N.J.A.C. 7:29

NOISE CONTROL

Statutory Authority: N.J.S.A. 13:1G-1 et seq.

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For regulatory history and effective dates see the New Jersey Administrative Code

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SUBCHAPTER 1. GENERAL PROVISIONS

§ 7:29-1.1 Definitions

The following words and terms, when used in this subchapter, shall have the following meanings unless the context clearly indicates otherwise.

"Affected person" means any person who has registered a noise complaint with an authorized enforcement agency that he or she is a receptor of noise on a protected property category, and said affected person has an interest in the protected property category as an owner, tenant, or employee.

"Agricultural activities" means those activities performed on farmlands in order to cultivate the soil, produce crops, or raise livestock. In addition, activities associated with the growing, producing, processing, or selling of farm-related products, as long as those activities are conducted on farmlands, would be considered agricultural activities.

"Authorized enforcement agency" means the Department, a local, county or regional health agency certified pursuant to the County Environmental Health Act (*N.J.S.A. 26:3A2-21* et seq.) to perform noise enforcement activities, a municipality with a Department approved noise control ordinance, or an employee of a county or municipal government who has received noise enforcement training and who is currently certified in noise enforcement pursuant to *N.J.A.C. 7:29-2.11*, provided such agency, municipality or employee is acting within its designated jurisdiction.

"A-weighted sound level" means the sound level in decibels, reported as measured by a sound level measuring instrument having an "A"-weighting network which discriminates against the lower frequencies according to a relationship approximating the auditory sensitivity of the human ear. The level so read is designated dBA.

"Commercial facility" means any premises, property, or facility involving traffic in goods or furnishing of services for sale or profit including, but not limited to:

1. Banking and other financial institutions;

2. Dining establishments;

3. Establishments for providing retail services;

4. Establishments for providing wholesale services;

5. Establishments for recreation and entertainment;

6. Office buildings;

7. Transportation;

8. Warehouses; and

9. Establishments providing living accommodations which exceed six dwelling units, including, but not limited to, apartments, co-ops, hotels, motels, and dormitories, when they are the source of the sound that is being investigated and the source of sound is a heating, air conditioning, pool filter unit or system, or outdoor amplified sound system.

"Community service facility" means any non-residential facility used to provide services to the public, including, but not limited to:

1. Club meeting halls, offices and facilities;

2. Organization offices and facilities;

3. Facilities for the support and practice of religion;

4. Public, private and parochial schools; and

5. Hospitals.

"Continuous airborne sound" means sound that is measured by the slow response setting of a sound level meter in accordance with the provisions of N.J.A.C. 7:29-2, and which lasts one second or longer. Impulsive sounds that are rapidly repetitive and have a duration of one second or longer shall be measured as continuous airborne sound.

"dBA" means the abbreviation designating the unit of sound level as measured by a sound level meter using the A-weighting.

"Decibel" means the practical unit of measurement for sound pressure level; the number of decibels of a measured sound is equal to 20 times the logarithm to the base 10 of the ratio of the sound pressure of the measured sound to the sound pressure of a standard sound (20 micropascals); abbreviated "dB".

"Emergency" means an unexpected occurrence or situation resulting from natural or unnatural causes which endangers or has the potential to endanger the health, safety or resources of citizens or a municipality, and as such, necessitates prompt action and response on the part of emergency services personnel, or contractors working at the site of the emergency to address an emergency.

"Emergency energy release device" means a device used specifically to release excess energy on a non-scheduled basis as necessary for purposes of safety.

"Emergency services personnel" means those people who are trained or designated to respond to an emergency, as defined in this section, or who participate in activities associated with a response to an emergency.

"Frequency" means the number of sound pressure oscillations per second, expressed in hertz; abbreviated "Hz".

"Impulsive sound" means either a single pressure peak or a single burst (multiple pressure peaks) having a duration of less than one second.

"Industrial facility" means any activity and its related premises, property, facilities, or equipment involving the fabrication, manufacture, or production of durable or nondurable goods.

"Maximum sound level" means the maximum sound level measured by a sound level meter on the "fast" or "impulse" setting.

"Octave band sound pressure level" means the sound pressure level measured in decibels in standard octave bands with a sound level meter.

"Person" means any individual, public or private corporation, political subdivision, governmental agency, department or bureau of the State, municipality, industry, or association, including condominium or co-op associations, limited liability corporations, and partnerships and limited liability partnerships.

"Public service facility" means any facility and its related premises, property, or equipment used to provide governmental services to the public including, but not limited to:

1. Maintenance centers;

2. Offices and buildings of agencies or instrumentalities of government;

3. Waste collection centers;

4. Waste recycling centers; and

5. Water and sewage facilities.

"Residential property" means property used for human habitation, unless the habitation is a condition of employment, including, but not limited to:

1. Private property used for human habitation;

2. Commercial living accommodations and commercial property used for human habitation;

3. Recreational and entertainment property used for human habitation;

4. Community service property used for human habitation.

"Sound level" means the sound pressure level measured in decibels with a sound level meter set for A-weighting; sound level is expressed in dBA.

"Sound pressure level" means the level of a sound measured in dB units with a sound level meter which has a uniform ("flat") response over the band of frequencies measured.

"Stationary emergency signaling device" means any device, excluding those attached to motor vehicles, used to alert local persons engaged in local emergency operations. These include, but are not limited to, fire-fighters, first aid squad members, and law enforcement officers, whether paid or volunteer.

§ 7:29-1.2 Industrial, commercial, public service, or community service facilities

(a) No person shall cause, suffer, allow, or permit sound from any industrial, commercial, public service or community service facility that, when measured at any residential property line of any affected person, is in excess of any of the following:

1. From 7:00 A.M. to 10:00 P.M.:

i. Continuous airborne sound which has a sound level in excess of 65 dBA; or

ii. Continuous airborne sound which has an octave band sound pressure level in decibels which exceeds the values listed below in one or more octave bands:

Octave Band Center Frequency (Hz)	Octave Band Sound Pressure Level (dB)
31.5	96
63	82
125	74
250	67
500	63
1000	60

Octave Band Center Frequency (Hz)	Octave Band Sound Pressure Level (dB)
2000	57
4000	55
8000	53

or,

iii. Impulsive sound in air which has a maximum sound level in excess of 80 dBA.

2. From 10:00 P.M. to 7:00 A.M.

i. Continuous airborne sound which has a sound level in excess of 50 dBA; or

ii. Continuous airborne sound which has an octave band sound pressure level in decibels which exceeds the value listed below in one or more octave bands:

Octave Band Center Frequency (Hz)	Octave Band Sound Pressure Level (dB)
31.5	86
63	71
125	61
250	53
500	48
1000	45
2000	42
4000	40
8000	38

or

iii. Impulsive sound in air which has a maximum sound level in excess of 80 dBA and such impulse sound shall not be repeated more than four times in any hour. Impulsive sound which repeats more than four times in any hour shall not exceed 50 dBA.

(b) No person shall cause, suffer, allow, or permit sound from any industrial, commercial, public service or community service facility that, when measured at the property line of any other industrial, commercial, public service or community service facility of any affected person, is in excess of any of the following:

1. Continuous airborne sound which has a sound level in excess of 65 dBA; or

2. Continuous airborne sound which has an octave band sound pressure level in decibels which exceeds the values listed below in one or more octave bands:

Octave Band Center Frequency (Hz)	Octave Band Sound Pressure Level (dB)
31.5	96
63	82
125	74
250	67
500	63

Octave Band Center Frequency (Hz)	Octave Band Sound Pressure Level (dB)
1000	60
2000	57
4000	55
8000	53

or

3. Impulsive sound in air which has a maximum sound level in excess of 80 dBA.

§ 7:29-1.3 Railroad noise--incorporation by reference

(a) Except as provided in (b) below, the following provisions of the Code of Federal Regulations, including all future amendments and supplements thereto, are hereby incorporated by reference: 40 CFR 201 Noise Emission Standards for Transportation Equipment; Interstate Rail Carriers, and 49 CFR 210 Railroad Noise Emission Compliance Regulations. This incorporation by reference only pertains to the sound level standards and measurement of railroad noise generated by idling train locomotives and rail car coupling operations.

(b) The following provisions are not incorporated by reference under (a) above: *40 CFR 201.12* Standard for locomotive operation under moving conditions; *40 CFR 201.13* Standard for rail car operations; *40 CFR 201.14* Standard for retarders; *40 CFR 201.16* Standard for locomotive load cell test stands; *40 CFR 201.27* Procedures for (1) Determining applicability of the locomotive load cell test stand standard and switcher locomotive standard by noise measurement on a receiving property; (2) measurement of locomotive load cell test stands more than 120 meters (400 feet) on a receiving property; *40 CFR 201.28* Testing by a railroad to determine probable compliance with the standard; and *49 CFR 210.11* Waivers.

§ 7:29-1.4 Stationary emergency signaling devices

(a) Testing of only the electromechanical functioning of a stationary emergency signaling device shall occur at the same time each day that a test is performed, but not before 8:00 A.M. or after 8:00 P.M. Any such testing shall only use the minimum cycle test time. Except as provided for in (b) below, such test time shall not exceed ten seconds.

(b) Testing of the complete emergency signaling system including the electromechanical functioning of the signaling device and the personnel response to the signal shall not occur more than once in each calendar month. Such testing shall not occur before 8:00 A.M. or after 8:00 P.M. The ten second time limit on the electromechanical functioning of the signaling device shall not apply to such system testing.

(c) Stationary emergency signaling devices shall be used only for testing in compliance with applicable provisions of these regulations and for emergency purposes where personnel and equipment are mobilized. Since personnel and equipment are mobilized during a weather emergency, emergency signaling devices may be utilized to announce a school closing resulting from a weather emergency.

(d) A stationary emergency signaling device used to alert firefighters, or other emergency services personnel of a fire or other emergency shall be located no closer than 250 feet from any elementary school or adjacent school yard or playground, except that this restriction shall not apply to any stationary emergency signaling device that is located on the premises of a fire station or other facility operated by a local fire department or force or first aid, rescue or emergency squad.

(e) The requirement of (d) above shall not apply to stationary emergency signaling devices placed in service before July 16, 1992 and located in municipalities with a population of less than 25,000 persons and with a population density of more than 2,500 persons per square mile, according to the latest Federal decennial census.

(f) Nothing in this section shall have the effect of restricting the use of a stationary emergency signaling device to alert the public of an emergency pursuant to the provisions of the emergency management act, P.L. 1942, c.251 (N.J.S.A. App. A:9-33 et seq.), or any applicable Federal laws or regulations pertaining to emergency planning and preparedness. The requirements of this section do not apply to the use of stationary emergency signaling devices to warn the public or emergency personnel of a national or State emergency pursuant to the provisions of the emergency management act. This section only pertains to the use of stationary emergency signaling devices to alert local emergency services personnel and/or local citizens of a local emergency such as a fire. This section also does not apply when stationary emergency signaling devices are used or tested as part of the operations of the National Warning System, pursuant to the Federal Emergency Management Agency's Civil Preparedness Guide 1-16, or pursuant to the Federal Emergency Management Agency's Guide for the Evaluation of Alert and Notification Systems for Nuclear Power Plants, FEMA Rep. 10.

(g) A dual-purpose stationary emergency signaling device which is used to alert the public of a national or State emergency and which is also used to alert local emergency services personnel of local emergencies shall not be required to comply with *N.J.A.C. 7:29-1.3(d)*, (e) and (f). If a dual purpose stationary emergency signaling device is used for local purposes, the device shall comply with all other provisions of this section.

(h) When operated or tested in accordance with the requirements of this section, stationary emergency signaling devices are not required to comply with the operational performance standards established at *N.J.A.C. 7:29-1.2*.

§ 7:29-1.5 Exceptions

(a) The operational performance standards established at *N.J.A.C. 7:29-1.2* shall not apply to any of the following noise sources:

1. Agricultural activities;

2. Bells, chimes or carillons, which may include electronic devices that imitate the sounds of bells, chimes or carillons, while being used in conjunction with religious services;

3. Emergency energy release devices;

4. When public health or safety is involved, emergency work to provide electricity, water, or other public utilities; to conduct emergency construction or demolition work; to make emergency repairs to public roadways or bridges; to address emergency incidents such as the cleanup of spills

of hazardous materials; or upon written approval of the authorized enforcement agency, to utilize sound producing devices to relocate wildlife;

5. Motor vehicle racetrack facilities engaged in the racing of motor vehicles;

6. National Warning System (NAWAS): Systems used to warn the community of attack or imminent public danger such as flooding or explosion. These systems are controlled by the New Jersey Department of Law and Public Safety;

7. Noise of aircraft flight operations;

8. Public celebrations that are government-sponsored or government-permitted events;

9. Public roadways;

10. Surface carriers engaged in commerce by railroad when the noise sources in question are trains in motion, operating retarders, train horns and whistles, or performing locomotive load test cell stands;

11. The unamplified human voice;

12. Use of explosive devices: These are regulated by the New Jersey Department of Labor and Workforce Development under the 1960 Explosive Act (*N.J.S.A. 21:1A-1* to 21:1A-21);

13. Normal operation of a handgun, rifle, shotgun, skeetshooting or trapshooting range which has been maintained continuously in the same location since January 24, 1972; or

14. Emergency electricity generators at an industrial or commercial facility, or a public service or community service facility in use during an electrical outage.

§ 7:29-1.6 Performance test principle

For the purposes of measuring sound in accordance with the applicable provisions of these regulations, test equipment methods and procedures shall conform to the provisions of N.J.A.C. 7:29-2.

§ 7:29-1.7 Enforcement

(a) This section governs the initiation of enforcement actions and the imposition of civil penalties for violations of the Noise Control Act, *N.J.S.A. 13:1G-1* et seq., and these rules.

(b) If any person violates any provision of the Noise Control Act, *N.J.S.A. 13:1G-1* et seq., these rules, or an order issued pursuant thereto, the authorized enforcement agency may institute an action in a court of competent jurisdiction for injunctive relief to prohibit and prevent such violation or violations and the said court may proceed in the action in a summary manner.

(c) Any person who violates any provision of the Noise Control Act, *N.J.S.A. 13:1G-1* et seq., these rules, or an order issued pursuant thereto shall be subject, upon order of a court, to a civil penalty of not more than $ 3,000 for each offense and each day during which the violation continues shall constitute an additional, separate and distinct offense.

(d) Upon identification of a violation of the Noise Control Act, *N.J.S.A. 13:1G-1* et seq., these rules, or an order issued pursuant thereto, the authorized enforcement agency shall issue an en-

forcement document to the violator. The enforcement document may be sent to the violator by certified mail, return receipt requested. The enforcement document shall:

1. Identify the condition or activity that constitutes the violation and the specific provision of the Act, rule or order that has been violated;

2. Indicate whether the violator has a period of time to correct the violation before a penalty is sought, as follows:

i. If the violation is deemed by the authorized enforcement agency to be a minor violation pursuant to (f) below, notify the violator that the activity or condition which constitutes the violation must be corrected and compliance achieved within 30 days or, at the discretion of the authorized enforcement agency, any other reasonable period of time, not to exceed 180 days, to be determined based upon the nature and extent of the violation and a reasonable estimate of the time needed to correct the violation. The violator may request, from the authorized enforcement agency, an extension of the compliance deadline in the enforcement action and the authorized enforcement agency shall approve any reasonable request for an extension if the violator can demonstrate that a good faith effort has been made to achieve compliance;

ii. If the violation is not deemed by the authorized enforcement agency to be a minor violation pursuant to (f) below, notify the violator that he or she will not be allowed a period of time to correct the violation before a penalty is sought.

3. Notify the violator that he or she may be liable to a civil penalty of no more than $ 3,000 for the violation that is the subject of the enforcement document; and

4. If the violation is deemed by the authorized enforcement agency to be a minor violation pursuant to (f) below, notify the violator that if he or she achieves compliance within the period of time specified in the enforcement document, the authorized enforcement agency shall not seek to collect a civil penalty from the violator for that violation.

(e) The authorized enforcement agency may seek injunctive relief and/or a penalty for a violation of the Act, these rules, or an order issued pursuant thereto:

1. If the violator does not correct the minor violation within the period of time specified in the enforcement document initiated pursuant to (d) above; or

2. If the violation is not considered a minor violation pursuant to (f) below.

(f) A violation shall be considered a minor violation if:

1. The violation is not the result of the purposeful, reckless or criminally negligent conduct of the violator; and

2. The activity or condition constituting the violation has not been the subject of an enforcement action by the authorized enforcement agency against the violator within the immediately preceding 12 months.

(g) Any claim for a civil penalty may be compromised and settled based on the following factors:

1. Mitigating or any other extenuating circumstances;

2. The timely implementation by the violator of measures which lead to compliance;

3. The conduct of the violator; and

4. The compliance history of the violator.

§ 7:29-1.8 County and municipal ordinances to regulate noise

(a) A governing body of a municipality or county or board of health may adopt a noise control ordinance in accordance with the Noise Control Act of 1971, at *N.J.S.A. 13:1G-21*, provided that the ordinance shall be more stringent than the Noise Control Act or the regulations promulgated pursuant thereto, must be otherwise consistent with the Statewide scheme of noise control, and meets with the written approval of the Department.

(b) Enforcement of a noise control ordinance is limited to the authorized enforcement agency as specified in the ordinance and enforcement actions shall be conducted in accordance with *N.J.A.C. 7:29-1.6*.

SUBCHAPTER 2. PROCEDURES FOR THE DETERMINATION OF NOISE FROM STATIONARY SOURCES

§ 7:29-2.1 Definitions

The following words and terms, when used in this subchapter, shall have the following meanings, unless the text clearly indicates otherwise. Terms not defined in this section are intended to be used as defined in the New Jersey Control Act, *N.J.S.A. 13:1G-1* et seq., and in this chapter, or are used in their common or engineering sense.

"A-weighted sound level" means the sound level in decibels, reported as measured by a sound level measuring instrument having an "A"-weighting network which discriminates against the lower frequencies according to a relationship approximating the auditory sensitivity of the human ear. The level so read is designated dBA.

"Department" means the Department of Environmental Protection.

"Duty cycle" means the period of time for one operating cycle for equipment which cycles periodically at a regular rate; e.g., five minutes on, 10 minutes off equals a 15 minute duty cycle.

"Extraneous sound" means an intermittent sound which is neither neighborhood residual sound nor sound from the source under investigation.

"Facility" means land and/or buildings used for commercial or industrial operations which produce the sound under investigation.

"Neighborhood residual sound level" means that measured value which represents the summation of the sound from all of the discrete sources affecting a given site at a given time, exclusive of extraneous sound and the sound from the source of interest.

"Noise" means, for purposes of this procedure, any sound which is not in conformance with the provisions of this chapter.

"Octave" means any two frequencies whose ratio is exactly two to one.

"Octave band" means a spectrum of sound frequencies between band edge frequencies an octave apart. For purposes of this procedure, octave band frequencies are as specified in Table 1, Page 11, of ANSI S1.11-1966 (R-1976) "specifications for octave, half-octave and third-octave band filter sets" (see *N.J.A.C. 7:29-2.12(a)*1).

"Sound level meter" means an instrument which is used to measure sound pressure level, sound level, octave band sound pressure level, or maximum sound level, separately or in combination and which conforms to the requirements set forth at *N.J.A.C. 7:29-2.6(a)*1 for such meters.

"Sound source" means any person, animal, device, equipment, operation, process, activity, or phenomenon that emits or causes sound.

"Sound spectrum" means the description of the resolution of a sound into its frequency and amplitude components.

"Steady state sound" means a sound whose level remains constant during measurement.

"Total sound level" means that measured level which represents the summation of the sounds from the source under investigation and the neighborhood residual sound level, excluding any extraneous sound, when measured on the property of an affected person.

"Wind screen" means a device recommended by the manufacturer as a microphone cover to reduce the effect of wind.

§ 7:29-2.2 Acceptable test methods

Testing shall be conducted in accordance with methods set forth hereinafter. Alternative methods, procedures, or instruments may be used subject to approval and conditions prescribed by the Department. The Department may itself employ such alternatives when warranted by test conditions or other circumstances.

§ 7:29-2.3 Measurement principle

For purposes of measuring noise in accordance with applicable provisions of the rules of the Department, sound levels shall be determined by a qualified investigator using instruments and procedures prescribed by the Department.

§ 7:29-2.4 Operating conditions during the test

Insofar as practicable, sound will be measured while the source under investigation is operating at normal, routine conditions and, as necessary, at other conditions including, but not limited to, design, maximum and fluctuating rates. For test purposes, these conditions will apply during the times from 7:00 A.M. to 10:00 P.M. and from 10:00 P.M. to 7:00 A.M.

§ 7:29-2.5 General requirements

(a) All tests shall be conducted in accordance with the following procedures:

1. The investigator shall, to the extent practicable, identify all sources contributing sound to the point of measurement.

2. Measurements shall be taken at or within the property line of any affected person.

3. The measuring device must be calibrated before and after each series of readings and at least once every hour.

4. The sound level meter must be recalibrated and the calibrator must be recalibrated at least once per year by the manufacturer or by a laboratory accredited for such calibrations by either the American Association for Laboratory Accreditation or the National Institute of Standards and Technology. A copy of written documentation of such recalibration, in a form approved by the Department, shall be kept with the equipment to which it refers.

5. No outdoor measurements shall be made:

i. During periods when the wind speed exceeds 12 miles per hour (including gusts).

ii. Without a wind screen properly attached to the measuring device.

iii. Under any condition which allows the measuring device to become wet, such as rain, snow, or condensation.

iv. When the ambient temperature is below 14 degrees F (-10 degrees C) or above 122 degrees F (50 degrees C).

§ 7:29-2.6 Equipment

(a) Requirements for equipment are as follows:

1. Sound level meters:

i. Measurements of continuous or impulse sound shall be made either with a Type 1 (Precision) or a Type 2 (General Purpose) sound level meter manufactured to the requirements of ANSI S1.4-1971 specification for sound level meters (see *N.J.A.C. 7:29-2.12(a)*2) or its successor.

ii. Measurements of sound by octave bands shall be made with a sound level meter with octave band frequency filter set that conforms to the requirements of Class II as specified in ANSI S1.11-1966 (R-1976) "specification for octave, half-octave, and third-octave band filter sets" (see *N.J.A.C. 7:29-2.12(a)*1) or its successor.

2. Calibrators used should be those recommended by the manufacturer of the sound level meter.

3. Other equipment:

i. A wind screen, as recommended by the sound level meter manufacturer.

ii. A wind speed measuring instrument including a range of five to 15 miles per hour (2.2 to 6.7 meters per second) with plus or minus two miles per hour (plus or minus 0.9 meters per second) accuracy.

iii. Optional equipment including a flashlight or miner's lamp, a microphone extension cable, an extension pole with microphone holder, a headphone equipped with a plug to fit the sound level meter, a tape measure or an optical distance indicator for determining distance, a compass for determining direction or, alternatively, a suitable map of the vicinity, and a thermometer for determining ambient temperature.

§ 7:29-2.7 Reporting requirements

(a) Reports shall be provided on forms approved by the Department.

(b) The report for each test shall include:

1. The date and day of the week on which the test is made;

2. The time of measurements, clearly indicating A.M. or P.M.;

3. The times of calibration of the measuring devices while on site;

4. The weather conditions;

5. The temperature when the ambient is below 14 degrees F (-10 degrees C);

6. The wind speed;

7. The identification of all measurement equipment by manufacturer, model number, and serial number;

8. The date each piece of equipment was last recertified or recalibrated by the manufacturer or other approved person;

9. The duty cycle of source of interest;

10. The total sound level in dBA, or dB if in octave bands, or in dBA peak if measuring maximum instantaneous sound pressure level of impulse sound at the measurement point;

11. The neighborhood residual sound level in dBA, or dB if in octave bands, at the measurement point;

12. A sketch of the site, not necessarily to scale, orienting the facility of interest, the points of measurement, topographic features, and relevant distances, containing sufficient information for another investigator to repeat the measurements under similar conditions;

13. A description of the sound sources by character and location;

14. A description of the neighborhood residual sound by character and location, to the extent feasible.

§ 7:29-2.8 Preparation for testing

(a) Survey: Prior to taking noise measurements the investigator shall explore the vicinity of the suspected source on foot to identify any other sound sources which could affect measurements, to establish the approximate location and character of the main sound source, and to select suitable points from which to measure the sound from the suspected source and the neighborhood residual sound.

(b) Nature of sound: While the sound source or sources are under observation the investigator shall ascertain whether the sound is steady state or extraneous. The duty cycle time, if any, shall be measured and noted.

(c) Wind speed measurement: The investigator shall measure the wind speed at the measurement site with an appropriate wind meter. If the wind speed does not exceed 12 miles per hour (5.4 meters per second), proceed using a sound level meter equipped with a wind screen. When the wind

speed exceeds 12 miles per hour (5.4 meters per second), including gusts, sound level readings shall not be made, but shall be postponed until the wind speed decreases below 12 miles per hour (5.4 meters per second).

(d) Instrument selection: After determining the character of the sound to be measured, the investigator shall select the appropriate measuring equipment pursuant to the requirements of *N.J.A.C. 7:29-2.6*. If the sound is concentrated within a narrow band of frequencies, an instrument capable of octave band analysis shall be selected. If impulse sound is predominant, an instrument capable of impulse peak measurement shall be selected.

§ 7:29-2.9 Procedure

(a) Calibration of Sound Measuring Equipment: When a meter zero adjust screw is accessible from outside the sound measuring equipment, then prior to making sound level measurements, the investigator shall zero adjust in accordance with the manufacturer's instructions. If the zero adjust screw of the equipment is not readily accessible, and if the investigator observes that the meter zero adjust is defective, the equipment shall be taken out of service until repaired. Before and after making a set of sound level measurements, the investigator shall check, and if warranted, adjust the sound level meter calibration at the level specified by the sound level calibrator used. When a multi-frequency calibrator is used, it shall be set at 1000 Hertz. The procedures below shall be followed before and after each set of measurements:

1. Turn on the sound level meter and allow it to warm-up as specified by the manufacturer--usually three to five minutes;

2. Check the condition of the sound level meter battery and replace if necessary;

3. Set the sound level meter range or attenuator setting to the appropriate level (most calibrators produce sound levels in the range of 94 to 124 dB);

4. Set the sound level meter for slow response and set the sound level meter weighting switch to the appropriate position in accordance with the manufacturer's instructions for the sound level calibrator to be used;

5. Test the calibrator batteries and replace them if necessary;

6. Allow the calibrator to warm-up if necessary as specified by the manufacturer;

7. Place the calibrator on the microphone gently to prevent damage to the microphone diaphragm; and

8. Adjust the sound level meter using the calibration (sensitivity or amplifier gain) adjustment until the meter reads the calibrator output.

(b) Measurement: After calibrating the sound level meter, switch to the appropriate weighting position and place the wind screen over the microphone. The appropriate weighting position is "A" for measurement of continuous or impulse sound, and "flat" or "ext. Filter" for octave band measurements. The meter is now ready for measuring the sound level.

1. Total sound level is measured as follows:

i. Position the microphone at the point at which the sound is to be measured.

ii. During sound level measurements, the sound level meter microphone is to be mounted on a tripod or held at arm's length, at a minimum of three feet (0.9 meter) above ground level, and pointed at the proper angle to an imaginary line from the sound source to the microphone. The proper angle is specified by the manufacturer, according to the microphone characteristics.

iii. When measuring continuous sound, the measuring device shall be set for "A" weighting, "slow" meter response, and the range switch shall be set to that range in which the meter display reads nearest to the maximum end of the scale. When the measured sound is variable, causing the meter display to fluctuate, record both the minimum and maximum readings, for example, 66-69 dBA, indicating that the reading was not less than 66 nor more than 69, during the measurement. When selecting the proper range setting for making the measurement, do not include extraneous sounds.

iv. When octave band measurements are made, the sound from the source must be constant in level and in character. Record the maximum and minimum readings in dB. Use "flat" response or "ext. Filter" setting as appropriate to the instrument. (Do not use "A" scale.) If level variations exceed plus or minus 2 dB in the bands containing the principal source frequencies, discontinue the measurement. The octave band level shall be used as a supplement to "A" weighted level measurements.

v. To measure impulse noise, the investigator shall set the meter for "A" weighting. The investigator may use either the fast or impulse setting, and may employ the "hold" setting. If the investigator is not employing the "hold" setting, he or she should report the maximum sound level displayed on the meter for a representative number of impulses. If the "hold" setting is employed after measuring an impulse, press the reset button to prepare for measurement of the next impulse. If the impulses follow each other rapidly as for example in a fusillade, it is not necessary to measure every impulse. In such a case, measure as many impulses as feasible, estimate the number of impulses occurring, and the time period during which they occur.

vi. While making sound level measurements, observe whether the meter reading is increased by extraneous sound sources such as passing vehicles, aircraft flying overhead, barking dogs, etc. In such cases, postpone the sound level measurement until the extraneous sound has abated. This shall not apply, however, if the source of the extraneous sound is located on the facility under investigation.

vii. There are instances in which the sound propagation from a source is such that the sound level varies significantly with altitude. In such cases, connect the sound level meter to its microphone by a long cable and, after calibrating, elevate the microphone with a long pole or other means to measure the sound level at different altitudes.

viii. Continue the test over a period of time sufficient to ensure that the sound levels measured are typical of the source under observation but in no event should the duration of the test be less than 10 minutes, unless the duration or duty cycle of the sound source under observation is less than 10 minutes.

ix. No less frequently than at one hour intervals during the investigation, and again at the conclusion of measurement, calibrate the sound level meter, check the condition of the batteries, measure the wind speed, and record the results for inclusion in the Noise Measurement Report. If the sound level meter has drifted more than 0.5 dB off calibration, or if the sound level meter battery check procedure indicates that the battery charge is too low, or if the wind speed has increased to

greater than 12 miles per hour (5.4 meters per second), then measurements taken since the previous calibration check shall be considered invalid. A meter with an electronic display showing a "low battery" indication may continue to be operated for the duration specified in the manufacturer's manual without invalidating the previous readings, if a subsequent calibration check is satisfactory. Wind gusts over 12 miles per hour (5.4 meters per second) that begin after at least one hour of measurements shall not invalidate measurements already collected.

2. Neighborhood residual sound is measured as follows:

i. When the sound from the source under investigation can be discontinued, the neighborhood residual sound shall be measured at the same location at which the total sound was measured. When the sound under investigation cannot be reasonably discontinued, the neighborhood residual sound may be measured at an alternative location, in accordance with the following procedure:

(1) The alternative location should be as close as feasible to the original sound measurement location, but so located that the sound from the source has as little effect as possible on the neighborhood residual sound measurement. Even if the source sound is audible or is sufficient to raise the sound level above that which would be measured were it inaudible at the alternative location, the reading is sufficient for the purpose of this procedure.

(2) The alternative location chosen must be such that buildings in the vicinity are similar in size and distribution, the local topography is similar in character to the location of the affected property where the total sound was measured.

(3) Traffic conditions at the time of neighborhood residual sound measurement must be similar to those at the location of the affected property where the total sound was measured.

§ 7:29-2.10 Calculations

(a) Corrected source sound level: Correct the total sound level for the neighborhood residual sound in accordance with the procedure for using Table 1 to determine the sound level from the sound source of interest. If the difference between the total sound level and the neighborhood residual sound level is greater than 10 dB no correction is necessary.

TABLE 1

THE DETERMINATION OF SOURCE SOUND LEVEL FROM TOTAL AND NEIGHBORHOOD
RESIDUAL SOUND MEASUREMENTS

A Sound Level Difference (Decibels)	B Correction Factor (Decibels)
0.5	9.6
1	7
2	4
3	3
4	1.8
5	1.6
6	1.2

TABLE 1

THE DETERMINATION OF SOURCE SOUND LEVEL FROM TOTAL AND NEIGHBORHOOD
RESIDUAL SOUND MEASUREMENTS

A Sound Level Difference (Decibels)	B Correction Factor (Decibels)
7	1
8	0.75
9	0.6
10	0.5
Greater than 10	0.0

Procedure for Using Table 1

Step 1: Subtract the maximum measured level of the neighborhood residual sound from the minimum measured level of the total sound, including decimals, if displayed. If the value obtained is a decimal number, round the value down to the nearest lower value in Column A.

Step 2: In Column A, find the difference determined under Step 1 and its corresponding correction factor in Column B.

Step 3: Subtract the value obtained from Column B in Step 2 from the minimum measured total sound level (used in Step 1) to determine the sound level attributable to the sound source.

Step 4: Round the value obtained down to the nearest whole number.

§ 7:29-2.11 Qualifications of enforcement personnel

For the purposes of this chapter, an employee representing an authorized enforcement agency shall be considered qualified to make noise measurements and enforce the State's Noise rules or a municipal noise ordinance approved by the Department, as the case may be, if such person completes a noise certification course, and is recertified, at least once every two years, at a noise certification course which is offered by the Department of Environmental Sciences of Cook College, Rutgers, the State University. The Department of Environmental Protection shall provide an extension for recertification on a case-by-case basis beyond the two year period for a person until the next time the recertification course is offered. Such requests shall be made in writing to the Department at least 10 working days prior to the expiration of the person's certification.

§ 7:29-2.12 Incorporation by reference

(a) Wherever referenced in this subchapter, the following sources are incorporated by reference as part of this subchapter:

1. ANSI:S1.11-1966 (R 1976) "specifications for octave, half-octave and third-octave filter sets" can be purchased from: American National Standards Institute, Inc., 1430 Broadway, New York, New York 10018. Cost: $ 5.50.

2. ANSI:S1.4-1971 "specification for sound level meters" can be purchased from: American National Standards Institute, Inc., 1430 Broadway, New York, New York 10018. Cost: $ 5.50.