

CANNABIS AND THE ENVIRONMENT

Frequently Asked Questions (FAQ)



Cannabis cultivation and processing are expanding, as hemp and both recreational and medical marijuana products are being legalized across the country. As part of this expansion, it is important to determine what environmental regulations may apply. The Michigan Department of Environment, Great Lakes, and Energy (EGLE) has put together answers to these frequently asked questions to aid in the understanding of these regulations.

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GENERAL

1. What impact does the cannabis industry have on the environment?

Across the cannabis industry, there is the potential for significant adverse environmental impacts. Cultivation of cannabis can result in impacts to water quality, emissions of air pollutants, degradation of soils, and increased water withdrawals. The processing of cannabis into the final consumer products may result in additional impacts to water quality and air quality, and the generation of potentially hazardous waste streams. The electricity demands of many indoor operations, as well as the transportation of cannabis products throughout the industry, can result in additional adverse environmental impacts. Fortunately, many of these adverse impacts can be avoided or reduced by utilizing environmental best management practices. It is the responsibility of the cannabis industry to abide by these best management practices and to operate in compliance with existing environmental regulations to minimize their overall environmental footprint.

AIR

2. What air pollutants are emitted by the cannabis industry?

Volatile organic compounds (VOCs) are emitted during the cultivation and processing of cannabis. Emissions of these compounds naturally occur during plant growth. VOC emissions may also occur during the processing of cannabis plants due to evaporation of solvents or other volatile chemicals used during extraction processes. VOC emissions are of concern due to their potential to react with nitrogen oxides in the atmosphere and form ground-level ozone. For more information on ground-level ozone and its impact on human health and the environment, visit the [EGLE Ozone webpage](#).

3. What can be done to reduce air quality impacts from cannabis operations?

Installing building-wide filtration is recommended to reduce the amount of air pollutants emitted to ambient air. Activate carbon filtration is one of the most used filtration technologies and is effective in reducing VOC emissions and may aid in the reduction of odors. The use of building-wide filtration should be paired with negative building pressure to ensure that air is moving through the control system before leaving the building. For extraction processes, the use of proper chemical management practices and closed loop extraction systems can minimize VOC emissions due to evaporative losses.

4. Do I need an air use permit to grow cannabis?

The Air Quality Division does not require an air use permit, also known as a Permit to Install (PTI), for the growing of cannabis because VOC emission rates from cannabis have not been established. Studies of VOC emissions from cannabis are ongoing. The applicability of Michigan's Air Pollution Control Rules may change as more information becomes available.

Other activities associated with the growing and processing of cannabis may require an air use PTI. For example, a grow facility may need to build a power plant or install emergency generators. Power plants, emergency generators, essential oil extraction, and other equipment may require a PTI. Contact the Environmental Assistance Center to speak with an expert who can assist you in determining if a PTI is required.

5. Do I need an air use permit to extract oils, waxes, terpenes, THC, CBD, etc. from cannabis?

The Air Quality Division issues permits to cannabis companies that use essential oil extraction. If your essential oil extraction process uses volatile chemicals, then you may need an air use permit. If your essential oil extraction process does not use chemicals or heat, then the process may not need an air use permit. For example, the cold-press extraction process uses mechanical pressure to squeeze fluids from plant material. However, if you use heat or solvents to process the cold-press extract, you probably need an air use permit. Contact the EGLE Environmental Assistance Center to speak with an expert who can guide you through the permit application process.

6. What can be done to mitigate or eliminate cannabis odors?

Odor reduction technologies that may be utilized at cannabis facilities include activated carbon filtration, ozone generation control, as well as misters, foggers, and vaporizers. The most effective odor control option can depend on the activities of the cannabis facility. Generally, activated carbon filtration is recommended due to its known effectiveness in removing volatile organic compounds and other gaseous contaminants from the air stream.

7. Do I need an air use permit to install an odor control system?

There are some odor control technologies that may require a permit to install (PTI) to operate. Odor control systems that inject chemicals through mechanisms such as a spray, mist, or vapor may be required to obtain a PTI. In addition, if your odor control system creates ozone to destroy odors, you may need a permit. On the other hand, if your odor control system removes (rather than destroys) odor-causing chemicals before they leave the building, such as an activated carbon odor control system, you do not need an air use PTI. Contact the EGLE Environmental Assistance Center to speak with an expert who can assist you in determining if a PTI is required.

8. Where can I find more information on air use permits and the permitting process?

The [EGLE Air Permits page](#) contains information on the process of applying for and obtaining a permit to install. You may also find additional information on permitting of the cannabis industry at Michigan.gov/EGLECannabis.

9. Who should I contact about cannabis odors from a residential property?

Odors originating from cultivation, processing, or use of cannabis products at residential properties will be handled by the municipality at this time. EGLE is currently in the process of developing guidance for municipalities on handling odor complaints from marijuana facilities.

10. Who should I contact about cannabis odors originating from an industrial facility?

The authority that will handle odors from industrial cannabis sources will vary based on the type of source and whether it is permitted by the EGLE Air Quality Division. Odor complaints from hemp facilities will be managed by the Michigan Department of Agriculture and Rural Development (MDARD) and should be referred to the MDARD Right to Farm Program. Odor complaints originating from industrial-scale cultivation and/or processing of marijuana products that do not have an air use permit will be referred to the municipality. Complaints related to odors originating from sources that do have an air use permit will be handled by EGLE.

11. Where can I find more information on air issues associated with marijuana operations?

The [Protecting Air Quality when Growing and Processing Marijuana](#) has information about many air-related issues, including more specific information on air permitting and when an air permit is required.

WASTE

12. Can I mix 50% food waste with my marijuana waste to make it “unusable and unrecognizable?”

Yes. You can mix any solid waste that is not a hazardous waste with marijuana plant waste to make it “unusable and unrecognizable.”

13. Can I send my marijuana plant waste to a compost facility?

Yes, but only if the following apply:

1. The compost facility is registered with EGLE.
2. The compost facility has obtained approval from EGLE’s Composting Program to take marijuana waste.
3. The marijuana waste has been made “unusable and unrecognizable” with 50% inert organic materials that can be easily composted by the composting facility.
4. There are no residual chemicals from the processing of the marijuana left on or in the marijuana waste (i.e., liquid butane, liquid carbon dioxide, etc.).

14. How can I manage plant debris mixed with extraction chemicals?

Off-gassing ignitable chemicals like butane and ethanol is prohibited. If you have already generated contaminated waste, please contact EGLE to ensure that the solvent recovery is conducted in a manner that meets the hazardous waste generator treatment requirements found under the Part 5 hazardous waste rules. Any ignitable solvent contaminated debris is regulated as a hazardous waste. Consequently, EGLE encourages extraction be performed to completely remove residual extraction chemicals to avoid generating contaminated plant material that is subject to the hazardous waste regulations. Strict rules apply to managing hazardous waste. It must be managed in closed containers that are label and there are storage time limits that must be met. Facilities that fail to meet the hazardous waste [generator accumulation requirements](#) require a hazardous waste storage license.

15. Can I compost my marijuana waste to utilize in my own marijuana growing operation?

Yes, but only if the following apply:

1. There are no residual chemicals present in the marijuana waste.
2. The marijuana waste is completely contained within a composting container, within a building, or under a roof on top of a cement pad.
 - a. If composting outside without cover, approval through Marijuana Regulatory Agency (MRA) and EGLE is required before composting begins. Depending on the scale and type of materials being composted, EGLE may require the facility to obtain a Compost Facility Registration through EGLE’s Composting Program.
3. All the finished compost product is utilized in the growing operation or is properly disposed of in accordance with MRA rules and regulations.
4. Michigan’s MRA has approved the use of the finished material in the growing operation.

16. What does a composting site need to do to be approved to take marijuana waste materials?

Any Registered Composting Facility may seek approval to accept this waste by providing detailed answers to the questions in Compost Plan for Marijuana Waste ([Attachment 2](#)) and submitting them to Aaron Hiday, Compost Program Coordinator, at HidayA@Michigan.gov.

17. Can I compost my own marijuana waste or the marijuana waste of others to sell the finished compost?

Yes, but you must obtain a Compost Facility Registration and be approved to compost marijuana waste through EGLE's Composting Program. The marijuana waste will still be required to be mixed with 50% inert organic materials to make it "unusable and unrecognizable."

18. Where can I find more information on waste issues associated with marijuana operations?

The [Solid Waste and Hazardous Waste Regulations for Growing and Processing Marijuana](#) has information about many waste-related issues, including definitions for particular wastes and what can be done with those wastes.

WATER**19. If I am just watering plants and collecting runoff water, why is it wastewater? Isn't it considered just agricultural water?**

The process of growing marijuana requires many additives such as fertilizers, pesticides, and/or nutrients that may become a constituent of the runoff water. In addition, there are often many processes involved in a marijuana grow facility in addition to runoff from watering plants that contribute to the facility's wastewater, such as but not limited to, reverse osmosis, dehumidification, and water softening. These processes produce a concentrate, condensate, or backwash that can introduce and/or concentrate pollutants in the wastewater. Samples must be taken of the wastewater to determine compliance with the Part 22 standards and to assess the potential impacts to the groundwater and drinking water.

Agricultural water is defined under MDARD (check reference) and includes watering crops. Marijuana is considered a commercial product, not a crop. As a result, the growing of marijuana is governed by different regulations.

A permit to process wastewater through the Groundwater Discharge Permit Program will include monitoring for parameters of concern to ensure protection of groundwater and safe drinking water.

20. Do I need to complete a Groundwater Discharge Permit Application?

Yes. All marijuana grow facilities that plan on discharging to the ground or groundwater must fill out a Groundwater Discharge Permit Application. If the proposed discharge requires a permit, the EGLE Groundwater Permits Unit will assess the application and issue the appropriate permit. If the discharge qualifies for an exemption, the exemption can be processed based on the information provided through the permit application. Both situations require an application to be completed.

21. If my facility wants to utilize pump and haul, do I need a Groundwater Discharge Permit?

All wastewater needs to be accounted for, including floor drains. When listing the gallons per day (GPD) and gallons per year (GPY) on the application, keep in mind that these are maximum values for peak discharge. Methods for measuring wastewater flows through floor drains tend to be site-specific, however, some common methods include use of a pump with a run-time meter on it to move water from a sump pit and into the wastewater treatment system or documentation of the gallons of water used per minute by a portable power washing unit and a record of how many minutes the power washer is used each day. In-line flow metering devices are also sometimes used at facilities as water exits floor drain collection systems and, if possible, should be considered as part of the design process for the wastewater treatment system.

22. Which water permit application should I fill out and where can I find it?

All applications can be found on [MiWaters](#), EGLE's wastewater permitting database. A 2210(y) application should be completed. This is not the guaranteed permit category, but it enables us to gather more information for assessment of the appropriate category. Based on other information we have received from marijuana growing facilities, the 2210(y) permit is applicable. The application can be found on [MiWaters](#), click "Start New Form" and search for 2210(y) under Form Name. The application is called "Groundwater Discharge Permit Application Site Specific Authorization: Rule 323.2210(y)."

23. Will you advise me on the treatment and/or discharge systems I need for my wastewater?

No. The EGLE Groundwater Permits Unit cannot advise the facility on the system needed for the wastewater. It is the facility's responsibility to propose a treatment and/or discharge system. The permit writer and technical staff, consisting of soil scientists and hydrogeologists, will review the application, analyze the site conditions, and set permit limits based on the treatment and/or discharge methods proposed. The "Typical Limits for Marijuana Grow Facility Groundwater Discharge" document (Attachment 2) provides a summary of the discharge limits for the most common pollutants of concern at marijuana growing operations. This document may be useful when designing a wastewater treatment and discharge system. While it is not required, it is recommended that marijuana facilities hire an environmental consultant that specializes in wastewater.

24. Is wastewater oil extraction allowed to be discharged?

No. Wastewater from oil extraction would not be permitted with an EGLE groundwater discharge permit due to high levels of pollutants found in the waste stream. If oil extraction occurs at the facility, the wastewater must be disposed of as hazardous waste.

25. Do I need to sample the wastewater?

Yes. The wastewater must be tested for all parameters (non-metals and metals) in the "Part 22 Wastewater Testing Parameters for Wastewater Characterization" document (Attachment 1). Please note that samples must be tested according to the EPA Analytical Method, or SW-846 method listed for each parameter. Wastewater samples should be taken of the combined wastewater from all processes associated with the growing of marijuana that will be discharged to the groundwater. This may include, but is not limited to irrigation runoff, reverse osmosis

concentrate, dehumidification condensate, floor drain collection water from grow rooms, and water softener backwash, If the wastewater streams are not combined, please take samples from each process.

26. On the wastewater permit application, it asks for additives. What is considered an additive?

Any product used at the facility that becomes a constituent of the wastewater generated by the facility is considered an additive according to the Part 22 Groundwater Rules. This may include, but is not limited to, cleaning or sanitizing chemicals, fertilizers, nutrients, pesticides, etc. Please list all additives used on the Groundwater Discharge Application. Please be advised that you may be contacted to fill out additional additive forms, if necessary, based on the additives used.

27. If I have bathrooms in my facility, does that wastewater need to be separated?

It is not required, but it is recommended that the wastewater from the bathrooms (sanitary sewage) be plumbed separately from the process wastewater. A permit obtained from the local health department would be needed to cover the sanitary sewage discharge.

28. How do I determine the flow volumes required on the permit application?

The gallons per day (GPD) should be the maximum volume of all contributing sources of wastewater that will be discharged to the groundwater. Groundwater discharge permits are issued for up to 5 years, so the maximum GPD should take into account plans to expand within that time frame. Keep in mind that the treatment and/or discharge method limitations also need to be considered when determining anticipated maximum flow volume. The gallons per year (GPY) is determined by multiplying the maximum GPD by the number of days in a year that the facility is in operation and discharging.

29. Where can I find more information on water issues associated with marijuana operations?

The [Protecting Water Resources When Growing and Processing Marijuana Guidance](#) has information about many water-related issues, including water use, land use particularly related to wetlands, and more about wastewater.

MORE INFORMATION

EGLE Cannabis Web Site: Michigan.gov/EGLECannabis

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To request this material in an alternative format, contact EGLE-Accessibility@Michigan.gov or 800-662-9278.

Attachment 1

Part 22 Effluent and Groundwater Characterization Requirements for RO Wastewater
Environmental Reporting Limits for EGLE Laboratory

Metals	Chemical Abstract Service Number	Water Reporting Limits (ug/L)	EPA Analytical Method or SW-846	R323.2222 Discharge Standard (ug/L)
Aluminum	7429905	5	200.8/6020A	25
Antimony	7440360	1	200.8/6020A	3
Arsenic	7440382	1	200.8/6020A	5
Barium	7740393	5	200.8/6020A	1000
Beryllium	7440417	1	200.8/6020A	2
Boron	7740428	20	200.7/6010C	250
Cadmium	7740439	0.2	200.8/6020A	2.5
Calcium	8047594	1000	200.7/6010C	
Chromium	7740473	1	200.8/6020A	50
Cobalt	7740484	5	200.8/6020A	20
Copper	7740508	1	200.8/6020A	500
Iron	7439896	20	200.7/6010C	300
Lead	7439921	1	200.8/6020A	2
Lithium	7439932	10	200.7/6010C	85
Magnesium	7439954	500	200.7/6010C	200,000
Manganese	7439965	5	200.8/6020A	50
Mercury	7439976	0.2	245.1/7470A, 7471A	1
Molybdenum	7439987	5	200.8/6020A	36.5
Nickel	7440020	2	200.8/6020A	50
Potassium	7440097	200	200.7/6010C	
Selenium	7782492	1	200.8/6020A	25
Silver	7440224	0.2	200.8/6020A	17
Sodium	17341252	1000	200.7/6010C	230,000
Strontium	7740246	5	200.8/6020A	2300
Thallium	7740280	2	200.8/6020A	1
Titanium	7440326	5	200.8/6020A	
Vanadium	7740622	2	200.8/6020A	2.2
Zinc	7740666	5	200.8/6020A	1200

Non-Metals	Chemical Abstract Service Number	Water Reporting Limits (ug/L)	EPA Analytical Method or SW-846	R323.2222 Discharge Standard (ug/L)
Alkalinity, Bicarbonate		10,000	2320B	
Ammonia	7664417	10	350.1	5000 (TIN)
Chloride	168870006	1000	325.2/4500CL-E	250,000
Cyanide, Total	57125	5	ASTM/D7284	100
Hardness (Ca ₂ CO ₃)		1000	2340B	
Nitrate	14797558	10	353.2	5000 (TIN)
Nitrite	14797650	10	353.2	500 (TIN)
pH		0.1 s.u.	4500-H /9045/150.1	6.5 - 9.0 s.u.
Phosphorus, Total	7723140	10	365.4/365.1	1000
Residue (TDS)		20,000	2540C	
Sulfate	14808798	5000	375.2	250,000



MICHIGAN DEPARTMENT OF
ENVIRONMENT, GREAT LAKES, AND ENERGY

COMPOST PLAN FOR MARIJUANA WASTE

Registered Composting Facilities must submit a complete and thorough Compost Plan for Marijuana Waste for approval to accept this waste. Submit the plan to Aaron Hiday, the Michigan Department of Environment, Great Lakes, and Energy's Compost Program Coordinator, at HidayA@Michigan.gov.

1. How will your facility document the amount of mixed marijuana waste received on-site?
2. Will accepting marijuana waste dramatically increase organics on-site?
3. How will your facility document that all marijuana waste arriving on-site has been made unusable and unrecognizable?
NOTE: EGLE recommends that you request a list of materials and methods used to mix the marijuana waste from any facilities you receive that waste from as part of your documentation.
4. Are materials being mixed with the marijuana waste safe for your composting operation?
 Yes No Explain:
5. Your facility must be able to handle the planned increased amounts of organics at your compost facility. What equipment does your facility use to create finished compost?

6. Marijuana waste that comes from a facility that conducts oil extraction may contain chemical residues. These residues may negatively impact your composting activities. How will your facility ensure the marijuana waste does not contain chemical residuals?

7. Marijuana production is a year-round process in the State of Michigan. A single test of finished compost containing marijuana waste is not adequate to ensure the final product is not compromised. What type of test and how often will your facility test finished compost? Include test plan, if available.

8. Due to the higher possible risks of accepting marijuana waste materials, a basic soil test on finished products will no longer be adequate. What parameters will your facility test for in the finished compost produced on-site?
NOTE: Visit [Michigan.gov/EGLECompost](https://www.michigan.gov/EGLECompost) for basic recommended testing parameters.

9. Please describe how your composting facility physically prevents the public from accessing areas where marijuana waste may be stored.

Please submit an updated sitemap(s) displaying property boundaries and any security measures in place at your composting facility. The site map(s) should also meet all requirements listed in the [Compost Registration Form](#).

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