

## **ENVIRONMENTAL REGULATION**

### **Air Quality Management**

#### **Control and Prohibition of Air Pollution from Diesel-Powered Motor Vehicles**

#### **Air Administrative Procedures and Penalties**

#### **Proposed Amendments: N.J.A.C. 7:27-14.1, 14.3, 7:27A-3.10(m)14**

Authorized by: Lisa P. Jackson, Commissioner, Department of Environmental Protection

Authority: N.J.S.A. 13:1B-3(e), 13:1D-9, 26:2C-1 et seq., specifically 26:2C-8, 8.1 through 8.5 and 8.11, 26:2C-9.2, and N.J.S.A. 39:8-61.

Calendar Reference: See Summary below for explanation of exception to calendar requirement.

DEP Docket Number: **12-06-08/457**

Proposal Number: PRN 2006-303

A **public hearing** concerning this proposal will be held at 1:30 P.M. on Friday, October 20, 2006 at:

First Floor Hearing Room

Department of Environmental Protection

401 East State Street

Trenton, New Jersey

Submit written comments by November 17, 2006 to:

Alice A. Previte, Esq.

Attn: DEP Docket No. **12-06-08/457**

Department of Environmental Protection

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The Department of Environmental Protection (Department) requests that commenters submit comments on diskette or CD as well as on paper. Submittal of a CD or disk is not a requirement. The Department prefers Microsoft Word 6.0 or above. Macintosh formats should not be used. Each comment should be identified by the applicable N.J.A.C. citation, with the commenter's name and affiliation following the comment.

This rule proposal can be viewed or downloaded from the Department's web site at <http://www.state.nj.us/dep>.

The agency proposal follows:

### **Summary**

Since the Department has provided a 60-day comment period on this proposal, the proposal is exempted from the rulemaking calendar requirement pursuant to N.J.A.C. 1:30-3.3(a)5.

The Department is proposing to amend N.J.A.C. 7:27-14, Control and Prohibition of Air Pollution from Diesel-Powered Motor Vehicles, specifically sections 14.1 and 14.3, which describe the three-minute allowable idling duration for diesel-powered motor vehicles, and the exemptions to that maximum idling limit. The proposed amendments affect all diesel-powered

motor vehicles except United States Environmental Protection Agency (USEPA) regulated marine vessels and trains. The Department is proposing these changes to reduce the number of exemptions to the three-minute diesel idling standard and thereby reduce the amount of diesel exhaust released into the ambient air.

Diesel-powered engines, such as those found in trucks and buses, are responsible for a significant amount of the particulate pollution in New Jersey, which can disproportionately affect people in densely populated high traffic areas, especially in urban centers. The Department, recognizing the serious impact that diesel particulates have on air quality, human health, and the environment, is pursuing a comprehensive set of diesel risk reduction strategies. An important component of these strategies is to reduce the harmful and often unnecessary emissions associated with diesel engine idling. These reductions in the emissions of particulate matter (PM) and oxides of nitrogen (NO<sub>x</sub>) will have a positive effect on air quality within the State.

In addition, the Department is proposing to amend N.J.A.C. 7:27A, Air Administrative Procedures and Penalties, specifically N.J.A.C. 7:27A-3.10(m)14, which identifies penalties for violations of N.J.A.C. 7:27-14.

## **Background**

Diesel exhaust is a complex mixture of hundreds of constituents in gas and particle form. Exhaust emissions vary in chemical composition among engine types, operating conditions and fuel formulations. The particles in diesel exhaust are composed of a central core of elemental carbon and adsorbed organic compounds, as well as small amounts of sulfate, nitrate, metals and other trace elements. Gases in diesel exhaust include carbon dioxide (CO<sub>2</sub>), oxygen, water

vapor, carbon monoxide (CO), oxides of nitrogen, sulfur compounds and low molecular weight hydrocarbons.

According to the International Agency for Research on Cancer and the USEPA, diesel exhaust has been identified as a toxic air contaminant and a probable human carcinogen. The California Air Resources Board (CARB) has identified diesel PM as a toxic air contaminant. The USEPA, CARB, and others have determined that human exposure to diesel exhaust has been linked to premature death from lung cancer, and increased incidents of asthma, allergies, and other various cardiorespiratory disorders. Those most susceptible to diesel emissions include the elderly, the very young and those with pre-existing respiratory problems. Because of the carcinogenicity of diesel exhaust and the other health effects that can lead to premature death, the Department is proposing to reduce diesel exhaust emissions.

Thirteen New Jersey counties are designated as nonattainment areas for the  $PM_{2.5}$  standard. Diesel exhaust contains fine particulate matter ( $PM_{2.5}$ ).  $PM_{2.5}$  is composed of particles less than 2.5 microns in diameter and is composed of both carbon particles and liquid droplets.  $PM_{2.5}$  is of special concern because these particles can be inhaled deep within the lung and can enter the blood stream.  $PM_{2.5}$  can aggravate asthma, increase respiratory symptoms, such as coughing and difficult or painful breathing, cause chronic bronchitis and decreased lung function, contribute to cardiovascular problems such as heart attacks, and even result in premature death. Revisions to the diesel idling rule will also reduce  $PM_{2.5}$  concentrations.

The Department believes that one method the State can use to achieve reductions of fine particle emissions from diesel engines is to revise diesel engine idling regulations, which will encourage the use of truck stop electrification and auxiliary power units, encourage owners to

retrofit diesel engines with particulate control devices, and increase public awareness of diesel exhaust health effects through an anti-idling campaign.

The gaseous components of diesel exhaust contribute to violations of the Ozone National Ambient Air Quality Standards (NAAQS). Diesel motor vehicle emissions contain organic compounds and oxides of nitrogen ( $\text{NO}_x$ ), both of which, in the presence of sunlight, react in the ambient air with other emissions to form ozone. Although the ozone that occurs naturally in the upper regions of the Earth's atmosphere provides critical shielding from the sun's ultraviolet radiation, ground-level ozone is associated with a variety of adverse health, environmental and quality of life effects. This is particularly true during summer months, when the weather conditions needed to form elevated levels of ozone near the Earth's surface normally occur.

New Jersey is designated as nonattainment for both the  $\text{PM}_{2.5}$  and 8-hour ozone NAAQS. Ozone continues to be New Jersey's most pervasive air quality problem. Even at very low levels, ground-level ozone (ozone) triggers a variety of health problems including asthma, reduced lung capacity, and increased susceptibility to respiratory illnesses like pneumonia and bronchitis.

According to the Northeast States for Coordinated Air Use Management (NESCAUM) study on heavy-duty diesel engine emissions in the Northeast, heavy-duty diesel engines (highway and non-road) are responsible for roughly 33 percent of all ozone precursor emissions, and 75 percent of motor vehicle particulate emissions in the Northeast corridor. Diesel engine idling in New Jersey is currently estimated to generate 400 tons of fine particle emissions each year.

According to the United States Department of Energy and the USEPA, on average, a single long-haul truck idles approximately 1,800 hours per year. A reduction in the amount of

truck idling would reduce the amount of fuel burned, and in so doing reduce particulate matter and ozone precursor emissions, thereby decreasing incidence of asthma attacks, emergency room visits, and premature deaths.

In addition to the environmental and health impacts of diesel idling emissions to the citizens of New Jersey, unnecessary idling has impacts to the owners/operators of the idling diesel vehicles. For each hour a diesel vehicle idles, it consumes at least 0.8 gallons of diesel fuel. Idling of diesel engines causes unnecessary fuel consumption and wear-and-tear on the engine itself, increasing the maintenance and repair costs of these engines for owners/operators, and shortening the engines' useful life.

Diesel exhaust also has an effect on the safety of the diesel truck drivers and others on the road. The existing rules at N.J.A.C. 7:27-14 provide an exemption to the three-minute idling limit, in order that the truck operators can control the climate in the cab of the truck while they rest. However, when the engine is left running while the vehicle remains motionless, the air quality inside the cab of the diesel truck can decline rapidly, causing harm to the health of the diesel truck operator. Studies conducted by the East Tennessee Neurology Clinic and the University of Tennessee College of Engineering show that if the engine is idling while the operator is resting in the cab, the operator will get a markedly poorer quality of rest than if the operator rests with the engine turned off. This is of particular concern due to the United States Department of Transportation's mandate that truck operators rest 10 hours for every 11 consecutive hours of driving. The proposed amendments will continue the sleeper berth exemption to the three-minute idling limit, but will restrict the exemption to only those vehicles with appropriate emissions control technology.

Long haul trucks are not the only diesel vehicles that idle for extended periods of time. Buses and other heavy-duty diesel vehicles frequently idle unnecessarily, such as while the drivers are taking their lunch breaks, are waiting for passengers, or are at the end of their route but not the end of their shift. The proposed amendments will limit these types of avoidable idling.

During the rule development process, the Department communicated with industry organizations and environmental groups with regard to the exemption at N.J.A.C. 7:27-14.3(b)8, which covers diesel-powered motor vehicles equipped with sleeper berths. The Department solicited comments from the New Jersey Chapter of the Sierra Club, Rutgers Environmental Law Clinic, the New Jersey Motor Truck Association (NJMTA), NESCAUM, New Jersey Public Interest Research Group (NJPIRG), the American Bus Association (ABA), New Jersey Future, New Jersey Environmental Lobby, the Owner-Operator Independent Driver's Association (OOIDA), the Greater Newark Conservancy, and the Environmental and Occupational Health Sciences Institute (EOHSI).

A description of the proposed amendments follows.

#### **N.J.A.C. 7:27-14.1 Definitions**

N.J.A.C. 7:27-14.1 defines terms used throughout the rules for the control and prohibition of air pollution from diesel-powered motor vehicles. The Department proposes to amend N.J.A.C. 7:27-14.1 to add the definition of "diesel particulate filter." The proposed definition refers to the existing technology for removing diesel particulate matter, and the industry usage of this term.

The Department also proposes to add a definition of “electrification technology,” which is used in the proposed rules. This definition is based on the USEPA’s use of the term in its discussion of idling reduction technologies, which can be found at <http://www.epa.gov/otaq/smartway/idlingalternatives.htm>.

The Department is proposing to amend the definition of “idling,” to make the definition similar to the California Air Resources Board definition of idling in its recent rulemaking, “Airborne Toxic Control Measure to Limit Diesel-Fueled Commercial Motor Vehicle Idling.” This definition can be found in the California Code of Regulations, Title 13, Air Resources Board, Division 3, Article 1 - Motor Vehicles, Chapter 10 – Mobile Source Operational Controls, section 2485. The proposed amended definition removes the language existing rule that defined idling as the operating mode where the engine is not in gear, and the engine is operating at specified revolutions per minute. Under the proposed amended definition, a vehicle is idling when the engine is running and the vehicle is stationary.

Some members of the regulated community have interpreted the existing definition to mean that if the operator of the vehicle accelerates the engine while the vehicle is in parking gear, the vehicle is not “idling,” and they can avoid the intent of the regulations prohibiting idling. Such was not the Department’s intention.

### **N.J.A.C. 7:27-14.3 General prohibitions**

N.J.A.C. 7:27-14.3 defines the conditions under which a diesel-powered motor vehicle is prohibited from idling for more than three minutes and also defines the conditions under which idling is allowed.



The Department proposes to eliminate the existing idling exception at N.J.A.C. 7:27-14.3(a)1 for a motor vehicle at the vehicle operator's place of business where the motor vehicle is permanently assigned. The other exemptions in this section are adequate to cover any necessary idling situation, irrespective of the vehicle's permanently assigned location.

The Department also proposes to eliminate the general exception at existing N.J.A.C. 7:27-14.3(a)2, which allows a motor vehicle whose engine has been stopped for three or more hours to idle for 15 minutes. The Department proposes to replace this exception with a similar exception subject to an ambient temperature condition, at N.J.A.C. 7:27-14.3(a)1. Under the proposed new exception, a motor vehicle whose engine has been stopped for three or more hours could idle up to 15 minutes only if the outdoor temperature is below 25 degrees Fahrenheit. The addition of the ambient temperature condition will allow limited idling during extreme weather conditions, since very low temperatures can have a slight impact on diesel engines and diesel fuels. This proposed exception is consistent with the idling rules in other Northeast states.

To the exceptions at N.J.A.C. 7:27-14.3(a), the Department proposes to add a limited exception for diesel buses that are actively discharging or picking up passengers. In any 60 minute period the bus may idle for 15 consecutive minutes, which the Department believes is sufficient time for passengers to embark or disembark. The Department intends to prohibit the current practice of bus idling while passengers are not on board.

N.J.A.C. 7:27-14.3(b) contains a list of exemptions to the three-minute idling restriction. The Department is proposing to delete the exemption at N.J.A.C. 7:27-14.3(b)1, for diesel buses discharging or picking up passengers, since, as described above, a limited exception is being proposed at N.J.A.C. 27-14.3(a)2.

Existing N.J.A.C. 7:27-14.3(b)2 , proposed to be located as (b)1, exempts all motor vehicles stopped in a line of traffic from the idling restriction. The Department proposes to amend this exemption, to be consistent with recent amendments to N.J.S.A. 39:3-70.2, the Motor Vehicle Code, which remove the idling exemption for school buses. (See P.L.2005, c.219) Although the Motor Vehicle Code does not apply to the Department, it is appropriate that the Department amend its rules to conform to the legislation, in order that the idling restrictions are consistent. Moreover, the Department believes that special attention to school buses is warranted due to the fact that exposure to school bus exhaust is experienced by children, who are a sensitive population at risk for increased adverse health impacts from air pollution. Proposed amended N.J.A.C. 7:27-14.3(b)1 also provides an exception that would allow vehicles other than school buses to idle when they are stopped in a queue of motor vehicles. The exception would not apply to school buses in a stop and go queue, such as lined up to pick up students after school. A school bus could, however, idle in stopped traffic on a highway.

The Department proposes to amend N.J.A.C. 7:27-14.3(b)3, recodified as (b)2, to clarify exemptions to the three-minute idling limit for vehicles whose engines are used for tasks other than propulsion, passenger compartment heating or passenger compartment air conditioning. This exemption has proven to be very difficult for the regulated community to interpret. Accordingly, the Department is proposing to amend the exemption to provide examples of the types of mechanical operations to which the exemption applies, but not change the substance of the exemption.

Existing N.J.A.C. 7:27-14.3(b)5, recodified as (b)4, exempts an emergency vehicle in an emergency situation from the idling restriction; however, it has not been clear in the past what types of vehicles are considered “emergency” and what is the scope of an emergency situation.

As a result, owners and operators of vehicles that are not actually emergency vehicles, or that are not actively providing emergency services, have mistakenly tried to use this exemption. An example of a common misapplication of the exemption would be a public utility dump truck. There may be limited situations in which the dump truck is pressed into service in an emergency, in which case it would qualify for the exception to the idling restriction; however, in most circumstances, the dump truck would not qualify for the exception. Heavy rescue and HAZMAT response vehicles, on the other hand, are “emergency vehicles”; however, they would not qualify for the exception unless they are actively performing emergency services. The Department intends that the amendment will reduce unnecessary idling by vehicles not in an emergency situation.

Misinterpretation of existing N.J.A.C. 7:27-14.3(b)6, recodified as (b)5, which allows a motor vehicle while it is being repaired to idle longer than three minutes, has resulted in unnecessary idling when repairs are performed that do not require the engine to run. Therefore, the Department proposes to amend the exemption, to state that the exemption applies only when repairs require the engine to be running. For example, a repair to a window or tire does not require the engine to run. Adjustment of the engine idle, on the other hand, might require the engine to be running during the adjustment.

Existing N.J.A.C. 7:27-14.3(b)7 allows diesel-powered motor vehicles to idle while they are connecting or detaching from a trailer. The Department proposes to delete N.J.A.C. 7:27-14.3(b)7, because attaching or detaching a trailer will be covered by the exemption of N.J.A.C. 7:27-14.3(b)2, which allows a vehicle to idle if the engine is necessary for mechanical operation other than propulsion.

Existing N.J.A.C. 7:27-14.3(b)8, recodified as (b)7, exempts a sleeper-berth equipped diesel-powered motor vehicle from the three-minute idling limit when the sleeper berth is being used for sleeping or resting, in a non-residentially zoned area, unless the vehicle is equipped with a functional auxiliary power unit. This exemption has allowed some diesel-powered motor vehicles, including those with high emissions, to idle unnecessarily and create excess emissions.

In order to decrease the amount of diesel emissions being discharged into the air, while allowing the regulated community time to comply with the proposed amendments that will restrict this exemption, the Department is proposing to amend N.J.A.C. 7:27-14.3(b)6 so that it would be applicable on or before April 30, 2010. The Department is proposing new N.J.A.C. 7:27-14.3(b)7, which provides that beginning on May 1, 2010, vehicles with sleeper berths could be exempt only if those vehicles have model year 2007 or newer engines, or have been retrofitted with a diesel particulate filter. Diesel particulate filters remove at least 85 percent of the particulate matter from the exhaust. Engines manufactured in 2007 and later will have emissions reduction technologies that reduce both particulate matter and oxides of nitrogen (NO<sub>x</sub>). In this way, beginning on May 1, 2010, higher emitting engines that do not conform to the 2007 Federal standards would not be allowed to idle for longer than the three minute standard, unless particulate emissions controls are applied. However, all vehicles, including those that do not conform to the 2007 standards and those that do not have particulate controls, have the option of using on-board or land-based alternatives to idling. Specifically, land based sources of electrical power, commonly referred to as shorepower or truck stop electrification, provide a mechanism for truck owners to “plug in” and have access to heat, air conditioning and other amenities without idling their engines. Considering that an idling truck consumes up to one gallon of fuel per hour, it is more economical for a truck driver to use this land-based source of power than to

idle the engine. In New Jersey, one truck stop already has a land-based source of electrical power and two more are under contract to have the electrification technology installed within the next several years. In addition, vehicle owners can install on-board technologies such as auxiliary power units or bunk heaters, which power amenities in the truck cabin or provide heat to the cabin without the need to idle the engine. Because these on-board units reduce fuel usage, they pay for themselves within approximately two years and, therefore, are considered by many to be cost effective alternatives to idling.

According to trucking industry groups, fleet turnover for long-haul trucks occurs every three to five years, which is consistent with the amount of time before the end date of the existing sleeper berth exemption. Should the Department determine that May 1, 2010 is not an appropriate date for the new requirements to become effective, because public safety would be adversely affected, the proposed amendment at N.J.A.C. 7:27-14.3(b)7i allows the Commissioner of the Department to delay the commencement of the amended exemption for one year, and extend the exemption in N.J.A.C. 7:27-14.3(b)6. For example, if there is an insufficient number of vehicles that comply with the conditions of proposed N.J.A.C. 7:27-14.3(b)7, or an insufficient amount of on-board or land-based alternatives to idling such that long haul drivers are unable to get sufficient rest, a delay in the operative date of N.J.A.C. 7:27-14.3(b)7 might be appropriate. The announcement of the delay in operative date of N.J.A.C. 7:27-14.3(b)7 would be by notice published in the New Jersey Register. The Department will consult with the New Jersey Department of Transportation and the State Police before making this determination.

The Department is proposing to add a new N.J.A.C. 7:27-14.3(c), which would restrict idling in any parking space that is equipped with electrification technology beginning on May 1,

2008, irrespective of the engine year or whether the vehicle was equipped with a particulate filter. The Department intends, by this restriction, to encourage the use of electrification technology, which is a cleaner method of providing heating or air conditioning to the drivers, when and where the technology is available. If electrification technology is not available at the time and location that the driver must begin his or her United States Department of Transportation mandated rest period, then the sleeper berth regulations at proposed amended N.J.A.C. 7:27-14.3(b)6 and proposed new (b)7 would apply.

The Department proposes to add a new subsection at N.J.A.C. 7:27-14.3(d), and relocate the language at existing subsection (c) to (e). New subsection (d) is intended to make it clear that the regulated community remains subject to all other applicable State and Federal laws.

#### **N.J.A.C. 7:27A-3.10(m) Civil Administrative Penalty Schedule**

The Department proposes to amend N.J.A.C. 7:27A-3.10(m)14, which addresses penalties, to incorporate changes contained recently enacted N.J.S.A. 26:2C-8.33 and 39:3-70.2. For school buses, the penalty would not be assessed against the driver of the school bus, unless the driver is also the owner. As proposed, the first time that a school bus is operated in violation of N.J.A.C. 7:27-14.3, a penalty will be assessed against the owner of the school bus. The driver and the school district will not receive a penalty, but they will be notified of the violation. Subsequent violations will be enforced against the owner of the bus, if other than the school district, and also the school district that is serviced by the bus. This is in accordance with N.J.S.A. 26:2C-8.33. The legislation amends N.J.S.A. 39:3-70.2 to require a penalty of not less than \$250.00, nor more than \$1,000 per day, per vehicle, for any vehicle that is operated or is permitted to idle in violation of N.J.A.C. 7:27-14. Although the amendment to the Motor

Vehicle Code at Title 39 of the New Jersey Statutes is not binding on the Department, the Department proposes a penalty of \$250.00 for a first offense, \$500.00 for a second offense, and \$1,000 for a third or subsequent offense, consistent with the legislation.

The Grace Period Law, N.J.S.A. 13:1D-125 et seq., requires the Department to establish procedures to ensure the consistent application of grace (compliance) periods for minor violations of certain environmental statutes. Pursuant to that law, the Department, through rulemaking, designates certain types of violations of rules contained in 16 environmental statutes as minor or non-minor violations. The Department has determined that, based upon the criteria set forth at N.J.S.A. 13:1D-129, violation of the proposed amendments to N.J.A.C. 7:27-14.3 would result in an emission increase. Such a violation would be contrary to the purpose of the Air Pollution Control rules at N.J.A.C. 7:27, which is to control air pollution. Consequently, the violation is non-minor and is not subject to a grace period.

### **Social Impact**

The Department anticipates that the proposed amendments will have a positive social impact on the residents of New Jersey. The proposed amendments will help to reduce diesel exhaust, a probable human carcinogen, in ambient air. In addition, those precursor emissions that lead to the formation of PM<sub>2.5</sub> and ground-level ozone will also be reduced. The proposed amendments will also help reduce ozone, PM<sub>2.5</sub>, carbon monoxide, hazardous air pollutants (HAPs), toxic substances and greenhouse gas emissions, all of which are present in diesel exhaust.

As discussed in the Background section, PM<sub>2.5</sub> is a combination of directly emitted primary particles as well as secondary particles formed from precursor compounds. The health

effects associated with exposure to fine particles are significant, mainly due to the fact that particles of this size can easily reach into the deepest regions of the lungs, from there diffusing into the circulatory system and causing system-wide injury, such as cardiac-cell inflammation and altered blood viscosity. Epidemiological studies have shown a significant correlation between elevated fine particle levels and premature mortality. Other significant health effects associated with fine particle exposure include aggravation of respiratory and cardiovascular disease (as indicated by increased hospital admissions, emergency room visits, absences from school or work, and restricted activity days); lung disease; decreased lung function and difficulty breathing; asthma attacks; and certain cardiovascular problems such as heart attacks and cardiac arrhythmia.

The Department has estimated that each year there are approximately 1,900 deaths and 53,000 cases of asthma in the State each year attributable to the exceedance of the PM<sub>2.5</sub> standard, with associated medical costs of approximately \$15 billion. The USEPA has estimated that attainment of the new annual and 24-hour PM<sub>2.5</sub> standards nationally would prolong tens of thousands of lives and prevent tens of thousands of hospital admissions each year. In addition, the proposed idling standards would prevent hundreds of thousands of doctor visits, absences from work and school, and respiratory illnesses in children.

Individuals particularly sensitive to fine particle exposure include older adults, people with heart and lung disease, and children. Lung impairment from acute exposure can persist for two to three weeks. The elderly have been shown to be particularly at risk for premature death from the effects of particulate matter. Health studies have shown that there is no clear threshold below which adverse effects are not experienced by at least certain segments of the population. Thus, some individuals particularly sensitive to fine particle exposure may be adversely affected



by fine particle concentrations below the annual and 24-hour standards. Due to the health effects of exposure to fine particles, the USEPA has recently recommended strengthening both of these standards, to make them more restrictive and thus more protective of human health.

Ozone formed in the Earth's lower atmosphere and fine particulate matter are both criteria air pollutants with health-based NAAQS that are exceeded in all or parts of New Jersey. Therefore, reducing the emissions that form these pollutants will aid the State in its attainment of the national health based standards.

Unlike ozone in the upper atmosphere that protects people from harmful ultraviolet radiation, ground-level ozone can irritate lung airways and cause inflammation much like sunburn. Other symptoms from exposure include wheezing, coughing, pain when taking a deep breath, and breathing difficulties during exercise or outdoor activities. Even at very low levels, exposure to ozone can result in decreased lung function, primarily in children active outdoors, as well as increased hospital admissions and emergency room visits for respiratory illnesses among children and adults with pre-existing respiratory diseases such as asthma ([www.epa.gov/air/urbanair/ozone/hlth.html](http://www.epa.gov/air/urbanair/ozone/hlth.html)).

There are many studies that document the adverse health effects associated with ozone exposure. The first external review draft of the USEPA ozone criteria document (Air Quality Criteria for Ozone and Related Photochemical Oxidants, January 2005) continues to support the conclusions drawn in their 1997 document (Finding of Significant Contribution and Rulemaking for Certain States in the Ozone Transport Assessment Group Region for Purposes of Reducing Regional Transport of Ozone) (See 62 Fed. Reg. 60317 (November 7, 1997)) that chronic exposure to ozone is associated with the decline in lung function, inflammation, and development of asthma in children and adults. A group of studies done by researchers from

Yale, Harvard and New York University have concluded that high ozone pollution is linked to higher death rates (Epidemiology. July 2005. Volume 16, No. 4).

Ozone exposure is especially problematic for susceptible populations – small children, the elderly, and asthmatics. In addition, recent evidence has linked the onset of asthma to exposure to elevated ozone levels in exercising children ("Asthma in exercising children exposed to ozone: A cohort study," McConnell, R., et al. (2002) *Lancet*, 359: 386-391). Elevated ozone levels are predicted to cause premature death, the onset of new cases of asthma, and asthma attacks (EPA, Final Tier 2 Rule: Air Quality Estimation, Selected Health and Welfare Benefit Methods, and Benefits Analyses Results, EPA 420-R-99-032, December 1999). Two new studies provide further evidence linking ozone to premature deaths. The *Journal of the American Medical Association* recently reported a significant increase in premature deaths in cities with unhealthy levels of ozone. The study examined respiratory and cardiovascular deaths in 95 cities in the United States between 1987 and 2000 and found that increasing levels of ozone could be linked to thousands of premature deaths annually. The researchers estimated that the annual death toll in the 95 cities would be 3,767, including 319 annually in New York City due to elevated levels of ozone ("Ozone and short-term mortality in 95 U.S. Urban Communities, 1987 to 2000." Bell MI et al (2004) *Journal of the American Medical Association* 2004, 292:2372-2378). A similar study conducted in Europe drew the same conclusions when looking at the effects of ozone on short-term mortality in nineteen of twenty-three European cities ("Acute effects of ozone on mortality from the Air Pollution and Health: A European Approach Project" Gryparis A, et al., (2004) *American Journal of Respiratory and Critical Care Medicine* 2004, 170: 1080-1087).

The Department estimates that attaining the new Federal health standard for ozone in New Jersey would eliminate about 40,000 asthma attacks each year and substantially reduce hospital admissions and emergency room visits among children and adults with asthma and other respiratory diseases. Reducing diesel idling will reduce precursors to ozone formation and reduce some of the associated health effects.

In addition to participating in the formation of ozone and fine particulate matter, oxides of nitrogen ( $\text{NO}_x$ ) emissions from diesel engines alone have serious human health effects. While nitric oxide (NO) is a relatively nonirritating gas, it is readily oxidized to nitrogen dioxide ( $\text{NO}_2$ ), which can damage respiratory defense mechanisms, allowing bacteria to proliferate and invade the lung tissue.  $\text{NO}_2$  causes irritation to the lungs, lowers resistance to respiratory infections, and contributes to the development of emphysema, bronchitis, and pneumonia.  $\text{NO}_x$  emissions react chemically in the atmosphere to form nitric acid, which contributes to acid rain formation.

Carbon monoxide (CO), another pollutant emitted by diesel exhaust, is a poisonous gas. Once absorbed into the bloodstream, carbon monoxide may have both direct and indirect effects on the cardiovascular system by interfering with the oxygen-carrying ability of the blood. Exposure to carbon monoxide aggravates angina and other aspects of heart disease and decreases exercise tolerance in persons with cardiovascular problems. In fetuses, infants, elderly persons, and individuals with respiratory diseases, elevated levels of carbon monoxide are also a serious health risk.

Although the entire State is currently in attainment of the carbon monoxide NAAQS, portions of the State are still considered maintenance areas for that criteria pollutant, and as such, any efforts to continue to keep carbon monoxide levels below the NAAQS is beneficial to the citizens of New Jersey.

CO<sub>2</sub> can be deadly at high concentrations. However, the larger concern regarding CO<sub>2</sub> and other greenhouse gases has to do with effects on the climate. By reducing the levels of greenhouse gases emitted by motor vehicles in New Jersey, the proposed amendments to N.J.A.C. 7:27-14 will help to reduce the adverse impacts of greenhouse gases on ecological systems and human health. Although there is uncertainty about the exact impact of greenhouse gases on the Earth's climate, it is generally regarded in the scientific community that detectable changes are under way. These changes include effects on temperature, precipitation and sea level rise, all of which could have significant adverse effects on many ecological systems as well as on human health and the economy. New Jersey, being a coastal state, is particularly vulnerable to sea level changes due to global climate change.

The proposed amendments are expected to reduce emissions of hazardous air pollutants (HAPs)(substances listed in 1990 CAAA Title III, Sec. 112(b)) and toxic substances (substances listed in N.J.A.C. 7:27-17) from diesel engines. HAPs are substances that may present a threat of adverse human health effects or adverse environmental effects. Health effects associated with some HAPs include cancer, birth defects, nervous system problems and death due to massive accidental releases (USEPA Plain English Guide to the Clean Air Act, April 1993). Examples of organic compounds emitted from diesel-powered motor vehicles that are HAPs are toluene, 1,3-butadiene and benzene. In addition to being classified as a HAP, benzene is also classified as a toxic substance (substances listed in N.J.A.C. 7:27-17) and is a human carcinogen.

As part of the USEPA's National Air Toxics Assessment activities, the USEPA conducted a national assessment of 33 air pollutants (a subset of 32 air toxics on the Clean Air Act list of 188 air toxics, plus diesel particulate matter). Nineteen of these thirty-three air pollutants were identified as pollutants of concern for New Jersey because the concentrations

were predicted to exceed human health benchmarks in one or more counties. The last assessment was conducted for the year 1996 and will be updated based on 1999 emission inventory data.

There are additional benefits of reducing idling for those neighborhoods near locations used by trucks or buses for the purposes of idling. By reducing the quantity of diesel idling hours, a reduction in the noise and odor pollution associated with diesel engine idling will result. In addition, reducing the quantity of diesel idling hours will result in reductions in diesel particles emitted into neighborhoods where residents are more likely to breathe in these emissions. Long-haul diesel-powered motor vehicles are turned over approximately every three to five years; however, the vehicles are not necessarily scrapped at the end of this period. After their useful life as long-haul vehicles, the trucks may be used for local routes, such as in neighborhoods, remaining in service for 30 or more years. Based upon these considerations, the Department anticipates that a reduction in diesel engine idling as a result of the proposed rules will have a positive social impact.

### **Economic Impact**

The Department anticipates that the proposed amendments will have a positive economic impact on the State. By furthering the State's goal of significantly reducing diesel particulate emissions, the proposed amendments will result in improved air quality, thereby reducing the substantial costs to the State and its citizens that are associated with air pollution, such as health care costs and the cost of damage to buildings, materials, crops and vegetation. On a national scale, by reducing the amount of fuel consumed by diesel-powered motor vehicles, there will be a reduction in the need for foreign oil, improving the national economy.

By reducing the amount of time that a truck idles, the owners/operators will incur lower fuel costs. Testing done by USEPA shows that a class 8b heavy-duty diesel truck consumes 0.8 gallons of fuel per hour of idling. By reducing idling, the truck will consume less fuel, resulting in lower operating costs.

In addition, by reducing the amount of time the diesel engine operates, the Department anticipates that engine maintenance costs will also decrease. According to the USEPA, estimates by the trucking industry show that long duration idling by trucks cost the truck owner \$1.13 every day in additional oil changes and overhaul costs. This does not include the actual cost of the diesel fuel used during idling times. Though decreased incidents of extended idling may cause a slight increase in the number of engine starts, due to the decreased wear-and-tear on the engine, the implementation of the proposed rule action would increase overall engine life.

The regulated community may experience increased costs as a result of the proposed amendments in those situations where alternatives to idling are necessary for the comfort of the truck drivers. These alternatives include hotel stays, use of truck stop electrification, or on-board generators and other auxiliary power systems. Parking in electrified truck stops costs from approximately \$0.75/hour to \$1.50/hour, with a small amount of initial cost, which varies from \$0 to approximately \$400.00, depending on the electrification system used. On board generators typically cost from \$4,000 to \$7,000, and diesel particulate filters cost approximately \$6,000. Although there may be some capital costs to the regulated community for these idling alternatives, the costs are more than offset by decreased fuel and maintenance costs. Trucking industry experts estimate that these costs can be recovered within two to three years, even with the more expensive option of auxiliary power systems.

In addition to the direct costs of reducing idling are the financial benefits to the public of decreased medical care and hospitalization. Each incident of asthma has an expenditure of approximately \$30.00 to \$400.00 for treatment and/or hospitalization, depending on the severity of the asthma attack. Premature deaths resulting from exceedance of the PM<sub>2.5</sub> health standard have an estimated cost to the State of approximately \$15 billion each year. These figures do not show the cost to the individual and family through decreased quality of life and the effect of early mortality on family members and to the individual. A reduction in diesel emissions, resulting from this proposed rulemaking, would help to reduce the number of individuals affected with this type of burden.

### **Environmental Impact**

The Department anticipates that the proposed amendments will have a positive impact on the environment. Diesel exhaust has been identified as a toxic air contaminant and a probable human carcinogen by USEPA and the International Agency for Research on Cancer (IARC). The proposed amendments will reduce the amount of particulate matter emitted from diesel vehicles, which will improve the air quality for citizens and the environment. By decreasing particulate matter and ozone precursor emissions, there will be a positive impact on the health of the citizens of this State. The Department estimates that implementation and strong enforcement of the proposed amended rules will decrease emissions of particulate matter by 200 tons per year. As stated in the Social Impact, the reduction in noise and odor that will occur as a result of decreased idling hours in this State will also improve the environment.

PM<sub>2.5</sub> also contributes to decreased visibility. The 1977 Clean Air Act amendments set a national visibility goal for certain designated national parks and wilderness areas, known as

Class 1 areas. New Jersey has a Class I area at the Brigantine Wilderness Area of the Edwin B. Forsythe National Wildlife Refuge. In response to the USEPA Regional Haze requirements, New Jersey must work with its neighboring states to establish goals to improve visibility at that Class I area. Reducing PM<sub>2.5</sub> precursor emissions is a major part of the plan to meet those goals.

In addition, ozone damages the leaves of trees and other plants, degrading the aesthetic value of cities, national parks, and recreation areas. Ozone can also damage certain man-made materials, such as textile fibers, dyes, and paints (USEPA Fact sheet on the New 8-Hour Ozone and Fine (2.5 microns) Particulate Matter Health Standards, July 1997). Further, the USEPA has determined that acid rain, which is caused when fossil fuel emissions combine with water in the atmosphere, acidifies lakes and streams. The acidification of lakes and streams causes fish to die or fail to thrive, which unbalances the ecosystem and affects recreational fishing and tourism.

The implementation of these proposed amendments will complement the Department's efforts to decrease diesel emissions, characterized by the Department's diesel risk reduction strategies, and help in its effort to improve the environment in New Jersey.

### **Federal Standards Statement**

Executive Order No. 27(1994) and P.L. 1995, c.65 require State agencies that adopt, readopt or amend State regulations that exceed any Federal standards or requirements to include in the rulemaking document a comparison with Federal law. The proposed amendments to N.J.A.C. 7:27-14 are not promulgated under the authority of, or in order to implement, comply with or participate in any program established under Federal law or under a State statute that incorporates or refers to Federal law, Federal standards or Federal requirements. Moreover, there is no comparable Federal standard exceeded by this rulemaking and no Federal regulatory



scheme which might be perceived to be duplicated or overlapped by this rulemaking.

Accordingly, Executive Order No. 27(1994) and P.L. 1995, c.65 do not require a Federal standards analysis.

### **Jobs Impact**

The Department does not expect the proposed amendments to result in either the generation or loss of jobs in the existing industry. However, the Department believes that there is a strong possibility of an increase in jobs for peripheral industries in New Jersey by encouraging the installation of electrification technology, particle filtration technology, and auxiliary power units, thus driving the market for alternative power systems.

### **Agricultural Industry Impact**

The Department expects the proposed amendments to have no detrimental impact on the State's agriculture industry. Rather, these amendments will have a positive impact. As discussed in the Environmental Impact statement above, one of the primary environmental benefits expected to result from the proposed amendments will be a reduction in emissions of particulate matter, which accumulates in air and deposits in soil, as well as in water. According to the USEPA, these depositions can make lakes and streams acidic, change the nutrient balance in coastal waters and large river basins, deplete the nutrients in soil, damage sensitive forests and farm crops, and negatively affect the diversity of ecosystems.

There will also be a reduction in particulate matter accumulation on agricultural growth. This reduction in accumulation will have a positive impact by reducing the damage to that growth that interferes with the photosynthesis process.

In addition to the damage on the foliage of plants and trees, ozone interferes with a plant's ability to produce and store nutrients, which makes plants more susceptible to disease, insects, other pollutants, and harsh weather. According to the USEPA, this impacts annual crop production throughout the United States, resulting in significant losses, and injures native vegetation and ecosystems.

### **Regulatory Flexibility**

As required by the New Jersey Regulatory Flexibility Act, N.J.S.A. 52:14B-16 et seq., the Department has evaluated the reporting, recordkeeping and other compliance requirements that the proposed new rules and amendments would impose upon small businesses. The Regulatory Flexibility Act defines the term "small business" as "any business which is a resident in this State, independently owned and operated and not dominant in its field, and which employs fewer than 100 full-time employees." Based upon this definition, some small businesses would be subject to the proposed amendments. Although small businesses would be subject to the compliance requirements of the proposed amendments, the amendments propose no recordkeeping or reporting requirements, nor would any small business be required to retain a consultant or other professional in order to comply with the proposed amendments.

The cost of compliance for small businesses would not differ from the cost borne by all other affected entities. These costs are discussed in greater detail in the Economic Impact, above. As these increased compliance costs are not expected to be excessive or to fall disproportionately on these small businesses, no provision is being made to minimize their impact.

In light of the moderate cost to comply with the proposed amendments, when compared to the overall benefits attributable to the anticipated resulting reduction in emissions, the Department has determined that the effect of the amendments on small businesses would be reasonable. New Jersey is under a Federal mandate, under the authority of the Clean Air Act, to reduce air emissions. Failure to achieve these reductions could subject New Jersey to economic sanctions, which would adversely affect all businesses in the State, including small businesses. The Department has determined that to exempt small businesses from any requirements or to reduce any requirements would compromise the goals of the rules and the emission reductions needed to reach the attainment of the ozone and particulate matter standards.

### **Smart Growth Impact**

Executive Order No.4 (2002) requires State agencies that adopt, amend or repeal State regulations to include in the rulemaking document a Smart Growth Impact statement that describes the impact of the proposed rules on the achievement of smart growth and implementation of the State Development and Redevelopment Plan (State Plan).

The proposed amendments do not relate to the State's official land use and development policies in a way that would either encourage or discourage any development or redevelopment in this State contrary to the guiding principles of the State Plan. As a result, the Department does not expect this rulemaking to have an impact on the State's achievement of smart growth, or implementation of the State Plan.

Since the proposed rules implement a program of reduced idling of heavy-duty diesel vehicles, thereby helping to protect air quality, the proposed rules support the State Plan's goal of protecting the environment and preventing air pollution by implementing a strategy of

reducing air pollution at the source. By reducing diesel exhaust Statewide, the adverse impact of diesel exhaust in growth areas is reduced, improving the air quality for those who live and work in these areas.

**Full text** of the proposal follows (additions indicated in boldface **thus**; deletions indicated in brackets [thus]):

#### 7:27-14.1 Definitions

**“Diesel particulate filter” means an exhaust emissions aftertreatment device that physically entraps and prevents from being emitted into the air at least 85 percent of the particulate matter contained in the full exhaust stream emitted by the engine.**

**“Electrification technology” means a technology that harnesses an off-vehicle electrical system to provide a vehicle with climate control and other needs.**

“Idle” means an operating mode where [the vehicle engine is not engaged in gear and where the engine operates at a speed at the revolutions per minute specified by the engine or vehicle manufacturer.] **the vehicle engine is in operation while the vehicle is stationary at any location.**

#### 7:27-14.3 General Prohibitions

(a) No person shall cause, suffer, allow, or permit the engine of a diesel-powered motor vehicle to idle for more than three consecutive minutes if the vehicle is not in motion, except:

[1. A motor vehicle at the vehicle operator's place of business where the motor vehicle is permanently assigned may idle for 30 consecutive minutes; or]

[2. A motor vehicle may idle for 15 consecutive minutes when the vehicle engine has been stopped for three or more hours.]

**1. A motor vehicle that has been stopped for three or more hours may idle for up to 15 consecutive minutes when the ambient temperature is below 25°F; and**

**2. A diesel bus while it is actively discharging or picking up passengers may idle for 15 consecutive minutes in a 60 minute period.**

(b) The provisions of (a) shall not apply to:

[1. A diesel bus while it is discharging or picking up passengers;]

[2.] **1. [A]Any motor vehicle idling[stopped] in [a line of ]traffic, or a motor vehicle other than a school bus idling in a queue of motor vehicles, that are intermittently motionless and moving because the progress of the motor vehicles in the traffic or**

**the queue has been stopped or slowed by the congestion of traffic on the roadway or by other conditions over which the driver of the idling motor vehicle has no control;**

[3.]**2.** A motor vehicle whose primary power source is utilized in whole or in part for necessary and definitively prescribed mechanical operation other than **propulsion. This use includes, but is not limited to, operating lift gate pumps and controlling cargo temperature. This exemption does not apply to** [propulsion,] passenger compartment heating or passenger compartment air conditioning;

[4.]**3.** A motor vehicle waiting to be examined by a State or Federal motor vehicle inspector;

[5.][An emergency motor vehicle in an emergency situation] **4. Vehicles that are actively performing emergency services. Examples include fire vehicles, police vehicles, public utility vehicles, and snow removal vehicles, during the time that such vehicles are actively performing emergency services;**

[6.]**5.** A motor vehicle while it is being repaired **or serviced, provided that operation of the engine is essential to the proper repair or service;**

[7. A motor vehicle while it is engaged in the process of connection or detachment of a trailer or of exchange of trailers; or]

[8.] **6. Subject to (b)7i below, on or before April 30, 2010, a [A] motor vehicle,**  
manufactured with a sleeper berth, while it is being used, in a non-residentially zoned  
area, by the vehicle's operator for sleeping or resting, unless the vehicle is equipped with  
a functional auxiliary power system designed in whole or in part to maintain cabin or  
sleeper berth comfort or to mitigate cold weather start-up difficulties.

**7. Beginning May 1, 2010, a vehicle equipped with a sleeper berth, which vehicle is  
equipped with a model year 2007 or newer engine, or has been retrofitted with a  
diesel particulate filter that is connected and properly functioning.**

**i. If the Commissioner, after consulting with the New Jersey Department of  
Transportation and the State Police, determines that public safety would be  
adversely affected if the exemption in (b)7 were to take effect on May 1, 2010, the  
Commissioner may, by notice published in the New Jersey Register on or before  
May 1, 2010, delay the operative date of the exemption in (b)7, and extend the  
exemption in (b)6 above, for up to one year, but in no case may the exemption of  
(b)6 above be extended beyond April 30, 2011.**

(c) [No person shall cause, suffer, allow or permit any emission control apparatus or element  
of design installed on any diesel-powered motor vehicle or diesel engine to be  
disconnected, detached, deactivated, or in any other way rendered inoperable or less  
effective, in respect to limiting or controlling emissions than it was designed to be by the  
original equipment or vehicle manufacturer, except for the purposes of diagnostics,  
maintenance, repair or replacement and only for the duration of such operations.]

**Beginning May 1, 2008, no person shall cause, suffer, allow, or permit the engine of a diesel-powered motor vehicle to idle for more than three consecutive minutes when that vehicle is parked in a parking space with available electrification technology.**

(d) [(Reserved.)]**In no case shall the provisions of (a) and (b) above relieve any person from compliance with N.J.A.C. 7:27-5, Prohibition of Air Pollution, or any other applicable local, State or Federal law.**

(e) **No person shall cause, suffer, allow or permit any emission control apparatus or element of design installed on any diesel-powered motor vehicle or diesel engine to be disconnected, detached, deactivated, or in any other way rendered inoperable or less effective, in respect to limiting or controlling emissions than it was designed to be by the original equipment or vehicle manufacturer, except for the purposes of diagnostics, maintenance, repair or replacement and only for the duration of such operations.**

## CHAPTER 27A

### AIR ADMINISTRATION PROCEDURES AND PENALTIES

#### SUBCHAPTER 3. CIVIL ADMINISTRATIVE PENALTIES AND REQUESTS FOR ADJUDICATORY HEARINGS



7:27A-3.10 Civil administrative penalties for violation of rules adopted pursuant to the Act

(a)-(l) (No change.)

(m) The violations of N.J.A.C. 7:27 and the civil administrative penalty amounts for each violation are as set forth in the following Civil Administrative Penalty Schedule. The numbers of the following subsections correspond to the numbers of the corresponding subchapter in N.J.A.C. 7:27. The rule summaries for the requirements set forth in the Civil Administrative Penalty Schedule in this subsection are provided for informational purposes only and have no legal effect.

**CIVIL ADMINISTRATIVE PENALTY SCHEDULE**

1. - 13. (No change.)

14. The violations of N.J.A.C. 7:27-14, Control and Prohibition of Air Pollution from Diesel-Powered Motor Vehicles, and the civil administrative penalty amounts for each violation, per vehicle, are as set forth in the following table:

<b>Citation</b>	<b>Class</b>	<b>Type of Violation</b>	<b>First Offense</b>	<b>Second Offense</b>	<b>Third Offense</b>	<b>Fourth and Each Subsequent Offense</b>
N.J.A.C. 7:27-14.3(a)	Passenger Vehicle Registration	NM	\$100	\$200	\$500	\$1,500

	<b>School Bus Owner</b>	<b>NM</b>	<b>\$250</b>	<b>\$500</b>	<b>\$1,000</b>	<b>\$1,000</b>
	<b>School District, if the School District Does not Own the Bus<sup>1</sup></b>	<b>NM</b>	<b>\$0</b>	<b>\$500</b>	<b>\$1,000</b>	<b>\$1,000</b>
	Commercial Vehicle Registration	NM	[\$200] <b>250</b>	[\$400] <b>500</b>	\$1,000	[\$3,000] <b>1,000</b>
	Property Owner	NM	[\$200] <b>250</b>	[\$400] <b>500</b>	\$1,000	[\$3,000] <b>1,000</b>

**<sup>1</sup>The driver of a school bus is not subject to penalty under N.J.A.C. 7:14.3(a). The bus driver, school district, and the principal or administrator of the school serviced by the bus will be notified of all violations.**