



PROTECTING WATER RESOURCES WHEN GROWING AND PROCESSING MARIHUANA

Guidance

INTRODUCTION

To protect the state's water resources, marihuana growing and processing operations may be subject to Michigan Department of Environmental Quality (DEQ) reporting and permitting requirements. The following provides guidance on those requirements as may be applicable to marihuana cultivation and processing operations. Please note, while this list covers most state programs designed to protect water quality, other federal, state, and local regulations or programs may apply.

CONTENTS

| | |
|---|----------|
| Introduction | 1 |
| CONTENTS | 1 |
| Water Use Associated with Marihuana Production and Processing..... | 2 |
| Do we need to report our proposed water withdrawal? | 2 |
| Are there reporting requirements for water withdrawal? | 2 |
| Can we use water from our municipality? | 2 |
| Land Use Associated with Marihuana Production and Processing..... | 2 |
| When do we need a permit to clear land, fill in wet areas, grade/change the elevation of a property, build a building, parking lot, etc.? | 2 |
| Do we need a permit to work in wetlands, lakes and streams and other natural features? | 3 |
| How do we know if there are wetlands on a property?..... | 3 |
| What resources are available to gather more information on wetlands? | 3 |
| Wastewater Associated with Marihuana Production and Processing..... | 4 |
| Can we put any wastewater into our septic system?..... | 4 |
| Can we put wastewater down our sink/toilet if it goes to a wastewater treatment plant?..... | 4 |
| Can we dispose of any wastewater down the storm sewer?..... | 4 |
| Can we pour wastewater on the ground or use it to fertilize our yard, or agricultural crops? | 4 |
| Can we put wastewater in a pond or wetland on our property? | 4 |
| Can we direct wastewater to a wetland, lake or stream, if we have access to one? | 4 |
| Additional Information | 4 |

WATER USE ASSOCIATED WITH MARIHUANA PRODUCTION AND PROCESSING

Large-scale marihuana cultivation operations may require significant water usage or water withdrawal.

Do we need to report our proposed water withdrawal?

Yes. Prior to beginning any new or increased large quantity water withdrawal (more than 100,000 gallons per day (gpd)) from groundwater or surface water, the State of Michigan requires the use of the [Water Withdrawal Assessment Tool \(WWAT\)](#). This tool will help determine if the proposed withdrawal needs further review. If the withdrawal cannot be authorized by the WWAT, the property owner or authorized agent then must request a site-specific review (SSR) from the DEQ. There is a link to request an SSR on the WWAT's results page. A new or increased large quantity withdrawal must be authorized by either the WWAT or an SSR before it can start.

Are there reporting requirements for water withdrawal?

Yes. All withdrawals above 100,000 gpd must report their annual water use to either Michigan Department of Agriculture and Rural Development (MDARD) (for farms) or DEQ (all other withdrawals including municipal water supplies).

Can we use water from our municipality?

Maybe. If a grower wishes to use municipal water rather than their own withdrawal, they should contact the local municipality.

LAND USE ASSOCIATED WITH MARIHUANA PRODUCTION AND PROCESSING

Marihuana cultivation and processing operations may have land uses that require a permit. Property owners/users should utilize due diligence to determine if the property contains any federal, state, and local regulated features such as streams/rivers/ditches/drains/channels/canals, inland lakes, wetlands/ponds, and/or Great Lakes.

When do we need a permit to clear land, fill in wet areas, grade/change the elevation of a property, build a building, parking lot, etc.?

- You are disturbing one or more acres of land or land within 500 feet of a lake or stream - [Part 91](#) permit
- You are discharging storm water to a streams, rivers, lakes, and wetlands - [National Pollutant Discharge Elimination System \(NPDES\) permit](#).
- You are filling, grading, altering of topography, and/or constructing within a floodplain - Floodplain [permit](#).
- You have a regulated wetland on your property.

A [Part 91](#) permit is generally required for any earth change activity which disturbs one or more acres of land or which is within 500 feet of a lake or stream. Part 91 is administered and enforced by various state, county, and local governmental agencies with oversight from the Water Resource Division (WRD).

Construction activities that disturb one or more acres of land and have a discharge of storm water to a stream, river, lake, or wetland are required to obtain a [National Pollutant Discharge Elimination System \(NPDES\) permit](#) from the WRD.

For sites disturbing one to five acres, the applicant/permittee receives automatic storm water coverage upon the applicant obtaining a Part 91 permit or undertaking the project as an Authorized Public Agency (APA).

For sites disturbing five or more acres, the applicant/permittee must obtain a Part 91 permit (or undertake the project as an APA) and apply for a Notice of Coverage (NOC) to the WRD. Along with the NOC application, the applicant/permittee must submit a copy of the Soil Erosion and Sediment Control (SESC) permit, approved SESC plan, site location map, and the permit fee.

Any filling, grading, altering of topography, and/or occupation (including construction) within the 100-year floodplain of a river, stream or drain requires a [permit](#). Normal tilling of land within the 100-year floodplain does not require a permit. Construction and fill may be permitted in portions of the floodplain that are not floodways. Work activity in

the floodway will normally require an engineering analysis to verify that the proposal does not increase the floodplain elevation on upstream properties. Some floodplains are mapped, and their approximate boundaries may be viewed online at [FEMA's Map Service Center](#). Not all regulated floodplains are mapped. Counties and townships may also have copies of the floodplain maps. Local floodplain regulations may also apply.

Do we need a permit to work in wetlands, lakes and streams and other natural features?

Yes, the DEQ, WRD, administers several laws that regulate activities conducted by anyone on, within, or that involves any of the following:

- A stream, river, ditch, drain, channel, or canal
- An inland lake
- Land change activities that result in the creation or alteration of a canal, ditch, lagoon, pond, or lake within 500 feet of an existing inland lake or stream, or that connects to these features
- A wetland or pond
- A Great Lake

How do we know if there are wetlands on a property?

Wetlands can be found in forests, shorelines, or open fields. Wetlands are often difficult to identify and do not necessarily contain visible water. Wetlands are identified according to site-specific conditions (soils, hydrology, and vegetation) and an on-site inspection is necessary to determine if wetlands are present. Information sources that provide indications of where wetlands *might* exist may not include all wetlands and may identify areas that once were, but no longer are, wetlands. As a result, the actual conditions on a property will always take precedence over any information source. Although wetlands are difficult to identify, here are a few clues you can look for:

- The ground is soggy or has standing water, even for just part of the year.
- The soils are black or peaty.
- The property is lower than surrounding land.
- The land is flat without any grade changes.
- The trees are tipped over due to shallow roots.
- The property is near a pond, lake or stream.
- The property failed a perc-test or an engineered septic system is required.
- The property is tax reverted.

Information may already exist about whether wetlands are present on the property. You can look for:

- Wetland reports or delineations, DEQ letters, permits, or denials for this property. A search of Site Map Explorer in the DEQ database [MiWaters](#) may help.
- Information from your local Health Department Environmental Services on whether a perc-test been done.
- Information from owners or neighbors about standing water, flooding, drainage, muddy spots, etc.

What resources are available to gather more information on wetlands?

- Maps of potential wetland areas on the [Wetlands Map Viewer](#). This is a good place to start to get an idea what might be on the property. This map does not identify actual wetland, boundaries, or the need for a permit, so an on-site visit by a wetland professional is needed.
- A list of [Private Consultants](#) that you may hire to identify presence of wetlands and if they are regulated.
- [DEQ Staff Contacts](#) - Look for the Land/Water Permitting Staff Map. Staff for your County may have knowledge of the property and/or area but cannot tell you for sure if wetland is present without a site visit.
- [Pre-Application Meeting](#) is an official request to meet with DEQ staff to discuss a project and determine if a permit will be necessary.
- [Wetland Identification Program](#) offers wetland delineation services that includes a site visit to identify wetland boundaries and regulatory status.

WASTEWATER ASSOCIATED WITH MARIHUANA PRODUCTION AND PROCESSING

The discharge of water containing pollutants, often called wastewater, to the ground, groundwater or surface water (e.g. wetlands, streams, lakes) requires a permit from the DEQ. Discharging pollutants to a wastewater treatment plant requires notification to the owner (typically the local municipality).

Pollutants are described as chemicals or matter that contaminate air, soil, water, plants and animals, and have the potential to cause harm to human health or the environment. Pollutants specific to the marijuana industry can include plant material (pieces of leaves, stems, seeds, etc.), nutrients (fertilizer), pesticides, solvents, and soil or water containing any of the above materials.

Can we put any wastewater into our septic system?

No. [Septic systems](#) are designed to treat household sewage, not chemicals and fertilizers. Septic systems utilize the soil for treatment. Wastewater containing pollutants other than household sewage may not be treated appropriately and can contaminate drinking water wells and groundwater. In addition, pollutants associated with marijuana growing (pesticides and nutrients) can harm your septic causing it to fail requiring a new system.

Can we put wastewater down our sink/toilet if it goes to a wastewater treatment plant?

No. You need to notify your municipality of the waste sent to their facility, so they can determine if they have the [capacity to accept and treat the wastewater](#).

Can we dispose of any wastewater down the storm sewer?

No. Storm sewer systems discharge directly to rivers and streams.

Can we pour wastewater on the ground or use it to fertilize our yard, or agricultural crops?

No. This would require a [permit](#), and you could contaminate drinking water wells and groundwater. In addition, runoff could make it into wetlands, ponds, lakes, and streams causing impact to these waters.

Can we put wastewater in a pond or wetland on our property?

No. This would require a permit, and you could contaminate drinking water wells and groundwater.

Can we direct wastewater to a wetland, lake or stream, if we have access to one?

No. This would require a permit.

ADDITIONAL INFORMATION

- [Water Withdrawal](#)
- [Soil Erosion and Construction Storm Water](#)
- [Floodplains](#)
- [Wetlands](#)
- [Wastewater](#)


This publication is intended for guidance only and may be impacted by changes in legislation, rules, policies, and procedures adopted after the date of publication. Although this publication makes every effort to teach users how to meet applicable compliance obligations, use of this publication does not constitute the rendering of legal advice.

Michigan Department of Environmental Quality - Local Leaders Webinar Series

March 26, 2019

MARIJUANA CULTIVATION AND PROCESSING OPERATIONS: ENVIRONMENTAL REGULATIONS AND CONCERNS

Local Leaders Webinar
Robert Elmouchi and Kaitlyn Leffert
March 26, 2019



1

Outline

- Marijuana Law and Definition
- Overview of Environmental Impacts
- What DEQ is Doing
- What Local Governments Can Do
- Resources


2

State Marihuana Laws

- 2008: Michigan Medical Marihuana Act
- 2016: Medical Marihuana Facilities Licensing Act
- 2018: Michigan Regulation and Taxation of Marihuana Act
- LARA Administrative Rules

3


Marihuana Definition



- Defined in Michigan's Public Health Code, Act 368 of 1978, Section 333.7106

4


Marihuana Definition



- **"Marihuana"** means all parts of the plant *Cannabis sativa* L.
 - Growing or not,
 - Seeds of that plant,
 - Resin extracted from any part of the plant
 - Including resin extracted from stalks
 - Except oil or cake made from the seeds of the plant (cont.)

5


Marihuana Definition (cont.)



- Every compound,
- Manufacture,
- Salt,
- Derivative,
- Mixture, or
- Preparation of the plant or its seeds or resin.

6


Marihuana Definition (cont.)



- **Marihuana Does Not Include:**
 - Mature stalks of the plant,
 - Fiber produced from the stalks,
 - Oil or cake made from the seeds of the plant,
 - Any other compound, manufacture, salt, derivative, mixture or preparation of the **mature stalks**,
 - **Except** the resin extracted from those stalks
 - (cont.)

7

Marihuana Definition (cont.)



- **Marihuana Does Not Include:**
 - Fiber,
 - Oil, or
 - Cake, or
 - Any sterilized seed of the plant that is incapable of germination,
 - Industrial hemp grown or cultivated, or both, for research purposes under the industrial hemp research act.

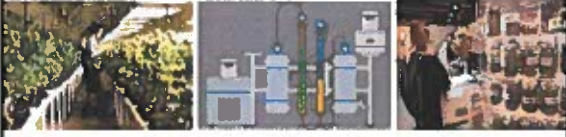
8

Marijuana Industry

The marijuana industry can be broken into three categories:

- Cultivation
- Processing
- Consumption

→ Many environmental impacts



9

Natural Resource Impacts

- Deforestation and Clear-cutting
- Trespass or Guerilla Grows
- Wildlife Impacts



10

Natural Resource Impacts in Michigan



(a) 9.5 acre site of what was previously high quality forested wetland


(b) 1-2 acre site of previous high quality flood plain wetland

If you see something like this happening in your community, please contact the Environmental Assistance Center at 1-800-662-9278

11

Water Use


- Estimate use of up to 6 gallons/plant/day
- Large withdrawals from groundwater or surface water may require a permit



12

Water Quality

- Siting and Permitting
 - Soil Erosion and Construction Storm Water
 - Wetlands
 - Floodplains



13

Wastewater


- Point Source Discharges
 - Municipal Wastewater Treatment Plan (WWTP)
 - Direct discharges
- Groundwater discharges are not recommended
- Runoff from compost piles is another potential concern



14

Waste and Disposal

- Types of waste generated:
 - Plant waste
 - Fluorescent bulbs
 - Unused pesticides, herbicides and fertilizers
 - Waste solvents
 - Used batteries



15

Marijuana Agricultural Waste

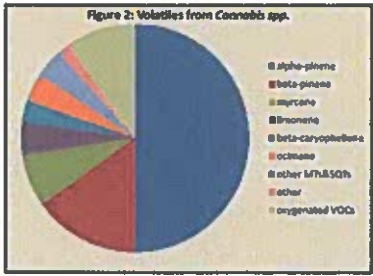
- Must be made unrecognizable and unusable
- Solid wastes from growth, production, and processing can go to landfills or registered compost facilities



16

Air: Volatile Organic Compounds


- Cultivation
 - Terpenes
- Processing
 - Solvents



17

Air: Attainment Issues


Small biogenic VOC emissions
 ×
 large increase in marijuana cultivation facilities
 =
 increase in VOC emissions



18

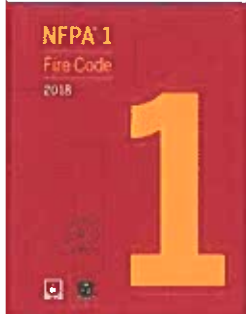
Processing and Essential Oil Extraction
 Air, Waste and Water

- Alcohol
- Butane
- Propane
- Hexane
- Benzene
- Steam
- Supercritical Carbon Dioxide



19

National Fire Protection Association (NFPA)



20

NFPA Code

- **Chapter 38 Marijuana Growing, Processing, or Extraction Facilities**
- **3.3.177 Marijuana Extraction Facility.** A building used for the solvent-based extraction process of marijuana.

21


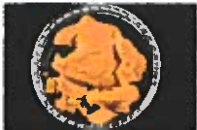
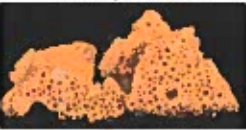
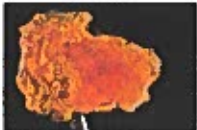
Processing and Essential Oil Extraction
 Air, Waste and Water



Source: Project Sound, Clean Air Agency

22

Essential Oil Concentrates

| | |
|--|--|
| <p>CO2 Oil</p>  | <p>Sour Diesel Wax</p>  |
| <p>Pie Crust/Honeycomb</p>  | <p>Shatter</p>  |

23


Processing and Essential Oil Extraction
 Air, Waste and Water

- Many more questions than answers
 - Where are these facilities located?
 - What chemicals are used?
 - What are their annual emissions?
 - Air Permit or exemption?
 - Solid waste produced and disposal?
 - Wastewater?

24

Marijuana Odors – causes

- Terpenes
- Strain
 - Low odor strains*
 - Lemon Haze
 - Alpha Blue
 - Kali Mist
 - Northern Lights
- Temperature and Humidity
- Plant maturity

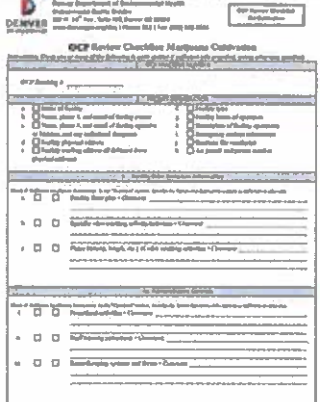


Source: Wildcat, 2018, from www.wildcat.com

25

City of Denver

Odor Control Plan



26

Odor Control Plan Elements

- Facility Information
- Odor sources
- Mitigation Practices
 - Administrative Controls
 - Procedures
 - Training
 - Recordkeeping
 - Engineering Controls
 - System design
 - Operation
 - Maintenance

27

Odor Control Technology

- Control technologies:
 - Activated Carbon Filtration
 - Negative Ion Generation
 - Ozone Generators
 - Wet Scrubber
 - Negative air pressure
 - Air-tight door and window seals
 - High Efficiency Particulate Air (HEPA) Filters

28

Marijuana Odor Complaints - Michigan

- Residential
 - Municipality
- Commercial – Unlicensed
 - Contact State Police
 - Municipality – Public Safety, Code Enforcement
 - Notify LARA BMR Enforcement if violation issued:
 email LARA-BMR-Enforcement@michigan.gov or Tel. 517-284-8597
- Commercial – Licensed by LARA BMR
 - Municipality
 - Notify LARA BMR Enforcement if violation issued
- **PENDING**
 - Commercial – Licensed by LARA BMR and Permitted by AQD
 - Municipality
 - Contact PEAS: 800-292-4706
 - Notify LARA BMR Enforcement if violation issued

29

Local Government Roles

- Check LARA for licensed facilities
- Develop odor control program
 - Regulations
 - Odor Control Plan
 - Complaint response
- Notify Environmental Assistance Center
 - Complaints
 - Impacts

30

Michigan Department of Environmental Quality - Local Leaders Webinar Series

March 26, 2019

Contact Information

Environmental Assistance Center
800-682-9278

31

What the DEQ is Doing

- Evaluating potential environmental impacts
- Education and outreach
- Many of our current environmental regulations apply to the marijuana industry
 - Waste and disposal
 - Water withdrawals and discharges
 - Air emissions

32

Facility Licensing - LARA

- Licenses are only being issued to medical marijuana facilities at this time
- Licensing for recreational facilities will not begin until LARA has completed it's administrative rules
- LARA webpage contains a map and list of medical facilities that have received licenses

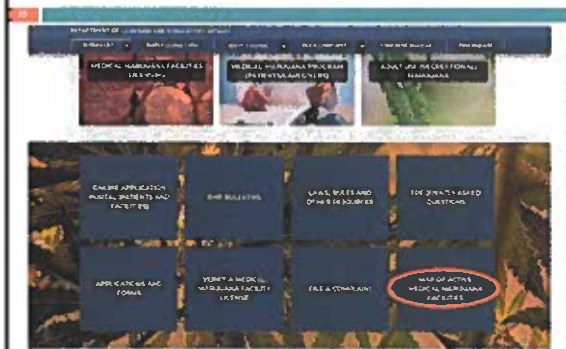
33

How to find out if a facility is licensed?

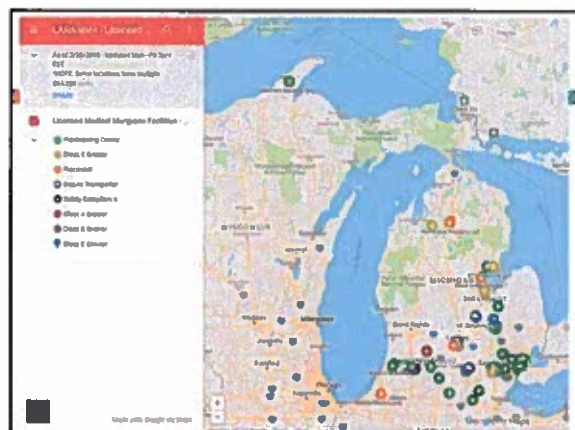


34

How to find out if a facility is licensed?



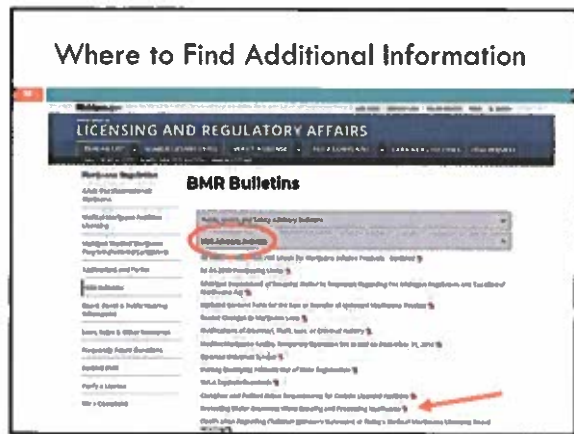
35



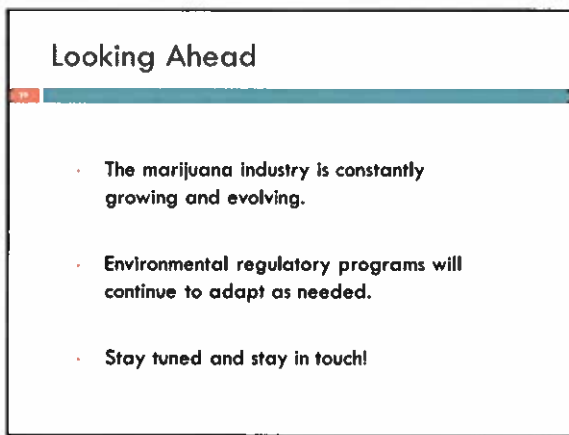
36



37



38



39



40



41



42