Informational Document for WPDES General Permit For Discharge of Contaminated Groundwater from Remedial Action Operations

Permit No. WI-0046566-5

June 2007

The Department has developed Generalized WPDES Permits (GP) that are designed to cover discharges from a class of facilities or industries whose wastewater discharges are similar in character. When a GP is issued, many facilities meeting its requirements may be covered under the same general permit. GP's currently exist for non-contact cooling water, groundwater remediations, non-metallic mining operations, landspreading of food processing wastewaters and fourteen other types of industrial operations.

The Department will send a cover letter notifying the facility that its discharge is appropriately covered under the remedial action operations general permit. Due to the complexity of contaminants covered under this permit and the variety of potential water quality limits for these contaminants at a discharge site, a permittee can not decide to cover their own discharge under this general permit. If a facility wishes to have coverage for a remediation wastewater discharge, contact the regional DNR office to provide information about the discharge. Then the Department can decide on appropriate permit coverage.

GENERAL DESCRIPTION OF OPERATIONS COVERED

The remedial action general permit is being reissued to continue to provide a streamlined mechanism to regulate wastewater discharges from soil or groundwater remediation projects. Contaminated sites can pose a threat to public health or welfare. The Department continues to receive requests each year to discharge remediation wastewaters with minimal to significant contamination. In some cases, the requests are for a short duration discharge to verify the extent of contamination. In other cases, the requests are for long term discharges to control plume migration or to remove contaminants from aquifers. These requests are often received with short lead times not conducive to the normal 180 day WPDES permit issuance process. In most cases, the goal is to remove pollutants from soils or aquifers to prevent migration.

SUMMARY OF MAJOR CHANGES FROM THE PERMIT THAT EXPIRED IN MARCH OF 2006

The following is a short listing of the major proposed changes to the expired remedial action general permit. For more detail on these changes and information on other less significant changes refer to the topic specific section later in this informational document.

Bioaccumulating Substances – Since the bioaccumulating substances are now specifically contained in NR 105 and NR 106, Wis. Adm. Code, there no longer is a need to list the substances in the general permit.

Updated Limit for Seepage of Wastewater - For seepage discharges, the naphthalene limit was updated from 8 ug/L to 10 ug/L to be consistent with current ch. NR 140 Wisconsin Adm. Code.

Updated Standard Requirements - The standard requirements section 9 has been updated to make the requirements consistent with individual permits currently being issued by the Department. The bypass conditions were expanded to include requirements for planned and unplanned bypasses.

The permit was reformatted to be consistent with current Wisconsin permits, and there were many editorial changes intended to clarify the intent and improve readability of the permit requirements.

PERMIT APPLICABILITY CRITERIA

Activities Covered - This permit is applicable to discharges from remedial action operations where the extracted contaminated groundwater is treated for pollutant removal and the discharge will not have

significant impacts on receiving surface or groundwaters. Discharges to exceptional resource waters are allowed because these projects are actions to cleanup an existing groundwater contamination problem, and they are often undertaken to correct a water supply public health problem as required in Ch. NR 207.03(2).

Activities Excluded - Discharges to "outstanding resource waters" listed in NR 102.10 or public water supply sources listed in NR 104, such as Lake Superior, Lake Michigan and Lake Winnebago, are not authorized under this GP. These waters have more restrictive water quality criteria. Regulation of discharges to outstanding resource waters and water supply sources requires an specifically drafted permit which provides the oversight and discharge limitations necessary to protect these drinking water sources.

Activities Excluded - Discharges are not covered under this permit if they do not meet the wetland protection requirements of ch. NR 103, Wis. Adm. Code. For discharges that impact wetlands, a facility will need to submit information that allows the Department to determine if a discharge meets NR 103 code requirements.

Activities Excluded - Discharges are not eligible for this GP if pollutant discharge quantities have a reasonable potential (as specified in s. NR 106.05, Wis. Adm. Code) to exceed criteria and limitations designed to prevent harm to aquatic life, wildlife and human health. Remedial action discharges will be evaluated by comparing the pollutant concentrations in the extracted and treated groundwater with water quality criteria for fish and aquatic life acute or chronic effects, wildlife effects, human threshold effects and human cancer effects. This evaluation for compliance with chapters NR 102, NR 105, NR 106, and NR 207, Wisconsin Administrative Codes, is performed with the help of a worksheet. For a simple hydrocarbon remediation wastewater with no detectable lead, the worksheet will make sure the discharge is not to an outstanding resource water or water supply source. For more complex cases, the worksheet will be filled in with assistance of a water quality specialist. This general permit shall only be used when the worksheet assisted water quality evaluation confirms that the limits contained in the general permit are sufficiently restrictive to protect the receiving water quality. If detected contaminants are not specifically limited in the permit, the provisions of NR 106.05 shall be used to judge the reasonable potential for the contaminant to exceed any site specific water quality criteria. A separate WPDES permit shall be drafted on a case-by-case basis when a discharge contaminant level triggers a need for an additional limit or a limit that is more restrictive than that contained in the general permit.

Acrylonitrile is a good example of the type of contaminant whose discharge should not be authorized under this permit. Acrylonitrile has very low water quality criteria, there are major problems treating/removing the compound, and it is very difficult to obtaining adequately low analysis detection limits. A discharge containing acrylonitrile should be regulated by a WPDES permit specially drafted for the discharge.

REQUIREMENTS FOR ALL DISCHARGERS

Wastewater Treatment - Wastewater treatment for pollutant removal is required for all discharges of contaminated groundwater, including pump test wastewaters. This treatment requirement is consistent with section 301(b)(2) of the Clean Water Act and the section 283.13 (2)(b) of the Wis. Statutes. The level of treatment shall be adequate to assure compliance with water quality standards or shall be equivalent to Best Available Treatment Economically Achievable (BAT), which ever is more restrictive. Section 281.41, Wis. Stats. requires Department review and approval of wastewater treatment plans and specifications. When treatment units for contaminated groundwater are supplier furnished package units, a minimum plan submittal is a diagram, a summary of the design, and unit sizing calculations.

Discharge Management Plan - The permit continues the requirement that the permittee submit a discharge management plan. The primary purpose of the management plan is to specify the contaminants that will be tested in the wastewater. The Department must conditionally approve, approve or reject the proposed

discharge management plan. To comply with the permit, the facility must monitor the remediation discharges consistent with a Department approved discharge management plan.

Compounds to be tested under the management plan come from three main areas, those limited in the GP, those designated to show effective pollutant removal, and other contaminants detected at low levels in the impacted groundwater. A large group of contaminants are directly limited in the permit; it is unlikely that any remediation project would have all of those contaminants. Through the management plan, the permittee can propose to eliminate monitoring for parameters limited in the permit if they have not been detected in the groundwater monitoring wells. The second need for monitoring is to document that the treatment system is effectively removing contaminants. Often treatment effectiveness can be demonstrated by monitoring contaminants limited in the permit. However, there are cases when the primary remediation contaminants are not limited in the permit (for example, 1,1 Dichloroethane). In that case monitoring for those contaminants shall be included in the management plan. The third need for monitoring data occurs when, in the site characterization, there are confirmed detects of other contaminants with water quality criteria listed in NR 105, Tables 1 through 9 or NR 140, Tables 1 through 3. To qualify to discharge under this permit, the levels of these compounds in the discharge must be low enough (as specified in NR 106.05) that no site specific water quality limits are required. However, monitoring should be specified to confirm that these pollutants will not exceed any surface or groundwater levels of concern.

Other components of the Discharge Management Plan would include details on sampling procedures, selected analysis methods, procedures for disposing of tower cleaning wastewaters, or proposals to establish alternate effluent limitations for wastewater infiltration discharges. Alternate groundwater limits are discussed further in the groundwater discharge section of this briefing memo.

Monitoring Frequency - The sampling frequency requirements were simplified from the previous permit to specify weekly monitoring for the first 6 weeks followed by monthly sampling. The permit also allows an option that the Department can approve, in the discharge management plan approval, a sample frequency reduction to quarterly if after the discharge has been monitored for at least one year, at least 16 sample results have been generated, no analysis results have exceeded 60% of any permit discharge limitation, and there is little chance that a high pollutant level may abruptly pass through the treatment unit. Quarterly sampling may be appropriate for stable remediation projects where there is a certainty that compliance with effluent limits will be maintained. The permit also contains a specific sampling frequency for in-situ remediation projects (quarterly or semi-annually) and agri-chemical remediation wastewater land application systems (weekly or monthly).

Other Permits - Other permits or approvals may be required for the project. The facility is responsible for obtaining other necessary Federal, State or local approvals or permits. For example, any work performed below, or within 500 feet of the ordinary high water mark of navigable waters, in wetland areas, or within areas subject to local floodplain and shore land regulations, must conform to all such county or local ordinances. Also, other applicable state permits and/or contracts required by Chapters 30, 31, and 87, Wis. Statutes would need to be obtained. The emission of Volatile Organic Contaminants from air stripping of contaminated groundwater shall be either approved, exempted from, or in compliance with a DNR air emission permit. It is the responsibility of the permittee to obtain the other necessary permits.

Treatment Equipment and Maintenance - Considering the type of pollutants that may be regulated under this permit, it is necessary that treatment equipment be in place and maintained to mitigate possible variations in discharge and effluent quality. All removed substances shall be disposed of in accordance with NR 205.07(3)a). Documentation records of the disposal operation shall be maintained on site for the life of the permit.

Pond Overflow or Leakage - The integrity of the containment area must be maintained. Overflows or

leakage through dikes or berms may cause sloughing or washouts.

Total Residual Chlorine - Occasionally, air-stripping towers or activated carbon treatment units may become clogged from the growth of micro-organisms. This is especially true when there are nitrogen and phosphorus nutrients in the water. The oxygen rich, warm and wet environment in the treatment unit provides favorable conditions for bacteria or fungi to grow. As the treatment unit becomes clogged, the treatment capacity decreases until low amounts of water will flow through the unit. Then it must be cleaned to restore treatment efficiency. Acids, bases or biocides, such as chlorine, may be used to clean the micro-organisms out of the treatment system. The recommended system would be to clean the treatment unit when it is out of service, and then capture the cleaning wastewater for acceptable off-site disposal, such as a sanitary sewer.

Alternatively, if the pH is between 6 and 9 S.U. and the biocide is chlorine only, the cleaning wastewater may be treated for removal of suspended solids (to less than 40 mg/L), and then discharged under this permit. The discharge of chlorinated water to surface waters shall not contain detectable amounts of Total Residual Chlorine using Standard Methods #408B, D or E (DPD titration or colorimetric), or by using an ion specific electrode approved in Ch. NR 219. The acute limit for total chlorine residual is 37 ug/L and the chronic criteria is 7 ug/L. Since both of these limits are lower than the detection limits for the methods listed above, the permit requires no detect of chlorine residual using the appropriate analysis method. Chlorine is the only biocide that can be discharged under this permit.

Other Water Treatment Additives - Water treatment additives vary from innocuous to highly toxic. This permit allows the use water treatment compounds that will not impact aquatic life or human health. Many water treatment additives are used to control corrosion or prevent deposition of scale forming materials and do not exhibit residual toxic effects on receiving waters.

Only additives that have been reviewed and approved in writing by the Department may be discharged under this permit. Facilities are required to submit information regarding the toxicity of the additive and the proposed treatment regime so that the Department can determine if it is allowable and won't negatively impact aquatic life or groundwater. For surface water dischargers, the toxological information needed is at least one 48-hour LC_{50} or EC_{50} value for daphnia magna or ceriodaphnia dubia, and at least one 96-hour LC_{50} or EC_{50} value for either fathead minnow, rainbow trout or bluegill. This toxicity information can be found by checking the Material Safety Data Sheet (MSDS) or contacting the additive manufacturer.

In some cases, chemical manufacturers provide LC_{50} or EC_{50} values only for the active ingredient or a component of the product. It is not possible for the Department to ascertain the toxicity of the whole product on the basis of LC_{50} or EC_{50} values for product constituents. This is because of the potential for synergistic effects of the other constituents of the product to affect the whole product toxicity. If the facility is unable to provide the whole product toxicity, and the Department's additive database does not have the toxicity information, the additive will not be approved for discharge under the general permit.

The Department must also approve changes in the types or quantities of additives discharged. Changes in additive use can change the wastewater discharge characteristics and could impact aquatic life or groundwater. The discharge of all other biocide water treatment additives (with the exception of chlorine) requires regulation by a site specific individual permit due to the toxic effectiveness of the biocides.

DISCHARGES OF PETROLEUM REMEDIATION WASTEWATERS TO SURFACE WATERS

Treatment Based Limits - As authorized by NR 220.21, the permit contains limits for petroleum product remediation wastewater that represents Best Available Treatment (BAT) in the professional judgment of the Department. These limits are based upon readily available air stripping and oil/water separator treatment

technology. The limits for benzene and BETX (the sum of benzene, ethylbenzene, toluene and total xylenes) are the same as the expired permit. It is thought the treatment level required to meet the benzene and BETX limits will adequately remove other volatile petroleum product constituents. The permit also contains a limitation for Napthalene at 70 ug/L and a requirement to monitor for MTBE (Methyl Tert Butyl Ether), an oxidant gasoline additive.

Limits and monitoring requirements for petroleum contaminant discharge to surface waters:

Parameter	Effluent Limit	Sample Type	Sample Frequency	Notes
Flow	-	Total Daily	Daily	See NR 218.05
Benzene	50 ug/L, Monthly Avg.	Grab	See Part 2.5	
Total BETX	750 ug/L, Daily Maximum	Grab	See Part 2.5	See BETX part
MTBE	-	Grab	See Part 2.5	
Polynuclear Aromatic Hydrocarbons	0.1 ug/L, Monthly Avg.	Grab	See Part 2.5	See PAH part
Benzo(a)pyrene	0.1 ug/L, Monthly Avg.	Grab	See Part 2.5	
Naphthalene	70 ug/L, Monthly Avg.	Grab	See Part 2.5	
Total Recoverable Lead	50 ug/L, Daily Maximum	Composite	See Part 2.5	
Total Recoverable Lead (Site Specific)	*ug/L, Weekly Average	Composite	See Part 2.5	Lead limit calc
Total Recoverable Lead (Site Specific)	*mass/day, Weekly Average	Composite	See Part 2.5	Lead limit calc
Oil/Grease	10 mg/L, Daily Maximum	Grab	See Part 2.5	
Total Suspended Solids	40 mg/L, Daily Maximum	Grab	See Part 2.5	See TSS part

Permit sections 2.5 and 2.6 set monitoring frequency and specify wastewater and SW-846 test methods.
* - see the lead limits paragraph below.

Other Petroleum Limits - Groundwater from remediation of "heavier" products such as heating fuel, diesel fuel, jet fuel, and other similar petroleum products may contain polynuclear aromatic hydrocarbons. The discharge limit for polynuclear aromatic hydrocarbons (PAH's) is retained from the previous permit. Free product separation is required as the first step to remove the petroleum product constituents. The PAH discharge limit of 0.1 ug/L was developed based on the likely carcinogenic effects of the contaminants and the judgment that this low effluent level is achievable with activated carbon treatment. Benzo(a)pyrene is limited individually at 0.1 ug/L based on this compound having the most toxological data. The PAH group criteria applies to the following compounds: benzo(a)anthracene, benzo(b)fluoranthene, benzo(k)fluoranthene, benzo(g,h,i)perylene, chrysene, dibenzo(a,h)anthracene, fluoranthene, indeno(1,2,3-cd)pyrene, phenanthrene, and pyrene. The permit requires that the detected amounts of the 10 polynuclear aromatic hydrocarbons in the group have a sum of less than 0.1 ug/L. Alternatively, the permittee can demonstrate compliance with the limit if there is no detection of these compounds using EPA methods 610 or 8310 (High Pressure Liquid Chromatography). Also, method 8270 is acceptable when high levels of other organic contaminants necessitate significant sample dilution.

A more restrictive site specific permit should be drafted for a direct discharge of benzene or polynuclear aromatic hydrocarbons to waters, such as the Great Lakes or Lake Winnebago, that are classified as public drinking water sources.

Lead Limitations - The permit contains limits for total recoverable lead based on the number of gasoline remediation projects detecting significant amounts of lead in the wastewater. The permittee can analyze for total lead or total recoverable lead to show compliance with the permit limit. The 50 ug/L daily maximum

lead limit represents a reasonably achievable (treatment technology based) limit for all discharges. Experience to date has indicated that the form of lead in gasoline, tetra ethyl lead, is strongly attached to fine sediment particles that may be removed from the aquifer by pumping. Therefore, removal of fine sediment particles may be needed to control total recoverable lead in discharges from leaded gasoline remediation projects.

The permit also contains weekly average lead limits that can be quite restrictive for low flow, low hardness receiving waters. The weekly average lead limit is a function of: the receiving water hardness as specified in NR 105.06 table 6, the effluent average day design flow (Q_e), the receiving water background concentration (C_s), and the receiving water design flow (Q_s) as specified in NR 106.06(3). To calculate the weekly average lead limit for the general permit, the WQC variable in the NR106.06(3) formula needs to be adjusted to reflect 1/3 of the assimilative capacity to prevent significant lowering of water quality per NR 207.04(2)(c)2. Separate formulas in are provided in NR 106.06(3) for discharges to streams and discharges to lakes. Since most of the discharges under this permit are to streams, the permit provides formulas to directly calculate the weekly average lead permit limits for a stream discharge. Department staff can provide assistance to the permittee for calculation of the weekly average lead limits. The result of the lead limit calculation should be confirmed in writing (possibly in the cover letter) to make sure there is no confusion over the correctly calculated limitation. The highest day (normal operation) design effluent flow should be used for Q_e in the calculation. This should be a stable number because remediation projects are usually designed for a certain groundwater withdrawal pumping rate to control plume migration.

DISCHARGES OF VOLATILE ORGANIC COMPOUNDS TO SURFACE WATERS

Treatment - Effective treatment is required, such as air stripping or activated carbon adsorption, for all discharges containing volatile organic chemicals. The Clean Water Act requires best available treatment economically achievable to minimize the discharge of contaminants into waters of the state, even when the untreated wastewater could meet the concentration limits listed in the permit. This best available treatment requirement will assure compliance with Wisconsin Water Quality Standards listed in NR 105, Wis. Adm. Code in almost all cases. When more restrictive water quality based effluent limits are needed, such as for direct discharges of certain VOC contaminants to low mean annual flow, warm or cold water streams, a site specific WPDES permit should be individually drafted to regulate the discharge.

Unchanged Limits - The limits for volatile organic compounds are the same as those in the previous permit. These limits represent effluent concentrations judged to be achievable with a well designed air stripper.

Monitoring Frequency - The sampling frequency requirements start at weekly for the first 6 weeks of discharge under the remedial action operations general permit, then the frequency is reduced to monthly. The permit also allows an option that the Department can approve, in the discharge management plan approval, a sample frequency reduction to quarterly after at least 16 samples over at least one year are reported.

Water Quality Evaluation - Department staff need to evaluate discharges from volatile organic compound (VOC) remediation projects. GP limits need to be compared with Wisconsin's water quality criteria for the priority pollutant VOC's. The human threshold and human cancer criteria are from Ch. NR 105, and the fish and aquatic life acute criteria are from EPA documents. To get an idea of what concentrations are reasonably achievable with available treatment technology, the final BAT regulations for the Organic Chemicals point source category (52 CFR 42582, November 5, 1987) were referenced. The limits chosen for this general permit were designed to be achievable with available treatment technology, and be restrictive enough to meet water quality standards (NR 105, 106 and 207) in almost all cases.

Limits and monitoring requirements for VOC's in a discharge to surface waters:

Parameter	Effluent Limit	Sample Type	Sample Frequency	Notes
Flow	-	Total Daily	Daily	See NR 218.05
Acrylonitrile	No Discharge	-	-	-
Bromoform	120 ug/L, Monthly Avg.	Grab	See Part 2.5	
Carbon Tetrachloride	150 ug/L, Monthly Avg.	Grab	See Part 2.5	
Chloroform	120 ug/L, Monthly Avg.	Grab	See Part 2.5	
Dichlorobromomethane	120 ug/L, Monthly Avg.	Grab	See Part 2.5	
1,2-Dichloroethane	180 ug/L, Monthly Avg.	Grab	See Part 2.5	
1,1-Dichloroethylene	50 ug/L, Monthly Avg.	Grab	See Part 2.5	
Methyl Bromide	120 ug/L, Monthly Avg.	Grab	See Part 2.5	
Methyl Chloride	120 ug/L, Monthly Avg.	Grab	See Part 2.5	
1,1,2,2-Tetrachloroethane	50 ug/L, Monthly Avg.	Grab	See Part 2.5	
Tetrachloroethylene	50 ug/L, Monthly Avg.	Grab	See Part 2.5	
1,1,2-Trichloroethane	50 ug/L, Monthly Avg.	Grab	See Part 2.5	
1,1,1-Trichloroethane	50 ug/L, Monthly Avg.	Grab	See Part 2.5	
Trichloroethylene	50 ug/L, Monthly Avg.	Grab	See Part 2.5	
Vinyl Chloride	10 ug/L, Monthly Avg.	Grab	See Part 2.5	
Total Suspended Solids	40 mg/L, Daily Maximum	Grab	See Part 2.5	

Permit sections 2.5 and 2.6 set monitoring frequency and specify wastewater and SW-846 test methods.

VOC Limits Restrictive Enough - The impact of the remediation site discharge on the receiving surface water quality must be evaluated for each request to discharge under this section of the permit. This evaluation should be checked by Water Quality staff in all cases. Four main things must be known to determine if the general permit limits are sufficiently restrictive to protect surface water quality: a characterization of the pollutants in the discharge, the highest monthly average (design) discharge flow rate, the receiving water classification, and the surface water mean annual flow. It is assumed that the stream background concentration of VOC's is zero due to stream turbulence and bio-degradation. The expected pollutant concentration after mixing with the receiving water mean annual flow must be compared with 1/3 of the water quality criteria (to prevent significant lowering of water quality per NR 207) for the aquatic or use classification.

For example, this general permit's limit for carbon tetrachloride may not be sufficiently restrictive to prevent significant lowering of water quality when a cold water (trout) stream has a low mean annual flow. A mixing ratio would be 20 if the stream mean annual flow is 20 times the highest monthly average (design) discharge flow rate. For a mixing ratio of 20, the 150 ug/L general permit limit would result in a theoretical carbon tetrachloride concentration of 7.5 ug/L beyond the mixing zone. An in-stream concentration of 7.5 ug/L would be greater than the 3.3 ug/L water quality criteria (1/3 of 10 ug/L), and the proposed discharge would result in significant lowering of water quality as defined in NR 207. As long as treatment to meet the 3.3 ug/L in-stream criteria is technically and economically achievable, the GP should not be used in this example. An individual, site specific permit should be drafted based on meeting the carbon tetrachloride in-stream criteria of 3.3 ug/L. The individual permit carbon tetrachloride monthly average limit would be 66 ug/L for discharge to the trout stream in this example.

If there is no economically achievable treatment system that can meet the 3.3 ug/L in-stream criteria, the general permit could be used (consistent with NR 207) to allow a mixed cold water in-stream carbon tetrachloride concentration up to 10 ug/L (the whole assimilative capacity under the water quality criteria).

An increase up to 10 ug/L of Carbon Tetrachloride in the stream could be allowed only if the treatment options and costs comparisons are evaluated as specified in NR 207.04(1)(d). If the Department approves the documented treatment and cost evaluation, significant lowering of water quality in the stream could be authorized and the general permit limit would be protective up to an in-stream criteria of 10 ug/L.

DISCHARGES TO GROUNDWATER

Infiltration to Groundwater that is not part of the Remediation Zone - When the discharge will seep into the ground (there are no surface water resources in the area) or a significant part of the discharge would seep into the ground before entering a surface water, the impacts from remedial action discharges are also regulated by NR 140, Wis. Adm. Code. In this case, the general permit requires that the wastewater treatment system be designed to minimize the concentration of the pollutants in the groundwater to the extent that it is technically and economically feasible. Based on the requirement to minimize pollutant concentrations in the groundwater, the general permit establishes monthly average effluent limitations that are equivalent to NR 140 Preventive Action Limits (PAL). In other words, the effluent would have to meet limitations that are equivalent to PAL's at the end of the discharge pipe. Expressing the limit as a monthly average recognizes that any higher short-term values would likely not be significant due to dispersion or mixing as the water flows into and through the ground.

Petroleum Compounds:

Acetone - 200 ug/L	Methyl isobutyl ketone - 50 ug/L
Benzene - 0.5 ug/L	Methyl tert-butyl ether - 12 ug/L
Benzo(a)pyrene - 0.02 ug/L	Naphthalene - 10 ug/L
Benzo(b)fluoranthene- 0.02 ug/L	Pyrene - 50 ug/L
Chrysene - 0.02 ug/L	Pyridine - 2 ug/L
Ethylbenzene - 140 ug/L	Styrene - 10 ug/L
Ethylene Dibromide - 0.005 ug/L	Tetrahydrofuran - 10 ug/L
Fluoranthene - 80 ug/L	Toluene - 200 ug/L
Fluorene - 80 ug/L	Trimethylbenzenes - 96 ug/L
Lead - 1.5 ug/L	(combined 1,2,4 & 1,3,5)
Methyl ethyl ketone - 90 ug/L	Total BETX - 750 ug/L

Chlorinated Organics:

1,1-Dichloroethane - 85 ug/L	Chloromethane - 0.3 ug/L
1,2-Dichloroethane - 0.5 ug/L	Methylene Chloride - 0.5 ug/L
1,1-Dichloroethylene - 0.7 ug/L	Pentachlorophenol - 0.1 ug/L
1,2-Dichloroethylene (cis) - 7 ug/L	1,1,1,2-Tetrachloroethane - 7 ug/L
1,2-Dichloroethylene (trans) - 20 ug/L	1,1,2,2-Tetrachloroethane - 0.02ug/L
1,2-Dichlorobenzene - 60 ug/L	Tetrachloroethylene - 0.5 ug/L
1,3-Dichlorobenzene - 125 ug/L	1,1,1-Trichloroethane - 40 ug/L
1,4-Dichlorobenzene - 15 ug/L	1,1,2-Trichloroethane - 0.5 ug/L
Carbon tetrachloride - 0.5 ug/L	Trichloroethylene - 0.5 ug/L
Chloroethane - 80 ug/L	1,2,4-Trichlorobenzene - 14 ug/L
Chloroform - 0.6 ug/L	Vinyl Chloride - 0.02 ug/L

Alternate Effluent Limits for Infiltration – When the infiltration discharge is to groundwater that is not part of the remediation zone, the permit provides an opportunity for the permittee to propose and justify alternate effluent limitations (up to a level equal to NR 140 Enforcement Standards) in the Discharge Management Plan. This type of discharge system would be eligible for a design management zone (DMZ) under NR 140. The permittee would have to show that the limits listed in the permit are not technically or economically achievable, or that factors (such as dispersion or degradation) would occur inside the design management zone. The Department can approve, conditionally approve or reject the proposed management plan. The results of a groundwater model would usually be needed to help demonstrate that dispersion or degradation would cause the groundwater to be less than the PAL or Enforcement Standard outside the DMZ. Sampling of monitoring wells installed around the infiltration system may be required in the discharge management plan in cases when an alternate effluent limit is approved.

Remediation of In-situ Contaminants - The permit contains conditions that regulate infiltration or injection discharges that are part of in-situ bioremediation projects. Since the water being discharged almost always contains some contaminants, a discharge permit would be required. This part of the general permit is designed to meet the wastewater permitting needs for these projects. Regulation of bioremediation projects often requires coordination between Department watershed staff and remediation staff.

Since contaminant release or spill sites are not eligible for a NR 140 design management zone, this permit section's discharge requirements were split between the discharges that could meet preventive action limits (PAL's) in the water prior to injection or infiltration, and other discharges that would be above PAL's in the infiltrated or injected water. With no DMZ, discharge levels above the PAL's would require a temporary exemption issued in accordance with NR 140.28(5). The permit establishes effluent limitations that are equivalent to PAL's for projects that do not have a NR 140 temporary exemption. In cases where the discharge is above PAL's, detailed limitations and other requirements for a the in-situ remediation project should be specified in the NR 140.28(5) temporary exemption and the remedial action plan approved under s. 292.31, Wisconsin Statutes. The permit also contains a condition on degradation by-products based on environmental repair program in-situ bioremediation guidance.

Agri-chemical Remediation Wastewaters - The permit contains conditions that regulate landspreading or spray irrigation of wastewaters from agri-chemical remediation projects. The extracted groundwater from these sites often contains pesticides, ammonia-nitrogen, nitrate-nitrogen, chlorides and phosphorus. Since the water being discharged contains contaminants, a discharge permit is required. Regulation of the discharges from agri-chemical remediation projects needs to be coordinated with staff in the Department of Agriculture, Trade and Consumer Protection. The permit contains nitrogen and chloride loading limitations from NR 214, Wi. Adm. Code, that are consistent with the limits put on other dischargers to landspreading or spray irrigation. A ponding and runoff condition is also included due to the need to prevent wastewater from collecting in a localized area or entering a surface waterway. The permit requires that any agri-chemical remediation wastewaters spread on farm fields be applied for the beneficial use of the crop, and that any pesticide contribution from the remedial action water be in accordance with the appropriate pesticide product label restrictions.

Standard industrial wastewater permit conditions from NR 205 (noncompliance, spills, reporting data, process changes, etc.) are included as Part 8 of this permit. The permit's expiration date is June 30, 2012. A Request For Coverage under this general permit should be sent to the local DNR watershed engineer.

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Table of Contents
For

Remedial Action General Permit WPDES Permit No. WI-0046566-5