation plan for the Parsons Creek TMDL. The nonmetallic mining operations discharging to Parsons Creek are encouraged to continue to work with the Department and other stakeholders to determine how suspended solids allocations can best be translated into permit requirements to facilitate restoration of Parsons Creek. An enhanced storm water best management practices approach (versus creek-flow-proportional numerical lbs/day Total Suspended Solids limits) is being considered as another option for allocating the potential sediment loads for the discharges from the quarries to Parsons Creek. In the future, the Department will hold a public informational meeting in the Fond Du Lac area to take comments on the proposed Parsons Creek TMDL implementation plan. After evaluating the comments received, the Department will finalize the Parsons Creek implementation plan and may update or amend the Parsons Creek TMDL. The Department will notify the dischargers to Parsons Creek of its decision to finalize the State and Federal approval for the Parsons Creek TMDL.

Until the Parsons Creek TMDL is finalized in Wisconsin, the nonmetallic mining operations discharging to Parsons Creek shall comply with the permit requirements for discharges to impaired waters (parts 2.5.1 through 2.5.4). After Parsons Creek has a finalized State and Federal Approved TMDL, the nonmetallic mining facilities affected shall also comply with the permit requirements for discharges to TMDL allocated waters (parts 2.5.5 and 2.5.6). Following final State and Federal Approval of the Parsons Creek TMDL, the Department may, through WPDES permit modification or issuance, revise the discharge permit requirements for the nonmetallic mining facilities discharging sediment to Parsons Creek.

For State and Federal Approved TMDLs finalized within this permit term, affected facilities are encouraged to implement any needed wastewater treatment system changes and storm water pollution control measures as soon as possible, but compliance with the State and Federal Approved TMDL would not be mandatory until the State and Federal approved TMDL limits are included in a general or site-specific WPDES permit.

### STORM WATER REQUIREMENTS

Part 3 of this general permit (GP) applies to the discharge of storm water exposed to nonmetallic mining industrial activities, materials, and certain concrete operations. Many NMM operations have some activities or materials exposed to storm water. Nonmetallic mining or concrete materials include any excavated overburden, raw material, intermediate product, finished product, by-product or waste material. Nonmetallic mining or concrete activities include the use of industrial machinery or material handling equipment for excavation, loading, processing, storage, transportation and unloading of any raw material, intermediate product, final product or waste product. Usually, contaminant exposure to storm water occurs due to the large areas of exposed materials in excavations, exposed processing and handling equipment, and exposed material stockpiles. Since raw materials, intermediate products or finished products are often found on mining equipment, such as crushers, conveyors or wash plants, control of storm water contaminants is also required for portable equipment groups. The best management practice requirements of this permit apply to storm water runoff and to delayed discharge to storm water off the mining site. The storm water requirements contained in part 3 of the NMM GP are designed to be at least as stringent as the Tier II requirements of Ch. NR 216, Wis. Adm. Code. Facilities covered by the NMM permit do not need coverage under a separate WPDES Storm Water General Permit unless the operation is classified as Tier I.

A previous version of this permit (WI-0046515-3) contained a time schedule for development and installation of storm water pollution prevention plans and best management practices (BMP). The NMM general permit reissued on April 1, 2004 required pollution prevention plans and best management practices to be properly operated and adequately maintained. Existing NMM and concrete operations that have implemented storm water Best Management Practices and have previously submitted a SWPPP certification to the Department under the Tier II permit (WI-S067857) or the expired NMM General Permit (WI-0046515-4) may be considered to be in compliance with the SWPPP certification requirements of the reissued NMM permit (WI-0046515-5). If a nonmetallic mining operation is found to be discharging without WPDES permit coverage, the Department may cover the operation under the NMM permit and specify, through an enforcement action or stipulation, a schedule for SWPPP development, implementation and certification within the shortest time practicable. Current Department Best Management Practices should be designed according to the Department's Technical Standards

### STORM WATER DISCHARGE CLASSES

**Internal Drainage of Storm Water That Contains Only Earthen Sediment** – Storm water that is only contaminated with NMM earthen materials should be directed to seepage areas within the mining site to the maximum extent practicable. Sedimentation/ seepage ponds used for capture and retention of suspended earthen materials should be located in non-wetland areas that did not previously support natural aquatic vegetation or aquatic life. Storm water treatment and seepage areas (including any artificially created wetlands exempted in s. NR 103.06, Wis. Adm. Code) totally within the permittee's owned or leased property boundaries are considered to be part of the mining site. Section NR 103.06, Wis. Adm. Code contains exemptions for sedimentation basins, storm water detention basins and artificial wetlands within active nonmetallic mining operations. A site may be classified as internally drained for storm water and have a mine dewatering discharge off the mining site regulated under Part 5 of the NMM GP. A site that pumps storm water collected in various areas of the mining site to a sedimentation pond (with an

overflow structure) may be considered to be internally drained as long as the pond overflow seeps into the ground within the mining site during runoff events equal to or less than the 10 year 24 hour storm event. A site classified as having internal drainage can have a portion of the exit road sloped off-site as long as effective BMPs are used to minimize off-site sediment movement and tracking from that area. When the facility obtains Department concurrence that their storm water contaminants are limited to only earthen materials from the nonmetallic mining operation, the contaminated storm water runoff is captured and seeped into the ground within the mining site (except that runoff from a storm greater than a 10 year, 24 hour frequency may be allowed to have run off from the mining site), and the contaminated storm water is discharged to a non-wetland area or a wetland exempted under s. NR 103.06, Wis. Adm. Code, the site is exempted from the Storm Water Pollution Prevention Plan (SWPPP or SWP3) and more frequent inspection requirements contained in parts 3.3 through 3.7 of the NMM permit.

**Discharge of Storm Water Contaminants to On-Site Surface Waters or Protected Wetlands.**

Pollution Prevention and Physical Control best management practices (BMP) shall be used to minimize the discharge of storm water contaminants prior to discharge to on-site surface waters, such as creeks, streams, ponds, lakes and wetlands not exempted under Ch. NR 103.06. Wetlands include wetlands listed on the Department's wetland inventory maps and on-site wetland delineations consistent with the procedures contained in the "Basic Guide to Wisconsin's Wetlands and Their Boundaries" (Wis. DOA PUBL WZ-029-94). Information on the Department Wetlands internet page may also be used to help users determine if wetlands are likely present at their site. The current internet link is <http://dnrm.wisconsin.gov/imf/imf.jsp?site=SurfaceWaterViewer>. Please note that all wetlands are not shown on the Department wetland inventory maps and that a wetland delineation may be required. Storm water discharges to on-site surface waters and wetlands not exempted under s. NR 103.06 shall be managed in accordance with a Storm Water Pollution Prevention Plan (SWPPP) and periodically inspected. For pollutants that can dissolve in water, such as petroleum products or salt, pollution prevention practices shall be used to the maximum extent practical.

**Internal Drainage of Storm Water With Exposure To Dissolving Contaminants** – Operations that direct storm water to on-site seepage areas are required to implement physical controls to prevent the discharge of storm water contaminants to groundwater. For pollutants that can dissolve in water, such as petroleum products or salt, pollution prevention practices shall be used to the maximum extent practical and to the extent it is cost effective. Treatment best management practices may be required when pollution prevention practices are not feasible, cost effective or are inadequate to control storm water contamination. A Storm Water Pollution Prevention Plan and periodic inspections may be required when internally drained storm water contains dissolved contaminants, such as petroleum products, solvents or salts.

**Storm Water From Concrete Operations** - All concrete operations covered under the NMM permit shall be operated in compliance with all of the Part 3 storm water requirements (including a SWPPP) to make sure contaminants, such as aggregate fines, caustic material and oil & grease, are controlled. Storm water that only has contact with earthen materials should be directed to seepage areas within the mining site to the maximum extent practicable.

**Operations with Off-Site (External) Storm Water Drainage** – All of the NMM General Permit Part 3 requirements apply to operations with exposure of storm water to contaminant sources, and the storm water flows beyond the owned or leased mining site property boundaries. A site would be classified as externally drained if storm water flow (from ditches, outfall pipes, detention basin overflow structures, etc.) would be carried off-site by surface water drainage channels, such as tributaries, wetlands, creeks, streams, rivers or lakes. Operations with off-site (external) storm water drainage are required to utilize: (1) a Storm Water Pollution Prevention Plan, (2) source area pollution prevention best management practices, (3) contaminant treatment BMPs when needed, (4) and periodic inspections, to reduce the discharge of

contaminants to the maximum extent practicable. The contaminant treatment BMPs may include settling, sedimentation, filtration, and modifications to retain sediment at drainage inlets (e.g., storm sewer grates or drainage pipe openings) where they occur.

**Storm Water From Portable NMM Operations** - Portable nonmetallic mining operations that travel from site to site may be covered under the GP if a permittee requests coverage for the equipment group. A portable operation does not need duplicate coverage under the GP if the mining site, where the portable equipment is operating, has coverage under the NMM permit. Since all active and inactive mining sites should be covered under the NMM GP, duplicate coverage for a portable equipment group should normally not be necessary. However, an equipment owner may request NMM permit coverage for a portable equipment group to separate permit compliance issues from the site owner. All of the storm water control requirements of part 3 would apply to portable equipment operation whether it is through the site permit coverage or the portable equipment group coverage. Portable equipment operations are required to utilize a SWPPP, source area pollution prevention BMPs, contaminant treatment BMPs when needed, and periodic inspections, to minimize the discharge of storm water contaminants to the maximum extent practicable. A portable equipment group requested to be covered by the NMM GP is not required to prepare a site description and drainage base map as part of a SWPPP.

#### STORM WATER ACTIVITY STATUS FOR NMM OPERATIONS

**Active Status** – Active operations are those performing industrial activities associated with nonmetallic mining or concrete product production. A NMM operation with a product stockpile is considered to be an active site. An active site may switch to inactive status at a future date when product stockpiles are removed and non-marketable materials are stabilized. All active sites are required to have annual facility site compliance inspections as specified in part 3.2 to check the control of storm water contaminants. Active sites, that must develop a SWPPP, are also required to have quarterly storm water control inspections and quarterly visual runoff inspections as specified in parts 3.7.2 and 3.7.3. Since an AFSCI is a comprehensive inspection, it can also fulfill the storm water control inspection requirement for a quarter.

**Inactive Status** – Inactive operations have no industrial activities associated with nonmetallic mining or concrete product production occurring. These are operations where earthen material has been exposed due to excavation, but there are no current mining activities or product stockpiles at the site. Waste or overburden piles should be stabilized with vegetation. A site may be inactive until construction activity in the area necessitates its activation. Operation of portable equipment at a previously inactive site switches the site to active status while the operating equipment or product material stockpiles are present. Inactive operations impractical to inspect on an annual basis are required to conduct a facility site compliance inspection at a least once every three years. A facility site compliance inspection (AFSCI) needs to be conducted within 10 days of changing to active status.

**New Operations** – Operations that will be mining previously undisturbed areas after April 1, 2009 are considered new operations. New nonmetallic mining operations are required to implement storm water controls and comply with the Part 3 storm water permit requirements prior to initiating nonmetallic mining activities that result in an exposure of materials or industrial activities to storm water. Also, a new operation has to check whether the proposed discharge is to a 303(d) listed impaired water to determine whether additional discharge requirements would apply as specified in part 2.5 of the permit.

#### STORM WATER CONTROL REQUIREMENTS

**Physical Controls** - The nonmetallic mining general permit requires the use of physical controls in the form of source area pollution prevention best management practices and/or contaminant treatment best

management practices (BMP) to minimize the discharge of storm water contaminants. Source area pollution prevention practices are intended to prevent storm water from contacting possible sources of contamination, such as erodible earthen materials, petroleum products on machinery, spills and salt piles. Pollution prevention practices shall be installed to maximum extent practicable and to the extent they are cost effective to prevent storm water from becoming contaminated. When the permittee determines that source area pollution prevention practices are not feasible, not cost effective or are inadequate to control storm water contamination, or when the Department provides notification that pollution prevention practices are inadequate to achieve a water quality standard, contaminated storm water shall be treated to reduce pollutant levels prior to discharge.

Most nonmetallic mining operations will have earthen materials exposed to precipitation; source area pollution prevention will typically not be adequate to control sediment contamination of storm water. Storm water that only has contact with NMM earthen materials should be directed to seepage areas within the mining site to the maximum extent practicable. Seepage areas used for capture and retention treatment of suspended earthen materials should be located in areas that did not previously support natural aquatic life. Residual sediment should be periodically removed from these areas to maintain its seepage function. When sediment contaminated storm water could potentially discharge to surface waters or wetlands not exempted under s. NR 103.06, solids separation best management practices shall be utilized to reduce the amount of sediment discharged to the maximum extent practicable. Effective treatment practices, such as settling, filtration, sedimentation, storm grate or pipe inlet modification etc., shall be utilized to retain sediment. . [Note: NR 151, Wis. Adm. Code technical standard documents, such as #1063 Sediment Traps, #1001 Wet Detention Basins, # 1064 Sediment Basins, are available for evaluating BMPs for control of erosion and runoff from areas of the nonmetallic mining site that drain to surface waters or natural wetlands. This information can be accessed by searching for NR 151 on the Department internet site or by contacting Department storm water program staff.]

If petroleum contamination can not be prevented, an adequately sized, designed and functioning oil/water separation treatment device may be needed to eliminate floating product and oil sheen. The Department may require coverage under an additional WPDES permit, such as WI-0046531 Petroleum Contaminated Water GP, if the discharge from a petroleum treatment device is not less than the 15 mg/L maximum allowed for oil & grease by the mining wastewater sections (4 & 5) of the NMM general permit

**Storm Water Pollution Prevention Plan (SWPPP)** - A SWPPP is a written document that: (1) identifies potential sources of storm water contamination; (2) prescribes appropriate source area control best management practices to prevent or minimize storm water contamination; (3) prescribes storm water treatment best management practices when needed to remove storm water contaminants prior to discharge; (4) prescribes actions needed either to bring non-storm water discharges under a WPDES permit or to remove these discharges from the storm drainage system; and (5) includes schedules, as necessary, to ensure that the storm water management actions prescribed in the SWPPP are properly implemented and evaluated on a regular basis. The SWPPP shall be available for Department review at the nonmetallic mining site or other location (such as a company headquarters) approved by the Department.

Operations that have internal drainage, have only earthen sediment contaminants in storm water, and discharge to a non-wetland area or an existing wetland exempted under s. NR 103.06, Wis. Adm. Code, are exempted from the requirement to develop and implement a SWPPP. SWPPP implementation is required for operations that can not prevent storm water contact with dissolving pollutants (such as petroleum products, salt, lime, etc.) or that discharge contaminated storm water off-site or to wetlands not exempted under s. NR 103.06. Portable operations covered under the NMM permit and covered concrete operations are also required to develop and implement a SWPPP.

Since portable operations may be faced with a wide assortment of sites with varying topography and set-up, a SWPPP for a portable operation should address varying site scenarios. If the permittee owns or operates more than one portable operation, it may be acceptable to submit one SWPPP for all or some units depending on the similarity of equipment and similarity of sites expected to be encountered. Sites that portable operations visit should also have physical controls and may have a SWPPP in place. Operation of the portable equipment should be consistent with the site's physical controls and SWPPP.

**Amendments and Certification of SWPPP Completion** – All operations required to develop a SWPPP must certify to the Department that the SWPPP has been implemented. The SWPPP certification must contain the paragraph specified in part 3.4 of the permit and must be signed the permittee's authorized representative. Existing NMM and concrete operations that have implemented storm water Best Management Practices and have previously submitted a SWPPP certification to the Department under the Tier II permit (WI-S067857) or the expired NMM General Permit (WI-0046515-4) do not have to resubmit a SWPPP certification if the previous certification meets the requirements of the reissued version of the permit (WI-0046515-5). Department notification of amendment to the SWPPP is required if facility changes occur resulting in a significant increase in the exposure of pollutants or a need for significant modifications to the treatment best management practices. Amendment to the SWPPP is also required if the Department notifies the operation that storm water controls are not effectively complying with the requirements of the permit. The SWPPP certification for the operation should also indicate the expected storm water contaminant control system inspection frequency and the expected visual runoff quality check frequency.

**Annual Facility Site Compliance Inspection (AFSCI) For Active Operations** – Active NMM and concrete operations covered under the NMM GP are required to conduct annual facility site compliance inspections. The AFSCI shall verify that all pollution sources are correctly identified, and that the site drainage pattern description remains accurate. The AFSCI inspector should be familiar with the options for pollution prevention and the various treatment best management practices available and be able to evaluate that the proper best management practices have been chosen. The inspector shall also verify that the chosen management practices are being implemented, properly operated and adequately maintained. AFSCI documentation shall be available for Department review (for three years or until March 31, 2014, whichever is longer) at the nonmetallic mining site or other location (such as a company headquarters) approved by the Department. Forms are available on the Department internet site for use in completing and documenting an AFSCI.

**Annual Facility Site Compliance Inspections for Inactive Operations** – An alternate facility site compliance inspection (AFSCI) schedule is allowed for inactive operations with no product or waste stockpiles when annual inspections are impractical. The alternate schedule allows the AFSCI to be performed at least once every three years, or within 10 days of a site switching to active status, whichever is sooner.

**Quarterly Storm Water Control Inspections for Active Operations With SWPPPs** – NMM operations required by part 3 of the permit to develop and implement a storm water pollution prevention plan (externally drained sites, sites with storm water discharges to a wetlands not exempted under s. NR 103.06, sites with significant dissolved contaminants, portable NMM equipment groups, and concrete operations) are required to perform a quarterly storm water contaminant control system inspection when the operation is active during the calendar quarter. It is recommended that a staff person (that may be on-site for other activities) be trained to do a visual storm water control system inspection. The inspector should visually verify whether the storm water is draining as expected, the pollution sources are accounted for, and the selected pollution prevention and treatment best management practices are functioning properly and being adequately maintained. Although an inspection during a rain event is preferred, the quarterly storm water

control inspection can be a dry weather site walk-through to confirm that potential storm water contaminants are being controlled as planned. Obvious deficiencies, such as an undermined silt fence, an eroded berm, material washing over a containment curb, etc., should be corrected. Documentation of the quarterly visual control system inspection shall be kept with the AFSCI for the site.

Part 3.7.3 of the permit allows an **alternate** contaminant control system inspection **schedule** for an inactive or remote site when it is impractical or unnecessary (due to lack of evidence of erosion or sediment movement) to conduct a quarterly visual inspection of the storm water contaminant control system during the quarter. The quarterly contaminant control system inspection can be waived for up to three calendar quarters in this situation. Since an annual AFSCI is required for all active operations and an AFSCI can satisfy the quarterly contaminant control system inspection requirement, a year would be the longest time between required inspections to evaluate the storm water contaminant control system. The justification for the quarterly contaminant control system inspection waiver should be documented with the SWPPP certification.

**Quarterly Visual Storm Water Runoff Quality Checks** are also specified (in part 3.7.2) for active operations required to implement a SWPPP when: trained staff are generally on-site during the quarter, the runoff quality check can be performed safely, and there is runoff from a significant (>1/2 inch) rain or snow melt event during the quarter. In this situation, the major discharge outfall pipes and ditches conveying storm water off the site, to surface waters or to wetlands not exempted under s. NR 103.06 should be visually checked within 60 minutes of the runoff event. A written record of the visual storm water runoff quality check shall be created that lists the checked discharge outfall locations and includes any observations of color, odor, turbidity, floating solids, foam, oil sheen or other obvious indicators associated with storm water contamination. Documentation of the visual runoff quality check shall be kept with the AFSCI for the site. The quarterly control system inspection and quarterly visual storm water runoff quality check can be done separately or together at the discretion of the permittee.

Part 3.7.3 of the permit also allows an **alternate** visual runoff quality check **schedule** when active operations that are required to have a SWPPP are remote, and it is impractical or unnecessary to conduct a visual check of the actual storm water runoff quality during the quarter because: trained staff could not reasonably be present at the time of a snow melt or runoff event, the inspection could not be performed safely, or there were no snow melt or runoff events large enough to conduct a visual check. The alternate schedule allows the storm water runoff quality check to be performed at least once every three years. The basis for the waiver of the quarterly visual storm water runoff check should be documented with the SWPPP certification.

**Visual Inspections for Inactive Operations With a SWPPP Requirement** – Inactive operations required by the permit to develop and implement a storm water pollution prevention plan (externally drained inactive sites, inactive sites with storm water discharges to a wetland not exempted under s. NR 103.06) are also required to perform periodic visual inspections. However, if the permittee documents that a quarterly contaminant control system inspection or a quarterly visual storm water runoff quality check is impractical or unnecessary (lack of erosion or sediment movement) at an inactive site, an alternate schedule of at least once every three years is established. If the inactive site has no product or waste stockpiles the AFSCI frequency can also be reduced to at least once every three years. The SWPPP certification for the operation should indicate the expected visual contaminant control system inspection frequency and the expected visual runoff quality check frequency as allowed by the NMM GP.

## MINING PRODUCTION-RELATED WASTEWATER REQUIREMENTS

Permit parts 4 and 5 contain additional requirements for discharges of mining wastewater to groundwater and surface water resources from nonmetallic mining operations. Process wastewater from an internal or contiguous concrete operation that is under the legal responsibility of the NMM permittee can also be covered under this section of the NMM GP. Mining wastewater discharges such as mine dewatering and equipment washwater result from water being used in nonmetallic mining processes at a facility. Mining production-related wastewater is generated in wet and dry weather; the wastewater discharge occurs prior to or after storm water runoff. For example, although water standing in a mine may be the result of accumulation of storm water and/or groundwater, the pumping of excess water from the mining site is considered to be mine dewatering wastewater. However, the discharge of captured storm water to seepage areas within the mining site does not need to be monitored under part 4 of the permit. Nonmetallic mining process wastewater has a high potential to contain contaminants from nonmetallic mining operations. The requirements of permit parts 4 and 5 apply to portable operations when coverage for the portable operation is specifically requested by the permittee. Otherwise, all process wastewater discharges shall be reported under the NMM site covered under the GP.

Some operations may not have a discharge of process wastewater; therefore, the requirements of sections 4 and 5 do not apply. An example of this would be an operation where gravel from a hillside is mined and crushed, but no washing of aggregate is performed on site and no pumping of mine dewatering discharges off the mining site are necessary to continue operations. Although dust suppression activities may occur at the site, this activity does not require monitoring or reporting. Storm water contamination, which is addressed in permit part 3, is the primary concern at these sites.

A discharge to groundwater includes infiltration of wastewater in ditches, ponds, seepage areas, drain fields, irrigation etc. containing contaminants that may impact the drinking water quality of groundwater. A discharge of mining wastewater or contaminated storm water to surface waters includes ditches, storm sewers and pipes that convey wastewater to tributaries, wetlands, creeks, streams, rivers and lakes in Wisconsin. A wetland not exempted under s. NR 103.06 is considered a surface water resource whether it is external or internal to a NMM mining site. Section NR 103.06(4), Wis. Adm. Code contains exemptions for certain sedimentation basins, storm water detention basins and artificial wetlands within active nonmetallic mining operations.

Since many nonmetallic mining operations do not generate mining wastewater and many facilities only operate for part of the year, monitoring of mining wastewater (flow, TSS, oil & grease, etc.) is only required if there is a discharge of mining wastewater during the sampling period. The collected sample should be representative of the wastewater discharged during the sampling period.

**Flow** – The daily flow to seepage shall be estimated at least once per quarter, except that the permittee shall monitor flow to seepage **each month for 12 months** starting the month following a recorded daily discharge flow value greater than 200,000 gal/day. Facilities that monitor flow to seepage on a monthly frequency shall also provide an estimate of the monthly total flow to seepage on the annual discharge monitoring form. These flow estimates would allow the facility and the Department to evaluate the potential for the discharge to impact surface waters or groundwaters. A reasonable approximation of the total daily flow to groundwater can be based on any of the following: (a) pumpage estimates of the daily makeup water added to maintain a pond level, (b) calculation of pond seepage based on pressure head and hydraulic conductivity of the pond bottom, (c) measurement of discharge to a seepage area, and (d) any of the more complex methods listed in section NR 218.05(1), Wis. Adm. Code. A reasonable approximation of the total daily discharge flow to surface water can be based on any of the following: (a) water balance, (b) an uncalibrated weir, (c) calculations from the velocity and cross section of the discharge, (d) intake

water meter readings where a specific portion of the intake volume is discharged, (e) discharge flow meter readings, and (f) any of the more complex methods listed in section NR 218.05(1), Wis. Adm. Code. The Department may approve additional methods for estimating flow. Although estimates of precipitation are useful for pond sizing, the permittee is not required to include precipitation in estimates of the process wastewater discharge flow.

**Oil and Grease** - The oil and grease daily maximum effluent limit is 15 mg/l. The oil and grease limit is based on the ability of oil/water separator equipment to remove oil and grease from the wastewater. Oil and grease may be associated with these discharges as result of fueling or lubrication of machinery and equipment. Concrete and NMM process wastewater is required by this permit to be sampled annually for oil and grease, except the sampling frequency can be increased or decreased based on sample results. Facilities that show a discharge level of less than 7 mg/L on the first annual sample (under this permit) are not required to do further annual monitoring for oil and grease. Facilities that show significant oil and grease contamination or poor oil/water separator performance by discharging oil and grease above 15 mg/L are required to sample once each quarter for 4 calendar quarters. After the 4 quarterly samples are collected and the facility has consistently complied with the daily maximum limit, the sample frequency reverts to annual. More frequent monitoring may be specified in an order or stipulation resulting from enforcement of any oil and grease effluent limit noncompliance. Ch. NR 219, Wis. Adm. Code specifies that the Freon Oil & Grease test method is no longer approved and shall not be used.

**Total Suspended Solids (TSS)** - Discharges to groundwater are not required to monitor TSS levels due to the ability of natural soils to filter out suspended material. The TSS daily maximum effluent limit of 40 mg/l (milligrams per liter) for discharges to surface waters is based on the demonstrated ability of settling ponds to remove the variety of suspended solids particles that result from nonmetallic mining operations in Wisconsin. NMM operations usually do not have mechanical clarifiers on site to remove suspended solids. Water with 40 mg/l of TSS or less is not expected to have negative impacts on aquatic life. However, the Department may draft an individual permit with site specific TSS limitations when needed to control suspended solids discharges that accumulate and could negatively impact local fish spawning beds or wetland aquatic life. Discharges to surface water resources shall monitored TSS quarterly using a grab sample, except that the TSS monitoring frequency shall increase to **once each month for 12 months** utilizing 3 grab composite samples beginning the month following receipt of a sample result showing a discharge TSS above 40 mg/L. The monthly monitoring frequency and composite samples are designed to more closely check compliance for facilities that have shown a violation of the TSS limitation. This increased monitoring frequency is independent of any Department enforcement response to permit noncompliance. More frequent monitoring or a different sample type may be specified in an order or stipulation resulting from enforcement of permit noncompliance.

**pH** - The pH range is limited to 6.0 to 9.0 standard units. This is consistent with the water quality based pH range for waters classified for fish and aquatic life. Wastewater pH within this range will also likely meet the groundwater indicator standards for pH after seepage through the soil. Concrete product process wastewater has more required monitoring for pH due to the potential for raising the pH during concrete block curing or concrete mixing. Nonmetallic mining process wastewater shall be monitored on an annual basis using a grab sample, except that no further pH monitoring is required if the first two annual samples demonstrate a low potential to exceed the limits (results are within the pH range of 6.7 to 8.3 std. units).

**Water Treatment Additives** - The facility shall keep a monthly record of the amounts of water treatment additives used. Records of non-biocide water treatment additives used to control corrosion or prevent deposition of scale should also be maintained. This information should be kept by the NMM operation and may be checked by the Department to confirm that additive usage remains within safe levels.

**Solids Removal** – Captured sediment can clog spaces between soil particles, resulting in decreased seepage capacity. Removal of these solids may be necessary to restore absorptive capacity. Over time, solids can also build up in settling facilities, resulting in decreased volume, reduced wastewater residence time, and ineffective solids treatment. Solids should be occasionally removed from settling facilities to insure effective solids removal and compliance with permit limits.

**Outside Washing Activities** - Discharges of wash water from the outside washing of vehicles, equipment, and other objects that are appropriately addressed by Best Management Practices (BMP's), can be covered under this permit. Phosphorus free biodegradable soaps shall be used, and the washing of road deicing residuals to water resources shall be minimized. Wash water containing significant levels of petroleum products (such as diesel or gasoline) or volatile organic solvents (such as from engine degreasing) shall be captured for treatment or not be discharged. Additional coverage under the WPDES general permit for Outside Washing activities (WI-0059153) is not required. This permit also requires BMP's to control residual contaminants from outside washing activities to prevent storm water contamination. Testing of this type wastewater is not required, which mirrors the requirements of the Outside Washing GP.

**Reporting Test Results for Process Wastewater** - The permit requires annual reporting of all process wastewater monitoring results. The results shall be submitted to the Department, **postmarked no later than February 15** of the year following the monitoring calendar year (for example, the monitoring results report for the calendar year 2009 is to be postmarked by February 15, 2010). A Department monitoring form may be used to submit the data, or an alternate reporting format may be submitted that clearly shows the data collected during the previous calendar year. The report shall be submitted to: WI Dept. of Natural Resources, Attn: WPDES GP DMR, at (1) the office address identified on the reporting form or in the document granting coverage under this permit, (2) the office address of the nearest DNR Regional Headquarters, or it may be submitted to the watershed bureau address in Madison (P.O. Box 7921, Madison, Wisconsin 53707). The operator of a portable equipment group requested to be covered under this permit shall submit the annual report information, including the site and county where the monitoring data was collected, to the Headquarters Office of the Department Region in which the portable operation was primarily operated.

**Retention of Reports, Records, and Monitoring Results** - Operations shall maintain all storm water inspection reports and all effluent monitoring data generated while covered under this permit for either the duration of this permit or three years after the data is generated, whichever is longer. Inspection reports, records, and monitoring results need be maintained at a location that is easily and reliably accessible to company representatives so that this information can be provided to Department staff upon request.

**Floating Solids and Foam** – The requirement to not discharge floating solids or visible foam is a treatment based requirement achievable by application of best practicable control technology such as a surface baffle or skimmers.

#### STANDARD GENERAL PERMIT REQUIREMENTS

The part 6 of the permit highlights and references standard requirements from NR 205, Wisconsin Administrative Code, that apply to industrial WPDES permit holders. The conditions in ss. NR 205.07(1) and NR 205.07(3), Wis. Adm. Code, are effective conditions of this general NMM permit by reference. The permittee needs to comply with all of the requirements contained in these parts of NR 205, except for s. NR 205.07(1)(n), which does not apply to facilities covered under general permits. A complete print out of these NR 205 requirements that are effectively part of this permit is available by request. Also, NR 205 can be accessed or printed from the Wisconsin Revisor of Statutes web site. Selected s. NR 205.07 requirements are listed in the permit for convenience of the permittee.

Numerous Department staff, such as Jim Bertolacini, Mike Reif, Robert Liska, Brad Johnson, Susan Watson, Jennifer Huffman and Eric Rortvedt provided comments to improve this permit. The Wisconsin Transportation Builders Association, Michels Materials Corporation, and the Wisconsin Aggregate Producers Association also provided valuable feedback on complexities of implementing the storm water control requirements for nonmetallic mining operations.

Respectfully submitted,

Jeffrey W. Brauer, Env. Engineer  
Bureau of Watershed Management

#### Additional Resources for Storm Water Dischargers

The following additional documents may be obtained from Department storm water staff or from the Department internet site. These documents can be of assistance to facilities discharging storm water from nonmetallic mining operations covered by general permit WI-0046515-5.

- Technical standards for erosion and sediment control can be found on the DNR's Storm Water internet site. The current internet address is <http://dnr.wi.gov/runoff/stormwater/techstds.htm>
- A model SWPPP for nonmetallic mining operations is available on the DNR's Storm Water internet site at <http://dnr.wi.gov/runoff/stormwater/industrialforms.htm>
- The annual facility site compliance inspection report (AFSCI) form is available on the DNR's Storm Water internet site at <http://dnr.wi.gov/runoff/stormwater/industrialforms.htm>