



Air Quality Nuisance Complaints Concerning Noise

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Current Environmental Health Topics
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MassDEP Regulations

- Noise Control Regulation – 310 CMR 7.10
 - Adopted under the authority of M.G.L. Chapter 111, Section § 142B and § 142D.
 - Used to limit the noise impact of new stationary sources and to respond to complaints of certain excessive noise.
 - Can be enforced by local officials under the authority of 310 CMR 7.52.



What is an Air Contaminant per 310 CMR 7.00?

- **Air Contaminant** - means any substance or man-made physical phenomenon in the ambient air space and includes, but is not limited to dust, fly-ash, gas, fume, odor, smoke, vapor, pollen, microorganism, radioactive material, radiation, heat, **sound**, any combination, or any decay or reaction production thereof. *(See 310 CMR 7.00)*



Definition of Sound

- **SOUND** means the phenomenon of alternative increases and decreases in the pressure of the atmosphere, caused by radiations having a frequency range of from 20 to 20,000 cycles per second, that elicits a physiologic response by the human sense of hearing. *(See 310 CMR 7.00)*



Definition of Noise

- **NOISE** means **sound** of sufficient intensity and/or duration as to cause or contribute to a condition of air pollution.



Definition of Air Pollution

- **Air Pollution** - means the presence in the outdoor air of one or more air contaminants thereof in such **concentrations** and of such **duration** as to:





Air Pollution Definition - Continued

- A. Cause a nuisance;
- B. Be injurious, or to be on the basis of current information, potentially injurious, to human or animal life, to vegetation, or to property; or
- C. Unreasonably interfere with the comfortable enjoyment of life and property or the conduct of business.



310 CMR 7.10(1) - Noise

- “(1) No person owning, leasing or controlling a source of sound shall willfully, negligently, or through failure to provide necessary equipment, service or maintenance or to take necessary precautions cause, suffer, allow, or permit unnecessary emissions from said source of sound that may cause noise.”



310 CMR 7.10(2) - Noise

- “(2) 310 CMR 7.10(1) shall pertain to, but shall not be limited to, prolonged unattended sounding of burglar alarms, construction and demolition equipment which characteristically emit sound but which may be fitted and accommodated with equipment such as enclosures to suppress sound or may be operated in a manner so as to suppress sound, suppressible and preventable industrial and commercial sources of sound, and other man-made sounds that cause noise.”



310 CMR 7.10(3) - Noise

- “(3) 310 CMR 7.10(1) shall not apply to sounds emitted during and associated with:
(a) parades, public gatherings, or sporting events, for which permits have been issued provided that said parades, public gatherings, or sporting events in one city or town do not cause noise in another city or town; (b) emergency police, fire, and ambulance vehicles;” (continued next slide)



310 CMR 7.10(3) - Continued

- “(3) 310 CMR 7.10(1) shall not apply to sounds emitted during and associated with:
- (c) police, fire, and civil and national defense activities; (d) domestic equipment such as lawn mowers and power saws between the hours of 7:00 A.M. and 9:00 P.M.”



310 CMR 7.10(4) - Noise

- “(4) 310 CMR 7.10(1) is subject to the enforcement provisions specified in **310 CMR 7.52.**”



310 CMR 7.52 Enforcement

Provisions

- Any police department, fire department, board of health official acting within his/her jurisdictional area is authorized by the Department to enforce any regulation in which specific reference to 310 CMR 7.52 is cited.



DEP Noise Policy #90-001

- A source of sound will be considered to be violating the DEP noise regulation (310 CMR 7.10) if the source:
 1. Increases the broadband level by more than 10 dB(A) above ambient, or
 2. Produces a “pure tone” condition



What is dB(A)?

- dB(A) is a unit of sound measurement where the actual sound measurement (in decibels) is altered (or weighted) to reflect human sound sensitivity. For instance, for those frequencies of sound which humans hear very well, the actual reading is enhanced or increased, in the weighting process. The “weighted” reading therefore emphasizes the frequencies best heard by humans, and likewise de-emphasizes those sound frequencies which are less well heard.



What is Ambient Sound Level?

- Ambient sound level is the sound from all sources other than the particular sound of interest (background sound level). The ambient sound measurement (A-Weighted Noise Level) is taken where the offending sound cannot be heard, or with the source sound shut-off. The ambient sound level is rarely found to be consistent over time and is usually quite variable (considered to be the level that is exceeded 90% of the time that the noise measurements are taken).



What is a “Pure tone” Condition?

- A pure-tone condition is when any octave band center frequency sound pressure level exceeds the two adjacent center frequency sound pressure levels by 3 decibels or more.
- The emergency broadcast system and emergency sirens use a pure tone which is designed to get people’s attention.



Sound Exposure in the Real World

- Quite bedroom- 30 dBA
- Dishwasher next room- 50 dBA
- Normal speech – 65 dBA
- Vacuum cleaner at 3m- 70 dBA
- Garbage disposal at 1m- 80 dBA
- Blender at 1m- 90 dBA
- Inside subway train – 100 dBA
- Jet over flight at 300m – 105 dBA
- Rock band at 5m- 110 dBA



Sources of Noise Complaints

- Residential Swimming Pools
- Residential Central Air Conditioners
- Construction Sites
- Chillers
- Amplified Sound
- Gun Ranges
- Roosters
- Wind Turbines
- Roof Top Equipment



Noisy Pool Pumps and Motors

- Many new residential pool owners in the summer of 2020.
- Homeowner can try to trouble shoot the excess noise: level base under filter and motor, blockage inside pump, cavitation from low water level, bad bearings?
- If trouble-shooting doesn't work, can move the pump/motor away from sensitive receptors or enclose it with noise attenuating material.
- Most units don't need to run 24 hours per day and can be turned off at night.



Residential Air Conditioners

- Hire HVAC technician to trouble-shoot: blower motor old or malfunctioned, worn or misaligned belt, malfunctioning compressor, loose or damaged screws or clips?
- If trouble-shooting doesn't work, HVAC technician can install a compressor blanket, build a fence around the unit with noise attenuating material, or try installing a smaller unit.



Construction Sites





Back up Alarms on Equipment at Construction Sites

- MassDEP and local officials do not have the authority to require trucks and other construction equipment to turn off the reverse alarms.
- Material piles can be situated so when equipment backs up, it is backing away from sensitive receptors.



Rock Crushers/Soil Screeners/ Wood-Chippers



- If short-term use planned, facility could try to locate equipment away from sensitive receptors and limit operations to day-light hours.
- If long-term use planned, facility should have a plan to ensure compliance with Noise Policy.



Chillers



Chillers should be equipped with sound attenuating material and/or baffled with a noise barrier.



Equipment Under Chiller Can Be Wrapped with Sound Attenuating Material





Chiller wrapped with Sound Attenuating Material





Chillers with Noise Barrier





Cannabis Cultivation Operations

- Emerging source of noise (and odor!!) complaints because of the use of chillers for indoor cultivation facilities.



Amplified Sound - Gas Station TV



- Volume can be adjusted and turned off at night if sensitive receptors are close.



Amplified Sound - Drive Thrus



- More difficult to mitigate noise – as the amplified sound is turned down, the customer thinks the employee can't hear and speaks even louder.
- Noise barrier might help in certain situations.



Gun Ranges



M.G.L. Chapter 214: Section 7B. Noise pollution; shooting ranges; exemption from liability; hours of operation – essentially exempts older ranges as long as they are not operating between 10 p.m. and 8 a.m.



Roosters



- Some towns have by-laws:
 - Winchendon has a 100 ft setback for poultry.
 - Concord has a “non-domestic” animal permit which can be revoked due to complaints.
- Megan McGrath, MA Dept. of Agricultural Resources (617) 626-1798 works in the Poultry Program and may be able to offer technical assistance. DAR also has a BMP for Backyard Poultry Keepers.



Wind Turbine Sound

- Contact appropriate MassDEP Regional Office for assistance.





MassDEP Wind Turbine Activity

- Wind turbine noise issues addressed by MassDEP and local health officials in Falmouth, Fairhaven, Kingston, Scituate, Monroe/Florida, and Plymouth.
- MassDEP has supported towns by reviewing acoustic modeling of proposed wind turbines, and operational sound sampling protocols and results
- MassDEP regulations do not address:
 - Shadow flicker
 - Infrasound and low frequency sound



Roof Top Equipment

- Most complaints result from equipment problems (ex. - loose belt). Company should have a maintenance plan for roof-top equipment.
- Before adding new roof-top equipment, company should identify possible sound potential and identify sensitive receptors.

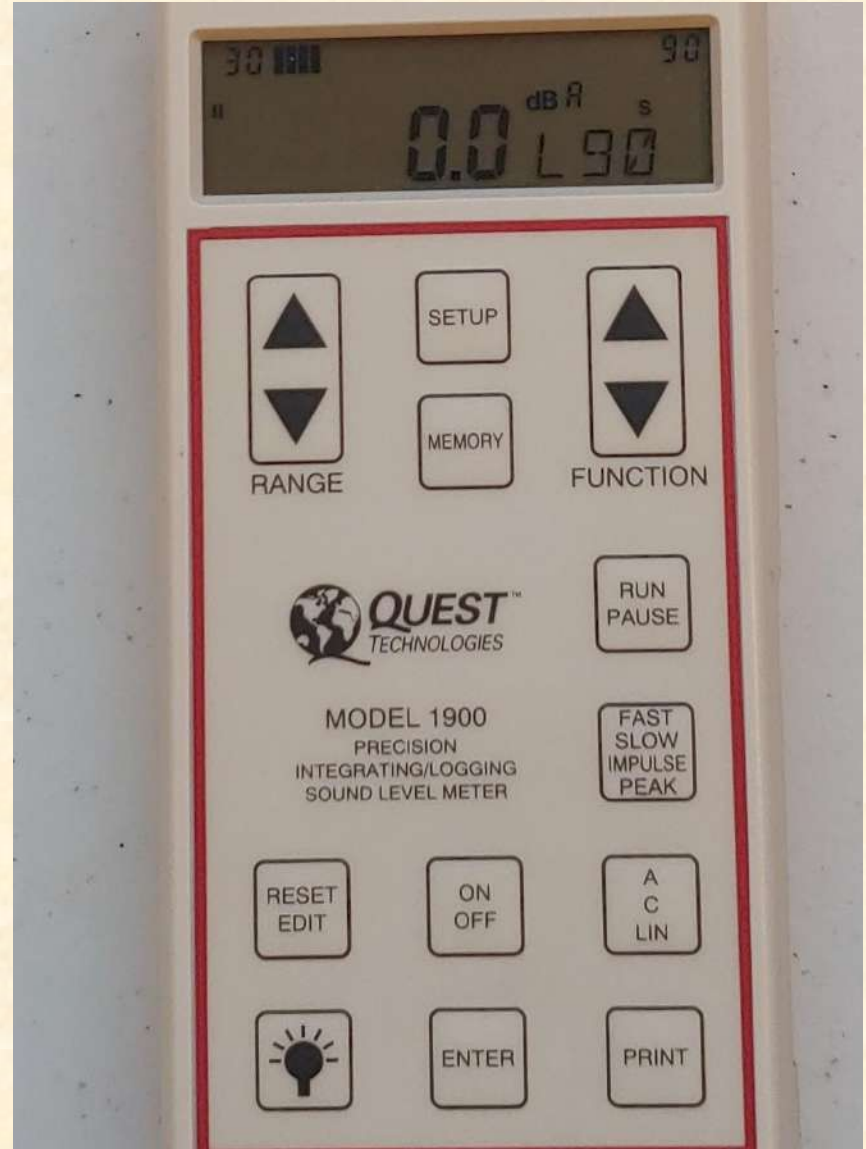


Sound Measurements

- Sound level meter phone applications are available through Google Play at no cost.
- Local officials can contact MassDEP's Regional Offices to make arrangements to borrow a sound level meter and receive basic training on how to utilize it.



CERO's Sound Level Meter





Sound Measurement Tips

- Make sure the meter is set to the A scale. Usually the “slow” response is used for steady-state noise.
- Do not take readings during windy conditions (try for less than 12 mph unless equipped with a good wind screen) or when there is precipitation.
- Document weather conditions and dates/times/locations of readings.



Two Court Cases of Note

- 12-073-09 Glass, et al. v. Town of Marblehead Board of Health, et al.
 - The 10 decibel standard, which was stated to have the appearance of being inflexibly applied, was not the product of DEP’s regulatory rule making process.
- 2015-119-B Kingston Wind Independence, LLC v. Board of Health of Kingston & another.
 - The Board expressly considered both the 10 decibel standard embodied in the DEP Policy and the testimonial evidence of health effects by the surrounding residents when making its finding that the “noise impacts” constituted a nuisance that poses a threat to the health, safety and welfare of nearby residents. The decision considered the Policy as a quantified “industry standard” along with traditional qualitative testimony of personal experience.



**The Best Solution is
Prevention!**



Preventative Measures

- Large Construction / Demolition Projects
 - Before commencement, require a noise mitigation plan (dust control too!!)
 - Some towns have by-laws limiting construction to certain hours during the weekdays and Saturdays and further limiting or prohibiting commercial construction on Sundays.



Preventative Measures

- New / Expanded Facilities
 - Identify possible noise potential.
 - Emergency generators need a muffler and chillers need to be wrapped with noise mitigation material.
 - HVAC and kitchen exhaust equipment should be located away from sensitive receptors.
 - Properly zoned to operate at the location?
 - Require mitigation to be part of design.

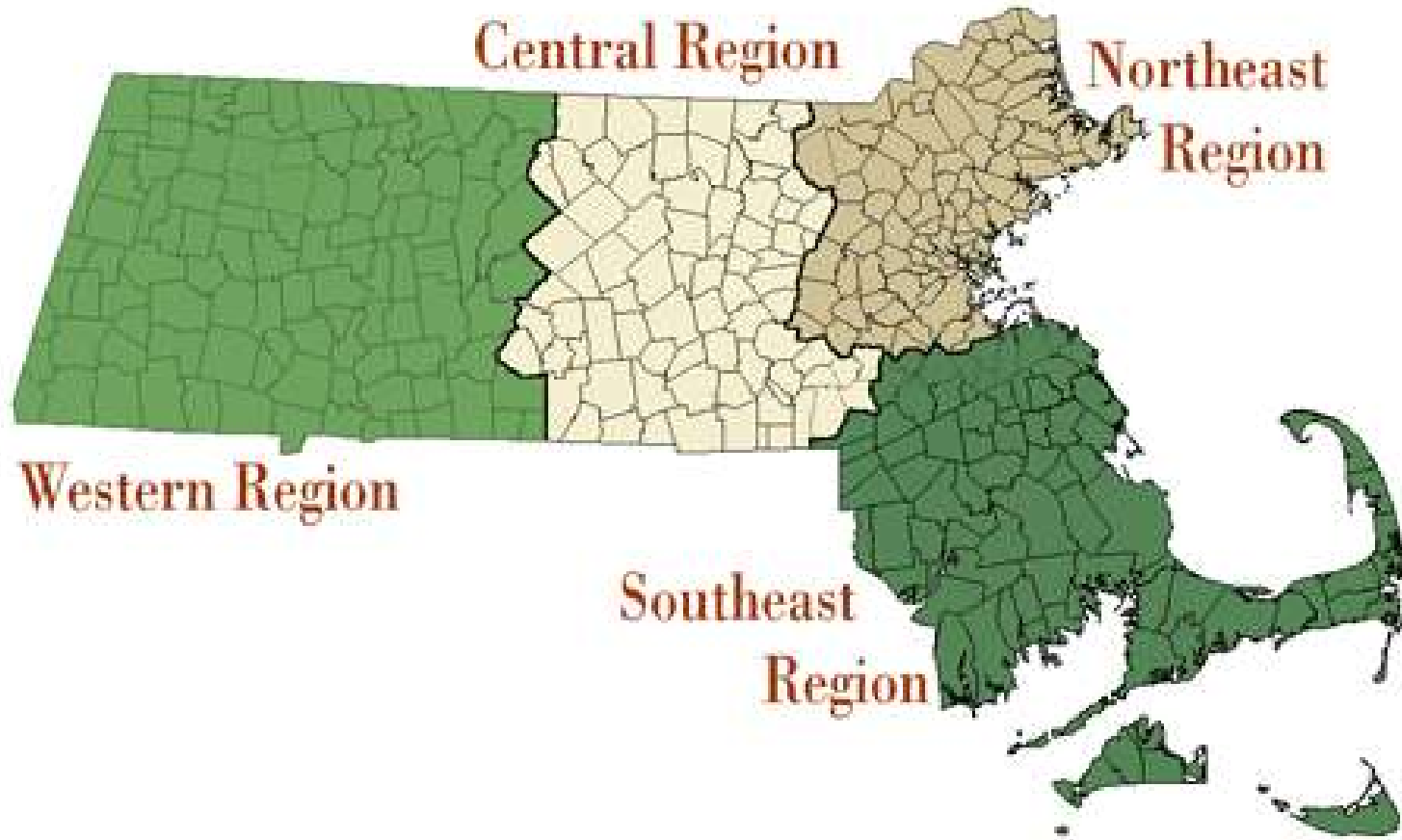


Role of MassDEP in Complaint Response

- In most cases when MassDEP receives a complaint, we will contact the Board of Health or Health Agent first.
 - To obtain background information
 - To foster faster response time
- MassDEP can provide technical support & guidance to the community.
 - MassDEP may take a greater role if the issue is technically complex or if it involves an industrial facility.
 - MassDEP may have a greater role if state permitting is required.



MassDEP Regions





Contacts for Noise Nuisances

- Northeast Region – David Labrode, 978-694-3270, david.labrode@mass.gov
- Central Region – Michelle Delemarre, 508-767-2777, michelle.delemarre@mass.gov
- Southeast Region & Cape Cod, Dan DiSalvio, 508-946-2878, dan.disalvio@mass.gov
- Western Region – Saadi Motamedi, 413-755-2131, saadi.motamedi@mass.gov



Questions?