



MICHIGAN DEPARTMENT OF
ENVIRONMENT, GREAT LAKES, AND ENERGY

Marihuana Production and Processing Operations: Environmental Regulations and Concerns

Robert Elmouchi and Kaitlyn Leffert

Air Quality Division

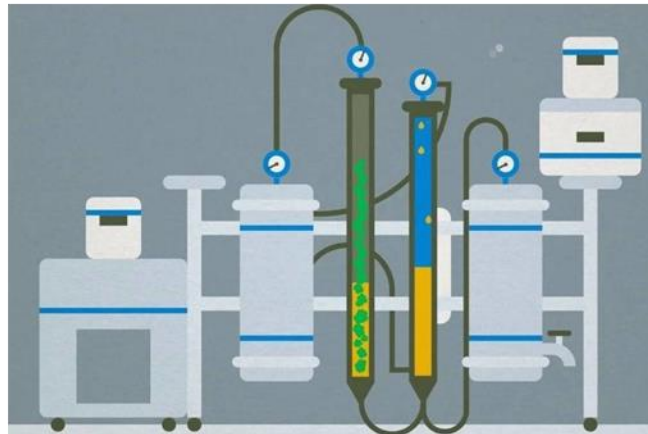
April 25, 2019

Marihuana Industry

The marihuana industry can be broken into three categories:

- Cultivation
- Processing
- Consumption

Many environmental impacts



Natural Resource Impacts in Michigan

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



(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

Water Use

- Estimate use of up to 6 gallons/plant/day
- Closed loop or water reuse systems can help mitigate water impacts
- Water withdrawals may require authorization or a permit



Wastewater

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



Waste and Disposal

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



Marihuana Agricultural Waste

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



Air - Attainment Issues

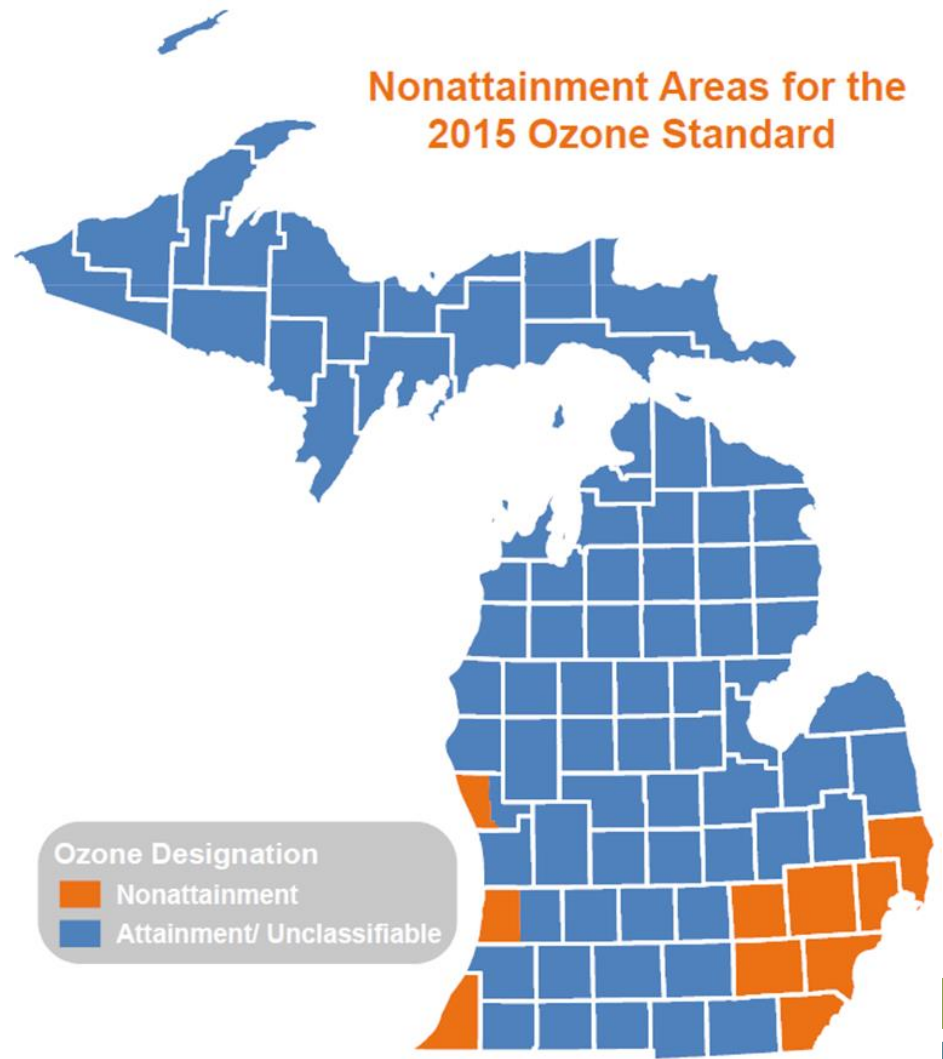
Small biogenic VOC
emissions

X

large increase in
marihuana cultivation
facilities

=

increase in VOC
emissions



Processing and Essential Oil Extraction

Air, Waste and Water

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



Processing and Essential Oil Extraction

Air, Waste and Water



Essential Oil Concentrates



CO2 Oil



Sour Diesel Wax



Pie Crust/Honeycomb



Shatter

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?

Odor Control: City of Denver



Denver Department of Environmental Health
Environmental Quality Division
200 W. 14th Ave., Suite 310, Denver CO 80204
www.denvergov.org/deq | Phone: 311 | Fax: (720) 865-5534

OCP Review Checklist:
MJ Cultivation

OCP Review Checklist: Marijuana Cultivation

Instructions: Check one or more of the following in each section if sufficient info provided, unless otherwise specified.

1. OCP TRACKING NUMBER	
OCP Tracking #: _____	
2. FACILITY INFORMATION	
a. ☐ Name of facility	f. ☐ Facility type
b. ☐ Name, phone #, and email of facility owner	g. ☐ Facility hours of operation
c. ☐ Name, phone #, and email of facility operator or licensee, and any authorized designees	h. ☐ Description of facility operations
d. ☐ Facility physical address	i. ☐ Emergency contact information
e. ☐ Facility mailing address (if different from physical address)	j. ☐ Business file number(s)
	k. ☐ Air permit and permit number
3. Facility Odor Emissions Information	
Check if: Sufficient ☐ Insufficient ☐ Instructions: In the "Comment" section, describe the factors that deemed the content as sufficient or otherwise.	
a. ☐ ☐ Facility floor plan • Comment: _____	_____
b. ☐ ☐ Specific odor-emitting activity/activities • Comment: _____	_____
c. ☐ ☐ Phase (timing, length, etc.) of odor emitting activities • Comment: _____	_____
4a. Administrative Controls	
Check if: Sufficient ☐ Insufficient ☐ Instructions: In the "Comment" section, describe the factors that deemed the content as sufficient or otherwise.	
i. ☐ ☐ Procedural activities • Comment: _____	_____
ii. ☐ ☐ Staff training procedures • Comment: _____	_____
iii. ☐ ☐ Recordkeeping systems and forms • Comment: _____	_____

National Fire Protection Association



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.

What is the DEQ doing?

Air, Waste and Water

- 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

Where to Find Additional Information

Michigan.gov

LARA HOME

CONTACT LARA

ONLINE SERVICES

NEWS

SEARCH

DEPARTMENT OF

LICENSING AND REGULATORY AFFAIRS

BUREAU LIST

SEARCH LICENSE TYPES

VERIFY A LICENSE

FILE A COMPLAINT

LARA NEWS RELEASES

FOIA REQUEST

LARA / BUREAU LIST / MARIJUANA REGULATION

Marijuana Regulation

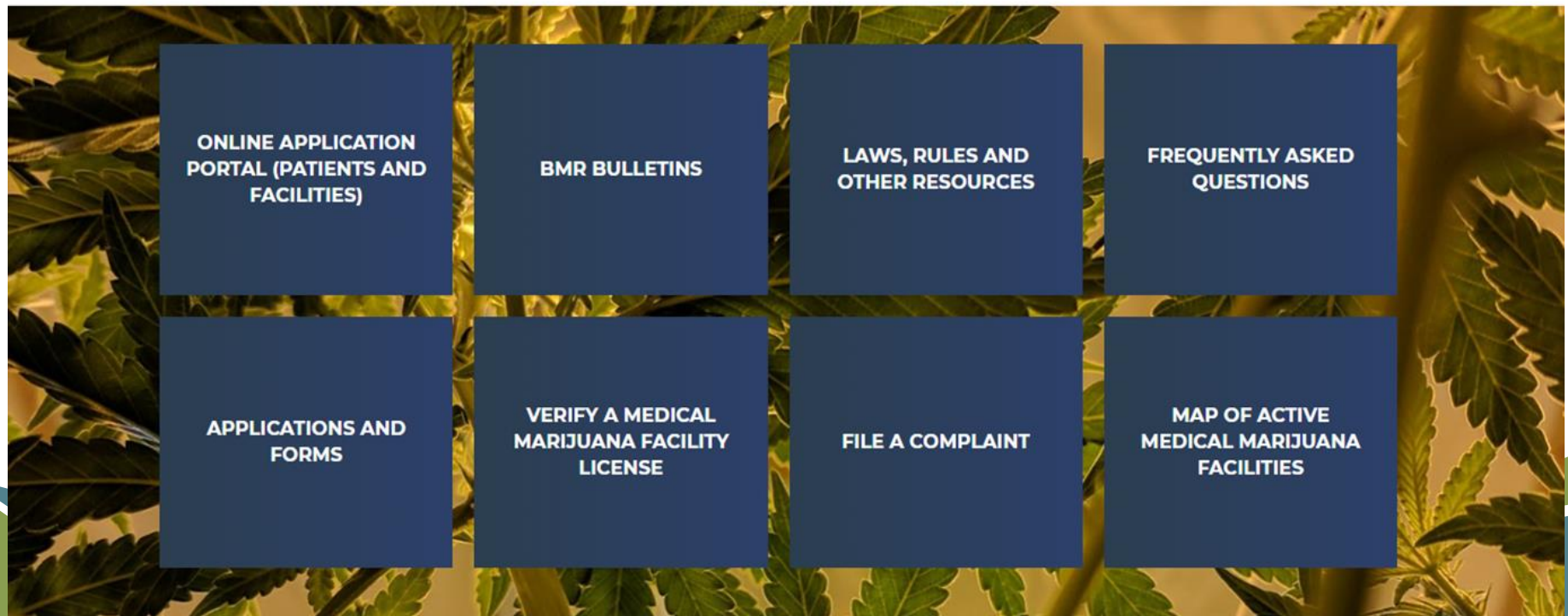
The **Bureau of Marijuana Regulation** will establish Michigan as the national model for a regulatory program that stimulates business growth while preserving safe consumer access to marijuana.

MEDICAL MARIJUANA FACILITIES
LICENSING

MEDICAL MARIJUANA PROGRAM
(PATIENTS/CAREGIVERS)

ADULT USE (RECREATIONAL)
MARIJUANA

Where to Find Additional Information



Where to Find Additional Information

Michigan.gov

LARA HOME CONTACT LARA ONLINE SERVICES NEWS SEARCH

DEPARTMENT OF

LICENSING AND REGULATORY AFFAIRS

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LARA NEWS RELEASES

FOIA REQUEST

LARA / BUREAU LIST / MARIJUANA REGULATION / BMR BULLETINS

Marijuana Regulation

Adult-Use (Recreational)
Marijuana

Medical Marijuana Facilities
Licensing

Michigan Medical Marijuana
Program (Patients/Caregivers)

Applications and Forms

BMR Bulletins

Board, Panel & Public Hearing
Information

Laws, Rules & Other Resources

Frequently Asked Questions

Contact BMR

Verify a License

File a Complaint

BMR Bulletins

Public Health and Safety Advisory Bulletins ▼

BMR Advisory Bulletins ▲

02-04-2019 Maximum THC Levels for Marijuana-Infused Products - Updated 

02-04-2019 Purchasing Limits 

Michigan Department of Treasury: Notice to Taxpayers Regarding the Michigan Regulation and Taxation of Marihuana Act 

Updated Consent Form for the Sale or Transfer of Untested Marihuana Product 

Recent Changes to Marijuana Laws 

Notifications of Diversion, Theft, Loss, or Criminal Activity 

Medical Marijuana Facility Temporary Operation Set to End on December 31, 2018 

Updated Universal Symbol 

Visiting Qualifying Patients: Out of State Registration 

THCA Crystals/Diamonds 

Caregiver and Patient Status Requirements for Certain Licensed Facilities 

Protecting Water Resources When Growing and Processing Marihuana 

Clarification Regarding Chairman Johnson's Statement at Today's Medical Marihuana Licensing Board Meeting 

Environmental Assistance Center
800-682-9278

QUESTIONS?

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Michigan Department of
Environment, Great Lakes, and Energy

800-662-9278

www.Michigan.gov/EGLE



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