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**GENERAL PERMIT TO INSTALL FOR REMEDIATION PROCESSES:
GASOLINE AND PETROLEUM BASED CONTAMINANTS**

BACKGROUND

On September 21, 1999, the Michigan Department of Environment, Great Lakes, and Energy (EGLE), Air Quality Division (AQD), issued a general permit to install for selected remediation processes for soil or groundwater contaminated with gasoline and petroleum based products. This general permit, issued pursuant to R 336.1201a, promulgated pursuant to Part 55, Air Pollution Control, of the Natural Resources and Environmental Protection Act, 1994 PA 451, as amended (Rule 201a), provides a streamlined permitting alternative for affected facilities which meet the specified applicability criteria and allows facilities more operational flexibility. Prior to approval, EGLE held a 30-day public comment period to receive comments on the proposed general permit. A public hearing was not requested and no written comments were received during the comment period.

EMISSIONS

Remediation processes include air stripping (pumping groundwater to the surface and transferring contaminants to the air), soil vapor extraction (volatilizing contaminants out of soil with vacuum pressure), and air sparging processes (injecting air into soil/groundwater to remove contaminants). Contaminants removed through these processes include crude oil; crude oil fractions; refined petroleum fractions including gasoline, jet fuels, kerosene, heating oils, and diesel fuels and any oxygenates that have been blended with any refined petroleum fraction; and natural gas based-products such as liquid petroleum gas. For this general permit, the contaminants shall not include any halogenated compound or waste oils.

The following table shows the emissions that are allowed pursuant to the terms and special conditions of this general permit. The annual limits are based on a ton per 12-month rolling time period, as determined at the end of each calendar month. Volatile Organic Compounds (VOCs) include emissions from crude oil; crude oil fractions; refined petroleum fractions including gasoline, jet fuels, kerosene, heating oils, and diesel fuels and any oxygenates that have been blended with any refined petroleum fraction; and natural gas based-products such as liquid petroleum gas. Emissions shall not include any halogenated compounds or waste oils. BTEX is the total combined emissions of benzene, toluene, ethylbenzene and xylene, and is assumed to be 10% of the gasoline emissions.

Pollutant	Total Annual Emissions
VOCs	10.0
Gasoline	10.0
BTEX	1.0

AMBIENT AIR IMPACTS

Operation of a remediation process, in compliance with the general permit to install terms and conditions, will impact the ambient air at levels not more than those summarized in the following table. These impacts were calculated by applying a dilution factor based on dispersion modeling to an annual gasoline emission rate of 10 tons per year. Since the BTEX emissions are limited to one ton per year, the impact was calculated by applying the dilution factor to an annual emission rate of one ton per year for each individual compound. The parameters used in the dispersion model include a building height of 13 feet, a stack height of 20 feet, a stack internal diameter of 3 inches, and a volumetric flow rate of 88 cubic feet per minute, resulting in an exit velocity of 30 feet per second. The emissions were assumed to occur continuously for 24 hours per day, 365 days per year. The acceptability of the predicted ambient air impacts (PAIs) is based on compliance with applicable Initial Threshold Screening Levels (ITSLs) as defined in Rule 109(d) and Secondary Risk Screening Levels (SRSLs) as defined in Rule 119(c). The SRSLs are used because no other emission sources of gasoline or BTEX will be allowed at a remediation site covered under this general permit.

Pollutant	Averaging Time	Acceptable Impact	Basis	Max PAI
Gasoline @ 10 TPY	Annual	20 µg/m ³	Rule 225 - SRSL	8.3 µg/m ³
Total VOCs @ 10 TPY (assumed to be gasoline)	Annual	20 µg/m ³	Rule 225 - SRSL	8.3 µg/m ³
Benzene @ 1.0 TPY	Annual	1 µg/m ³	Rule 225 - SRSL	0.83 µg/m ³
Benzene @ 1.0 TPY	24 hour	30 µg/m ³	Rule 225 - ITSL	8.3 µg/m ³
Toluene @ 1.0 TPY	24 hour	5000 µg/m ³	Rule 225 - ITSL	8.3 µg/m ³
Ethylbenzene @ 1.0 TPY	Annual	30 µg/m ³	Rule 225 - SRSL	0.83 µg/m ³
Ethylbenzene @ 1.0 TPY	24 hour	1000 µg/m ³	Rule 225 - ITSL	8.3 µg/m ³
Xylene @ 1.0 TPY	24 hour	100 µg/m ³	Rule 225 - ITSL	8.3 µg/m ³

µg/m³ = micrograms per cubic meter

REVISIONS

The AQD may revise or update a general permit to install for various reasons, including administrative changes (i.e., addresses, contacts, formatting), clarifying instructions or permit language, or correcting an underlying applicable requirement. These types of minor changes are made without a comment period because they do not affect the applicability criteria or the special conditions of the general permit.

The general permit for remediation processes with petroleum based contaminants has been revised and/or updated as follows:

- March 20, 2000 - revised to address applicability for a source, process or process equipment that may be identified in a consent order or consent judgment.
- September 29, 2000 - included a new version of the General Information form (EQP5727) and revised General Condition language.
- January 2002 and January 2003 - updated General Conditions and made minor administrative changes (i.e., addresses, formatting).
- March 2005 – made minor changes to the Process Information form (EQP5758), revised format of the Special Conditions, and incorporated the revised General Information form (EQP5727).
- December 2010 – updated General Information and Process Information forms (EQP5727 and EQP5758).
- June 2017—made minor administrative changes to Background document.

If a change or revision will affect the applicability criteria or special conditions of the general permit, EGLE will hold a public comment period to receive comments on the proposed changes. If the applicability criteria or special conditions become less stringent as a result of the change (e.g., a setback requirement relaxed from 1000 feet to 500 feet; a reporting requirement reduced from daily to monthly), sources operating under an existing general permit will be notified of the change and allowed to operate under the revised criteria, which can be downloaded from the internet. A source operating under an existing general permit to install will not be required to meet the new requirements if the applicability criteria or special conditions become more stringent as a result of the change.

On February 14, 2005, the AQD proposed revisions to the general permit and held a 30-day public comment period. A public hearing was not requested and the following revisions were made to the general permit on March 22, 2005:

- New screening levels were established for gasoline, benzene, ethylbenzene, and xylene. The SRS� for gasoline increased from 13 to 20 $\mu\text{g}/\text{m}^3$. The original general permit assumed that BTEX emissions were 10% of the total VOC emissions and dispersion modeling used 10% of the gasoline SRS� as the acceptable ambient impact. New dispersion modeling was done using emissions of each individual component of BTEX and the updated screening levels. Based on the revised modeling, the stack height limit and exhaust gas velocity requirement were revised and the setback distance requirement was removed.
- The toxic air contaminants (TACs) modeled for the general permit have screening levels with either 24-hour or annual averaging times. The original general permit included an hourly emission limit, however compliance with this limit was not being demonstrated. The monitoring requirement in the general permit requires monitoring on a weekly basis until four valid samples are obtained and then reverts to monthly, followed by quarterly. The general permit also includes a ton per year limit based on a 12-month rolling time period. The ton per year limit with required monitoring was determined to be adequate and the hourly emission limits were removed.
- A single-stage granular activated carbon unit was included in the original general permit as an acceptable control option. Because monitoring for breakthrough was only required on a bi-weekly basis, a single stage carbon system could potentially emit contaminants above the evaluated levels for up to two weeks. Without a backup, a single-stage granular activated carbon unit may not provide adequate control of process emissions. Use of a single-stage granular activated carbon unit was removed as a control option and the breakthrough monitoring requirement for the dual-stage granular activated carbon unit was modified.

The most recent version of the general permit is available on the [AQD General Permits to Install web site](#). All changes to the general permit are summarized in the Background document.