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**ENVIRONMENTAL PROTECTION  
ENVIRONMENTAL REGULATION  
DIVISION OF AIR QUALITY**

**Air Pollution Control**

**Control and Prohibition of Air Pollution by Volatile Organic Compounds and Oxides of Nitrogen**

**Proposed Amendments:** N.J.A.C. 7:27-4.1, 4.2, 10.1, 10.2, 16.1 through 16.3, 16.7, 16.11, 16.16, 16.17, 16.22, 16.27, 19.1 through 19.5, 19.7 through 19.10, 19.13, 19.15, 19.21, 21.1, and 21.5, and 7:27A-3.10

**Proposed New Rules:** N.J.A.C. 7:27-10.5, 16 Appendix II, 19.12, 19.28, 19.29 and 19.30

**Proposed Repeal and New Rule:** N.J.A.C. 7:27-16.19

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

**Authority:** N.J.S.A. 13:1B-3(e), 13:1D-9 13:1D-134 et seq. and 26:2C-1 et seq., in particular 26:2C-9.2.

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

**DEP Docket Number:** 10-08-07/643

**Proposal Number:** PRN 2008-260

A **public hearing** concerning this proposal and a proposed State Implementation Plan (SIP) revision, represented by this proposal, will be held on Friday, September 26, 2008 at 10 A.M.:

New Jersey Department of Environmental Protection  
Hearing Room, 1st Floor  
401 East State Street  
Trenton, New Jersey 08625

Directions to the hearing room may be found at the Department's website address at <http://www.state.nj.us/dep/where.htm>.

Submit written comments by close of business on October 3, 2008, to:

Alice A. Previte, Esq.  
Attention: DEP Docket No. 10-08-07/643  
New Jersey Department of Environmental Protection  
Office of Legal Affairs  
401 East State Street, Fourth Floor  
PO Box 402  
Trenton, NJ 08625-0402

Written comments may also be submitted at the public hearing. It is requested (but not required) that anyone providing oral testimony at the public hearing provide a copy of any prepared text to the stenographer at the hearing.

The Department of Environmental Protection (Department) requests that commenters submit comments on diskette or CD, as well as on paper. Submittals on disk or CD must not be access-restricted (locked or read-only) in order to facilitate use by the Department of the electronically submitted comments. Submittal of a diskette or CD is not a requirement. The

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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**

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

The Department is proposing new rules and amendments at N.J.A.C. 7:27-16, Control and Prohibition of Air Pollution by Volatile Organic Compounds, and N.J.A.C. 7:27-19, Control and Prohibition of Air Pollution from Oxides of Nitrogen. The Department is also proposing related amendments at N.J.A.C. 7:27-4, Control and Prohibition of Particles from Combustion of Fuel; N.J.A.C. 7:27-10, Sulfur in Solid Fuels; and N.J.A.C. 7:27A-3.10, Air Administrative Procedures and Penalties.

The proposed new rules and amendments will help New Jersey meet the Federal 1997 Eight-Hour National Ambient Air Quality Standard (NAAQS) for ozone by reducing volatile organic compound (VOC) emissions and oxides of nitrogen (NO<sub>x</sub>) emissions. The proposed new rules and amendments will also reduce sulfur dioxide (SO<sub>2</sub>) emissions, which will help the State meet the Federal 1997 annual NAAQS for PM<sub>2.5</sub>. The proposed new rules and amendments will impact the following 13 source categories of emissions: sources with alternative or facility-specific maximum allowable NO<sub>x</sub> emission rates; sources with alternative VOC emission limits; asphalt used for paving; asphalt pavement production plants; boilers serving electric generating units; sources subject to control technique guidelines (CTGs) for flat wood paneling coatings, flexible packaging printing materials, and offset lithographic printing and letterpress printing; glass manufacturing furnaces; stationary combustion turbines and boilers serving electric generating units that operate on high electric demand days (HEDD); industrial/commercial/institutional (ICI) boilers and other indirect heat exchangers; municipal solid waste (MSW) incinerators; and VOC stationary storage tanks.

Pursuant to N.J.S.A. 26:2C-8, these proposed new rules and amendments will become operative 60 days after adoption by the Commissioner. The Department anticipates that the operative date will be approximately May 1, 2009.

### **Background**

A State Implementation Plan (SIP) is a written plan that describes a state's strategy for achieving and maintaining the National Ambient Air Quality Standards (NAAQS). The Federal Clean Air Act, 42 U.S.C. §§7401-7671q (CAA or Clean Air Act), requires states with areas that do not meet the NAAQS to develop a SIP revision outlining the steps the state will take to reduce air pollution. States are also required to develop a SIP revision for regional haze visibility improvement in certain national parks and wilderness areas. The proposed new rules and amendments are part of New Jersey's final SIP revision to reduce ozone and New Jersey's proposed SIP revision to reduce fine particles. The proposed new rules and amendments are also proposed pursuant to the Department's general authority to prevent, prohibit and control air pollution at N.J.S.A. 26:2C-8. These proposed new rules and amendments would require emission reductions over the next 10 years for the subject source categories to improve air quality and protect public health.

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The United States Environmental Protection Agency (EPA) has identified all New Jersey counties as being nonattainment with the Federal 1997 8-hour NAAQS for ozone. EPA's phase two ozone implementation final rule (70 Fed. Reg. 71658, November 29, 2005), as it applies pursuant to the provisions of the Clean Air Act, requires New Jersey to provide for the implementation of Reasonably Achievable Control Technology (RACT). RACT is generally the lowest emission limitation that a source can meet using control technology that is reasonably available considering technological and economic feasibility.

On October 29, 2007, the Department approved the final revisions to its SIP to address RACT and other requirements to attain the Federal 1997 8-hour NAAQS for ozone. The Department committed to adopt ozone rules, subject to public comment. The October 2007 final SIP revisions included a commitment to propose rules regulating certain source-specific categories with the greatest potential of reducing emissions of oxides of nitrogen and volatile organic compounds, both precursors to the formation of ozone. Some of the Department's existing rules are over a decade old and do not reflect advancements in technology that are currently reasonably available.

The Department is proposing most of these new rules and amendments to reduce VOC and NO<sub>x</sub> emissions, which are precursors to ozone. Ozone occurs naturally in the upper regions of the atmosphere (stratosphere) and is critical to shielding the Earth from the Sun's harmful ultraviolet radiation. However, in the lower atmosphere (troposphere), where the air we breathe lies, ozone is a harmful air pollutant formed by complex chemical reactions involving VOCs and NO<sub>x</sub> in the presence of sunlight.

VOCs are chemicals or mixtures of chemicals that evaporate easily at room temperature. Sources of those VOCs that form ozone include vehicle and industrial exhaust, evaporation of gasoline, and a variety of consumer products. In addition to contributing to the formation of ozone, many VOCs are harmful if directly inhaled.

NO<sub>x</sub> consists of a mixture of gases comprised mostly of nitric oxide (NO) and nitrogen dioxide (NO<sub>2</sub>). These gases are emitted primarily from combustion processes, including the exhaust of motor vehicles, and the burning of coal, oil or natural gas for electricity and heat. Although most NO<sub>x</sub> is emitted as NO, it is readily converted to NO<sub>2</sub> in the atmosphere. NO<sub>2</sub> is a reddish-brown, highly reactive gas that is formed in the air through the oxidation of NO. In the troposphere, near the Earth's surface, NO<sub>2</sub> provides the primary source of the oxygen atoms required for ozone formation. In addition to contributing to the formation of ozone, NO<sub>x</sub> is harmful if directly inhaled.

The "ozone season" is the time of year when ground-level ozone is most likely to be formed in significant amounts. Ground-level ozone forms when pollutants such as volatile organic compounds (VOCs) and nitrogen oxides (NO<sub>x</sub>) react in heat and sunlight. The hot, sunny days of summer are ideal for ozone formation. In general, the higher the temperature and the more direct the sunlight, the more ozone is produced. For regulatory purposes, the Department's Emission Statement Program defines "ozone season" in New Jersey as May 1 through September 30. This is based on the control period for the Federal NO<sub>x</sub> Budget Trading Program. (40 CFR 96.2)

In addition to reducing emissions of VOC and NO<sub>x</sub>, these proposed rules also reduce and SO<sub>2</sub>, which contribute to the formation of fine particulate matter (PM<sub>2.5</sub>). PM<sub>2.5</sub> is a complex mixture of small particles and liquid droplets, 2.5 micrometers in diameter and smaller, which can be inhaled deeply into the lungs. PM<sub>2.5</sub> aggravates existing heart and lung diseases, changes the body's defenses against inhaled materials, and damages lung tissue. Sources of PM<sub>2.5</sub> include power plants and industry. PM<sub>2.5</sub> is the major cause of reduced visibility (haze) in many parts of the United States, including Brigantine National Wildlife Refuge in New Jersey. (EPA 2008

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PM) The Department is in the process of further evaluating sulfur dioxide and particulate emissions from heavy oil boilers and may propose more stringent limits for these two pollutants in the future as part of the fine particle or regional haze SIPs.

New Jersey has been working with other states, including the Ozone Transport Commission (OTC) members, and the Mid-Atlantic/Northeast Visibility Union (MANE VU) member states to develop strategies for implementing measures to reduce emissions necessary to reduce interstate pollution. As an OTC member state, New Jersey is proposing to amend its rules consistent with the recent OTC guidelines developed for asphalt used for paving, asphalt pavement production plants, electric generating units (with boilers), glass manufacturing furnaces, high electric demand day electric generating units, industrial adhesives and sealants, and ICI boilers. New Jersey has already proposed amendments to its air regulations to reduce emissions from industrial adhesives and sealants. (See 39 N.J.R. 4492(a).)

The Department identified additional sources of emissions through its internal technical analyses and the collaborative efforts of the New Jersey air quality workgroups. In addition to the regional measures cited above, New Jersey is proposing new rules and amendments relating to municipal solid waste incinerators and VOC stationary storage tanks.

The Department has determined that certain technologies have advanced over the last 10 years, making it appropriate for the Department to revise the SIP to reflect modified requirements for specific sources or source categories, primarily for NO<sub>x</sub> control. Also the Department plans to conduct case-by-case RACT determinations for the State's approved alternative or facility-specific NO<sub>x</sub> emission limits and alternative VOC emission limits.

The State is also submitting SIP revisions covering sources subject to EPA published control techniques guidelines (CTGs).

Information regarding the above emission reduction strategies is available by sending a request for "Workgroup Recommendations and Other Potential Candidate Control Measures" to Assistant Director, Air Quality Permitting Element, New Jersey Department of Environmental Protection, 401 East State Street, PO Box 027, Trenton, New Jersey 08625-0027 or by calling 609-777-0942. A person requesting this background information should state the source category of the request.

#### Alternative and Facility-Specific NO<sub>x</sub> Emission Rates

Existing N.J.A.C. 7:27-19 specifies the RACT maximum allowable NO<sub>x</sub> emission rates for various source categories. A source may deviate from these emission rates only if it obtains Department approval of an alternative maximum allowable NO<sub>x</sub> emission rate through existing N.J.A.C. 7:27-19.13. A facility with significant NO<sub>x</sub> emitting equipment for which N.J.A.C. 7:27-19 does not specify a RACT maximum allowable emission rate must obtain Department approval of a facility-specific maximum allowable NO<sub>x</sub> emission rate also through existing N.J.A.C. 7:27-19.13. To obtain Department approval of a facility-specific NO<sub>x</sub> emission rate, the owner or operator must obtain Department approval of a facility-specific NO<sub>x</sub> control plan. To obtain Department approval of an alternative maximum allowable NO<sub>x</sub> emission rate, the owner or operator must submit to the Department a request for an alternative maximum allowable emission rate.

There are 43 facilities in New Jersey that currently have either a facility-specific emission limit (in an approved facility-specific NO<sub>x</sub> control plan) or an alternative maximum allowable emission rate. Nine of these facilities will not be affected by the proposed rules for facility-specific maximum allowable emission rates because the Department is proposing specific RACT emission rates for them. These include five facilities with municipal solid waste (MSW) incinerators and four facilities with sewage sludge incinerators. These nine facilities

will, instead, be required to comply with these proposed RACT emission rates. The proposed RACT emission rates for MSW incinerators can be found proposed N.J.A.C. 7:27-19.12, Municipal Solid Waste (MSW) incinerators. The proposed RACT emission rates for sewage sludge incinerators can be found at proposed N.J.A.C. 7:27-19.28, Sewage sludge incinerators.

The Department approved each of the remaining 34 facilities under the existing rules on a case-by-case basis. As part of the Department's October 29, 2007 SIP revision to address RACT, the Department re-examined these alternative maximum allowable emission rates and facility-specific maximum allowable emission rates and found that many were approved as long ago as 1997. Since that time, control technologies have advanced considerably, such that it is appropriate for the Department to re-evaluate these alternative maximum allowable emission rates and facility-specific maximum allowable emission rates to determine if more stringent rates are justified. Of the remaining 34 facilities, three have shut down, one plans to shut down, and four already comply with the existing or proposed emission limits. These nine facilities no longer need a facility-specific maximum allowable emission rate or an alternative maximum allowable emission rate. Also, as explained below, the Department recently approved an alternative maximum allowable emission rate for one facility. Therefore, the Department expects the proposed new rules and amendments to impact 25 or fewer of the remaining 34 facilities.

The Department proposes to require each facility with an alternative maximum allowable emission rate approved before May 1, 2005 to submit a new request for an alternative maximum allowable emission rate 60 days after the operative date of these amendments. As mentioned above, the Department approved only one facility for an alternative maximum allowable emission rate after May 1, 2005. The Department has reviewed the alternative maximum allowable emission rate for this facility and found it to be appropriate. The proposed amended rule requires each facility with an alternative maximum allowable emission rate to submit a new request every 10 years, unless the facility operates in accordance with the RACT requirements.

The Department proposes at N.J.A.C. 7:27-19.13 to require each facility with a facility-specific NO<sub>x</sub> control plan approved before May 1, 2005 to apply for a new facility-specific NO<sub>x</sub> control plan 60 days after the operative date of these amendments. The Department would not require each of these facilities to submit a new control plan in 10 years; rather, the Department will evaluate the plans periodically and determine whether a new rule is appropriate. If the Department establishes in a future rulemaking a maximum allowable emissions rate for a new source category, any facility in that source category with a facility-specific NO<sub>x</sub> control plan (which, necessarily, includes a facility-specific maximum allowable emission rate) would be required to meet that source category's new specified emission rate, or apply for an alternative maximum allowable emission rate .

The amount of emissions reductions that the proposed amendments to the alternative and facility-specific maximum allowable emission rate rules will achieve depends on the alternative maximum allowable emission rate or facility-specific maximum allowable emission rate that a facility applies for, and that the Department approves.

#### Alternative VOC Emission Limits

Existing N.J.A.C. 7:27-16 specifies the VOC RACT emission rates for various source categories. A source may deviate from these emission rates only if it submits an application for an alternate VOC control plan and obtains Department approval of an alternative VOC emission limit in accordance with N.J.A.C. 7:27-16.17.

The Department has re-examined case-by-case alternative VOC emission limits and found that many were approved as long ago as 1998. Since that time, control technologies have advanced considerably, such that it is appropriate for the Department to re-evaluate these

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alternative VOC emission limits. The Department is proposing to amend N.J.A.C. 7:27-16.17 to require each facility with an approved alternative VOC emission limit to apply for a new alternative VOC control plan within 60 days after the operative date of the new rules and amendments. The proposed new rules and amendments also require each facility to submit a new control plan every 10 years after approval of the new alternative VOC emission limit.

The amount of emissions reductions that the proposed amendments to the alternative VOC emission limit rules will achieve depends on the alternative VOC emission limit that a facility applies for, and that the Department approves.

#### Asphalt Used for Paving

The proposed amendments to N.J.A.C. 7:27-16.19 “Application of Cutback and Emulsified Asphalts” will address asphalt used to pave, seal and repair surfaces, such as roads, parking lots, driveways, walkways and airport runways. Asphalt used for paving is grouped into three general categories: hot-mix, cutback, and emulsified. Hot-mix asphalt is the most commonly used asphalt. Hot-mix asphalt produces minimal VOC emissions because its organic components have high molecular weights and low vapor pressures. Cutback asphalt has traditionally been used as a tack coat between old and new layers of hot-mix asphalt, in seal operations, in priming new roadbeds for hot-mix applications and in cold-mix applications for pavement repair. Emulsified asphalt is now used in most of the same applications as cutback asphalt, but is a lower VOC alternative to cutback asphalt.

The Department does not currently regulate, nor is it proposing to regulate, hot-mix asphalt. In 1977, the EPA published a Control Technique Guideline (CTG) for the use of cutback asphalt that recommended replacing cutback asphalt binders with emulsified asphalt during the ozone season. In 1979, the Department adopted similar rules. Also in 1979, EPA added to the CTG a specification to limit the VOC content in emulsified asphalt. In 1982, the Department adopted a similar rule.

The proposed amendments to N.J.A.C. 7:27-16.19 would further reduce VOC emissions from cutback and emulsified asphalt paving applications and are reasonably available. New Jersey worked with other jurisdictions in the OTC to explore additional control measures for VOC from asphalt used for paving. The OTC developed a control measure summary (see OTC February 2007 Proposal) for this source category, which serves as guidance to OTC member states to use to develop rules. As part of the regional effort to address the Federal 1997 8-hour NAAQS for ozone, the OTC commissioned a study (see MACTEC Report February 2007) to quantify the emission reduction benefits from potential new controls, which they deemed to be reasonable. New Jersey’s proposed VOC limits are identical to Connecticut’s revised proposed VOC limits. The Department based its proposed rules on this OTC control measure summary and on the revised rule the state of Connecticut proposed on December 12, 2007. The proposed Connecticut rule is R.C.S.A Section 22a-174-20(k) “Restrictions on VOC emissions from cutback and emulsified asphalt” available online at [http://www.ct.gov/dep/lib/dep/air/regulations/proposed\\_and\\_reports/asphaltwebfinal.pdf](http://www.ct.gov/dep/lib/dep/air/regulations/proposed_and_reports/asphaltwebfinal.pdf).

The technological and economic feasibility of the proposed content limits and storage requirements are based on rules and practice in New Jersey or other states and on EPA guidance. Emulsified asphalt that complies with the proposed VOC content limits is already being supplied to some users in New Jersey. The use of cutback and emulsified asphalt in New Jersey has decreased substantially since 1990. New Jersey is proposing the same VOC content limits that the state of Connecticut proposed, the first OTC state to propose limits after OTC published its control measure summary. Delaware has had a rule in place since 1993 that bans the use of any cutback asphalt, except for use as a penetrating prime coat, and the use of emulsified asphalt that

contains any VOC during the ozone season. The California SCAQMD has had a rule in place since 1985 that bans the use of cutback asphalt containing more than 0.5 percent by volume organic compounds. According to the EPA, "States with experience in applying asphalt report that emulsions can be used in almost all applications where cutback has heretofore been employed." (EPA Asphalt CTG, page 68.) The EPA recommends replacing cutback asphalt binders with emulsified asphalt during the ozone season. Finally, asphalt users should experience long-term (but not short-term) cost savings resulting from the proposed ban of non-compliant asphalt during the ozone season. See the Economic Impact section for additional explanation.

The existing rule at N.J.A.C. 7:27-16.19 bans the application or use of cutback and emulsified asphalt from April 16 through October 14, unless the asphalt is used solely as a penetrating prime coat; the emulsified asphalt contains no greater than eight percent VOC by volume and is used for mixed-in-place construction; the material is a cold-mix, stockpile material used for pavement repair; or the user can demonstrate that there are no emissions of VOCs from the asphalt under conditions of normal use. Under the proposed new rules and amendments, the Department will no longer allow the use of cutback or emulsified asphalt from April 16 through October 14, unless the cutback asphalt or emulsified asphalt contains no greater than 0.1 percent VOC by weight; or the cutback asphalt or emulsified asphalt produces no greater than 6.0 milliliter of oil distillate in accordance with American Society for Testing and Materials (ASTM) Method D244 or American Association of State Highway & Transportation Officials (AASHTO) T 59.

The existing rule does not regulate storage of cutback and emulsified asphalt. Since improper storage of these asphalts contributes VOC emissions to the atmosphere, the proposed rule requires a person to store non-compliant cutback and emulsified asphalt from April 16 through October 14 in sealed containers. The Department's intention is to allow a person who uses non-compliant cutback or emulsified asphalt during the unregulated period, October 15 through April 15, to store it during the regulated period, April 16 through October 14, and then to continue using it during the next unregulated period.

The Department estimates that implementing the proposed measures will achieve VOC emission reductions in 2009 of 3.6 tons per day (tpd) during the ozone season (May 1 through Sept 30) and 420 tons per year (tpy), as a result of reductions from April 16 through October 14.

#### Asphalt Pavement Production Plants

New Jersey has 70 asphalt production dryers at 51 asphalt pavement production plants. These facilities would potentially be regulated by the proposed amendments to N.J.A.C. 7:27-19.9 that would require NO<sub>x</sub> emission reductions from most of these plants. The OTC recommended a 35 percent emission reduction from these plants by compliance with the OTC's recommended NO<sub>x</sub> emission limits based on fuel type and dryer type, or by installing low NO<sub>x</sub> burners/implementing best management practices (BMP).

The OTC's recommended NO<sub>x</sub> emission limits are based on EPA's AP-42 emission factors for different types of source operations that emit air contaminants. (See AP-42 Asphalt.) An emissions factor is a representative value that attempts to relate the quantity of a pollutant released to the atmosphere with an activity associated with the release of that pollutant. For example, the emissions factor of a drum mix asphalt pavement production plant combusting natural gas is 0.026 pounds of NO<sub>x</sub> emitted per ton hot mix asphalt produced.

Since the Department recognizes that different plants will need different emission reduction measures to achieve the proposed emission limits, the Department intends to give plants the flexibility to choose the type of emission reduction measure. Therefore, the

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Department is not proposing the installation of a specific technology. These reductions could be achieved by low NO<sub>x</sub> burners, fluid gas recirculation, water injection, best management practices and/or other NO<sub>x</sub> reduction measures. None of the New Jersey plants have a low NO<sub>x</sub> burner. According to the asphalt dryer manufacturers, who supply the majority of the dryers to New Jersey's plants, these control systems have been installed and implemented in asphalt production plants in other states. These asphalt production plants are comparable in size and operation to those in New Jersey. The Department is also proposing to require compliance with BMPs which are already part of each New Jersey plant's preconstruction permit.

The Department is proposing emission limits that would result in NO<sub>x</sub> emission reductions of at least 35 percent by implementing requirements similar to those recommended by the OTC. (See OTC February 2007 Proposal, p 57.) The proposed new emission limits are based on the Department's analysis of actual New Jersey stack test data and additional production information provided by the asphalt pavement production industry. The Department compiled actual stack test data for 29 asphalt production dryers from 22 asphalt pavement production plants between 2001 and 2006, and reviewed 119 test results (38 test events). The Department analyzed this data to determine what NO<sub>x</sub> emission limits would result in an overall actual NO<sub>x</sub> reduction of at least 35 percent.

Depending on fuel type, the Department's proposed limits are 37 percent to 62 percent more stringent than the existing New Jersey limit at N.J.A.C. 7:27-19.9(a) of 200 parts per million dry volume (ppmvd) at seven percent oxygen (O<sub>2</sub>) for all plants regardless of fuel type or dryer type. The Department proposes limits that are 62 percent more stringent for natural gas, 50 percent more stringent for No. 2 fuel oil and 37 percent more stringent for No. 4 fuel oil or heavier fuel oils/on-specification used oil. Since the Department's analysis of actual stack test data indicated no emission difference between drum or batch dryer type, but did indicate a difference by fuel type, the Department proposes limits based on fuel type, but not dryer type.

Table 1 below shows that New Jersey's proposed limits are similar to the OTC's recommended limits based on fuel type and dryer type (i.e., batch and/or drum).

TABLE 1  
Comparison of New Jersey Proposed and OTC Recommended  
NO<sub>x</sub> Emission Limits at Asphalt Pavement Production Plants  
(Pounds NO<sub>x</sub> Emissions per Ton of Pavement Asphalt Produced)

<u>NJ Proposed Limits</u>	<u>OTC Recommended Limits</u>
Natural Gas: 75 ppmvd at seven percent oxygen (about 0.025 pounds/ton)	Natural Gas (Batch and Drum): 0.020 pounds/ton
No. 2 Fuel Oil: 100 ppmvd at seven percent oxygen (about 0.04 pounds/ton)	Fuel Oil/Waste Oil (Batch): 0.090 pounds/ton
No. 4 Fuel Oil or Heavier Fuel Oils/On-Specification Used Oil: 125 ppmvd at seven percent oxygen (about 0.05 pounds/ton)	Fuel Oil/Waste Oil (Drum): 0.040 pounds/ton
AND	OR
Best Management Practices	Low NO <sub>x</sub> Burners/Best Management

## Practices

The Department is proposing emission limits in parts per million dry volume (ppmvd) at seven percent oxygen in order to be consistent with the Department's current practice of requiring emissions limits in ppmvd at seven percent oxygen for this industry, and also for ease of testing and enforcement. The Department is proposing BMPs to be implemented for all asphalt pavement production plants. The Department is also proposing recordkeeping requirements. Finally, the Department proposes that the new limits be phased in from 2009 to 2012. The larger dryers, being higher NO<sub>x</sub> emitters, will be phased in first in 2009 and 2010, followed by the middle-sized dryers in 2010 and 2011, and then the smaller dryers in 2011 and 2012. For each size dryer, an extra year will be allowed depending on whether or not compliance is achieved with a physical modification.

The Department estimates emission reductions of up to 0.21 tpd during the 2009 ozone season, up to 0.42 tpd during the 2010 ozone season, progressing up to 0.64 tpd during the 2011 ozone season based on actual stack test and production data. The Department estimates the tons per year emission reductions as a result of the proposed rules will be up to 43 tons in 2009, up to 86 tons in 2010, and up to 132 tons in 2011.

### Boilers Serving Electric Generating Units

The proposed amendments to N.J.A.C. 7:27-4.2 will address the particle emissions from coal-fired boilers, including those serving electric generating units (EGU). The proposed amendments to N.J.A.C. 7:27-10.2 will address the sulfur dioxide emissions from solid fuel burning sources, including boilers serving EGU. The proposed amendments to N.J.A.C. 7:27-19.4 will address the oxides of nitrogen emissions from boilers serving electric generating units.

The EGUs produce electricity by turning a generator. Some generators are turned by steam produced from a boiler. Other generators are turned by combustion gasses produced by a turbine. Boilers and turbines typically use coal, oil, or gas as fuel. Some EGUs operate only on days on which there is a very high demand for electricity, such as during hot summer days when there is an increased use of air conditioners. For the purpose of these rules, High Electric Demand Days (HEDD) units are EGUs that are capable of generating 15 Megawatts (MW) or more and have been operated less than or equal to an average of 50 percent of the time during the immediately preceding three ozone seasons. The proposed rules do not address nuclear powered EGUs.

In New Jersey there are ten coal-fired boilers serving EGUs. These coal-fired boilers are not HEDD units. Coal-fired boilers are the highest emitting sources of particles, sulfur dioxide (SO<sub>2</sub>) and oxides of nitrogen (NO<sub>x</sub>) in New Jersey. These ten boilers and their locations are:

B.L. England Generating Station unit 1 - Upper Township, Cape May County,  
B.L. England Generating Station unit 2 - Upper Township, Cape May County,  
Carney's Point Generating Station unit 1 - Carney's Point, Salem County,  
Carney's Point Generating Station unit 2 - Carney's Point, Salem County,  
Deepwater Generating Station unit 6/8 - Pennsville, Salem County,  
Hudson Generating Station unit 2 - Jersey City, Hudson County,  
Logan Generating Plant - Logan Township, Gloucester County,  
Mercer Generating Station unit 1 - Hamilton Township, Mercer County,  
Mercer Generating Station unit 2 - Hamilton Township, Mercer County, and  
Vineland Municipal Electric Utility unit 10 - City of Vineland, Cumberland County

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The proposed amendments to N.J.A.C. 7:27-4.2, N.J.A.C. 7:27-10, and N.J.A.C. 7:27-19.4 would implement a multi-pollutant control strategy to reduce allowable particle, SO<sub>2</sub>, and NO<sub>x</sub> emissions, respectively, from all New Jersey coal-fired boilers. The Department proposes to lower the maximum allowable emission rates of NO<sub>x</sub> from coal-fired boilers to help the State reach the Federal NAAQS for ozone. The Department proposes to lower the maximum allowable emission rates of NO<sub>x</sub>, particles and SO<sub>2</sub> from coal-fired boilers to help the State reach the Federal NAAQS for PM<sub>2.5</sub> and to reduce regional haze. More stringent maximum allowable emission rates will cause non-compliant facilities to achieve compliance by installing reasonably available control technology. Proposed N.J.A.C. 7:27-4.2, N.J.A.C. 7:27-10, and N.J.A.C. 7:27-19.4 set forth a December 15, 2012 compliance date to provide reasonable time to install the necessary pollution control equipment and to be consistent with the compliance deadline for the existing multi-pollutant provisions of the mercury rule for coal-fired boilers at N.J.A.C. 7:27-27.7(d).

The proposed new rules and amendments are generally consistent with the May 2, 2007 Amendment to Consent Decree in United States of America, State of New Jersey v. PSEG Fossil LLC, Civ. No. 02-CV-340 (United States District Court for the District of New Jersey, Newark Division)" (ACD), regarding PSEG's Hudson and Mercer generating stations, and the January 24, 2006 Administrative Consent Order "In the Matter of Atlantic City Electric Company, Conectiv, and Pepco Holdings, Inc, 800 King Street, Wilmington, Delaware, 19801" (ACO) the Department entered into for the B.L. England generating station. The ACD and ACO required these facilities to comply with more stringent requirements than the existing requirements or shut down. Where the ACD or ACO is more stringent than the proposed rule, the ACD or ACO would govern the respective parties named in the ACD or ACO. The ACD and ACO are negotiated documents, which established maximum allowable emission rates for NO<sub>x</sub>, particles and SO<sub>2</sub> based on violation of New Source Review permit rules.

The ACD and ACO affect five of the 10 coal-fired boilers. Three additional coal-fired boilers, one Logan unit and two Carney's Point units, were installed in the 1990s and were required to install state of the art controls at that time. The relatively small coal-fired boiler at Vineland Municipal Electric Utility is expected to shut down between 2008 and 2013. Only one coal-fired boiler, at Conectiv's Deepwater plant, is without reasonably available control technology in place and without an enforceable agreement to install such technology. The Department has determined that the technology installed or required to be installed by the ACD, the ACO, or the operating permits for the three coal-fired boilers that were installed in the 1990s, is also reasonably available for use on Conectiv's Deepwater coal-fired boiler.

The proposed rules would cause Conectiv to install reasonably available control technology at its Deepwater coal-fired boiler and incorporate standards that are consistent with the updated air pollution controls that have already been required at other New Jersey coal-fired boilers. The fact that these standards have already been used extensively at facilities in New Jersey underscores the fact that these technologies are reasonably available. Promulgating maximum allowable emission rates in rules for all existing coal-fired boilers serving EGUs meets the requirements of the Federal Clean Air Act and communicates to other states the emission rates that New Jersey considers reasonable for existing EGUs with respect to ozone nonattainment, PM<sub>2.5</sub> nonattainment, and control of regional haze.

To reduce NO<sub>x</sub> emissions the Department proposes a more stringent maximum allowable NO<sub>x</sub> emission rate. While the proposed rules do not mandate the installation of Selective Catalytic Reduction (SCR) if another technology can be used to attain the proposed maximum allowable NO<sub>x</sub> emission rate, SCR is one technology that is clearly reasonably available given its

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extensive use in New Jersey and elsewhere. Five of the 10 coal-fired boilers in New Jersey have already installed SCR and have achieved compliance with the proposed maximum allowable NO<sub>x</sub> emission rates. SCR was installed on the one Logan and two Carney's Point coal-fired boilers, in the 1990s and on the two Mercer coal-fired boilers in 2005. The Hudson coal-fired boiler is required under the ACD (discussed above) to install SCR by December 31, 2010. Under the ACO (discussed above), B.L. England unit 1 is required to install NO<sub>x</sub> emission controls by December 15, 2012 and B.L. England unit 2 is required to install NO<sub>x</sub> emission controls by May 1, 2010. The Deepwater coal-fired boiler can achieve the proposed maximum allowable NO<sub>x</sub> emission rate with SCR. Operation of an SCR system will typically result in a 90 percent or greater reduction in NO<sub>x</sub> emissions. If an SCR system is installed on the Deepwater Unit, and the unit achieves a 90 percent NO<sub>x</sub> emission reduction, the Department estimates, based on 2002 emission statement data projected to 2009, an annual decrease in NO<sub>x</sub> emissions from the Deepwater Unit of over 750 tons starting December 15, 2012.

To reduce SO<sub>2</sub> emissions the Department proposes a more stringent maximum allowable SO<sub>2</sub> emission rate. While the proposed rules do not mandate the installation of a scrubber if another technology can be used to attain the proposed maximum allowable SO<sub>2</sub> emission rate, both wet/dry scrubbers and wet scrubbers are demonstrated options that are clearly reasonably available given their use in New Jersey and elsewhere. Three of the ten coal-fired boilers in New Jersey have already installed a scrubber and have achieved compliance with the proposed maximum allowable SO<sub>2</sub> emission rates. A wet/dry scrubber was installed on the Logan and Carney's Point coal-fired boilers in the 1990s and a wet scrubber was installed on the B.L. England unit 2 coal-fired boiler in 1994. The Carney's Point unit 2 coal-fired boiler will require physical or operational modifications to achieve compliance with the proposed maximum allowable SO<sub>2</sub> emission rates. The ACD requires PSEG to install a wet/dry scrubber on the two Mercer coal-fired boilers by December 31, 2008, and Hudson coal-fired boiler by December 31, 2010. The ACO requires B.L. England unit 1 to install SO<sub>2</sub> emission controls by December 15, 2012. The Deepwater coal-fired boiler can achieve the proposed maximum allowable SO<sub>2</sub> emission rates by installing a spray dryer scrubber (also known as a wet/dry scrubber) or a wet scrubber. Since the Deepwater coal-fired boiler already has a baghouse installed, the Department expects Conectiv to install a wet/dry scrubber. Operation of a wet/dry scrubber with a baghouse will typically result in a 95 percent or greater reduction in SO<sub>2</sub> emissions. If a wet/dry scrubber is installed on the Deepwater Unit, and the unit achieves a 95 percent SO<sub>2</sub> emission reduction, the Department estimates, based on 2002 emission statement data projected to 2009, an annual decrease in SO<sub>2</sub> emissions from the Deepwater Unit of over 2000 tons starting December 15, 2012. Similarly, the Department estimates that increased control of Carney's Point unit 2 will further reduce annual SO<sub>2</sub> emissions by over 200 tons starting December 15, 2012.

The Department proposes compliance with two maximum allowable SO<sub>2</sub> emission rates: a daily rate of 0.250 pounds/MMBtu, and a 30 calendar day rolling average rate of 0.150 pounds/MMBtu. The Department proposes short term (24 hour) and long term (30 calendar day) emission rates because there are both acute and chronic health effects of SO<sub>2</sub> as reflected in the short and long term NAAQs. The proposed 0.150 pounds/MMBtu, based on a 30 calendar day average, emission rate for SO<sub>2</sub> is also consistent with the multi-pollutant provisions of the mercury rule for coal-fired boilers at N.J.A.C. 7:27- 27.7(d)2.

The Department proposes a more stringent maximum allowable PM emission rates for coal-fired boilers serving an EGU. Although the proposed rules do not mandate the installation of a baghouse if another technology can be used to attain the proposed maximum allowable PM emission rates, a baghouse is one technology that is clearly reasonably available given its use in

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New Jersey and elsewhere. All coal-fired boilers in New Jersey, except Hudson unit 2 and Vineland Municipal Electric Utility unit 10, are already in compliance with the proposed maximum allowable PM emission rate, with their existing particle control devices. Hudson is already required to install new particle control by December 31, 2010 and Vineland Municipal Electric Utility will be shutting down.

The Department proposes to codify the maximum allowable particle emission rates in the ACD and the ACO discussed above so that these rates would apply to any coal-fired boiler serving an EGU. The proposed 0.0150 pounds/MMBtu maximum allowable particle emission rate has been demonstrated to be technically feasible, inasmuch as the parties to the ACD, discussed above, are bound by and complying with this proposed rate. This rate is reasonable for new or modified particle control devices because it is easily achievable by modern baghouse technology. The 0.0300 pounds/MMBtu maximum allowable particle emission rate is proposed for existing units that already meet this rate, to avoid the replacement of the existing particulate control if only 50 percent improvement would be achieved. This rate would apply to the Deepwater and B.L. England units. This rate is also consistent with the rate in the multi-pollutant provisions of the mercury rule for coal-fired boilers at existing N.J.A.C. 7:27- 27.7(d).

The proposed amendments would ensure that all operating coal-fired boilers in New Jersey have modern air pollution control for NO<sub>x</sub>, particles, and SO<sub>2</sub> by 2013. The Department estimates that implementing these measures will, by 2013, reduce NO<sub>x</sub> emissions by 2.16 tpd during the ozone season and 788 tons per year, and reduce SO<sub>2</sub> emissions by 7.04 tpd during the ozone season and 2,571 tons per year.

#### Control Techniques Guidelines (CTG)

The Clean Air Act, Section 182(b)(2) (42 U.S.C. §7511(b)(2)), requires states, such as New Jersey, that have nonattainment areas to revise their SIPs to include reasonably available control technology for sources of VOC emissions covered by a Control Techniques Guidelines (CTG) document issued after November 15, 1990, and prior to the area's date of attainment. In September 2006, the EPA issued CTG documents for offset lithographic printing and letterpress printing (EPA 453/R-06-002), flexible package printing (EPA 453/R-06-003), and flat wood paneling coatings (EPA 453/R-06-004). (See [http://www.epa.gov/ttn/naaqs/ozone/ctg\\_act/](http://www.epa.gov/ttn/naaqs/ozone/ctg_act/)).

States can use the recommendations in each CTG document to make their own determination as to what constitutes RACT for VOC for the listed sources. The proposed rules are equivalent to the recommendations in EPA's CTG documents. The recommendations in EPA's CTG documents are EPA's recommendations for controls that are RACT.

#### CTG document for offset lithographic printing and letterpress printing

The proposed amendments to N.J.A.C. 7:27-16.7 will address the VOC emissions from offset lithographic printing and letterpress printing. Lithography uses the planographic method, where the image and non-printing areas are essentially on the same plane of the surface of the metal plate, and the image and non-printing areas are separated and maintained chemically. Printing is from a plane or flat surface, one that is neither raised nor depressed.

Letterpress is printed by the relief method, which uses type directly. Printing is done from cast metal type or plates on which the image or printing areas is raised above the non-printing areas. Ink rollers touch only the surface of the raised areas. The surrounding (non-printing) areas are lower and do not receive ink. The inked image is transferred directly to the paper.

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The CTG document for offset lithographic printing and letterpress printing lists recommended control options. The Department is proposing the CTG document's recommendations at new N.J.A.C. 7:27-16.7(r) through (t) and that, except for more stringent emission controls, they be achieved on and after the operative date of these amendments. Since achieving more resource intensive emission controls involves modifying the equipment, the Department proposes an extra year (May 1, 2010) to comply. These proposed new requirements include emission or concentration limits from dryers, content and application standards for cleaning materials and fountain solutions, and best management practices. Fountain solutions are solutions used in lithographic printing operations that renders the non-image areas unreceptive to ink.

The Department estimates that implementing these measures will achieve VOC emission reductions in 2009 of 0.43 tpd during the ozone season, 104.6 tons in 2009 (May 1 through December 31) and 157 tpy in subsequent years (January 1 through December 31). Implementing best management practices will result in additional emission reductions.

#### CTG document for flexible package printing

The proposed amendments to N.J.A.C. 7:27-16.7 will address the VOC emissions from flexible package printing. Flexible packaging refers to any package, or part of a package, where the shape can be readily changed. Flexible packaging includes, but is not limited to, bags, pouches, labels, liners, and wraps utilizing paper, plastic, film, aluminum foil, metalized or coated paper or film, or any combination of these materials. Flexible package printing facilities use rotogravure printing and flexographic printing. Rotogravure printing is a printing process in which an image (type and art) is etched or engraved below the surface of a plate or cylinder. In flexographic printing, the image is raised above the printing plate, and the image carrier is made of rubber or other elastomeric materials.

The Department's proposed requirements are similar to the CTG document's recommendations. The Department is proposing that printing operations installed or modified on or after the operative date of these amendments meet either of the following VOC content standards: 0.8 pounds VOC per pound of solids applied; or 0.16 pound VOC per pound of material applied. The Department proposes that in lieu of these content standards, a printing operation that is newly constructed or altered on or after the operative date of these amendments and that plans to control emissions with a thermal oxidizer, a carbon adsorption unit, or some other device, would have the option of complying with more resource intensive emission standards by May 1, 2010. VOC standards for existing printing operations remain unchanged. The Department also proposes the CTG document's recommendations for best management/work place practices for existing and new printing operations. The Department is proposing these requirements at N.J.A.C. 7:27-16.7(f) Table 7D, (h) and (t).

The Department estimates that implementing these measures will achieve VOC emission reductions in 2009 of 0.08 tpd during the ozone season, 19 tons in 2009 (May 1 through December 31) and 35.3 tpy in subsequent years (January 1 through December 31). Implementing BMP will result in additional emission reductions.

#### CTG document for flat wood paneling coatings

The proposed amendments to N.J.A.C. 7:27-16.7 will address the VOC emissions from flatwood paneling coatings. The Department proposes the CTG document's maximum allowable VOC content per volume of coating (minus water) standard of 2.1 pounds per gallon (0.25 kilograms/liter) for printed interior panels made of hardwood, plywood, or thin particleboard; natural finish hardwood plywood; hardwood panels; exterior siding; and tileboards. The

proposed content standard is more stringent than the Department's existing content standard. The Department proposes two new subcategories to regulate that are included in the CTG document: exterior siding and tileboards. The proposed rule includes the CTG document's recommendations for best management/work place practices. The Department is proposing these requirements at N.J.A.C. 7:27-16.7(f) Table 7B and (t).

The Department does not anticipate emission reductions in 2009 as a result of these proposed amendments, because the State has no facility with this source operation.

#### Glass Manufacturing Furnaces

The Department is proposing amendments to N.J.A.C. 7:27-19.10 to lower NO<sub>x</sub> emissions from glass manufacturing furnaces. There are seven plants in New Jersey, with a total of 25 furnaces that produce container glass, pressed glass, blown glass, and fiberglass. Nine of these furnaces are electric. Five use oxyfiring, in which nearly pure oxygen is used for combustion instead of ambient air. Ambient air contains a significant amount of nitrogen. By using nearly pure oxygen, the oxyfiring process reduces the presence of nitrogen, which reduces NO<sub>x</sub> emissions. These 14 furnaces already comply with the proposed NO<sub>x</sub> limits. Two of the remaining 11 furnaces are temporarily inactive. The proposed rules would require the remaining nine furnaces to implement additional emission control measures to comply with the proposed emission limit.

Compliance with the proposed emission limit may be achieved in a number of ways, including combustion modifications (low NO<sub>x</sub> burners, oxyfiring, oxygen-enriched air staging), process modifications (fuel switching, batch preheat, electric boost), and post-combustion modifications (fuel reburn, selective non-catalytic reduction, selective catalytic reduction).

Oxyfiring is demonstrated technology and has penetrated into all segments of the glass industry. (See MACTEC Report February 2007, page C-18). The Department expects that most of the remaining nine glass manufacturing furnaces in the State will install oxyfiring. The Department attempts to make compliance with the proposed rules economically feasible by requiring compliance at rebricking, by expected savings in annual emission fees due to reduced emissions, and by expected savings in reduced fuel costs if oxyfiring is used.

The existing rule established NO<sub>x</sub> emission limits for glass manufacturing furnaces producing commercial container glass, specialty container glass and borosilicate recipe glass, each of which is a category of container glass. The Department proposes, for all three categories, the OTC's recommended more stringent container glass emission limit of 4.0 pounds NO<sub>x</sub> per ton of glass removed. The OTC based its recommended emission rates on San Joaquin (California) Valley Unified Air Pollution Control District (SJVUAPCD) Rule 4354, which has been in place since September 14, 1994. (See MACTEC Report February 2007, page C-18.)

The Department is proposing a limit, similar to OTC's recommended emission limit, of 9.2 pounds NO<sub>x</sub>/ton glass removed for flat glass manufacturing furnaces in the event that such a furnace is constructed in New Jersey. The Department is proposing a limit, similar to OTC's recommended emission limit, of 4.0 pounds NO<sub>x</sub>/ton glass removed for fiberglass manufacturing furnaces in the event that New Jersey's only such plant converts from electric furnaces to fossil fuel-fired furnaces. The Department's existing and proposed emission limits and the OTC's recommended emission limits are summarized in Table 2 below. The Department is also proposing compliance demonstration rules at N.J.A.C. 7:27-19.15 based on a continuous emissions monitoring system if one is installed, or stack tests if a continuous emissions monitoring system is not installed

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NO<sub>x</sub> Emission Limit Comparison of  
NJ Existing Rule, OTC Recommendations, and NJ Proposed Rule

<u>Glass Furnace</u>	<u>NJ Existing Rule (pounds NO<sub>x</sub>/ton glass removed)</u>	<u>OTC Proposal Block 24 hr avg (pounds NO<sub>x</sub>/ton glass pulled)</u>	<u>OTC Proposal Rolling 30-day avg (pounds NO<sub>x</sub>/ton glass pulled)</u>	<u>NJ Proposed Rule (pounds NO<sub>x</sub>/ton glass removed)</u>
<u>Container Glass</u>	---	4.0	4.0	---
<u>Commercial Container Glass</u>	5.5	---	---	4.0
<u>Specialty Container Glass</u>	11	---	---	4.0
<u>Borosilicate Recipe Glass</u>	30 percent reduction from 1994 baseline	---	---	4.0
<u>Fiberglass</u>	---	4.0	4.0	4.0
<u>Flat Glass</u>	---	9.2	7.0	9.2

High Electric Demand Day (HEDD) Units

The proposed new rule at N.J.A.C. 7:27-19.29 will address the NO<sub>x</sub> emissions from High Electric Demand Day (HEDD) units, also called HEDD electric generating units. For the purpose of this rule, HEDD units are electric generating units that are capable of generating 15 MW or more and are operated less than or equal to an average of 50 percent of the time during the previous three ozone seasons. The Department proposes to tighten the emission standards for HEDD units because these units emit significant quantities of NO<sub>x</sub> on high electric demand days, which are typically high temperature and high ozone days during the summer. The current New Jersey HEDD units, based on data from 2004 through 2006, consist of eight boilers and approximately 160 stationary combustion turbines, identified in Table 3 below.

TABLE 3  
Current New Jersey HEDD Units (based on 2004 – 2006 data)

Where: CC – Combined Cycle; DLN – Dry Low NO<sub>x</sub> Burners; FO – Fuel Oil; GS – Generating Station; NG – Natural Gas; OFA – Over Fire Air; SC – Simple Cycle; SCR – Selective Catalytic Reduction System; SNCR – Selective Non-Catalytic Reduction System; WI – Water Injection

<u>Owner or Operator Facility</u>	<u>Emission Unit</u>	<u>Equipment</u>	<u>Fuel</u>	<u>Current NO<sub>x</sub> Control</u>
Conectiv Carll's Corner	U1	(2) Turbines – SC	No. 2 FO / NG	WI

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	Carll's Corner	U2	(2) Turbines – SC	No. 2 FO / NG	WI
	Cedar Station	U1	(1) Turbine – SC	No. 2 FO	WI
	Cedar Station	U2	(1) Turbine – SC	No. 2 FO	WI
	Cedar Station	U3	(1) Turbine – SC	No. 2 FO	WI
	Cumberland GS	U1	(1) Turbine – SC	No. 2 FO / NG	WI
	Deepwater	U1	(1) Boiler (cyclone)	No. 6 FO / NG	NONE
	Mickleton GS	U1	(1) Turbine – SC	NG	WI
	Middle Street GS	U1	(1) Turbine – SC	No. 2 FO	WI
	Middle Street GS	U2	(1) Turbine – SC	No. 2 FO	WI
	Middle Street GS	U3	(2) Turbines – SC	No. 2 FO	WI
	Missouri GS	U2	(1) Turbine – SC	No. 2 FO	WI
	Missouri GS	U3	(1) Turbine – SC	No. 2 FO	WI
	Missouri GS	U4	(1) Turbine – SC	No. 2 FO	WI
	Sherman Ave. GS	U1	(1) Turbine – SC	No. 2 FO / NG	WI
PSEG	Bergen GS	U2	(1) Turbine – SC	NG	NONE
	Burlington GS	U4	(1) Turbine – SC	No. 2 FO	NONE
	Burlington GS	U5	(8) Turbines – SC	No. 2 FO	NONE
	Burlington GS	U7	(8) Turbines – SC	No. 2 FO	NONE
	Edison GS	U1	(8) Turbines – SC	No. 2 FO / NG	WI
	Edison GS	U2	(8) Turbines – SC	No. 2 FO / NG	WI
	Edison GS	U3	(8) Turbines – SC	No. 2 FO / NG	WI
	Essex GS	U1	(1) Turbine – SC	No. 2 FO / NG	WI
	Essex GS	U2	(8) Turbines – SC	No. 2 FO / NG	NONE
	Essex GS	U3	(8) Turbines – SC	No. 2 FO / NG	NONE
	Essex GS	U4	(8) Turbines – SC	No. 2 FO / NG	NONE
	Hudson	U1	(1) Boiler (cyclone)	No. 6 FO	WI
	Linden GS	U4	(4) Turbines – SC	No. 2 FO / NG	DLN, WI
	Kearny GS	U4	(1) Turbine – SC	NG	NONE
	Kearny GS	U5	(8) Turbines – SC	No. 2 FO / NG	NONE
	Kearny GS	U6	(8) Turbines – SC	No. 2 FO / NG	NONE
	Mercer GS	U5	(8) Turbines – SC	No. 2 FO	NONE
	National Park GS	U1	(1) Turbine – SC	No. 2 FO	NONE
	Salem GS	U3	(2) Turbines – SC	No. 2 FO	NONE
	Sewaren GS	U1	(1) Boiler (tangential)	No. 6 FO / NG	NONE
	Sewaren GS	U2	(1) Boiler (tangential)	No. 6 FO / NG	NONE
	Sewaren GS	U3	(1) Boiler (tangential)	No. 6 FO / NG	NONE
	Sewaren GS	U4	(1) Boiler (tangential)	No. 6 FO / NG	NONE
	Sewaren GS	U7	(8) Turbines – SC	No. 2 FO	NONE
Reliant	Gilbert GS	U2210	(1) Turbine – CC	No. 2 FO / NG	WI
	Gilbert GS	U2211	(1) Turbine – CC	No. 2 FO / NG	WI
	Gilbert GS	U2212	(1) Turbine – CC	No. 2 FO / NG	WI
	Gilbert GS	U2213	(1) Turbine – CC	No. 2 FO / NG	WI
	Gilbert GS	U2215	(1) Turbine – SC	No. 2 FO / NG	WI
	Gilbert GS	U2216	(1) Turbine – SC	No. 2 FO / NG	WI
	Gilbert GS	U2217	(1) Turbine – SC	No. 2 FO / NG	WI
	Gilbert GS	U2218	(1) Turbine – SC	No. 2 FO / NG	WI
	Gilbert GS	U2323	(1) Turbine – SC	No. 2 FO / NG	WI
	Glen Gardner GS	U3302	(1) Turbine – SC	No. 2 FO / NG	DLN

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	Glen Gardner GS	U3303	(1) Turbine – SC	No. 2 FO / NG	DLN
	Glen Gardner GS	U3304	(1) Turbine – SC	No. 2 FO / NG	DLN
	Glen Gardner GS	U3305	(1) Turbine – SC	No. 2 FO / NG	DLN
	Glen Gardner GS	U3306	(1) Turbine – SC	No. 2 FO / NG	DLN
	Glen Gardner GS	U3307	(1) Turbine – SC	No. 2 FO / NG	DLN
	Glen Gardner GS	U3308	(1) Turbine – SC	No. 2 FO / NG	DLN
	Glen Gardner GS	U3309	(1) Turbine – SC	No. 2 FO / NG	DLN
	Sayreville GS	U4318	(1) Turbine – SC	No. 2 FO / NG	DLN, WI
	Sayreville GS	U4319	(1) Turbine – SC	No. 2 FO / NG	DLN, WI
	Sayreville GS	U4320	(1) Turbine – SC	No. 2 FO / NG	DLN, WI
	Sayreville GS	U4321	(1) Turbine – SC	No. 2 FO / NG	DLN, WI
	Werner GS	U5305	(1) Turbine – SC	No. 2 FO	WI
	Werner GS	U5306	(1) Turbine – SC	No. 2 FO	WI
	Werner GS	U5307	(1) Turbine – SC	No. 2 FO	WI
	Werner GS	U5308	(1) Turbine – SC	No. 2 FO	WI
Other	Bayonne Plant Holding, LLC	U1	(1) Turbine – CC	Kerosene / NG	SCR / WI
	Bayonne Plant Holding, LLC	U2	(1) Turbine – CC	Kerosene / NG	SCR / WI
	Bayonne Plant Holding, LLC	U3	(1) Turbine – CC	Kerosene / NG	SCR / WI
	B.L. England Forked River	U3	(1) Boiler (tangential)	No. 6 FO	SNCR
	Forked River	U1302	(1) Turbine – CC	No. 2 FO / NG	WI
	Forked River	U1303	(1) Turbine – CC	No. 2 FO / NG	WI
	Lakewood Cogeneration	U4	(2) Turbines – CC	No. 2 FO / NG	SCR / WI
	Ocean Peaking Power, LP	U11	(3) Turbines – CC	NG	DLN
	VMEU Down Station	U9	(1) Boiler (face)	No. 6 FO	LNB / OFA
	VMEU – West Station	U1	(1) Turbine – SC	No. 2 FO	WI

The Department proposes both short term and long term emission control strategies, intended to reduce emissions during high electric demand days.

The purpose of the short term strategy, at proposed N.J.A.C. 7:27-19.29, is to achieve NO<sub>x</sub> emission reductions from electric generating companies starting in 2009, which is the attainment date for the current Federal 8-hour ozone standard, while allowing all affected electric generating companies time to develop and implement the long term strategy proposed at N.J.A.C. 7:27-19.30, to achieve the more stringent emission performance standards at proposed amended N.J.A.C. 7:27-19.4 and 19.5. The short term strategy is based on the “Memorandum of Understanding Among the States of the Ozone Transport Commission Concerning the Incorporation of High Electrical Demand Day Emission Reduction Strategies into Ozone Attainment State Implementation Planning” (MOU), signed on March 2, 2007. This MOU requires New Jersey to obtain 19.8 tpd of NO<sub>x</sub> emission reductions on high electric demand days. This reduction is based on an analysis of the NO<sub>x</sub> emissions from HEDD units that were operating in the OTC states on July 26, 2005.

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The short term strategy, which uses the 2009 HEDD emission reduction compliance demonstration protocol (2009 Protocol), will affect those owners or operators in the State that fall under the applicability criteria of new proposed N.J.A.C. 7:27-19.29(a). Those owners or operators were responsible for the majority of high electric demand day emissions on July 26, 2005, which is the date chosen as representative of a high electricity demand day, for purposes of the proposed rules. Each of these companies will be assigned a portion of the 19.8 tpd NO<sub>x</sub> emission reduction, based on the level of NO<sub>x</sub> emission control installed on their HEDD units and the amount of NO<sub>x</sub> that the owner or operator's HEDD units emitted on July 26, 2005. The emission reduction that will be required of each owner or operator on any given high electric demand day will be determined by Equation 1 as shown below. The required emission reduction will be based on the NO<sub>x</sub> emissions from all of a particular owner or operator's HEDD units that are operated on that particular high electric demand day without considering any reductions that resulted from the emission reduction measures (Baseline Emission); the tons of NO<sub>x</sub> emitted by that owner or operator's HEDD units on July 26, 2005 ; and that owner or operator's share of the required 19.8 tpd.

The equation calculates a ratio of the Baseline Emission to the Emission Factor. This ratio is then multiplied by the Reduction Factor. This equation will require each owner or operator to achieve their full share of the 19.8 tpd of NO<sub>x</sub> emission reductions on any high electric demand day on which that owner or operator's HEDD unit NO<sub>x</sub> emissions (without emission reduction measures) is equal to their NO<sub>x</sub> emissions on July 26, 2005. On high electric demand days when the NO<sub>x</sub> emissions are lower, the owner or operator would be responsible for a proportionately smaller reduction and on high electric demand days when the NO<sub>x</sub> emissions are higher the owner or operator would be responsible for a proportionately higher reduction. Thus, the actual reduction responsibility on any given high electric demand day is tied to emissions from HEDD units running on that day, rather than the specific units that ran on July 26, 2005, or all HEDD units owned or operated.

Equation 1:

$$\text{Emission Reduction} = (\text{Baseline Emission} \div \text{Emission Factor}) \times \text{Reduction Factor}$$

The proposed rules require each owner or operator of the highest emitting HEDD units on July 26, 2005 to reduce NO<sub>x</sub> emissions on each high electric demand day during the interim period, which is the operative date of these amendments through September 30, 2014. A phased compliance plan may be obtained, pursuant to N.J.A.C. 7:27-19.22, which would give the owner or operator up to twelve months to achieve compliance, if emission reduction measures can not be implemented by the operative date of these amendments. The owners or operators may obtain these NO<sub>x</sub> emission reductions from any source that meets the requirements at N.J.A.C. 7:27-19.29(d). The proposed rules suggest some possible emission reduction strategies, including installation of a control apparatus on certain existing EGUs, reducing the usage of certain HEDD units, combusting a lower emitting fuel when it would be economically preferred to combust a higher emitting fuel, implementing an energy efficiency plan in New Jersey, implementing a demand response plan in New Jersey, and implementing a renewable energy measure in New Jersey. The proposed rules allow the owner or operator the flexibility to obtain the NO<sub>x</sub> emission reductions from any source that the owner or operator chooses. The proposed rules do not require the reductions to come from any specific source, nor do they require any specific source to meet a given emission limit. The proposed rules require each owner or operator that

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meets the criteria at proposed N.J.A.C. 7:27-19.29(a) to submit a proposed 2009 Protocol to the Department within 30 calendar days after the operative date of these new rules and amendments. The proposed 2009 Protocol will describe how the owner or operator is achieving the required NO<sub>x</sub> emission reductions.

The proposed 2009 Protocol must be approved by the Department. Each emission reduction measure used to obtain the required emission reductions shall be included in the 2009 Protocol. The owner or operator may modify an approved 2009 Protocol at any time by submitting a revised 2009 Protocol to the Department for approval. However, all measures in an approved 2009 Protocol shall be implemented on each HEDD until a revised 2009 Protocol is approved. The owner or operator may implement any measures that meet the requirements at N.J.A.C. 7:27-19.29(d), provided all necessary permits have been obtained, a revised 2009 Protocol is submitted to the Department within 30 days of implementing the measures, and compliance with all other provisions of this rule are maintained. The proposed rule requires each owner or operator to submit an annual report, for calendar years 2009 through 2014, to the Department by January 30th of the following year.

The Department proposes a long term emission control strategy for HEDD boilers at proposed N.J.A.C. 7:27-19.4, Boilers serving electric generating units, and for HEDD combustion turbines at proposed N.J.A.C. 7:27-19.5, Stationary combustion turbines, that consists of performance standards that will go into effect on May 1, 2015.

For HEDD boilers, proposed N.J.A.C. 7:27-19.4(a), Table 3, sets forth maximum allowable emission rates of 1.00 pound per Megawatt-hour (pound/MWh) for natural gas, 1.00 pound/MWh for No. 2 and lighter fuel oil, and 2.00 pounds/MWh for heavier than No. 2 fuel oil. These output-based emission rates are based on a heat rate of 10,000 British thermal units per Kilowatt-hour (Btu/KW-hr) and input-based emission limits of 0.100 pounds/MMBtu for natural gas; 0.100 pounds/MMBtu for No. 2 and lighter fuel oil; and 0.200 pounds/MMBtu for heavier than No. 2 fuel oil. These maximum allowable emission rates are consistent with the maximum allowable emission rates being proposed for non-HEDD boilers serving electric generating units and industrial/commercial/institutional (ICI) boilers with a heat input greater than 100 MMBtu/hr. The proposed rates identified at proposed N.J.A.C. 7:27-19.4(a), Table 3 can be achieved by installing low NO<sub>x</sub> burners and/or a selective non-catalytic reduction system on existing boilers.

For HEDD turbines, the Department proposes at N.J.A.C. 7:27-19.4(a), Table 7, maximum allowable emission rates of 1.00 pound/MWh for natural gas-fired simple cycle turbines, 1.60 pounds/MWh for fuel oil-fired simple cycle turbines, 0.75 pounds/MWh for natural gas-fired combined cycle turbines, and 1.20 pounds/MWh for fuel oil-fired combined cycle turbines. These output-based emission rates are based on an input-based emission rate of 25 ppm (0.100 pounds/MMBtu) for natural gas combustion and 42 ppm (0.160 pounds/MMBtu) for fuel oil combustion, and an efficiency of 35 percent for simple cycle combustion turbines and 46 percent for combined cycle combustion turbines. These maximum allowable emission rates can be achieved by natural gas-fired turbines with dry low NO<sub>x</sub> combustors and fuel oil-fired turbines with water injection. The Department also proposes requiring that all HEDD turbines that are permitted to combust natural gas as well as fuel oil meet the natural gas maximum allowable emission rate during operation on all high electric demand days, regardless of the fuel combusted. The Department's proposed compliance date of May 1, 2015 will allow sufficient time for these facilities to design and implement an emission control strategy or unit replacement schedule.

Proposed amended N.J.A.C. 7:27-19.4(a) and N.J.A.C. 7:27-19.5(h) require all boilers and turbines that are constructed, reconstructed or modified to comply with all applicable SOTA,

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LAER and BACT requirements. SOTA, LAER and BACT requirements may be more stringent than the proposed maximum allowable emission rates. All new sources and most modified or reconstructed sources are likely to be subject to SOTA, LAER and BACT requirements and, therefore, are likely to have emissions lower than the proposed maximum allowable emission rates.

The proposed new rules and amendments, in order to achieve the long term strategy, would primarily affect electric generating companies that have boilers serving electric generating units or turbines in New Jersey that are capable of generating 15 MW or more of electrical power and that were operated less than or equal to an average of 50 percent of the time during the previous three ozone seasons. In order to comply with the proposed new rules and amendments for HEDD units that are boilers, these facilities will have to install a NO<sub>x</sub> control apparatus, such as a low NO<sub>x</sub> burner or a selective non-catalytic reduction system, two commonly used control devices to control NO<sub>x</sub> emissions from electric generating units. These control devices are used widely in industry throughout the United States. In order to comply with the proposed new rules and amendments for HEDD units that are turbines, these facilities will have to install a NO<sub>x</sub> control apparatus, such as water injection, or replace the turbine entirely. Water injection is also a commonly used control device to control NO<sub>x</sub> emissions from electric generating units. Based on similar sources that currently meet the proposed requirements, the Department has determined that these proposed new rules and amendments are achievable under current technology and are cost effective.

The proposed new rules and amendments will recategorize all stationary combustion turbines in New Jersey as either HEDD units or non-HEDD units. The rules also require all non-HEDD stationary combustion turbines to comply with the maximum allowable emission rates in Table 4 of existing N.J.A.C. 7:27-19.5(d) (Table 6 of the proposed amended rule). The rates in the existing rules are applicable to all non-NO<sub>x</sub> Budget Source turbines through the operative date of these amendments.

Through April 30, 2015, all HEDD stationary combustion turbines will be subject to the maximum allowable emission rates in proposed renumbered and amended N.J.A.C. 7:27-19.5 Table 4 (for simple cycle turbines) or proposed renumbered and amended Table 5 (for combined cycle turbines), or the permitted maximum allowable emission rate, whichever is lower. Proposed N.J.A.C. 7:27-19.5 Table 4 and Table 5 are the maximum allowable emission rates that currently apply to all NO<sub>x</sub> budget source turbines in New Jersey. Proposed Tables 4 and 5 will apply to these sources until the operative date of these amendments. Most of New Jersey's HEDD turbines are currently NO<sub>x</sub> Budget Sources and, therefore, are currently subject to these emission rates. Since the proposed maximum allowable emission rates for these HEDD turbines will not go into effect until May 1, 2015, the proposed new rules and amendments allow all HEDD turbines to comply with the applicable maximum allowable emission rates in proposed Table 4 (for simple cycle turbines) or proposed Table 5 (for combined cycle turbines), or the permitted rates for that turbine, whichever is lower, until the operative date of the proposed HEDD maximum allowable emission rates (May 1, 2015). On and after May 1, 2015, all HEDD units will be subject to the maximum allowable emission rates in proposed N.J.A.C. 7:27-19.5 Table 7. Table 4 below summarizes the proposed applicability schedule of RACT maximum allowable emission rates to turbines in New Jersey.

TABLE 4  
Applicability Schedule of Tables 4 through 7  
at Proposed N.J.A.C. 7:27-19.5

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<u>N.J.A.C. 7:27-19.5</u>	<u>Through March 6, 2007</u>	<u>March 7, 2007 Through Operative Date</u>	<u>One day after the Operative Date Through April 30, 2015</u>	<u>On and After May 1, 2015</u>
Table 4	All Simple Cycle Combustion Turbines (>= 30 MMBtu/hr)	NO <sub>x</sub> Budget Source Simple Cycle Combustion Turbines (>= 25 MMBtu/hr)	HEDD Unit Simple Cycle Combustion Turbines	N/A
Table 5	All Combined Cycle Combustion Turbines (>= 30 MMBtu/hr)	NO <sub>x</sub> Budget Source Combined Cycle Combustion Turbines (>= 25 MMBtu/hr)	HEDD Unit Combined Cycle Combustion Turbines	N/A
Table 6	N/A	All Non- NO <sub>x</sub> Budget Source Combustion Turbines (>= 25 MMBtu/hr)	All Non-HEDD Unit Combustion Turbines	All Non-HEDD Unit Combustion Turbines
Table7	N/A	N/A	N/A	All HEDD Unit Combustion Turbines

The Department proposes at new N.J.A.C. 7:27-19.30, 2015 HEDD Emission Limit Achievement Plan, that each owner or operator of a HEDD unit submit a 2015 HEDD Emission Limit Achievement Plan (2015 Plan) to the Department, by May 1, 2010. The purpose of the 2015 Plan is to document how the owner or operator intends to comply with the 2015 HEDD emission limits and to provide a schedule by which compliance with the 2015 HEDD emission limits will be achieved for each HEDD unit owned or operated. The 2015 Plan may be revised at any time, prior to May 1, 2015. The owner or operator shall submit an annual update on the progress of the 2015 Plan with their annual compliance certification for each calendar year from 2010 through 2014. The update shall address all HEDD units owned or operated. The update shall include information sufficient to identify each HEDD unit, an update on the progress toward obtaining compliance with the 2015 emission limit for each HEDD unit, an explanation of any obstacles that have impeded or are expected to impede progress toward compliance with the applicable 2015 emission limit, any steps taken to overcome these obstacles, and an explanation of any revisions to the 2015 Plan.

#### Industrial/Commercial/Institutional (ICI) Boilers and Other Indirect Heat Exchangers

The proposed amendments to N.J.A.C. 7:27-19.7 address the NO<sub>x</sub> emissions from Industrial/Commercial/Institutional (ICI) Boilers and Other Indirect Heat Exchangers. ICI boilers combust fuel to produce heat or process steam for applications in the chemical, metals, paper, petroleum, food production and other industries. Industrial boilers are generally smaller than boilers in the electric power industry, and typically have heat input in the 10 to 250 MMBtu/hr range; however, industrial boilers can be as large as 1,000 MMBtu/hr or as small as 0.5 MMBtu/hr. Commercial and institutional boilers are commonly used to produce steam and hot water for space heating in office buildings, hotels, apartment buildings, hospitals,

universities, and similar facilities. Seventy percent of the ICI boilers in New Jersey are smaller than 50 MMBtu/hr. There are no coal-fired ICI boilers in New Jersey.

The proposed new rules and amendments lower the threshold size of boilers that are subject to maximum allowable NO<sub>x</sub> emission rates from 50 to 25 MMBtu/hr consistent with the OTC's recommendations. This will make approximately 200 additional units subject to maximum allowable NO<sub>x</sub> emission rates.

The OTC member states, via OTC workgroups, collected and evaluated information regarding emission benefits, cost-effectiveness, and implementation issues. The workgroups developed and recommended emission reduction percentages, maximum allowable emission rates, and control measures. The control measures were summarized in a series of "Control Measure Summary Sheets" (See MACTEC Report February 2007). The OTC's recommended control measures include a combination of emission rates, control technologies, allowances and phase-in periods.

The Department is proposing most of the OTC's recommended maximum allowable NO<sub>x</sub> emission rates, and, based on the OTC control measure selection process, believes that they are technologically feasible. To further support their technological feasibility, when the Department examined the stack test results for 46 boilers in the three categories in which the Department proposes a more stringent maximum allowable emission rate than the Federal regulations, it found all the stack test results were below the proposed more stringent emission rates. This supports the Department's conclusion that its proposed maximum allowable emission rates for these three categories are technologically feasible. Furthermore, the Department found that the stack test results in one of these three categories - boilers greater than 100 MMBtu/hr firing No. 2 fuel oil - showed that a more stringent maximum allowable emission rate than even the OTC proposed rate can be achieved with low NO<sub>x</sub> burners, selective non-catalytic reduction (SNCR), and other control methods. Therefore, the Department is proposing a maximum allowable emission rate that is more stringent than the OTC's proposed rate for this category.

The Department is proposing maximum allowable emission rates, leaving it up to the individual owners or operators to choose a control technology to meet the proposed emission rates. Several control technologies are available. Low NO<sub>x</sub> burners are used to minimize NO<sub>x</sub> emissions from boilers of all sizes. They can be retrofitted on most existing boilers at reasonable cost. Low NO<sub>x</sub> burners have the potential to reduce NO<sub>x</sub> emissions over 50 percent. An ultralow NO<sub>x</sub> burner (ULNB) is a low NO<sub>x</sub> burner that rapidly mixes fuel and air near their entrance to the combustion chamber. Rapid mixing results in a nearly uniform fuel/air mixture at the ignition point, which virtually eliminates NO<sub>x</sub> formation.

SNCR is a chemical process for removing NO<sub>x</sub> from flue gas. The technology has a demonstrated reduction of NO<sub>x</sub> emissions greater than 50 percent. In the SNCR process, a reagent, typically urea or anhydrous gaseous ammonia, is injected into the hot flue gas and reacts with the NO<sub>x</sub>, converting it to nitrogen gas and water vapor. Selective catalytic reduction (SCR) is another NO<sub>x</sub> emission reduction control technology that works the same way that an SNCR system works, except with a catalyst. The catalyst results in more NO<sub>x</sub> emission reductions and also allows for use of less reagent.

In flue gas recirculation (FGR), the gas leaving the burner (i.e., flue gas), which has lower oxygen content than the injected combustion air, passes through a heat recovery unit (such as a boiler) where it loses heat to the heat recovery unit. A portion of the cooled flue gas is recirculated back to the burner where it is mixed with the higher oxygen content combustion air, lowering the overall oxygen content of the air combusted. The lower oxygen content air reduces the flame temperature, which reduces the amount of NO<sub>x</sub> formed. If the combustion temperature is held below 1,400 degrees Fahrenheit, the NO<sub>x</sub> formation will be negligible.

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The Department anticipates that to comply with the proposed new rules and amendments, most owners or operators will install low-NO<sub>x</sub> burners, flue gas recirculation, or SNCR control measures. Some of the ICI boilers and other indirect heat exchangers already have air pollution controls and meet the proposed limits because they received air pollution control permits at the time they were constructed or modified.

According to the Department's emission inventory in 2002, the total actual NO<sub>x</sub> emissions from 25 and 250 MMBtu/hr ICI boilers was approximately 2,000 tpy. Installing NO<sub>x</sub> control technology that achieves 50 percent NO<sub>x</sub> emission reductions could result in up to 1,000 tpy of NO<sub>x</sub> emission reductions. Because some of these boilers already have some NO<sub>x</sub> controls installed, the Department expects an emission reduction of less than 50 percent. The Department anticipates approximately 1.7 to 2.9 tons of NO<sub>x</sub> emission reductions per ozone season day from the ICI boilers as the result of compliance with the proposed maximum allowable NO<sub>x</sub> emission rates. The Department identified ICI boilers and other indirect heat exchangers as having a Statewide potential of reducing NO<sub>x</sub> emissions by nearly 1,000 tpy by 2011 assuming compliance is achieved by optimizing each boiler's combustion processes. This 2011 estimate would be lower if some small ICI boilers and other indirect heat exchangers comply by installing control devices, because the proposed new rules and amendments allow such sources an extra year to comply.

#### Municipal Solid Waste (MSW) Incinerators

The proposed amendments to N.J.A.C. 7:27-19.12 will address the NO<sub>x</sub> emissions from Municipal Solid Waste (MSW) Incinerators

There are 13 MSW incinerators at five resource recovery facilities in Essex, Union, Camden, Gloucester and Warren counties. Three MSW incinerators are located at the Camden County Resource Recovery Facility. The Department does not have a general NO<sub>x</sub> emission standard for MSW incinerators under the existing rules. Instead, for each MSW incinerator the Department adopted a facility-specific emission limit for NO<sub>x</sub> pursuant to N.J.A.C. 7:27-19.13 to meet the one-hour ozone National Ambient Air Quality Standard (NAAQS).

The Federal emission concentration standard of NO<sub>x</sub> from MSW incinerators is 205 ppm. (See 71 Fed. Reg. 27334 (May 10, 2006).) Currently all New Jersey MSW incinerators are in compliance with the Federal standard. Actual NO<sub>x</sub> emission concentrations from the State's MSW incinerators range from 90 to 200 ppm, which are below the Federal standard.

The Department reevaluated the facility-specific emission limits for the MSW incinerators in the State, and determined that air pollution control technologies have advanced sufficiently over the past several years to justify further NO<sub>x</sub> emission reductions. The Department proposes at N.J.A.C. 7:27-19.12 a maximum allowable NO<sub>x</sub> emission concentration of 150 parts million by volume, dry basis (ppmvd) at seven percent oxygen for MSW incinerators, based upon the ability of selective non-catalytic reduction (SNCR) systems to reduce emissions more than are now being achieved. The Department does not propose to allow MSW incinerators to use emissions averaging as a compliance alternative.

The only generally applicable and feasible add-on control technology for reducing NO<sub>x</sub> emissions from MSW incinerators is SNCR. SNCR is a chemical process for removing NO<sub>x</sub> from flue gas. In the SNCR process, a reagent, typically liquid urea or anhydrous gaseous ammonia is injected within a boiler or in ducts in a region where the temperature is between 900 and 1100 degrees Celsius. The reaction converts NO<sub>x</sub> to nitrogen gas and water vapor. SNCR performance depends on factors specific to each type of combustion equipment. The factors include flue gas temperature, residence time for the reagent and flue gas, amount of reagent

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injected, reagent distribution, uncontrolled NO<sub>x</sub> level and carbon monoxide and oxygen concentrations.

Control optimization of existing SNCR systems can often result in additional emission reductions at relatively low capital cost. Control optimization may include the application of computational fluid dynamic modeling to determine better distribution of reagent, addition of reagent injection ports, and/or upgrading from ammonia-based SNCR to urea-based SNCR

The four facilities in Essex, Union, Warren and Gloucester counties, with 10 MSW incinerators, have installed SNCR. The Department anticipates that four of these facilities will need to optimize their existing SNCR system in order to meet the proposed 150 ppmvd limit. Camden County Resource Recovery Facility's three MSW incinerators, none of which has SNCR, will need to install a SNCR system on each incinerator to control NO<sub>x</sub> emissions to meet the proposed limit. Currently the Camden facility has a facility-wide emissions cap for NO<sub>x</sub>

The Department anticipates the proposed new rules will achieve a reduction in NO<sub>x</sub> emissions of approximately 67 tpy in 2009, more than 100 tpy in subsequent years, and approximately 0.27 tons per ozone season day in 2009 and subsequent years.

#### VOC Stationary Storage Tanks

The proposed amendments to N.J.A.C. 7:27-16.2 will address the VOC emissions from Storage Tanks.

Volatile organic compounds are often stored in aboveground stationary storage tanks. The tanks that store VOCs come in many sizes ranging from 2,000 gallons to 28 million gallons. They are located at many types of facilities. Existing N.J.A.C. 7:27-16.2 regulates three groups of stationary storage tanks (identified at Table 2A) - Range I, II and III - based on tank capacity and vapor pressure of the VOC stored. Range III tanks are VOC stationary storage tanks that existing rules require to have a floating roof based on its storage capacity and the vapor pressure of the VOC stored. Range III tanks are the larger tanks that store high vapor pressure VOCs, such as gasoline. Most of the proposed new rules and amendments apply to Range III tanks. Range III tanks are located at refineries, terminals, and pipeline breakout stations.

Aboveground storage tanks are significant sources of VOC emissions. The Department evaluated its air pollution control rules at N.J.A.C. 7:27-16.2 and determined the rules can be updated. Since several states have successful regulations in place to regulate VOC stationary storage tanks, the Department has evaluated the regulations from the other states, and proposes many of them. The Department is proposing regulations from California's South Coast Air Quality Management District (SCAQMD), California's San Joaquin Valley Unified Air Pollution Control District (SJVUAPCD), and the Texas Council on Environmental Quality (TCEQ). The Department's proposed rules can be grouped into five categories: deck fittings and seals (proposed N.J.A.C. 7:27-16.2(l)), domes (proposed N.J.A.C. 7:27-16.2 (l)), roof landings (proposed N.J.A.C. 7:27-16.2 (n),(o),(p)), degassing and cleaning (proposed N.J.A.C. 7:27-16.2(q)), and inspection and maintenance (proposed N.J.A.C. 7:27-16.2(r)). They are described in the following paragraphs.

Deck fittings and seals: Evaporative losses may occur through roof penetrations, such as those for deck fittings such as slotted guidepoles, access hatches (manways), and adjustable roof legs. Also, evaporative losses may occur along the rim seals, where the floating roof contacts the tank wall. Therefore, the first category of proposed rules is for deck fittings and seals and are based primarily on SCAQMD's regulation Rule 1178 "Further Reductions of VOC Emission from Storage Tanks at Petroleum Facilities, Adopted December 21, 2001, amended April 7, 2006." Also, the Department proposes to remove the current exemption for some tanks

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constructed or installed prior to December 17, 1979 from the requirement to install a double seal floating roof or other control apparatus. The Department anticipates 187 tpy or 0.51 tons per ozone season day of VOC emission reductions starting in 2010 as a result of retrofitting slotted guide poles, and anticipates additional emission reductions for upgrading other deck fittings and seals.

Domes: A stationary storage tank may be constructed with a floating roof or without a floating roof. Most of these tanks store gasoline. When the liquid, such as gasoline, is removed from a tank without a floating roof, a large vapor space is created between the stationary roof and the liquid surface. VOC vapors accumulate in, and then escape to the atmosphere from this vapor space. A floating roof eliminates this vapor space by floating on the liquid surface, thus eliminating VOC losses to the atmosphere. There are several types of floating roof tanks, including an internal floating roof tank, where the internal floating roof is covered by a fixed roof; an external floating roof tank, where the floating roof is not covered by a fixed roof, thereby exposing the external floating roof to the weather; or a domed external floating roof tank, where an external floating roof tank has been retrofitted with a dome to protect it from the weather.

Wind blowing across external floating roof tanks causes evaporative losses, because the external floating roof is directly exposed to the wind. Therefore, the Department proposes in the second category of aboveground storage tank rules to require external floating roof tanks to be retrofitted with a dome by May 1, 2020 if the stored liquid has a high vapor pressure (greater than 3 psia). Although industry has already fitted many external floating roof tanks with domes in New Jersey, the proposed rules are intended to assure that the remaining tanks are fitted with domes. By May 1, 2020 the Department expects to yield an emission reduction of about 130 tpy of VOC from the New Jersey tank universe beyond the reductions achieved by upgrading deck fittings and seals. The proposed rules are based primarily on SCAQMD's regulations.

Roof landings: When enough liquid is removed from a floating roof tank such that the roof is lowered to the height at which it is lowered no further (i.e., the roof rests on its legs or suspended by cables or hangers), the contact between the floating roof and the liquid VOC is broken as the remaining liquid is removed. This is referred to as a "roof landing." A vapor space is created between the floating roof and the liquid surface, which enables vapors from the VOC remaining in the tank to accumulate. These vapors escape from the vapor space as the tank is sitting idle and when they are displaced during refilling. This three step process - roof landing, idling, and refilling - is a roof landing cycle. The emissions during a roof landing cycle are called roof landing emissions. Also, some of the liquid VOC being used to refill the tank may evaporate and be expelled from the tank during refilling.

A floating roof tank emits one quarter ton to three tons of VOC per roof landing cycle, depending on the tank size. A large floating roof tank can emit over three tons of VOC from a single roof landing cycle. Considering that there are thousands of roof landing cycles annually in New Jersey, significant VOC emissions occur during unregulated roof landing cycles. These emissions are required to be included in emission statements, but the Department found many emissions were not included.

California's SCAQMD already requires control of roof landing cycle emissions from existing tanks. For example, Santa Fe Pacific Pipelines Partners, Limited Partnership, has been controlling emissions from roof landing cycles since 1991 at its Watson Station breakout tanks, and Pacific Energy is proposing tanks with controls for roof landing cycles at its Pier 400 Terminal Project. Also, Kinder Morgan Terminals has controls for roof landing cycles at its Carson, California terminal. These controls were installed on multi-product "drain-dry" tanks to

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comply with SCAQMD Rule 1149, which regulates storage tank roof landing cycles (as a form of degassing as defined by Rule 1149).

Therefore, the third category of proposed rules would regulate “roof landing cycles.” The proposed rules at N.J.A.C. 7:27-16.2 (n),(o), and (p) are based primarily on SCAQMD and TCEQ’s regulations. In addition to regulating roof landing cycles, the Department proposes that owners or operators submit a facility-wide tank VOC control plan with an implementation schedule that coincides with each tank’s inspection and maintenance schedule. The Department expects that each year more tanks will be brought into compliance resulting with cumulative emission reductions over a ten year period. The proposed new and amended rules at N.J.A.C. 7:27-21.5 require the owner or operator of any VOC stationary storage tank with a floating roof to submit to the Department as part of the facility’s Emission Statement the tank’s annual roof landing cycle emissions. If the owner or operator has not implemented all of the facility-wide tank VOC control plan’s control measures, or if the floating roof tank is exempt from being included in a facility-wide tank VOC control plan, then the owner or operator must report the tank’s emissions to the Department in a different report.

The Department estimates that in 2019 these proposed new rules and amendments will achieve VOC emission reductions of over 2,000 tons per year and over six and one-half tons per ozone season day.

Degassing and cleaning: VOC stationary storage tanks must be cleaned periodically. Before a tank is cleaned, it must be degassed (the removal of gases, such as gasoline vapor) so personnel can safely enter to clean the tank and remove accumulated sludge. The sludge removed from the tank can contain residual VOC liquid that may evaporate when exposed to the atmosphere. Therefore, the fourth category of proposed rules for aboveground tanks is intended to regulate degassing and cleaning operations. The proposed rules are based primarily on SJVUAPCD’s regulations. The Department estimates these new requirements will reduce VOC emissions during the ozone season by approximately 265 tons each year.

Inspection and maintenance: The Department’s existing rules do not require inspection and maintenance of VOC stationary storage tanks. An inspection and maintenance program would reduce VOC emissions by assuring that tank components are in good condition and operating properly. Therefore, the final category of proposed rules (N.J.A.C. 7:27-16.2(r)) establishes a tank inspection and maintenance program. An inspection would be initiated by the tank owner or operator and performed by his or her own staff or by a person or organization the owner or operator hires. The proposed rules require owners or operators to inspect deck fittings and seals on external floating roof tanks every year and each time the tank is emptied and degassed, to inspect deck fittings and seals on internal floating roof tanks each time the tank is emptied and degassed, and to annually make sure the covers to any hatches or other openings on fixed-roof tanks over 40,000 gallons storing VOC are leak-free. The proposed rule provides deadlines for repairing defects found during the inspections. The Department modeled its proposed tank inspection and maintenance rules on SCAQMD’s rules and the Federal New Source Performance Standards, 40 CFR Part 60 Subpart Kb.

#### Administrative Correction to N.J.A.C. 7:27-16.2

The Department discovered an error in the text at N.J.A.C. 7:27-16.2(b)1ii, which it proposes to correct, as discussed below in the Summary of N.J.A.C. 7:27-16.2.

#### Phased Compliance

Existing N.J.A.C. 7:27-19.22 contains compliance and submission dates that have passed. Proposed amended N.J.A.C. 7:27-19.22 provides a mechanism for phased compliance for owners

or operator subject to N.J.A.C. 7:27-19.29. The proposed phased compliance plan will allow up to 12 months for full compliance with N.J.A.C. 7:27-19.29 for emission reduction measures that cannot be implemented by the operative date of these amendments.

The proposed new rules and amendments are more fully described below.

#### **N.J.A.C. 7:27-4.1 Definitions**

The Department proposes new definitions of “construct” or “construction,” “install” or “installation,” “modify” or “modification,” and “reconstruct” or “reconstruction.” The Department intends to use the proposed terms to differentiate the proposed more stringent emission limit of a coal-fired boiler that serves an electric generating unit, if the combustion source or the associated particle control apparatus is newly constructed, installed, reconstructed, or modified, from the less stringent limit for an existing coal-fired boiler that is not reconstructed or modified. The proposed definitions of “construct” or “construction,” “modify” or “modification,” and “reconstruct” or “reconstruction” are identical to the existing definitions at N.J.A.C. 7:27-22.1. The proposed definition for “install” or “installation” is identical to the existing definition at N.J.A.C. 7:27-8.1.

#### **N.J.A.C. 7:27-4.2 Standards for the emission of particles**

The Department proposes to amend existing N.J.A.C. 7:27-4.2(a) to establish standards to replace the less stringent standards in existing 4.2(a). For coal-fired boilers the maximum allowable emission rates in the existing 4.2(a) table would no longer apply on or after the operative date of the proposed amendments if the boiler or the associated particle control apparatus is newly constructed, installed, reconstructed or modified, and commences operation on or after the operative date of the proposed amendments. Instead, the more stringent requirements in proposed 4.2(b) would apply. For any coal-fired boiler that is already operating as of the operative date of the proposed amendments and is not reconstructed or modified by December 15, 2012, the less stringent standards at proposed amended 4.2(a) would no longer apply as of December 15, 2012. Instead, the proposed new more stringent standards at 4.2(c), which are less stringent than the proposed new 4.2(b) requirements, would apply until such time as that boiler or its control apparatus is reconstructed or modified, making it subject to proposed 4.2(b). There are two different compliance schedules because it is more cost-effective if a source complies with more stringent emission rates at the same time that the source is constructed or installed or undergoes a reconstruction or modification.

Proposed N.J.A.C. 7:27-4.2(b) establishes requirements for the owner or operator of a newly constructed, installed, reconstructed or modified coal-fired boiler or new particle control apparatus, that commences operating on or after the operative date of the proposed new rules and amendments. Proposed 4.2(b) establishes a maximum allowable emission rate of 0.0150 pounds/MMBtu of particles, unless otherwise specified in an enforceable agreement with the Department. The Department’s intention is to assure that this proposed emission rate does not supersede the emission rates required by the ACO and ACD, two enforceable agreements discussed above, or any other enforceable agreement. Proposed 4.2(b) requires these sources to comply with all applicable state of the art (SOTA), lowest achievable emission rate (LAER) and best available control technology (BACT) requirements, which may result in compliance with a more stringent maximum allowable emission rate than is required at proposed 4.2(b). Also, proposed 4.2(b) requires a compliance demonstration in accordance with the approved permit.

Proposed 4.2(c) establishes requirements for coal-fired boilers already in operation as of the operative date of these new rules and amendments. Proposed 4.2(c)1 establishes a maximum allowable particle emission rate for coal-fired boilers that started operating prior to the operative date of these new rules and amendments. This rate is the lower of 0.0300 pounds/MMBtu of particles or the boiler's currently permitted particle emission rate, unless otherwise specified in an enforceable agreement with the Department. As with proposed 4.2(b) above, the Department's intention is to assure that these proposed emission rates do not supercede the emission rates required by the ACO and ACD, or any other enforceable agreement. Proposed 4.2(c)1 requires coal-fired boilers to meet the rate on and after December 15, 2012. The proposed December 15, 2012 compliance date is consistent with the multi-pollutant provisions of the mercury rule at existing N.J.A.C. 7:27-27.7(d), which also governs emissions of particulate matter from coal-fired boilers. Proposed 4.2(c)2 requires the coal-fired boiler to demonstrate compliance with its permitted emission rate in accordance with the approved permit.

### **N.J.A.C. 7:27-10.1 Definitions**

The Department proposes definitions of "24 hour emission rate" and "30 calendar day rolling average emission rate" because the Department is proposing two new emission rates at N.J.A.C. 7:27-10.2. The calculation of the 24 hour emission rate will be based on a calendar day, while the calculation of the 30 calendar day rolling average emission rate will be based on a 30 calendar day rolling average. The Department's proposed definition of these terms is derived from common language and refers to proposed section N.J.A.C.7:27-10.5, which specifies how these emission rates are to be determined. The Department's proposed definition of "calendar day" is based on the definition at N.J.A.C. 7:27-19.1. The 24 hour emission rate is based on a calendar day. The Department's proposed definition of "one hour block" is derived from common language. This term is used in the proposed N.J.A.C. 7:27-10.5 methodology for determining the 24 hour emission rate.

### **N.J.A.C. 7:27-10.2 Sulfur contents standards**

Existing N.J.A.C. 7:27-10.2(a) controls SO<sub>2</sub> emissions by regulating the sulfur content of the solid fuel stored, offered for sale, sold delivered or exchanged in trade, for use in New Jersey and (b) controls SO<sub>2</sub> emissions by regulating the sulfur content of the solid fuel burned. The sulfur content standards are in Table 1 of existing (b). The Department proposes that, starting December 15, 2012, (a) and (b) and Table 1 would no longer apply to any source. Instead, the output based performance standards proposed at (h) would apply.

An output based performance standard regulates the SO<sub>2</sub> actually emitted to the environment. Each facility could choose how to control its SO<sub>2</sub> emissions no matter what the sulfur content of the fuel combusted. For example, a facility could combust a low sulfur fuel to reduce the production of SO<sub>2</sub>, or install controls to remove SO<sub>2</sub> from the exhaust gas, or some combination of the two. SO<sub>2</sub> emission control technology to reduce SO<sub>2</sub> emissions to the proposed SO<sub>2</sub> emission rates is reasonably available to enable a source to combust a solid fuel no matter the solid fuel's sulfur content (See Boilers Serving Electric Generating Units Section of the Background). The Department proposes, starting December 15, 2012, to make compliance with the Table 2 output based performance standards required by (c) inoperative, and to replace them with the requirements proposed at (h).

N.J.A.C. 7:27-10.2(c) requires different output based performance standards for four areas of New Jersey ("zones" in Table 2) based on the level of SO<sub>2</sub> non attainment of that zone. Existing 10.2(c) established these zones effective September 15, 1978. Although the "anthracite coal and coke" standard is the same for each zone, the standard for "all other solid fuels" is more

stringent in the zones that were in non attainment. Since all New Jersey is currently in attainment with the NAAQS for SO<sub>2</sub>, different performance standards for each zone are not necessary. The Department proposes to eliminate basing performance standards on the zone in which a source is located, and to require sources to comply with more stringent output based performance standards proposed at (h), starting December 15, 2012.

Existing N.J.A.C. 7:27-10.2(d), (e) and (f) regulate SO<sub>2</sub> emissions based on sulfur content of the fuel. Since starting December 15, 2012 the Department would regulate SO<sub>2</sub> emissions based only on performance standards (proposed new subsection (h)), and not based on sulfur content of fuel, existing (d), (e) and (f) would no longer apply. The Department proposes to make these three subsections operative only through December 14, 2012.

Existing N.J.A.C. 7:27-10.2(g) applies to authorizations granted pursuant to (f). Since the Department proposes that (f) be operative only through December 14, 2012, the Department proposes that (g) likewise be operative only through December 14, 2012.

Proposed new 10.2(h) requires that on and after December 15, 2012, all sources that combust solid fuel must comply with proposed maximum SO<sub>2</sub> emission rates of 0.250 pounds/MMBtu gross heat input based on a 24 hour emission rate and 0.150 pounds/MMBtu gross heat input based on a 30 calendar day rolling average emission rate, unless otherwise specified in an enforceable agreement with the Department. The Department's intention is the same as in the above explanation of the proposed amendments to N.J.A.C. 7:27-4.2(b). These proposed maximum SO<sub>2</sub> emission rates are a minimum requirement. The Department proposes a December 15, 2012 compliance date to be consistent with the multi-pollutant provisions of the mercury rule for coal-fired boilers at N.J.A.C. 7:27- 27.7(d).

Proposed new 10.2(i) requires all sources that combust solid fuel, and that are constructed, installed, reconstructed or modified, to comply with all applicable SOTA, LAER and BACT requirements. SOTA and LAER requirements are contained in the State's Air Pollution Control rules, N.J.A.C. 7:27. The BACT requirements are at 40 CFR 52.21, which the Department proposes to incorporate by reference. The Federal rule contains the requirements for BACT for major stationary sources. Under the Federal rule, BACT is an emissions limitation that is achievable through application of production processes or available methods, systems, and techniques, including fuel cleaning or treatment or innovative fuel combustion techniques for control of such pollutant. If technological or economic limitations would make the imposition of an emissions standard infeasible, a design, equipment, work practice, operational standard, or combination may be prescribed instead to satisfy the requirement for the application of best available control technology.

SOTA, LAER and BACT may require more stringent maximum allowable emission rates than the rates required at proposed 10.2(h) or the rates derived from the sulfur content requirements of the existing subsections. As technology advances the case by case SOTA, LAER and BACT determinations are likely to result in more stringent maximum SO<sub>2</sub> emission rates for these sources.

#### **N.J.A.C. 7:27-10.5 SO<sub>2</sub> emission rate determinations**

Proposed new N.J.A.C. 7:27-10.5 establishes how to calculate a "24 hour emission rate" and a "30 calendar day rolling average emission rate" to compare a source's actual emission rates with the Department's proposed emission rates at N.J.A.C. 7:27-10.2(h).

Under proposed new 10.5(a), a 24 hour emission rate shall be calculated by measuring the quantity of SO<sub>2</sub> emitted for each one hour block time period in one calendar day using a certified Continuous SO<sub>2</sub> Emission Monitoring System (SO<sub>2</sub> CEMS), a certified Continuous Oxygen Emission Monitoring System (O<sub>2</sub> CEMS) and EPA Method 19. EPA Method 19

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converts SO<sub>2</sub> parts per million (the source's SO<sub>2</sub> CEMS measurement) to pounds per dry standard cubic foot, corrects this concentration to zero percent oxygen (based on measurements from the O<sub>2</sub> CEMS), and multiplies the corrected concentration by the F-factor (a specific volume of dry gas generated from the combustion of a specific fuel), to determine pounds of SO<sub>2</sub> emitted per million BTU gross heat input (pounds/MMBtu). As an alternative to using EPA Method 19, some other Department approved method may be used only where the fuel combusted is clean, unprocessed wood. The combustion of clean, unprocessed wood, having a very low sulfur content (0.1 percent by weight) results in a SO<sub>2</sub> emissions rate of 0.125 pounds/MMBtu that would be in compliance with the Department's proposed rates. In such case, the owner or operator must submit an application for approval of the alternative method to the Department at the address at proposed 10.5(c). If some other Department approved method is used, EPA Method 19 and possibly one or both of the continuous emissions monitoring systems would not be needed. The total emissions would be divided by the number of one hour block time periods during which solid fuel was combusted. The result is the 24 hour emission rate.

Proposed new N.J.A.C. 7:27-10.5(b) establishes the method for determining a "30 calendar day rolling average emission rate." The Department's proposed method is to average the 24 hour emission rates for 30 consecutive calendar days. The result is the "30 calendar day rolling average emission rate" for the 30th day. Each day would begin a new 30 day calendar day rolling average. Any calendar day during which no combustion of solid fuel occurred shall not be included in the 30 calendar day rolling average. For example, if solid fuel were not combusted during two calendar days of the 30 day period, the 24 hour emission rates of 28 days would be used to determine the 30 calendar day rolling average. The total emissions for the 28 days would be divided by 28, not 30.

#### **N.J.A.C. 7:27-16.1 Definitions**

The Department proposes to define the acronym for "AASHTO" because this acronym is used in the proposed new rules for the application of cutback and emulsified asphalts.

The proposed definition of "asphalt pavement production plant" is intended to make it clear that proposed amended N.J.A.C. 7:27-16.11 and 16.16, where the term is used, applies only to those asphalt plants that produce asphalt pavement, but not to asphalt plants at refineries.

The Department proposes definitions of 43 new terms used in the proposed new rules and amendments for VOC stationary storage tanks. The proposed new definitions are taken from similar definitions in California's Bay Area Air Quality Management District (BAAQMD) Rule 5 (Storage of Organic Liquids) under Regulation 8 (Organic Compounds), SJVUAPCD Rule 4623 (Storage of Organic Liquids), or SCAQMD Rule 1178. The Department proposes to modify the definitions from the California rules to conform the definitions to New Jersey's regulatory format, refer to New Jersey instead of California, and as otherwise discussed below. The terms are: "AP-42," "capacity," "clean produced water," "crude oil," "deck fitting," "degassing," "domed roof," "fixed roof tank," "gauge float," "gauge hatch/sample ports," "guidepole," "internal floating roof," "ladder and well," "leak-free," "liquid mounted primary seal," "maximum operating level," "mechanical shoe seal," "non-contact floating roof," "organic liquid," "pole float," "pole sleeve," "pole wiper," "pressure-vacuum vent," "pressure vessel," "primary seal," "resilient filled primary seal," "resilient-toroid-type seal," "rim mounted secondary seal," "rim seal system," "rim vent," "roof drain," "roof leg," "roof opening," "secondary seal," "shoe mounted secondary seal," "small producer," "tank battery," "true vapor pressure (TVP)," "vacuum breaker," "visible gap," "wiper primary seal," "zero gap," and "zero gap pole wiper seal."

“AP-42” incorporates by reference the EPA’s manual, “Compilation of Air Pollutant Emission Factors Stationary Point and Area Sources,” which provides a collection of emission factors for various types of equipment and source operations that emit air contaminants. AP-42 lists emission factors for the following industries: petroleum, food and agriculture, mineral products, metallurgical, organic and inorganic chemical, and waste disposal. The specific source operations and equipment that are covered in AP-42 include, but are not limited to, combustion sources, evaporative sources, storage tanks, grinders, conveyors, ovens, dryer, and incinerators. In addition to emission factors, AP-42 provides, as applicable, descriptions and diagrams of the source operations, the number and capacity of the source operations in the United States, and the types and effectiveness of air pollution control equipment. Background information of how the emission factors were derived is also provided.

Since California’s definition of “clean produced water” includes three test methods either withdrawn from use or replaced by EPA, the Department’s proposed definition includes two EPA-approved methods and one Department-approved method. The Department’s proposed definition prescribes the use of either the Diesel Range Organics option under EPA SW-846 Method 8015B or NJDEP Method OQA-QAM-025, Revision 6, and/or, as necessary, EPA SW-846 Method 8260, to determine the VOC concentration in water for hydrocarbons C14 or lighter. EPA Method 8015B “Non-halogenated Organics Using GC/FID” is used to determine the concentration of various nonhalogenated volatile organic compounds and semivolatile organic compounds by gas chromatography. NJDEP Method OQA-QAM-025 “Quantitation of Semi-Volatile Petroleum Products in Water, Soil, Sediment, and Sludge” is used to determine Total Petroleum Hydrocarbons, a category of VOCs, using a gas chromatograph fitted with a flame ionization detector. EPA SW-846 Method 8260 “Volatile Organic Compounds By Gas Chromatography/Mass Spectrometry(GC/MS)” is used to determine the VOC concentration in a water sample. The proposed definition prescribes Test Method ASTM E 260-85, “ASTM Standard Practice for Packed Column Gas Chromatography,” to determine the VOC concentration in water for hydrocarbons heavier than C14 using a gas chromatograph.

The Department’s proposed definition of “deck fitting” includes examples of deck fittings listed in SCAQMD’s definition of “roof opening.” Accordingly, the Department’s proposed definition of “roof opening” does not list these examples of deck fittings.

To be consistent with the Department’s existing definition of “leak” in Subchapter 16, the Department proposes California’s definition of “leak-free,” modified to refer to VOCs. The proposed definition of “leak-free” prescribes the use of EPA Method 21, which is used to determine VOC emissions (leaks) from process equipment. A local VOC concentration at the surface of a source indicates that a leak is present. The VOC instrument detector types used for EPA Method 21 measurements include, but are not limited to, catalytic oxidation, flame ionization, infrared absorption, and photoionization. EPA Method 21 is located at 40 CFR Part 60 Appendix A, Determination of Volatile Organic Compounds Leaks.

The Department’s proposed definition of “in-service roof landing” refers to the circumstance when a roof landing is conducted for a reason other than the tank being removed from service. Examples of “in-service roof landing” include roof landings done to switch tank contents or to change the customer who is using the tank.

The proposed definition of “roof landing” is from the EPA’s explanation of the term in its “Compilation of Air Pollutant Emission Factors” (AP-42 Tanks).

The proposed definition of “roof opening,” from SCAQMD Rule 1178, refers to “roof fitting.” Instead of the term “roof fitting” the Department proposes to use the term “deck fitting” because “roof fitting” and “deck fitting” have the same meaning. The Department proposes a definition of “deck fitting,” rather than “roof fitting.”

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The Department proposes definitions of six additional terms used in the proposed rules for VOC stationary storage tanks. Proposed definitions of “aboveground storage tanks,” “API” and “underground storage tank” are identical to the definitions at N.J.A.C. 7:1E-1.6. “API 653” refers to the American Petroleum Institute’s (API) Standard 653 for the maintenance, inspection, repair, alteration and reconstruction of existing above ground, atmospheric storage tanks. Atmospheric storage tanks store products under atmospheric conditions, which means they are not pressurized. Atmospheric storage tanks include VOC stationary storage tanks regulated by N.J.A.C. 7:27-16.2. API 653 standards include methods for determining tank shell thickness and how to perform tank seal inspections. The proposed definition of “API 653” is based on the definition at N.J.A.C. 7:1E-1.6, with additional language to indicate where API 653 is available. Proposed definitions of “authorized inspection agency” and “authorized inspector” are based on the definitions of these terms in API 653. An authorized inspection agency would be an insurance company licensed or registered in New Jersey to write aboveground storage tank insurance, an owner or operator of an aboveground storage tank, or an independent organization or person contracted by an aboveground storage tank owner or operator to perform an inspection. An authorized inspector would be an employee of an authorized inspection agency who is certified as an Aboveground Storage Tank Inspector in accordance with the standards of API 653.

The Department proposes to add or amend 12 terms regarding printing and flat wood paneling operations. The Department proposes to amend the term “coating of flat wood paneling” to “coating of flat wood paneling and printed hardwood,” and expand the definition to include wood panels, exterior siding, and tile board because these categories are now being regulated, and to give examples of what this term includes. All of these proposed amendments are to make the definition consistent with the CTG for Flat Wood Paneling Coatings, EPA 453/R-06-004 guidelines.

The Department proposes to replace the existing definition of “fountain solution” with a new definition to indicate that fountain solutions are used only in lithographic printing operations, not all graphic arts operations. The Department proposes to amend the definition of “graphic arts operation” to include letterpress and lithographic printers because proposed new N.J.A.C. 7:27-16.7(r) includes emission limits for these printers. The Department proposes to add the definition of “modify” as it is defined in N.J.A.C. 7:27-8. The Department proposes to add definitions of “cleaning material” and “mixing vessel” because these terms are referenced and described in the work practices section of the Control Technique Guidelines for Flat Wood Paneling Coatings, EPA 453/R-06-004. The Department also proposes definitions of “letterpress printing,” “heatset web lithographic printing,” “coldset web lithographic printing,” “sheet-fed offset lithographic printing” and “tileboard,” which are terms used in the proposed amended subchapter. The Department proposes to amend the definition of “lithographic printing operation” to state that it applies to any “lithographic printing” and to list specific types of lithographic printing.

The Department proposes to relocate “wash coat” and “working mode cover” to their alphabetical order.

#### **7:27-16.2 VOC stationary storage tanks**

The Department proposes to rename N.J.A.C. 7:27-16.2, because the section applies to stationary storage tanks that store VOCs.

The Department proposes to amend N.J.A.C. 7:27-16.2(a), because the section does not apply to stationary storage tanks that store only non-VOC. Also, the Department proposes to identify the provisions, (e) and (f), that contain exemptions.

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The Department proposes to correct an error at N.J.A.C. 7:27-16.2(b)ii. At the time of the August 5, 2002 proposal (2002 proposal), N.J.A.C. 7:27-16.2(a) required tanks with a capacity of 10,000 gallons or greater, to be painted and maintained white, or to have an equivalent emission control; and N.J.A.C. 7:27-16.2(b) required these tanks be equipped with a control apparatus as determined in accordance with the procedures for using Table 2A or an equal or better control measure.

In 2002 the Department proposed to amend N.J.A.C. 7:27-16.2(a) and (b). (See 34 N.J.R. 2489(a).) According to the 2002 proposal Summary,

The proposal would combine current paragraph (a)1 and current subsection (b) and recodify them as subsection (b). As a result, subsection (b) would make clear that any stationary storage tank with a capacity of 2,000 gallons (7,570 liters) or greater containing VOCs shall not be exposed to the rays of the sun unless the external surface of the tank is painted and maintained white, or an equivalent method of emission control approved by the Department is used. (34 N.J.R. 2492)

The 2002 proposal's intention was to clarify that tanks with a capacity of 2,000 gallons or greater (which includes 10,000 gallon tanks or greater) must be painted and maintained white or have an equivalent control. The Summary did not indicate any other intended change.

However, the 2002 proposal's rule text and the June 2, 2003 adoption's (2003 adoption) rule text made these requirements optional for 10,000 gallon or greater sized tanks by inserting the word "or" at the end of adopted N.J.A.C. 7:27-16.2(b)1ii. (See 35 N.J.R. 2509(a).) This error allowed any tank with a capacity of 10,000 gallons or greater to meet one of three controls (be painted and maintained white, have an equivalent control, or be equipped with a control apparatus using Table 2A) instead of requiring two controls (being painted and maintained white or having an equivalent control, and a control using Table 2A). The Department's intention as stated in the 2002 proposal Summary appears inconsistent with the 2002 proposed and 2003 adopted amendment.

The Department proposes to correct this error by amending N.J.A.C. 7:27-16.2(b)1ii to replace the word "or" with the word "and," clarifying that any stationary storage tank with a capacity of 10,000 gallons or greater must meet two requirements, not one of three requirements. Also, the Department proposes to make clear in proposed amended (b)2 that the requirements in existing (b)1 as amended apply to tanks with a capacity of 10,000 gallons or greater.

At existing N.J.A.C. 7:27-16.2(d), the Department proposes to replace the term "vapor-tight" with the term "leak-free." "Leak-free" is a defined term, referring to a known reliable analytical method. "Leak-free" is a requirement of California's SJVUAPCD and SCAQMD. Unlike the proposed definition of "leak-free," the Department's existing definition of "vapor-tight" does not refer to an analytical method. The Department also proposes to relocate the exception to the "leak-free" requirement in (d). In order to locate all exemptions in one place, the Department proposes to relocate the exception to proposed N.J.A.C. 7:27-16.2(f)8.

At existing N.J.A.C. 7:27-16.2(f) the Department proposes to renumber the two existing exemptions, (f)1 and 2, as proposed (f)1i and ii, and to add new exemptions. At new (f)1iii the Department proposes to add pressurized tanks designed to operate in excess of 15 pounds per square inch gauge without emissions to the atmosphere.

Proposed new (f)2 exempts any fixed roof storage tank with a capacity less than 40,000 gallons from proposed (q), proposed degassing and cleaning requirements. The cost of complying with proposed (p) would, for those tanks, be excessive compared to the amount of emissions reduced. Degassing emissions are less in these small tanks.

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To reduce the risk of explosion, proposed new (f)3 exempts any external floating roof tank from the requirements of (l)1i, which requires each access hatch and gauge float well to be equipped with a cover, until the tank is emptied and degassed, if a device must be welded to the fitting in order to install a cover. Welding operations on a tank that has not been properly degassed would present a safety hazard.

Proposed new (f)4 exempts any external floating roof tank from the requirement to install a dome if the tank contains more than 97 percent crude oil; however, this tank must comply with all other requirements, including all other visible gap requirements. California exempts these tanks because they tend to be very large and installing a dome is expensive. Proposed N.J.A.C. 7:27-16.2(f)3 and 4 are based on exemptions in SCAQMD Rule 1178.

Proposed new (f)5 exempts any floating-roof tank from meeting the gap seal requirements at proposed 16.2(l)3i through 3x while the roof is resting on its legs during draining, degassing or refilling the tank to prevent roof damage during these operations.

Proposed new (f)6 allows the owner or operator of any floating roof tank with a Federally enforceable emission condition limiting its annual roof landing emissions to less than five tons, to choose to be exempt from proposed 16.2(p), which is a requirement to submit a facility-wide tank VOC control plan for controlling roof landing emissions. If the emissions are less than 5 tpy, the cost of controlling emissions would outweigh the small emission reductions achieved.

Proposed new (f)7 exempts any external floating roof tank in Range III that is subject to the more stringent requirements at (l)1vi from the less stringent requirements at (l)13. Throughout the proposed tank requirements, the Department is proposing more stringent requirements for Range III tanks.

Proposed (f)8 was relocated from existing (d) and amended with an exemption that a floating roof tank does not need to be leak-free during refilling if the tank meets the condition at proposed (q)1v. The exemption is intended to prevent tank damage during refilling by equalizing the tank pressure with the outside air pressure. During refilling, vacuum breakers (a type of roof fitting) must open to expel the VOC vapors displaced by the incoming liquid. If refilling is continuous and done as rapidly as possible (the conditions at proposed (q)1v), the tank will be exempt from meeting the "leak-free" conditions at proposed 16.2(d) during refilling.

The Department proposes to relocate and amend existing N.J.A.C. 7:27-16.2(g), (h) as it pertains to Range I and II stationary storage tanks, and (i) to proposed (l)8, (l)12 and (l)13, respectively, to keep all deck fitting and most seal requirements together. The proposed amendments are discussed below. The Department proposes to reserve existing subsections (g) and (i). The rim seal requirements at existing N.J.A.C. 7:27-16.2(h) apply to all (that is Range I, II and III) external floating roof stationary storage tanks. The Department proposes to clarify that amended (h) pertains only to Range III stationary storage tanks that store VOCs and that amended (h) remains in effect for such tanks until the more stringent Range III stationary storage tank seal requirements at proposed (l)3 become effective for each of those tanks.

The Department proposes to delete the recordkeeping requirements at existing N.J.A.C. 7:27-16.2(k) and reserve this subsection. The Department proposes expanded recordkeeping requirements at proposed new N.J.A.C. 7:27-16.2(s). The Department proposes to amend existing cross references to N.J.A.C. 7:27-16.2(k) throughout the subchapter to refer to 16.2(s), instead.

The Department proposes to consolidate all tank deck fitting and seal requirements at N.J.A.C. 7:27-16.2(l). The proposed tank deck fitting requirements of N.J.A.C. 7:27-16.2(l) are identical to the deck fitting requirements at SCAQMD Rule 1178(d)(1)(A)(i) through (xiv). Proposed new N.J.A.C. 7:27-16.2(l)1 sets forth deck fitting requirements for external floating roof tanks in Range III. For example, the proposed amendments would require unslotted

guidepoles to be retrofitted with sliding covers, wipers and flexible fabric sleeves. Slotted guidepoles would have to be retrofitted with sliding covers, gasketed covers, pole wipers and pole sleeves. A “no visible gap” requirement means that an opening between, for example, an access hatch and its cover, shall not exceed 0.06 inch. The proposed new rules and amendments require no visible gaps between a gauge/hatch sample and its cover, between a rim vent pallet and the gasket of the rim vent cover, and between other deck fittings and seals. Replacing deck fittings on an external floating roof does not require taking a tank out of service because the fittings can be replaced or installed from the outside of the tank. The Department is proposing that existing tanks with an external floating roof comply by 120 days after the operative date of these proposed amendments, as this would allow adequate time to comply. For such tanks constructed after the operative date of the amendments, the proposed deck fitting requirements must be met before the tank is initially filled.

Proposed (I)2 would allow the owner or operator of an external floating roof tank in Range III to maintain the tank in a “leak-free” condition, rather than complying with the “no visible gap” requirements of proposed (I)1. The proposed definition of “leak-free” means use of a specific instrument. The Department proposes that an owner or operator of an existing tank who maintains a “leak free” tank shall also comply by 120 days after the operative date of these proposed amendments, which is the compliance date for the “no visible gap” requirements. For such a tank constructed after the operative date of the amendments, the proposed “leak-free” requirement must be met before the tank is initially filled. The proposed alternative is taken from SCAQMD Rule 1178(d)(1)(C).

Proposed (I)3 requires the owner or operator of a stationary storage tank in Range III to meet the rim seal system requirements at (I)3i through (I)3x. Since replacing rim system seals requires taking a tank out of service, the Department is requiring existing tanks to comply when it is refilled after the first degassing after the operative of these amendments, but no later than May 1, 2020. A new tank must meet these requirements prior to being initially filled. These 10 requirements are identical to the requirements at SCAQMD Rule 1178(d)(1)(B)(i) through (x), except that proposed (I)3vii references the Department instead of SCAQMD’s Executive Officer.

Shells of external floating roof tanks do not come with a fixed roof or cover. They are highly susceptible to wind effects, which result in higher VOC emissions. To mitigate this problem, several states, including California and New York, require that existing external floating roof tanks that store materials with true vapor pressures greater than three pounds per square inch absolute (psia) be retrofitted with a dome, which is a type of fixed roof for the tank shell. The Department proposes at new (I)4 the same measure for New Jersey. From this proposed requirement, the Department expects to achieve an emission reduction of about 130 tpy of VOC from the New Jersey tanks, beyond the reductions achieved by upgrading deck fittings and seals.

Proposed new (I)4 requires the owner or operator of an external floating roof tank in Range III without a domed roof that stores gasoline or some other VOC with a vapor pressure greater than or equal to 3 psia at standard conditions, to install a domed roof before the tank is refilled after its first degassing after the operative date of these amendments, but no later than May 1, 2020. A new tank would be required to install a domed roof before the tank is initially filled. A domed roof reduces emissions by protecting a floating roof from wind effects. This proposed amendment is based on SCAQMD Rule 1178(d)(2)(A).

Proposed new (I)5 consists of requirements for domed external floating roof tanks in Range III that are in operation prior to the operative date of these amendments. Owners or operators must comply prior to the tank’s being refilled after being degassed the first time after the operative date of these amendments, but no later than May 1, 2019. Proposed (I)5i, based on

SCAQMD Rule 1178(d)(2)(B), requires the tank to be in compliance with the deck fitting requirements at proposed (I)1i through (I)1xiv. Proposed (I)5ii, based on SCAQMD Rules 1178(d)(2)(E) and 463(c)(2)(B), requires the owner or operator to install on an existing domed external floating roof tank a rim seal system that meets the requirements at (I)3 with two exceptions, a secondary seal is not required if the primary seal is liquid mounted and the mechanical shoe primary rim seal must have one end extend a minimum of 15 centimeters (6 inches) above the stored liquid surface and the other end a minimum of 10 centimeters (4 inches) into the stored liquid. Both exceptions are in the SCAQMD rule. The Department proposes compliance with (I)5ii prior to the tank's being refilled for the first time after the first degassing after the operative date of these amendments, but no later than May 1, 2020. Proposed (I)5iii, identical to SCAQMD Rule 1178, requires the gasoline vapors in the space between the external floating roof and the domed roof not to exceed 30 percent of its lower explosive limit. This indicates the condition of the seals between out-of-service inspections. An exceedance of 30 percent of its lower explosive limit might indicate a leaking seal or deck fitting.

Proposed new (I)6 regulates domed roofs installed on existing external floating roof tanks in Range III on or after the operative date these amendments. The proposed rule is based on SCAQMD Rule 1178(d)(2)(D) through (F). Proposed (I)6i requires a tank to meet the rim seal system requirements at proposed (I)3 at the time the tank is refilled after being degassed for the first time on or after the operative date of these amendments, but no later than May 1, 2020. Proposed (I)6ii requires the gasoline vapors in the space between the external floating roof and the domed roof not to exceed 30 percent of its lower explosive limit which indicates the condition of the seals between out-of-service inspections. By 120 days after the operative date of these proposed amendments, these tanks should already be in compliance with the deck fitting requirements at proposed (I)1.

Proposed new (I)7 regulates any internal floating roof tank in Range III. The Department proposes that deck fitting and seal upgrades coincide with internal tank inspections. The owner or operator of a tank existing before the operative date of these amendments must comply with these requirements at the time the tank is refilled after being degassed for the first time on or after the operative date of these amendments, but no later than May 1, 2020. The owner or operator of a new tank would be required to comply the first time the tank is filled. Installing deck fittings on an internal floating roof usually requires taking the tank out of service because it requires a person to go inside the tank itself, unlike installing fittings on a tank with an external floating roof. A tank with an internal floating roof must undergo an internal tank inspection, which also requires a person to go inside the tank, in accordance with the Department's Bureau of Release Prevention's discharge prevention, containment and countermeasure plan (DPCC plan), or in accordance with the American Petroleum Institute (API) Standard 653 "Tank Inspection, Repair, Alternation, and Reconstruction" (API 653), described above.

Prior to a tank inspection the tank must be degassed, in order that the inspector can safely enter the tank. So that a tank with an internal floating roof is not taken out of service twice, once to upgrade the deck fittings and once for an internal tank inspection, the Department will require that the deck fittings be upgraded at the same time the tank undergoes an internal tank inspection. Proposed (I)7 is based on SCAQMD Rules 1178(d)(3)(A) through (E) and 463(c)(2)(B) and requires an owner or operator to install gasketed sliding covers on support columns and wells (proposed (I)7i), install gasketed covers on ladder wells (proposed (I)7ii), install and maintain deck fittings (proposed (I)7iii), install a rim seal system (proposed (I)7iv), and ensure the vapor concentration in the vapor space between the floating roof and the fixed roof does not exceed 50 percent of the lower explosive limit for internal floating roofs installed

prior to June 1, 1984 (proposed (l)7v) and 30 percent of the lower explosive limit for internal floating roofs installed after June 1, 1984 (proposed (l)7vi).

The Department proposes to relocate the existing rim seal requirements that apply to stationary storage tanks in Range III at (g), to proposed (l)8, the proposed rim seal requirements. At (l)8i the Department proposes that the existing rim seal system requirements, currently at existing (g), for such tanks constructed on and after December 17, 1979 remain in effect until the more stringent rim seal system requirements at proposed (l)3, 5, 6 and 7 apply. Existing N.J.A.C. 7:27-16.2(g) does not regulate the seals of tanks constructed prior to December 17, 1979. The Department proposes to remove this exemption and regulate these tanks. However, with this exemption is removed, there would be no rim seal system requirements for tanks constructed prior to December 17, 1979. Therefore, at (l)8ii the Department proposes that these tanks comply with the more stringent rim seal system requirements at proposed (l)3, 5, 6 and 7 as applicable and in accordance with the proposed compliance dates.

Proposed (l)9 and (l)10 apply to any floating roof stationary storage tank in Range III. If a primary seal is to be replaced, proposed (l)9 requires that one of four rim seal systems (proposed 9i through iv) replace the primary seal. If a secondary seal is to be replaced, proposed (l)10 requires that one of two rim seal systems (proposed 10i and ii) replace the secondary seal. Both proposed (l)9v and (l)10iii allow a primary or secondary seal to be replaced with an alternative rim seal system, if it is demonstrated to the Department that the alternative rim seal system is better than the rim seal systems listed in the rule. These requirements are based on SCAQMD Rule 1178(d)(1)(b)xi, which references a SCAQMD list of approved replacement rim seal systems at Attachment A of SCAQMD Rule 463, "Organic Liquid Storage."

Proposed (l)11 requires leak-free conditions for the roofs of fixed-roof tanks. Proposed (l)11i through iii, identical to SCAQMD Rules 1178(d)(4)(A)(ii) and (iii), require leak-free emission control requirements for gauging and sampling devices, the roof generally, and all roof openings. Proposed (l)11 applies to any fixed roof tank with a capacity greater than or equal to 40,000 gallons that stores VOCs with a vapor pressure greater than or equal to 0.5 pounds per square inch absolute (psia) at standard conditions. The roofs of fixed-roof tanks under 40,000 gallons would not be regulated.

The Department's proposed fixed-roof tank size and vapor pressure applicability requirements are consistent with the Federal New Source Performance Standards (NSPS) applicability requirements at 40 CFR 60.110b et seq. The Department intends to follow the direction of these NSPS regulations to regulate the larger fixed-roof tanks and to regulate the tanks that store the higher vapor pressure VOCs at this time. The Department's applicability requirements differ from SCAQMD's fixed-roof tank applicability requirements. SCAQMD's requirements apply to fixed-roof tanks with facility-wide VOC emissions greater than 20 tons per year and vapor pressure of the stored material being greater than or equal to 0.1 pounds per square inch absolute, regardless of tank size. It is reasonable to regulate similar size and content tanks the same way, whether they are at large or small facilities. Hence, the Department has not included the SCAQMD 20 ton per year facility-wide VOC emission criteria. Also, the Department proposes the Federal 0.5 psia cutpoint, rather than 0.1 psia, to avoid controlling tanks that emit a relatively low amount of VOC. This cutpoint will be reconsidered for future rules when the State Implementation Plan is developed for the new 75 parts per billion ozone NAAQS.

The Department proposes to amend N.J.A.C. 7:27-16.2(h) and relocate it to proposed (l)12. The rim seal requirements at existing N.J.A.C. 7:27-16.2(h) apply to all (that is Range I, II and III) external floating roof stationary storage tanks. The Department proposes to limit new (l)12 to Range I and II external floating roof stationary storage tanks. Proposed new (l)12 does

not apply to Range III external floating roof stationary storage tanks because rim seal system requirements for Range III tanks are proposed to be deleted from existing (h) and replaced with the requirements at proposed (l)3, which are more stringent.

In order to keep all deck fitting requirements at proposed N.J.A.C. 7:27-16.2(l), that is, within the same subsection, the Department proposes to relocate existing (i) to proposed new (l)13. The Department proposes that a tank be exempt from (l)13 if the tank meets the exemption criteria at proposed (f)7.

Proposed new N.J.A.C. 7:27-16.2(m) through (p) regulate roof landing cycles. A roof landing takes place when a tank is emptied and its floating roof comes to rest on its deck or interior leg supports with the liquid level below the floating roof. Roof landing emissions are caused by evaporation of the tank's products into the vapor space created between the liquid level and the floating roof. A roof landing cycle is a three-step process: landing, idling, and refilling. There are significant emissions resulting from a roof landing. A large floating roof tank can emit over three tons of VOC from a single roof landing cycle. As discussed previously with regard to VOC stationary storage tanks with a floating roof, when a tank is in use the roof floats on the surface of the liquid inside the tank. The continuous contact between the floating roof and the liquid reduces evaporative losses during normal operation. This contact is maintained as the liquid level decreases, until the floating roof comes to rest on its legs. At this point the floating roof is said to have landed. As the liquid continues to drop below the leg heights, a vacuum is created, which could cause the floating roof to collapse. To prevent collapse a breather vent is actuated to equalize the pressure. This forms a vapor space between the floating roof and the liquid. Vapor is lost through the breather vent to the atmosphere. These losses are called "standing idle losses." The breather vent remains open until the roof is again floated during refilling. When the tank is filled, the vapor in the vapor space is forced through the breather vent to the atmosphere. These losses are called "filling losses." The total evaporative loss from floating roof tanks during a roof landing cycle is the sum of the standing idle losses and the filling losses.

Proposed (m) requires a floating roof to float on the liquid surface at all times, except during initial fill and those intervals when the tank is completely emptied or subsequently emptied and refilled. Proposed (n)1 and (o)1 require emptying and refilling of an external floating roof or an internal floating roof, respectively, to be continuous and as rapidly as possible to reduce VOC emissions by reducing the length of time the vapor space is present. The Department's proposed amendments at N.J.A.C. 7:27-16.2(m), (n)1 and (o)1 are based on the Texas Council on Environmental Quality's (TCEQ's) regulations at 30 TAC §115.112(d)(2)(H).

There are two types of roof landing cycles: in-service roof landing cycles and out-of-service roof landing cycles. An in-service roof landing cycle is a roof landing cycle in which the tank is not taken out of service. An out-of-service roof landing cycle is a roof landing cycle in which the tank is taken out of service so a person can enter to perform some activity, such as maintenance, cleaning or inspection.

The proposed amendments require that all in-service roof landing cycles be conducted with the landed height of the floating roof at its lowest setting. Any roof with adjustable legs would have to be set with the legs in the "low landing" position. Using the lowest setting will minimize VOC emissions when the tank is idle or refilling by minimizing the volume of the vapor space between the surface of the liquid VOC and the bottom of the roof. Depending upon the height of liquid VOC that remains in the tank after landing, a floating roof tank with landed height of one foot can emit over 75 to 100 percent (depending on the amount of product remaining at the bottom) less VOC to the atmosphere than a floating roof tank with a typical landed height of 3.5 feet. (AP-42 Tanks.)

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Proposed new 16.2(n)2 requires that on and after the operative date of the proposed new rules and amendments, all in-service roof landings of external floating roof tanks be conducted with the roof landing at its lowest height setting. Proposed new 16.2(o)2 requires that after the first time an internal floating roof is taken out of service, all in-service landings must be conducted with the roof landing at its lowest height setting. The Department proposes different compliance dates because resetting the lander height on an internal floating roof requires taking the tank out of service, while resetting the lander height on an external floating roof does not require taking the tank out of service. The TCEQ regulation does not require this low landing provision. The Department proposes the low landing provision to further reduce VOC emissions from tank landings.

Proposed new N.J.A.C. 7:27-16.2(p) requires owners or operators of all floating roof tanks that have in-service roof landing cycle emissions of five tons or greater per year, to submit a tank facility-wide VOC control plan to control the VOC emissions. A tank may be exempt from being included in this plan if its in-service roof landing cycle emissions are less than five tons per year and the owner or operator keeps appropriate records. The emission reductions expected from such a tank does not, at present, justify the cost of preparing and submitting a plan. If such a tank is a Range III tank and is used to store gasoline, the facility, at its discretion, may include the tank in the emissions averaging plan of a facility-wide tank VOC control plan.

Proposed (p)1 requires the facility-wide tank VOC control plan to be submitted to the Department at the address at proposed (v), 120 days after the operative date of these new rules for existing tanks, or 120 days after a new tank is installed.

Proposed new (p)2 specifies the information that must be included in a facility-wide tank VOC control plan. Proposed (p)2i requires the tank VOC control plan to include for each tank, tank type, volume, diameter, contents, the permit activity number, any other identifying numbers, and the Bureau of Release Prevention tank inspection schedule (proposed (p)2i(1) through(7)). Proposed (p)2 requires submission of one of two types of control plans: a plan to implement emission control measures or a plan to perform emissions averaging.

The plan to implement emission control measures, which are listed in proposed (p)2ii(1) through (3), must include tank identifying information for each tank (proposed (p)2i) and the control measures to be implemented (proposed (p)2ii). Proposed (p)2ii requires the tank VOC control plan to include a schedule to implement one or more of the three emission control options by 10 years after the operative date of these amendments. Proposed (p)2ii requires the implementation schedule to be consistent with the facility's schedule for removing a tank from service for inspection and maintenance to enable modifications to be performed during the same time a tank is taken out of service for an inspection. This consistency will also enable the Department to more effectively evaluate the emission control implementation schedule, since the Department will be able to determine whether a facility has implemented a tank's scheduled control measures in the tank's VOC control plan while the Department evaluates the tank's normal inspection and maintenance results.

The Department proposes three control measures at (p)2ii(1) through (3). One of the proposed control measures is to configure their tanks so that the bottom of the floating roofs can be lowered to within one foot of the bottom of the tank shell. As explained in the Summary above, this control measure reduces emissions by reducing the vapor space. Another control measure is to control VOC emissions with an efficiency of at least 90 percent from the time the roof is landed until the roof is within 90 percent by volume of being re-floated. This would control approximately 80 percent of VOC emissions during refilling. This control measure is based on 30 TAC §115.112(d)(2)(H)(iv) and 30 TAC §115.112(d)(3). The third control measure

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is to implement some other measure that the Department approves as at least as effective as the two proposed measures in reducing VOC emissions to the atmosphere.

The second type of facility-wide tank VOC control plan is to implement emissions averaging. The facility-wide tank VOC control plan to implement emissions averaging must include tank identifying information for each tank (proposed (p)2i) and an emissions averaging plan describing how the facility will calculate the average emissions from all its Range III floating roof tanks storing gasoline (proposed (p)2iii). The emissions averaging plan must show how each tank will meet a per tank emissions average of less than five tons per year from 2011 through 2013, four tons per year from 2014 through 2016, three tons per year from 2017 through 2019, and two tons per year thereafter. These averaging provisions are meant to give facilities more flexibility to achieve the required facility average per-tank emission rate. The owners or operators can achieve these averages by modifying some tank operations, controlling emissions from selected tanks, physically modifying selected tanks, or by a combination of these options. The Department intends that facilities that comply with the proposed emission averages will achieve more VOC emission reductions sooner than if they were to comply on a tank by tank basis. The emissions averaging option is limited to Range III floating tanks actually used to store gasoline at some point during a calendar year. Allowing facilities to include in the averaging plan other floating roof tanks, which are generally expected to have lower roof landing emissions than the proposed averages, would unduly offset the emissions from the Range III floating roof tanks storing gasoline. This would result in VOC emission reductions less than implementing the specified emission controls. Accordingly, tanks other than Range III tanks cannot be included in an averaging plan.

The Department proposes new N.J.A.C. 7:27-16.2(q) to regulate tank degassing and cleaning operations. Degassing is the process of removing vapors from a storage tank. The vapors are displaced (either by negative pressure, or by emptying and refilling the tank with lower vapor pressure liquids repeatedly) until the tank is completely emptied of its contents and remaining gas vapors are at or below an acceptable lower explosive limit level. Degassing is a prerequisite for tank entry and preventive maintenance. The proposed requirements are based on the tank cleaning and degassing control requirements at California's SJVUAPCD Rule 4623 (Storage of Organic Liquids). Unlike the SJVUAPCD rule, which requires controls for all VOC emissions from tank degassing and interior tank cleaning operations, proposed (q) requires controls for only degassing and cleaning operations conducted during New Jersey's ozone season, May 1 through September 30. Recordkeeping requirements for degassing and cleaning operations, and for treatment and disposal of tank sludge are required at proposed N.J.A.C. 7:27-16.2(s).

Proposed new N.J.A.C. 7:27-16.2(q)1 sets forth the requirements an owner or operator must follow to degas and clean a stationary storage tank that stores a VOC with a vapor pressure equal to or greater than 0.5 psia at standard conditions. These VOCs are the more volatile VOCs. The proposed new rules would not regulate degassing and cleaning operations outside the ozone season. The proposed new rules require the owner or operator to empty the tank, minimize VOC vapors by exhausting or displacing VOCs to achieve at least 95 percent efficiency, discharge or displace the VOC vapors, temporarily remove a fitting if appropriate, and drain and refill the tank.

Proposed new (q)2 requires certain low-VOC cleaning agents or steam cleaning to clean a tank that stores the more volatile VOCs, those with a vapor pressure equal to or greater than 0.5 psia at standard conditions. Steam cleaning does not require VOC-containing cleaning agents. Proposed (q)2i specifies cleaning agents that have low volatility, in order to minimize VOC emissions from cleaning operations. On a case-by-case basis, one method may be preferable

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over another method; consequently, the Department's proposed rule does not require one method over another.

Proposed new (q)3 regulates emissions of the more volatile VOCs during sludge removal, transportation and storage. VOCs are present in sludge. The proposed new rules are intended to prevent or minimize VOC loss from sludge through evaporation. Proposed (q)3i requires 95 percent emission control during the sludge removal process. Proposed (q)3ii requires transporting the removed sludge in closed, leak-free containers. Proposed (q)3iii requires the removed sludge to be stored in leak-free containers or in tanks that comply with existing N.J.A.C. 7:27-16.2(b).

Proposed N.J.A.C. 7:27-16.2(r) establishes inspection and maintenance requirements for VOC stationary storage tanks to prevent VOC emissions. All of the Department's requirements at proposed 16.2(r) are based on the preventive inspection and maintenance requirements in SCAQMD Rule 1178 and Federal New Source Review Performance Standards Subparts Ka and Kb (40 CFR 60.110a through 60.116b). Proposed (r) requires any inspection to be performed by an "authorized inspector," a term defined at proposed amended N.J.A.C. 7:27-16.1.

Proposed (r)1 requires the inspection results to be recorded on the Inspection Form located in Appendix II.

Proposed (r)2 requires the authorized inspector performing the inspection to have a copy of the permit, to compare the permit to the existing tank and actual operating conditions, and to record any discrepancies in the Inspection Form.

Proposed (r)3 and 4 require an annual inspection for leaks and to annually complete all calculations and records, respectively.

In accordance with proposed (r)5, an external floating roof tank in Range III must be visually inspected annually for obvious deck fitting and seal problems and for permit and rule violations that can be seen with the naked eye, and more rigorously for visible gaps in deck fittings and for gaps in the secondary seal. Inspections are proposed annually to be consistent with the Federal New Source Performance Standards (NSPS) requirements for annual inspections. The primary seal must be inspected for gaps every five years and each time the tank is degassed. The primary seal inspection schedule would also be consistent with the inspection schedule required by NSPS. Proposed (r)5 specifies the methods for performing this inspection. The methods are the same methods as those in SCAQMD's regulation 1178.

Annually, an authorized inspector must visually inspect a domed external floating roof tank's or an internal floating roof tank's deck fittings and visible seal of the rim seal system and must measure for VOC leaks with an explosimeter without requiring the authorized inspector to enter the tank (proposed (r)6i, 6ii, 7 and 8). Each time a domed external floating roof tank or an internal floating roof tank is degassed, but not less than once every 10 years, its deck fittings and rim seal system must undergo a more rigorous inspection using probes for visible gaps or leaks (proposed (r)6iii, 7 and 8). In order for the deck fittings and rim seal system to be inspected safely, the tank must be emptied, which it is prior to degassing. This schedule is consistent with the NSPS schedule.

A fixed roof tank larger than 40,000 gallons that store the more volatile VOC's (vapor pressure greater than 0.5 psia) must be inspected annually to assure it is leak-free (proposed (r)9). The proposed annual inspection would be consistent with SCAQMD's inspection schedule.

Proposed new N.J.A.C. 7:27-16.2(r) refers to the "Inspection Form." This form is contained in proposed Appendix II, which also provides instructions for completing the form. The "Inspection Form" must be used to demonstrate compliance for fixed roof tanks, internal floating roof tanks, external floating roof tanks, and domed tanks. The form provides a checklist

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of items to inspect and tank information to insert, including company information, who conducted the inspection, tank specifications, fitting and seal information, ground level inspection information, and certifications. Appendix II requires an authorized inspector to sign the "Inspection Form." Appendix II also includes a copy of the "Fugitive Emissions Form" used to report measured fugitive emissions, repairs made to the tank, and the date of the repairs.

In the proposed new recordkeeping and reporting requirements at proposed N.J.A.C. 7:27-16.2(s) through (v), the Department proposes to relocate and expand existing N.J.A.C. 7:27-16.2(k), the existing recordkeeping and reporting requirements. The existing N.J.A.C. 7:27-16.2(k) requires that records be maintained of each VOC stored and the vapor pressure of each VOC at standard conditions.

Proposed new N.J.A.C. 7:27-16.2(s) expands the recordkeeping requirements for each VOC stationary storage tank and requires the records to be maintained on-site for five years, in accordance with existing N.J.A.C. 7:27-16.22(a), or another length of time specified in the proposed rule. The proposed N.J.A.C. 7:27-16.2(s)1 lists the requirements that are in the existing N.J.A.C. 7:27-16.2(k). In addition to the requirements at N.J.A.C. 7:27-16.2(s)1, the owner or operator must maintain records regarding the manner of storage of VOCs emitted during roof landings; roof landing emissions; operating parameters of vapor control devices; inspection reports; and degassing, cleaning and sludge removal. Proposed (s)5 requires inspection records to be kept for the lifetime of the tank, which is consistent with the retention period at existing N.J.A.C. 7:1E-2.15(d), which requires the owner or operator of an above ground storage tank at a major facility to maintain records of integrity testing, inspection, and repair for the lifetime of the tank. Proposed (s)7 requires retention of a tank's integrity testing schedules. N.J.A.C. 7:1E-4.2(c)1v requires such schedules to be included in the tank's "Discharge, Prevention, Containment and Countermeasure Plan."

Proposed new N.J.A.C. 7:27-16.2(t) requires the owner or operator of any floating roof stationary storage tank that installs a vapor control device to record certain information based on the type of vapor control device installed. The Department based this proposed requirement on recordkeeping requirements at existing N.J.A.C. 7:27-16.4(o) for loading rack control devices. Proposed (t)1i through iii require operating parameter records for a thermal oxidizer. Proposed (t)2i through iii require operating parameter records for a vapor control system that uses carbon or other adsorptive material. Proposed (t)3 requires operating parameter records the Department requests for any other vapor control system. These records, required to be maintained by proposed (s)4, would help owners and operators to monitor compliance and the Department to verify compliance.

Proposed (u) requires an owner or operator to submit a report to the Department if he or she determines during an inspection, or at any other time, that the tank does not comply with any decking and seal requirement (proposed N.J.A.C. 7:27-16.2(l)). If the facility has an approved operating permit under N.J.A.C. 7:27-22, the owner or operator shall submit this report as part of the periodic compliance report. For any facility that does not have an operating permit, the owner or operator of any tank with a preconstruction permit or any tank not required to have a preconstruction permit pursuant to N.J.A.C. 7:27-8.2, must submit the report within three business days after becoming aware of the non-compliance.

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Proposed (v) requires an owner or operator who requests an alternate method for calculating average annual roof landing VOC emissions for an emissions averaging plan, to submit a complete application describing and justifying the alternate method to the Assistant Director of the Department's Air Quality Permitting Element. Proposed (v)1 identifies the application's contents.

### **N.J.A.C. 7:27-16.3 Gasoline transfer operations**

At N.J.A.C. 7:27-16.3(i)1ii and iii, the Department proposes to correct the mailing address of the Bureau of Technical Services.

### **N.J.A.C. 7:27-16.7 Surface coating and graphic arts operations**

At N.J.A.C. 7:27-16.7(e) the Department proposes to exempt certain heatset web lithographic printing operations and heatset letterpress printing operations from the control requirements at proposed N.J.A.C. 7:27-16.7(r)1, to be consistent with the "Control Techniques Guidelines for Offset Lithographic Printing and Letterpress Printing." (EPA 453/R-06-002).

At N.J.A.C. 7:27-16.7(f) the Department proposes to amend Table 7B to cause the existing maximum allowable VOC content for "coating of flat wood paneling" and its three subcategories to be operative through April 30, 2009. On the operative date of these amendments, this category type would be replaced with a new category type "printed interior panels made of hardwood, plywood, or thin particleboard," consisting of the three existing categories plus two new subcategories, "exterior siding" and "tileboards." Effective the operative date of these amendments, the Department proposes a more stringent maximum allowable VOC content per volume of coating (minus water) of 2.1 pounds per gallon or 0.25 kilogram per liter for these five subcategories.

At N.J.A.C. 7:27-16.7(f) the Department proposes to amend Table 7D Part B. Graphic arts operations includes rotogravure, sheet-fed gravure, flexographic, fabric, and screen printing operations. Existing Part B applies to graphic arts operations, except screen printing operations. The Department proposes to separate the control criteria for fabric printing operations from the control criteria for rotogravure, sheet-fed gravure, and flexographic printing operations because the fabric printing standards are no longer similar to the standards of the other three printing methods. The Department proposes to relocate the existing fabric printing content requirements at Part B to new proposed Part D. The Department proposes that Part B apply to rotogravure, sheet-fed gravure or flexographic printing operations. Existing Part B rates would apply to control criteria of a source operation constructed prior to the operative date of these amendments, while new more stringent rates would apply to control criteria of a source operation constructed or modified on or after the operative date of these amendments. The proposed more stringent control criteria is a maximum allowable VOC content of surface coating formulation (minus water) of 0.8 pound VOC per pound of solid applied or 0.16 pound VOC per pound of materials applied. The Department proposes to amend the heading of Part B and to repeat a heading within the table to reflect the proposed amendments.

The Department proposes to delete from Part B the fountain solution content limits. The Department is proposing more stringent fountain solution content requirements at 16.7(s) operative on the operative date of these amendments, as discussed below.

Existing N.J.A.C. 7:27-16.7(h) provides alternatives for rotogravure, sheet-fed gravure, flexographic, fabric and screen printing operations to comply with the standards in existing Table 7D. Existing (h) allows these five printing operations to alternatively comply with (p), which allows a printing operation to use a control apparatus that has not been altered or replaced since the printing operation was permitted, if the permit was issued prior to July 26, 1994. The

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Department proposes to continue to allow this compliance alternative for fabric printing operations, but not for the other four printing operations. The Department proposes to remove this compliance alternative from existing (h) and (h)1i and add it to proposed amended (h)4, which applies only to fabric printing operations.

Existing N.J.A.C. 7:27-16.7(h)1 allows alternative compliance for the owner or operator of a rotogravure or sheet-fed gravure printing operation that has its emissions controlled by either a thermal oxidizer or carbon adsorption system. In such operations, the owner or operator can meet certain capture and control requirements. The Department proposes that (h)1 apply only to rotogravure or sheet-fed gravure printing operations installed prior to May 1, 2010. The requirements at proposed (h)1 would apply whether or not the operation was modified prior to May 1, 2010. As explained below, if the operation is modified on or after May 1, 2010 the operation must meet proposed (h)3.

Existing N.J.A.C. 7:27-16.7(h)2 allows alternative compliance for the owner or operator of a flexographic printing operation that has its emissions controlled by either a thermal oxidizer or carbon adsorption system, by meeting certain capture and control requirements. As in proposed (h)1, the Department proposes that (h)2 apply only to operations installed prior to May 1, 2010. The requirements at proposed (h)2 would apply whether or not the operation was modified prior to May 1, 2010. As explained below, if the operation is modified on or after May 1, 2010 the operation must meet proposed (h)3.

The Department proposes new N.J.A.C. 7:27-16.7(h)3 to allow the owner or operator of any rotogravure, sheet-fed, or flexographic operation installed or modified on or after May 1, 2010, as an alternative to complying with the control criteria requirements set forth at proposed Table 7D, to install or use control apparatus with more stringent capture and control requirements. Proposed (h)3 would require these sources to have a minimum capture efficiency of 85 percent and either a minimum control efficiency of 95 percent, if a thermal oxidizer is used (proposed 3i), or a minimum control efficiency of 90 percent, if a carbon adsorber is used (proposed 3ii). Equipment installed prior to May 1, 2010 would be subject to proposed N.J.A.C. 7:27-16.7(h)1 or 2, whether or not the equipment was modified before May 1, 2010. For equipment modified after May 1, 2010, the less stringent limits at proposed amended (h)1 and 2 would no longer apply; instead the more stringent limits at proposed (h)3 would apply.

Proposed N.J.A.C. 7:27-16.7(h)4 and 5 are relocated from existing N.J.A.C. 7:27-16.7(h)3 and 4, with amendments to conform the rule to the remainder of amended subsection (h). Existing (h)3i incorrectly references 16.7(r), a subsection that does not exist. In proposed amended (h)4i, the Department proposes to correct this cross reference.

Existing N.J.A.C. 7:27-16.7(p) applies to rotogravure, sheet-fed gravure, flexographic and fabric printing operations. Since the Department is proposing specific compliance alternatives for rotogravure, sheet-fed gravure, and flexographic printing operations at (h)1 through 3, the compliance alternative at existing (p) would apply only to fabric printing operations.

For heatset web offset lithographic printing operations and heatset letterpress printing operations, the Department proposes at N.J.A.C. 7:27-16.7(r)1 that on and after May 1, 2010 these operations must achieve greater than 95 percent control for VOC emissions from the dryer or, in the alternative, less than 20 parts per million by volume as equivalent hexane (on a dry basis) from the dryer. Proposed N.J.A.C. 7:27-16.7(r)1 is equivalent to the CTG guideline for new thermal oxidizers. The Department proposes at (r)2 through 4 that on and after the operative date of these amendments, these printing operations must comply with the CTG document's recommended VOC content standards for materials used to clean the printing presses. Since it will take more time for a printing operation to install additional controls or

modify a printing operation in order to comply with (r)1, the Department proposes to give the printing operation a longer time to comply.

Proposed N.J.A.C. 7:27-16.7(s) includes the CTG document's recommendations for fountain solutions. Fountain solutions are solutions used in lithographic printing operations that renders the non-image areas unreceptive to ink.

The Department is proposing new N.J.A.C. 7:27-16.7(t) to require best management practices to be complied with on and after the operative date of these amendments for any new or existing surface coating operation or graphic arts operation addressed in the CTG documents. The Department proposes these best management practices because the CTG documents recommended them.

#### **N.J.A.C. 7:27-16.11 Asphalt pavement production plants**

The Department proposes to amend the title of this subsection to "Asphalt pavement production plants," which is the Department's proposed term for the regulated facilities. The same amendment is proposed throughout the subchapter.

#### **N.J.A.C. 7:27-16.17 Alternative VOC control requirements**

The Department proposes to amend the heading of this section, because the section refers to alternative VOC control requirements, not to facility-specific VOC control requirements.

Proposed new N.J.A.C. 7:27-16.17(a)3 would extend the application of the section to any source operation that was issued an alternative VOC control plan before the operative date of these amendments. The Department intends that all existing approved alternative VOC control plans be re-evaluated. Accordingly, as discussed below, the Department proposes to amend the section to require each facility with an approved alternative VOC control plan to apply for a new alternative VOC control plan within 60 days after the operative date of the proposed rules. The Department proposes grammatical changes to (a)2 to improve clarity.

The Department proposes that N.J.A.C. 7:27-16.17(c) shall apply to all owners or operators seeking approval of an alternative VOC control plan, not to only those owners or operators of unregulated or exempt sources, as is the applicability of the existing rule. These new rules and amendments are being proposed because all existing alternative VOC control plans were approved to meet the one-hour ozone standard, but not the new stricter 8-hour ozone standard. The majority of these plans were approved in 1997 or 1998 and may not reflect current control technology, which would be classified as RACT for the given source operation.

Proposed amended N.J.A.C. 7:27-16.17(c) would terminate all existing alternative VOC control plans, and establish a process for applying or re-applying for a plan. Existing N.J.A.C. 7:27-16.17(c) would become part of the process. Existing 16.17(c) contains a compliance date of May 31, 1995 for some sources. Because this date has passed, the Department proposes to delete the date from the rule. Regulated facilities would continue to be bound by the compliance dates in the other sections of the subchapter. The Department proposes to recodify the remainder of existing (c) as (c)1 with grammatical changes to improve clarity.

Proposed new (c)2 requires any new plan the Department approves after the operative date of these amendments to have a term of 10 years. Within ten years the Department expects technology to have progressed such that it would be appropriate to re-evaluate the alternative VOC control plans to determine if more stringent controls are warranted.

Proposed new (c)3 requires each owner or operator with an existing alternative VOC control plan that the Department approved before before the operative date of these amendments to submit a new plan for the Department's approval. Proposed new (c)3 allows the owner or operator to request a 60-day extension for submitting the new plan if the owner or operator can't

submit the plan within 90 days of the rules' operative date. If the proposed plan is submitted within 90 days after the rules' operative date or by the date specified in an approved extension, the existing plan will terminate on the date specified in the implementation schedule of the alternative VOC control plan the Department approves as proposed at (c)3i. This will allow the existing plan to remain in effect until the owner or operator has an appropriate amount of time, as approved by the Department, to implement the proposed plan. If the proposed plan is not submitted within 90 days after the rule operative date, the existing plan will terminate 90 days after the operative date of the proposed amendments, as proposed at (c)3ii.

At proposed new (c)4, if an owner or operator modifies or reconstructs the equipment or control apparatus during the plan's 10-year term, the existing plan terminates upon the start date of that activity. If the owner or operator intends to continue operating under an alternative VOC control plan, proposed (c)4 requires the owner or operator to apply for a new plan, which will have a new 10-year term.

Proposed new (c)5 requires an owner or operator who has an alternative VOC emission plan issued after the operative date of these amendments to re-apply one year prior to the plan's expiration date. One year is the approximate time period for the Department to process an application for an alternative VOC control plan.

Proposed amended (d)2x requires an owner or operator to submit as part of a proposed alternative VOC control plan an implementation schedule for the plan's proposed control technologies or process alternatives. This will enable the Department to determine whether the owner or operator plans to implement the proposed control measures in a timely manner.

Existing N.J.A.C. 7:27-16.17(h) allows the Department to deny a request for approval of any of three submissions listed at 16.17(g) if an owner or operator fails to provide information to the Department. Although these three types of submissions are submitted to the Department to consider for approval, the submissions are not referred to in (g) as requests for approval. Since the reference to a request in (h) is confusing and not necessary, the Department proposes to remove the reference to a request.

Existing N.J.A.C. 7:27-16.17(j) established the Department's options it can take after receiving a complete proposed alternative VOC control plan. However, existing (j) and (j)1 refer to a request in addition to a proposed plan. Subsection 17 requires an applicant to submit a proposed alternative VOC control plan, not a request. Although the term "request" was adopted on December 20, 1993 (25 N.J.R. 6002), the August 2, 1993 proposal Summary (25 N.J.R. 3346) discussed only a plan, not a request. Since the term "request" is not needed, the Department proposes to delete the reference to a request from (j) and (j)1.

The Department proposes at N.J.A.C. 7:27-16.17(q) to allow the Department to authorize a 60-day extension of a deadline set forth at new 16.17(c)3, to clarify that such an extension may not be renewed, to delete outdated provisions, to delete an unnecessary word, and to update the address to which an owner or operator must submit a request for a deadline extension.

### **N.J.A.C. 7:27-16.19 Application of cutback and emulsified asphalts**

Existing N.J.A.C. 7:27-16.19(a) allows a person to use cutback or emulsified asphalt from April 16 through October 14, if at least one of four conditions at (a)2 through 5 is met. The Department proposes to no longer allow the use of cutback or emulsified asphalt under any of these four conditions during this time period. Proposed new N.J.A.C. 7:27-16.19(a) bans the use or application of cutback asphalt or emulsified asphalt from April 16 through October 14, unless the asphalt contains no greater than 0.1 percent VOC by weight (proposed (a)1) or the asphalt produces no greater than 6.0 milliliter of oil distillate (proposed (a)2). The 0.1 percent VOC by weight limit was developed from the Department's goal to achieve as close to zero VOC

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emissions from cutback and emulsified asphalt as possible. The higher the VOC content in the asphalt, the higher the VOC emissions from the asphalt. It is technically impossible to achieve zero VOC emissions from these two asphalts because they will always contain trace amounts of VOCs. Therefore, the Department determined that a 0.1 percent detection limit of VOC content is sufficiently close to achieving zero VOC emissions. The other limit, 6.0 milliliter of oil distillate, is close to the detection limit of the American Society for Testing and Materials (ASTM) Method D244.

Proposed (a)2 prescribes either ASTM Method D244 or American Association of State Highway & Transportation Officials (AASHTO) T 59 to determine the amount of oil distillate in asphalt. Both methods determine the amount of oil distillate by examining the asphalt emulsions, which are composed principally of a semi-solid or liquid asphalt base, water and an emulsifying agent. Both methods use analytical procedures that include phase separation by sieve tests and distillation.

The Department also proposes new N.J.A.C. 7:27-16.19(b) to reduce VOC emissions during the regulated period, April 16 through October 14, by requiring persons to store non-compliant cutback and emulsified asphalts in sealed containers. The Department's intent is to allow a person to store asphalt that would be non-compliant if used during the regulated period, and use it after October 14, the end of the regulated period.

#### **N.J.A.C. 7:27-16.22 Emission information, record keeping and testing**

The Department proposes to delete the recordkeeping requirements at existing 16.2(k) and to add expanded recordkeeping requirements at 16.2(s). Therefore, at 16.22(b) and 16.22(i), the Department proposes to change the reference 16.2(k) to 16.2(s). The Department proposes to delete existing 16.2(h) because the requirements are outdated. The subsection is proposed to be reserved.

#### **N.J.A.C. 7:27-16.27 Exceptions**

The Department is proposing to delete exceptions at N.J.A.C. 7:27-16.27(b)1, 2, 4 and 5, since these exceptions have expired. N.J.A.C. 7:27-16.27(b)3 and 6 are proposed to be renumbered (b)1 and 2, respectively.

#### **Appendix II - Inspections**

Proposed Appendix II to N.J.A.C. 7:27-16 contains the inspection procedures and forms referenced at proposed N.J.A.C. 7:27-16.2(r). The Department based proposed Appendix II on California's SCAQMD Rule 1178, Attachment A, with minor changes to conform to the style, terminology, and format of N.J.A.C. 7:27-16.

The headings "Equipment Needed" and "Inspection Procedures" refer to the equipment needed and the procedures to perform the seal and fitting inspections required at proposed N.J.A.C. 7:27-16.2(r)2 through 4.

The proposed "Inspection Report" form would be used to record inspection results. "Program Interest No." is the Department-assigned Program Interest number for an operating permit. This number is called the Facility Identification number for a Preconstruction Permit and Operating Certificate. "Permit Activity No." is the permit activity number stated on the approved permit. "Tank ID No. E" is the equipment identification number stated on the approved permit. "Inspection date" and "time" are the date and time of day of the inspection.

Section A, "Company Information," is to record the required company identification information. Section B, "Inspection Conducted By," is to record information about the company and person conducting the inspection. Section C, "Tank Information," is to record tank

information, such as size, roof type, contents, and vapor pressure. Section D, “Ground Level Inspection,” is to record ground level information, such as temperature and product level, leaks and deviations from permit conditions. Section E, “Internal Floating Roof or Domed Tank,” is to record explosimeter readings under the fixed roof of a domed or internal floating roof tank to determine compliance with proposed N.J.A.C. 7:27-16.2(l)5iii, (l)7v and vi, to require that a visual inspection be performed (as required by proposed N.J.A.C. 7:27-16.2(r)3), and to record whether all roof openings are covered. Section F, “External Floating Roof Tank (or Domed Tank and Internal Floating Roof Tank when needed),” is to record applicable seal and deck fitting information required at proposed N.J.A.C. 7:27-16.2(l)1, 3 and 4. Section G, “Calculation,” is to record seal gaps that deviate from proposed N.J.A.C. 7:27-16.2(l)3 and 4. Section H “Determine Compliance Status of Tank” is to record a tank’s compliance status with permit and regulatory requirements. Section I provides space to explain the reason for any termination of a tank inspection before completion. Section J, “Comments,” is a general comment section. Section K, “Certifications,” is for authorized inspectors and company representatives to certify the truth, accuracy and completeness of the inspection report using certification language required by N.J.A.C. 7:27-1.39. Since N.J.A.C. 7:27-16.2(r)1 requires any inspection to be performed by an authorized inspector, the authorized inspector must sign the “Inspection completed by” line. The authorized inspector must be API certified, and must write his or her API Certification number on the “Inspection completed by” line. An API certification number is the API 653 authorized inspector certificate number for the prospective “authorized inspector.” A “responsible official,” as that term is defined at N.J.A.C. 7:27-1.4, must sign the “Responsible Official” line. The responsible official need not possess an API certification number. The authorized inspector, the responsible official, or a person designated by the responsible official, must sign the “Compliance status determined by” line. Anyone who signs the “Compliance status determined by” line, other than the authorized inspector, need not possess an API certification number.

Proposed Appendix II, “Inspections,” also contains a Fugitive Emissions Report form, on which N.J.A.C. 7:27-16.2(r) requires any fugitive emissions to be recorded.

#### **N.J.A.C. 7:27-19.1 Definitions**

The proposed definition of “asphalt pavement production plant” is intended to make it clear that proposed amended N.J.A.C. 7:27-19.2, 19.9 and 19.13, where the term is used, applies only to those asphalt plants that produce asphalt pavement, but not to asphalt plants at refineries.

The Department proposes to define “blown glass,” “fiberglass,” “flat glass,” and “pressed glass.” The definitions of “blown glass,” “flat glass,” and “pressed glass” are the same as are used by Pennsylvania in its Air Resources rules at 25 Pa. Code § 121.1. The Department proposes to regulate glass melting furnaces that produce fiberglass. The proposed definition of “fiberglass” is the same as proposed by Pennsylvania in its July 11, 2007 “Draft Proposed Rulemaking on Glass Manufacturing Furnaces.” The OTC gave the Commonwealth of Pennsylvania the lead responsibility in developing emission reduction strategies for glass manufacturing furnaces. The Department intends to be consistent with the Commonwealth of Pennsylvania’s definitions of these three terms. The Department proposes to define “glass removed,” which is undefined in the existing rules. The proposed definition is identical to the definition of “pull rate” in SJVUAPCD Rule 4354 on glass melting furnaces. The Department defines “glass removed” as the amount of glass coming out of a glass melting furnace, rather than the amount of glass coming out of a glass manufacturing plant or facility. Glass actually coming out of the manufacturing plant as final product would be less than glass removed from the melting furnace, and this is because of the remelting of off-specification product. As a result,

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the Department's proposed "glass removed" definition will provide a more accurate performance measure of the furnace with respect to NO<sub>x</sub> emissions as opposed to using the amount of glass leaving the facility.

The Department proposes to place in alphabetical order the existing definitions of "CFR" and "Clean Air Act."

The Department proposes to add definitions of "class I renewable energy" and "class II renewable energy" because these terms are used in the Department's proposed definition of renewable energy. The Department proposes to define these terms consistent with the Electric Discount and Energy Competition Act, N.J.S.A. 48:3-49 et seq., because this Act pertains to equipment that is similar to the equipment N.J.A.C. 7:27-19 regulates.

The Department proposes to add a definition of "clean distributed generation" because the Department proposes to allow HEDD unit owners or operators to shed load from HEDD units to clean distributed generation units on high electric demand days, in order to achieve the NO<sub>x</sub> emission reductions required by proposed N.J.A.C. 7:27-19.29. The Department proposes to define this term to be consistent with the emission limits at existing N.J.A.C. 7:27-8.2(f)1ii.

The Department proposes to add a definition of "demand response" because the Department proposes to allow HEDD unit owners or operators to implement demand response measures in New Jersey in order to achieve the NO<sub>x</sub> emission reductions required by proposed N.J.A.C. 7:27-19.29, 2009 HEDD emission reduction plan. The Department proposes to define this term consistent with a Mid-Atlantic Distributed Resources Initiative (MADRI) definition. MADRI was established in 2004 by the public utility commissions of Delaware, the District of Columbia, Maryland, New Jersey and Pennsylvania, and the U.S. Department of Energy, EPA, the Federal Energy Regulatory Commission, and PJM Interconnection, to identify and remedy retail barriers to the deployment of distributed generation, demand response and energy efficiency in the Mid-Atlantic region.

The Department proposes to add a definition of "dual fuel" because the Department is proposing emission standards for an industrial/commercial/institutional (ICI) boiler that is capable of combusting more than one type of fuel. "Dual fuel" identifies this type of ICI boiler.

To the existing definition of "electric generating unit" the Department proposes to add the acronym "EGU." This acronym is used throughout the proposed new rules and amendments.

The Department proposes to add a definition of "energy efficiency measure" because the Department proposes to allow HEDD unit owners or operators to implement energy efficiency measures in New Jersey in order to achieve the NO<sub>x</sub> emission reductions required by proposed N.J.A.C. 7:27-19.29 "2009 HEDD Emission Reduction Compliance Demonstration Protocol."

The Department proposes to add a definition of "heavier than No. 2 fuel oil" because proposed N.J.A.C. 7:27-19.4(a) would require boilers that combust this grade of fuel oil to comply with a specific emission limit. The Department proposes to define this term consistent with Table 1 at existing N.J.A.C. 7:27-9.2(b) and Table 2 at existing N.J.A.C. 7:27-9.2(c). This would include, but not be limited to, No. 4 and No. 6 fuel oil.

The Department proposes to add a definition of "high electric demand day" or "HEDD" because several proposed amendments to N.J.A.C. 7:27-19.3, 19.4 and 19.5 and proposed new N.J.A.C. 7:27-19.29 and 19.30 reference HEDD. Similarly, the Department proposes to add a definition of "'high electric demand day unit' or 'HEDD unit'" because several amendments to N.J.A.C. 7:27-19.3 through 19.5 and proposed new N.J.A.C. 7:27-19.29 and 19.30 reference HEDD units. The Department's proposed definitions are based on research and analysis conducted during a regional stakeholder process. The Definitions that the Department proposes are consistent with the terms used in the regulated community.

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The Department proposes to modify the existing definition of “interim period” to reflect the revised compliance date in N.J.A.C. 7:27-19.22 and that the owner or operator, and not the combustion source, attains compliance.

The Department proposes to add a definition of “MWh” to define this term as megawatt-hour.

The Department proposes to add a definition of “pounds/MWh” to clarify that the megawatt-hours used in the emission factor in several of the amended and new tables in proposed 19.4 and 19.5 refers to total net energy output and not only to electric energy output.

The Department proposes to add a definition of “No. 2 and lighter fuel oil” because proposed N.J.A.C. 7:27-19.4(a) would require boilers that combust this grade of fuel oil to comply with a specific emission limit. The Department proposes to define this term consistent with Table 1 at existing 7:27-9.2(b) and Table 2 at existing 7:27-9.2(c). This does not apply to motor vehicle fuel. The Department proposes to add a definition of “non-high electric demand day unit” or “non-HEDD unit” because proposed N.J.A.C. 7:27-19.5 and 9.29 reference non-high electric demand day units. As stated above, the Department’s proposed definition is based on research and analysis conducted during a regional stakeholder process.

The Department proposes to define “on-specification used oil” since the Department is proposing an emission standard that applies to burning these types of fuel. The proposed definition is consistent with existing N.J.A.C. 7:27-20.1.

The Department proposes to add a definition of “renewable energy” because the Department proposes to allow HEDD unit owners or operators to implement renewable energy measures in New Jersey in order to achieve the NO<sub>x</sub> emission reductions required by proposed N.J.A.C. 7:27-19.29 “2009 HEDD Emission Reduction Compliance Demonstration Protocol.” The Department proposes to define “renewable energy” as either “class I renewable energy” or “class II renewable energy.”

The Department proposes to add a definition of “shed load” because the Department proposes to allow HEDD unit owners or operators to shed load to clean distributed generation units in order to achieve the NO<sub>x</sub> emission reductions required by proposed N.J.A.C. 7:27-19.29.

The Department proposes to add a definition of “shift load” because the Department proposes to allow HEDD unit owners or operators to shift load in order to achieve the NO<sub>x</sub> emission reductions required by proposed N.J.A.C. 7:27-19.29.

The Department proposes to add a definition of “SSU viscosity” because this term is used to define “No. 2 and lighter fuel oil” and “heavier than No. 2 fuel oil.” The Department’s proposed definition is identical to the definition at N.J.A.C. 7:27-9.1.

The Department proposes to define “used oil” since the Department is proposing an emission standard that applies to burning these types of fuel. The proposed definition is consistent with existing N.J.A.C. 7:27-20.1.

The Department proposes to add a definition of “viscosity” because this term is used in the proposed definition of “SSU viscosity.” The Department’s proposed definition is identical to the definition at existing N.J.A.C. 7:27-9.1.

### **N.J.A.C. 7:27- 19.2 Purpose, scope and applicability**

The Department proposes to amend N.J.A.C. 7:27-19.2(b)5 to use the proposed new term “asphalt pavement production plant.”

The Department proposes to relocate existing (b)9 to (b)12, and amend cross references.

The Department proposes at new N.J.A.C. 7:27-19.2(b)9 to regulate glass manufacturing furnaces that manufacture blown glass, flat glass or pressed glass with the potential to emit at least 10 tons NO<sub>x</sub> per year. As discussed above, the existing rule established NO<sub>x</sub> maximum

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allowable emission rates for glass manufacturing furnaces producing commercial container glass, specialty container glass and borosilicate recipe glass.

The Department proposes at new N.J.A.C. 7:27-19.2(b)10 and 11 to regulate municipal solid waste incinerators and sewage sludge incinerators, respectively. As discussed above, the proposed new rules establish NO<sub>x</sub> emission standards for these two source categories.

### **N.J.A.C. 7:27- 19.3 General provisions**

Existing N.J.A.C. 7:27-19.3(e) established requirements for extending deadlines set forth in other provisions of Subchapter 19, and for renewing these extensions. Proposed amended (e) allows the Department to authorize one non-renewable 60-day extension of a deadline set forth at new 19.13(b)5 (the proposed deadline for submitting a request for an alternative maximum allowable emissions rate or a facility-specific NO<sub>x</sub> control plan), to delete outdated provisions, and to update the address to which an owner or operator must submit a request for a deadline extension.

Existing N.J.A.C. 7:27-19.3(f) allows the equipment and sources identified in N.J.A.C. 7:27-19.2(b) to comply with the alternatives at (f)1 through 4, rather than with the emissions limits elsewhere in Subchapter 19. Under proposed amended N.J.A.C. 7:27-19.3(f), on and after the operative date of these proposed new rules and amendments, instead of complying with the emission rates at proposed 19.28, a sewage sludge incinerator may alternatively comply with 19.3(f). Under proposed amended N.J.A.C. 7:27-19.3(f), on and after May 1, 2015, HEDD units will be unable to use the alternatives in (f) to comply with the emission limits at proposed amended N.J.A.C. 7:27-19.4 and 19.5.

Existing N.J.A.C. 7:27-19.3(g) established requirements for former discrete emission reduction (DER) credit holders, including modified deadlines to meet at (g)1 through 13. Existing (g)3 allowed former DER credit holders to submit a proposed NO<sub>x</sub> control plan in accordance with existing N.J.A.C. 7:27-19.13(b) by July 25, 2004. The Department proposes to delete this requirement, since it is outdated and because the proposed amendments to N.J.A.C. 7:27-19.13 establish separate deadlines for submitting a proposed NO<sub>x</sub> control plan and a request for an alternative maximum allowable NO<sub>x</sub> emission rate.

### **N.J.A.C. 7:27-19.4 Boilers serving electric generating units**

The proposed amendments to N.J.A.C. 7:27-19.4 limit the operative period of the portion of N.J.A.C. 7:27-19.4(a) that requires the owner or operator of any boiler serving an electric generating unit to cause it to emit NO<sub>x</sub> at a rate no greater than the applicable maximum allowable NO<sub>x</sub> emission rate specified in Table 1. The amendments would also establish the allowable NO<sub>x</sub> emission rates that will apply after the expiration of the existing rates set by the table at N.J.A.C. 7:27-19.4(a). The three tables will apply to boilers serving electric generating units during different time periods: Table 1 through December 14, 2012; Table 2, from December 15, 2012 through April 30, 2015; and Table 3 on and after May 1, 2015. As previously discussed, proposed amended N.J.A.C. 7:27-19.3(f) prohibits HEDD units from using N.J.A.C. 7:27-19.3(f) as an alternative to complying with the emission rates in Table 3, on and after May 1, 2015. The owner or operator would be required to comply with the existing rates at proposed amended Table 1 or the proposed new rates in Tables 2 and 3, unless otherwise specified in an enforceable agreement with the Department. Similarly to other amendments proposed above, the Department's intention is to assure that these proposed maximum allowable NO<sub>x</sub> emission rates do not supercede the emission rates required by the ACO and ACD, two enforceable agreements discussed above, or any other enforceable agreement.

Also, proposed 19.4(a) will make it clear that a boiler serving an electric generating unit is also subject to the state-of-the-art (SOTA) requirements at N.J.A.C. 7:27-8.12 and 22.35, lowest achievable emission rate (LAER) requirements at N.J.A.C. 7:27-18, and best available control technology (BACT) requirements at 40 CFR 52.21, as applicable. SOTA, LAER or BACT requirements may result in a more stringent maximum allowable emission rate than the rates in proposed (a).

The category “oil and/or gas” in Table 1 and proposed Table 2 refers to a boiler with a burner that is capable of burning only oil, or a boiler with a burner that is capable of burning oil and gas simultaneously or individually. The latter burner is called a dual fuel burner. At Table 2, the proposed maximum allowable emission rates for an EGU boiler that burns oil and/or gas, and the emission rates for a boiler that burns only gas, are obtained by converting the Table 1 pounds per million British thermal units (pounds/MMBtu), input-based emission rates, into pounds per megawatt-hour (pounds/MWh), output-based emission rates. For the purposes of this conversion, the Department uses a generic heat rate of 10,000 British thermal units per kilowatt hour (Btu/KWh). Therefore the proposed Table 2 emission rates for categories “oil and/or gas” and “gas only” are equivalent to the existing emission rates in Table 1.

However, the proposed Table 2 coal-fired boiler maximum allowable emission rate of 1.50 pounds/MWh, an output-based emission rate, is more stringent than the existing emission rates in Table 1, input-based emission rates. The proposed Table 2 output-based emission rate is based on an input-based emission rate of 0.150 pounds/MMBtu and heat rate of 10,000 (Btu/KWh). The input-based emission rate of 0.150 pounds/MMBtu is consistent with the maximum allowable 24 hour NO<sub>x</sub> emission rate that is required by the previously mentioned ACD and ACO. The significance of this ACO and ACD are explained above in the section of the Background statement addressing coal-fired boilers. The Department is proposing output-based maximum allowable emission rates to encourage energy efficiency improvements. The Department has proposed output-based emission rates instead of input-based emission rates, because output-based rates consider the energy efficiency of the boiler in determining boiler emissions. The more energy efficient a piece of equipment is, the lower the output-based emission level. This energy efficiency would be accomplished by minimizing thermal losses (e.g., insulation, ductwork improvement) and maintaining equipment tuned-up and operating properly. Proposed Table 2 differs from Table 1 because Table 2 eliminates separate emission rates for two coal-fired boiler types (wet-bottom and dry-bottom).

Tables 1 and 2 also differ in that Table 1 category is “fuel/boiler type” while the proposed Table 2 category is “boiler type.”

Proposed Table 3 provides emission rates for combustion of coal, heavier than No. 2 fuel oil, No. 2 and lighter fuel oil, and gas. Each of these fuels typically produces a different amount of NO<sub>x</sub> emissions, and proposed maximum allowable emission rates have been selected based on what emission rate is reasonably achievable for each fuel. Proposed Table 3 eliminates separate emission rates for three fuel-firing methods (tangential, face or cyclone) for sources combusting these fuels because existing NO<sub>x</sub> control technology is capable of providing a high emission control rate efficiency for all sources, regardless of boiler type and fuel firing method.

Proposed Table 3 emission rates are based on “fuel” and not “boiler type.” For example, for a boiler with a dual fuel burner that is capable of burning No. 4 fuel oil and natural gas, when it burns only No. 4 fuel oil the boiler must meet the “heavier than No. 2 fuel oil” rate of 2.00 pounds/MWh. When it burns only natural gas, the boiler must meet the “gas only” rate of 1.00 pound/MWh. When it simultaneously burns No. 4 fuel oil and natural gas, the boiler must meet the more stringent “gas only” rate of 1.00 pound/MWh.

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Proposed Table 3 contains an emission rate of 2.00 pounds/MWh for combustion of fuel oils heavier than No. 2 fuel oil and an emission rate of 1.00 pound/MWh for combustion of No. 2 and lighter fuel oils or gas. These output-based emission rates are based on an input-based emission rate of 0.200 pounds/MMBtu for combustion of fuel oils heavier than No. 2 fuel oil, an input-based emission rate of 0.100 pounds/MMBtu for combustion of No. 2 and lighter fuel oils or gas, and a heat rate of 10,000 Btu/KW-hr.

Several emission rates in proposed Table 2 differ from more stringent emission rates in proposed Table 3. These are rates for boilers that burn only gas, any fuel oil with a face or cyclone firing method, and dual fuel burners that burn fuel oil with a face or cyclone firing method. The Table 2 emission rates can be met more easily and at a lower cost by making modifications, such as increasing energy efficiency. However, meeting the Table 3 emission rates may require the installation of a new control device at facilities that do not already have such controls. Such an installation would be more costly and more complicated than have to implement the simpler control strategies. Also for these reasons, the December 15, 2012 compliance date for meeting the proposed Table 2 rates is sooner than the May 1, 2015 compliance date for meeting the proposed Table 3 rates.

Proposed N.J.A.C. 7:27-19.4(d)1 requires the owner or operator of a coal-fired boiler serving an electric generating unit to demonstrate compliance with the 1.50 pounds/MWh emission rate in Table 2 by June 15, 2013 (180 days after the Table 2 rate is operative) or, if the boiler is altered, 180 days after commencing operations, whichever is earlier, and thereafter according to the schedule in the approved permit. This demonstration would suffice for the Table 3 rate, since the Table 2 and Table 3 emission rates for coal-fired boilers are identical.

Proposed N.J.A.C. 7:27-19.4(d)2 requires the owner or operator of a boiler serving an electric generating unit that combusts any fuel other than coal to demonstrate compliance with the emission rates in Table 3 by November 1, 2015 (180 days after the Table 3 rate is operative) or, if the boiler is altered, 180 days after commencing operations, whichever is earlier, and thereafter according to the schedule in the approved permit.

The compliance date is the date by which a source must begin to meet a specified emission rate. The compliance demonstration date is the date by which a source must demonstrate to the Department that it is complying with a specified emission rate. Usually the Department allows a source to demonstrate compliance 180 days after the compliance date to allow the source time to, for example, schedule and complete a stack test and prepare the stack test report. Giving a source 180 days to demonstrate compliance is consistent with the Department's existing compliance demonstration rules at N.J.A.C. 7:27-19.15. It is also consistent with the stack test requirement in most Preconstruction Permits and Operating Permits.

Proposed N.J.A.C. 7:27-19.4(e) will require each owner or operator identified at N.J.A.C. 7:27-19.29(a), to submit a 2009 HEDD Emission Reduction Compliance Demonstration Protocol and an annual report to the Department, pursuant to N.J.A.C. 7:27-19.29. Under proposed N.J.A.C. 7:27-19.29, discussed below, the HEDD Emission Reduction Compliance Demonstration Protocol is due within 30 days after the operative date of the rule, and annual reports are required for each calendar year from 2009 through 2014.

Proposed N.J.A.C. 7:27-19.4(f) will require the owner or operator of any boiler that is a HEDD unit to submit a 2015 HEDD Emission Limit Achievement Plan and annual progress updates to the Department, pursuant to N.J.A.C. 7:27-19.30. Under proposed N.J.A.C. 7:27-19.30, discussed below, the HEDD Emission Limit Achievement Plan is due by May 1, 2010, and annual progress updates are required for each calendar year from 2010 through 2014.

## **N.J.A.C. 7:27-19.5 Stationary combustion turbines**

The Department proposes additional control requirements for simple cycle combustion turbines, the source category regulated at existing N.J.A.C. 7:27-19.5(a). The Department proposes to renumber existing (a) as N.J.A.C. 7:27-19.5(a)1. Proposed amended (a) requires compliance with proposed (a)1 through 3, as applicable. Like the existing rule, the proposed amended rule allows an owner or operator to comply with N.J.A.C. 7:27-19.3(f), rather than the emission limits of proposed amended Table 4.

Existing (a) requires that all stationary simple cycle combustion turbines with a maximum gross heat input rate of at least 30 MMBtu/hr comply with the emission rates in existing Table 2. As of March 7, 2007, existing Table 2 has applied only to NO<sub>x</sub> Budget sources.

Proposed (a)2 makes Table 4 (existing Table 2) applicable to only NO<sub>x</sub> budget sources through the operative date of the rules. Starting the day after the operative date, all sources will be regulated as either an HEDD unit or non-HEDD unit. The simple cycle combustion turbines that are HEDD units will be required to meet the rates in proposed new N.J.A.C. 7:27-19.5(a)3. The simple cycle combustion turbines that are non-HEDD units will be required to meet the rates in proposed new N.J.A.C. 7:27-19.5(d)2. The proposed amended rule allows an owner or operator to comply with N.J.A.C. 7:27-19.3(f), rather than with the emission limits of proposed amended Table 4.

Proposed new N.J.A.C. 7:27-19.5(a)3 requires that from the day after the operative date of the rules, through April 30, 2015, all simple cycle combustion turbines that are HEDD units must comply with the maximum allowable emission rates in proposed Table 4, or the maximum allowable emission rate in the applicable preconstruction permit or operating permit, whichever is more stringent. The proposed amended rule allows an owner or operator to comply with N.J.A.C. 7:27-19.3(f), rather than with the emission limits of proposed amended Table 4.

Proposed amended Table 4 contains the same emission limits as existing Table 2. As of March 7, 2007, existing Table 2 has applied only to NO<sub>x</sub> budget sources. This limitation is continued, through proposed (a)2. The Department proposes to amend the column heading from "Emission Limit" to "Maximum Allowable NO<sub>x</sub> Emission Rate," in order to be consistent with proposed amended N.J.A.C. 7:27-19.5(a). The proposed amended table also includes, in a note, the dates and sources to which the table applies. These are taken from proposed N.J.A.C. 7:27-19.5(a)1 through 3. On and after May 1, 2015 Table 4 will not apply to any source.

The Department proposes additional control requirements for combined cycle combustion turbines or regenerative cycle combustion turbines, the source categories regulated at existing N.J.A.C. 7:27-19.5(b). The Department proposes to renumber existing (b) as N.J.A.C. 7:27-19.5(b)1. Proposed amended (b) requires compliance with proposed (b)1 through 3, as applicable. Like the existing rule, the proposed amended rule allows an owner or operator to comply with N.J.A.C. 7:27-19.3(f), rather than the emission limits of proposed amended Table 5.

Existing (b) requires that all combined cycle combustion turbines or regenerative cycle combustion turbines with a maximum gross heat input rate of at least 30 MMBtu/hr comply with the emission rates in existing Table 3. As of March 7, 2007, existing Table 3 has applied only to NO<sub>x</sub> Budget sources.

Proposed (b)2 makes Table 5 (existing Table 3) applicable to only NO<sub>x</sub> budget sources through the operative date of the rules. Starting the day after the operative date of the rules, all sources will be regulated as either an HEDD unit or non-HEDD unit. The combined cycle combustion turbines or regenerative cycle combustion turbines that are HEDD units will be required to meet the rates in proposed new N.J.A.C. 7:27-19.5(b)3. The combined cycle combustion turbines or regenerative cycle combustion turbines that are non-HEDD units will be required to meet the rates in proposed new N.J.A.C. 7:27-19.5(d)2. The proposed amended rule

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allows an owner or operator to comply with N.J.A.C. 7:27-19.3(f), rather than the emission limits of proposed amended Table 5.

Proposed new N.J.A.C. 7:27-19.5(b)3 requires that from the day after the operative date of the rules through April 30, 2015, all combined cycle combustion turbines or regenerative cycle combustion turbines that are HEDD units must comply with the maximum allowable emission rates in proposed Table 5, or the maximum allowable emission rate in the applicable preconstruction permit or operating permit, whichever is more stringent. The proposed amended rule allows an owner or operator to comply with N.J.A.C. 7:27-19.3(f), rather than the emission limits of proposed amended Table 5.

Proposed amended Table 5 contains the same emission limits as existing Table 3. As of March 7, 2007, existing Table 3 has applied only to NO<sub>x</sub> budget sources. This limitation is continued, through proposed (b)2. The Department proposes to amend the column heading from "Emission Limit" to "Maximum Allowable NO<sub>x</sub> Emission Rate," in order to be consistent with proposed amended N.J.A.C. 7:27-19.5(b). The proposed amended table also includes, in a note, the dates and sources to which the table applies. These are taken from proposed N.J.A.C. 7:27-19.5(b)1 through 3. On and after May 1, 2015 Table 5 will not apply to any source.

N.J.A.C. 7:27-19.5(d) applies to stationary combustion turbines. The Department proposes to renumber (d) as (d)1, and amend it to reflect the change in turbine classification from NO<sub>x</sub> Budget/non- NO<sub>x</sub> Budget sources to HEDD/non-HEDD sources on the operative date of the rules, and to correct cross references.

Proposed amended Table 6 applies to any stationary combustion turbine that is not a NO<sub>x</sub> Budget Source, and that has a maximum heat input rate of at least 25 million BTU per hour. As in proposed amended N.J.A.C. 7:27-19.5(a) and (b), and Tables 4 and 5, proposed amended Table 6 will apply to these sources only until the operative date of the rules. Thereafter, in accordance with proposed new (d)2, proposed amended Table 6 will apply only if the stationary combustion turbine is a non-HEDD unit, unless the owner or operator is complying with N.J.A.C. 7:27-19.3(f) or N.J.A.C. 7:27-19.5(c)1 through 5.

The Department proposes to amend Table 6 to add a note, indicating the applicability of the table, as set forth in proposed (d)1 and 2.

On and after May 1, 2015, proposed new N.J.A.C. 7:27-19.5(g), and the maximum allowable emission rates at proposed new Table 7, will apply to any stationary combustion turbine that is a HEDD unit. If the preconstruction permit or operating permit for the turbine specifies that it can be fueled by either liquid fuel oil or gaseous fuel, proposed (g)2 requires compliance with the applicable Table 7 gaseous fuel emission rate, on high electric demand days, regardless of which fuel is combusted. The emission rate for combusting gaseous fuel is more stringent than the emission rate for combusting fuel oil.

Proposed new Table 7 specifies the maximum allowable NO<sub>x</sub> emission rates for any stationary combustion turbine (both simple cycle and combined cycle or regenerative cycle) that is a HEDD unit. The types of turbines and types of fuel in proposed Table 7 are the same as in proposed amended Table 6; however, the maximum allowable emission rates are more stringent. These proposed output-based maximum allowable emission rates are based on input-based emission rates of 25 ppm for gas combustion and 42 ppm for oil combustion and a thermal efficiency of 35 percent for simple cycle combustion turbines and 46 percent for combined cycle combustion turbines.

Table 4 above summarizes the applicability of maximum allowable NO<sub>x</sub> emission rates in proposed Tables 4, 5, 6 and 7.

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Proposed amended N.J.A.C. 7:27-19.5(f) has been modified to change the pound per megawatt-hour abbreviation from “lb/MWh” to “pound/MWh” to be consistent with the proposed definition of “pound per megawatt -hour.”

Proposed new N.J.A.C. 7:27-19.5(h) requires all stationary combustion turbines that are constructed, installed, reconstructed or modified to comply with all applicable SOTA, LAER and BACT requirements, which may result in a more stringent maximum allowable emission rate than otherwise set forth at proposed amended N.J.A.C. 7:27-19.5.

Under proposed new N.J.A.C. 7:27-19.5(i), the owner or operator of any stationary combustion turbine must demonstrate compliance with the maximum allowable NO<sub>x</sub> emission rate on or before a date that varies, depending upon the nature of the turbine.

Proposed (i)1 requires the owner or operator of any stationary combustion turbine that is a non-HEDD unit to demonstrate compliance by 180 days after the day after the operative date of the rules. Thereafter, compliance must be demonstrated in accordance with the schedule in the unit’s approved permit. The owner or operator would be exempt from demonstrating compliance prior to 180 days after the compliance date, if the owner or operator already demonstrated compliance within the preceding five years.

Proposed (i)2 requires the owner or operator of any stationary combustion turbine that is a HEDD unit to demonstrate compliance by November 1, 2015, and thereafter according to the compliance demonstration schedule in the unit’s approved permit, to assure that the owner or operator is maintaining compliance after November 1, 2015. A compliance demonstration schedule in a unit’s permit may require a compliance demonstration 180 days before the Department renews a permit or a compliance demonstration schedule may require a compliance demonstration every five years or sooner. If the HEDD unit is altered, proposed (i)2 would require the owner or operator to demonstrate compliance with the proposed Table 7 emission rates by November 1, 2015 or the date determined by 19.15(c), whichever date is earlier.

Proposed new N.J.A.C. 7:27-19.5(j) requires each owner or operator identified at proposed N.J.A.C. 7:27-19.29(a) to submit a 2009 HEDD Emission Reduction Compliance Demonstration Protocol and an annual report to the Department, pursuant to N.J.A.C. 7:27-19.29. Under proposed N.J.A.C. 7:27-19.29, discussed below, the HEDD Compliance Demonstration Protocol is due within 30 days after the operative date of the rule, and annual reports are required for each calendar year from 2009 through 2014, as discussed below.

Proposed new N.J.A.C. 7:27-19.5(k) requires the owner or operator of a stationary combustion turbine that is a HEDD unit to submit a 2015 HEDD Emission Limit Achievement Plan and annual progress updates, pursuant to N.J.A.C. 7:27-19.30. Under proposed N.J.A.C. 7:27-19.30, discussed below, the HEDD Emission Limit Achievement Plan is due by May 1, 2010, and annual progress updates are required for each calendar year from 2010 through 2014.

### **N.J.A.C. 7:27-19.7 Industrial/commercial/institutional boilers and other indirect heat exchangers**

The Department proposes to delete N.J.A.C. 7:27-19.7(a) through (c), (e) and (f), and reserve the subsections, because the March 7, 2007 compliance date has passed. The maximum allowable emission rates and other requirements in existing subsections (a) through (c), (e) and (f) will be replaced by maximum allowable emission rates and other requirements elsewhere in the proposed rules. The Department proposes to delete references to the deleted subsections elsewhere in the section.

N.J.A.C. 7:27-19.7(h), Table 7, proposed to be renumbered as Table 8, establishes maximum allowable NO<sub>x</sub> emission rates for any ICI boiler or other indirect heat exchanger with

at least 50 MMBtu/hr heat input. The Department proposes to amend (h) in order that the maximum allowable emission rates in renumbered Table 8 apply only until the date that the maximum allowable emission rates in proposed Table 9 become effective. The proposed effective date of the maximum allowable emission rates in proposed Table 9 varies, depending on the size of the boiler or heat exchanger, and whether or not it is modified, as discussed below. Also, for consistency with other parts of N.J.A.C. 7:27-19, the Department proposes to make clear that it is the owner or operator that is required to take the required action.

In proposed Table 8, for boilers with a maximum gross heat input rate of 50 to 100 MMBtu/hr, by renaming the “natural gas” fuel/boiler type as “natural gas only,” the Department proposes to make it clear that this fuel/boiler type is for boilers with a burner that burns only natural gas. Similarly, by renaming the “#2 fuel oil” fuel/boiler type as “No. 2 fuel oil only,” the Department proposes to make it clear that this fuel/boiler type is for boilers with a burner that burns only No. 2 fuel oil. The Department proposes to replace the symbol “#” with the abbreviation “No.” for consistency with other proposed amendments and existing rules.

Proposed new N.J.A.C. 7:27-19.7(i) requires the owners or operators of industrial/commercial/institutional boilers and other indirect heat exchangers with at least 25 MMBtu/hr heat input, whether or not they are located at a major NO<sub>x</sub> facility, to comply with the maximum allowable NO<sub>x</sub> emission rates specified at proposed new Table 9, unless the owner or operator is alternatively complying with an option at 19.3(f). Proposed 19.7(i) allows compliance to be phased in over three years, depending on the size of the industrial/commercial/institutional boiler or other indirect heat exchanger. Size is determined by heat input rate. The larger the heat input rate, the larger the size of the boiler or other indirect heat exchanger. Phasing in compliance based on size would allow an owner or operator of industrial/commercial/institutional boilers or other indirect heat exchangers of different sizes to focus their compliance efforts on a different boiler size during each compliance period.

Proposed new N.J.A.C. 7:27-19.7(i)1 requires an industrial/commercial/institutional boiler or other indirect heat exchanger with a maximum gross heat input rate of at least 25 MMBtu/hr, but less than 50 MMBtu/hr, to comply with the applicable maximum allowable NO<sub>x</sub> emission rate set forth at proposed Table 9 on and after May 1, 2011 if compliance is achieved without a physical modification, or on and after May 1, 2012 if compliance is achieved with a physical modification. This is the first time that a maximum allowable NO<sub>x</sub> emission rate would be set in New Jersey for this size boiler or other indirect heat exchanger. Proposed (i)1 allows the longest time for the implementation of NO<sub>x</sub> controls on these boilers. Smaller boilers are given more time to come into compliance than larger boilers because emission reductions achieved will be less, and because the burner industry and owners and operators of industrial/commercial/institutional boiler or other indirect heat exchanger have had less experience installing and operating low NO<sub>x</sub> burners on smaller boilers.

Proposed new N.J.A.C. 7:27-19.7(i)2 would require an industrial/commercial/institutional boiler or other indirect heat exchanger with a maximum gross heat input rate of at least 50 MMBtu/hr, but less than 100 MMBtu/hr to comply with the applicable maximum allowable NO<sub>x</sub> emission rate set forth at proposed Table 9 on and after May 1, 2010 if compliance is achieved without a physical modification, or on and after May 1, 2011 if compliance is achieved with a physical modification.

Proposed new N.J.A.C. 7:27-19.7(i)3 would require an industrial/commercial/institutional boiler or other indirect heat exchanger with a maximum gross heat input rate of at least 100 MMBtu/hr or greater to comply with the applicable maximum allowable NO<sub>x</sub> emission rate set forth at proposed Table 9 on and after the operative date of these amendments, if compliance is achieved without a physical modification, or on and after May 1,

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2010 if compliance is achieved with a physical modification. The largest boilers are in the first phase, in order that the State can achieve a large amount of NO<sub>x</sub> emission reductions within a short time period.

The proposed maximum allowable NO<sub>x</sub> emission rates at Table 9 are based on the OTC proposal for ICI boilers (See MACTEC Report February 2007, page 4-14) for additional NO<sub>x</sub> control measures except for boilers greater than 100 MMBtu/hr firing No. 2 fuel oil. Unlike proposed renumbered Table 10, discussed below, the Department proposes that Table 9 not contain maximum allowable NO<sub>x</sub> emission rates for different firing methods for coal-fired ICI boiler source categories because there are no coal-fired industrial/commercial/institutional boilers in New Jersey.

Proposed Table 9 differs from proposed renumbered Table 8 with regard to the maximum allowable emission rates for boilers greater than 100 MMBtu/hr. Proposed renumbered Table 8 includes the fuel/boiler type category “fuel oil and/or natural gas,” which includes boilers with a burner that combusts only No. 2 fuel oil and boilers with a burner that has the capability to combust dual fuel using fuel oil and natural gas. Due to the difference in configuration of single fuel and dual fuel burners in boilers greater than 100 MMBtu/hr, proposed Table 9 lists as separate categories “No. 2 fuel oil,” which is burned by a single fuel burner, and “dual fuel using fuel oil and natural gas,” which is burned by a dual fuel burner. The Department proposes to eliminate maximum allowable emission rates for different firing methods for boilers firing “fuel oil and/or natural gas,” since actual emissions test data demonstrated that the proposed maximum allowable emission rates in Table 9 can be achieved with available NO<sub>x</sub> control technologies, regardless of firing method.

In proposed Table 9 the Department proposes to split the proposed Table 8 category “fuel oil and/or natural gas” (which includes all liquid fuels) into two categories: “No. 2 fuel oil only” and “other liquid fuels.” Proposed new Table 9 includes these two categories. The Department determined that a more stringent limit of 0.10 pounds NO<sub>x</sub>/million BTU is achievable for No. 2 fuel oil than for the other liquid fuels. The Department based its determination on actual emission stack tests conducted at 12 boilers in New Jersey that operate with low NO<sub>x</sub> burners and/or flue gas recirculation. These tests demonstrated that 50 percent of these boilers already achieve an emissions rate of 0.10 pounds/million BTU or less.

The Department proposes in Table 9 the category “other liquid fuels,” with a maximum allowable emission rate of 0.20 pounds/million BTU for No. 4 fuel oil, No. 6 fuel oil, kerosene and all other liquid fuels. These four fuel categories emit a higher level of pollutants than natural gas and No. 2 fuel oil when combusted; therefore the maximum allowable emission rates will be less stringent as determined by the RACT process.

For both boiler sizes, the Department proposes in Table 9 a separate maximum allowable emission rate for boilers that can burn natural gas and fuel oil together or separately, identified in proposed Table 9 as the fuel type category “dual fuel using fuel oil and natural gas.” This rate is more stringent than the rates for “natural gas only” and for “No. 2 fuel oil only” because the design of a boiler that combusts two fuels together or separately is constructed of a separate nozzle for each fuel that directs the fuel to the same burner box. This type of burner, called a dual fuel burner, emits more pollutants than a single nozzle burner used to burn either natural gas or No. 2 fuel oil. The rate for a dual fuel burner is less stringent than the rates for “refinery fuel gas and other gaseous fuels” and for “other liquid fuels” to discourage combustion of No. 4 and No. 6 fuel oils which emit more pollutants.

#### **N.J.A.C.7:27-19.9 Asphalt pavement production plants**

The Department proposes to amend the title of this subsection to “Asphalt pavement production plants,” which is the Department’s proposed term for the regulated facilities. The same amendment is proposed throughout the subchapter.

The Department proposes to specify fuel-specific maximum allowable NO<sub>x</sub> emission concentrations for asphalt pavement production plants in proposed new Table 11 at N.J.A.C. 7:27-19.9(a). The proposed rule would set new limits to achieve an emission reduction equal to or greater than the OTC recommended 35 percent NO<sub>x</sub> emissions reduction. The new limits are derived from the Department’s analysis of actual stack test data as described previously in the Summary Background section. The OTC’s recommended limits are expressed in pounds per ton (pounds/ton), or pounds of NO<sub>x</sub> emitted per ton of asphalt produced. New Jersey’s proposed limits are expressed in ppmvd at seven percent oxygen as described previously in the Background section. New Jersey’s proposed limits in ppmvd at seven percent oxygen and the approximate equivalent in pounds/ton are: for natural gas, 75 ppmvd at seven percent oxygen, which is equivalent to 0.025 pounds/ton; for No. 2 fuel oil, 100 ppmvd at seven percent oxygen, which is equivalent to 0.04 pounds/ton; and for No. 4 fuel oil, heavier fuel oils, or on-specification used oil, or any mixture of these three oils, 125 ppmvd at seven percent oxygen, which is equivalent to 0.05 pounds/ton.

Existing N.J.A.C. 7:27-19.9(c) and existing N.J.A.C. 7:27-19.3(f) provide the same alternate compliance measures for asphalt production plants. The Department proposes to delete N.J.A.C. 7:27-19.9(c), and replace it with a reference to the options at N.J.A.C. 7:27-19.3(f).

The Department is proposing new N.J.A.C. 7:27-19.9(d) to require use of Best Management Practices to minimize emissions at asphalt pavement production plants. These proposed Best Management Practices are based on the Department’s experience with regulating this source category. They are a form of pollution prevention and have been included in permits for over 10 years.

Proposed new N.J.A.C. 7:27-19.9(e) requires the owner or operator to maintain records of the implementation of the Best Management Practices. The Department needs to review records periodically for enforcement purposes. The records must be maintained onsite for five years, in accordance with N.J.A.C. 7:27-19.19 which contains recordkeeping requirements for the entire subchapter.

The Department is proposing new N.J.A.C. 7:27-19.9(f) to phase in compliance from the operative date of these amendments to May 1, 2012, depending on the dryer’s gross heat input rate and whether compliance will be achieved by a physical modification or by a means other than a physical modification. The smaller emission sources will be allowed a longer time to comply, and the higher emission sources must be brought into compliance sooner. An extra year will be allowed if a plant plans to come into compliance by a physical modification.

### **N.J.A.C. 7:27-19.10 Glass manufacturing furnaces**

The Department proposes to reduce the NO<sub>x</sub> emission limit for commercial container glass manufacturing furnaces at N.J.A.C. 7:27-19.10(a) from 5.5 pounds of NO<sub>x</sub> per ton of glass removed to 4.0 pounds. The Department also proposes to add emission limits of 4.0 pounds of NO<sub>x</sub> per ton of glass removed for specialty container glass manufacturing furnaces, borosilicate recipe glass manufacturing furnaces, pressed glass manufacturing furnaces, blown glass manufacturing furnaces, and fiberglass manufacturing furnaces.

The proposed limit at (a) for specialty container glass manufacturing furnaces is more stringent than the existing limit of 11.0 pounds at existing N.J.A.C. 7:27-19.10(b). This renders the existing limit for specialty container glass manufacturing furnaces at (b) unnecessary. The Department proposes to amend (b) by deleting the reference to specialty container glass manufacturing furnaces and adding the new emission limit of 9.2 pounds NO<sub>x</sub> per ton of glass removed for flat glass manufacturing furnaces. Currently there is no flat glass manufacturing furnace in New Jersey. In the event a glass manufacturing furnace is constructed, applicable SOTA requirements would apply that are likely to be more stringent than the proposed flat glass limit.

The Department proposes to delete N.J.A.C. 7:27-19.10(c), which regulates borosilicate recipe glass manufacturing furnaces, and reserve the subsection. Proposed amended (a) contains the proposed more stringent emission limit for borosilicate recipe glass manufacturing furnaces. This renders subsection (c) unnecessary. The Department proposes to delete cross references to subsection (c) throughout the section.

The Department proposes to amend N.J.A.C. 7:27-19.10(d) to require furnaces to comply with the NO<sub>x</sub> emission limits at proposed (a) and (b) beginning on the first date of startup after rebricking is completed after May 1, 2010. Rebricking is an economically convenient time to install new controls in a glass manufacturing furnace, because the furnace is taken out of service for rebricking.

Due to the proposed amendments to (a) and (b), proposed amended (f) will be applicable to not only commercial container, and specialty and borosilicate glass manufacturing furnaces, as in the existing rule, but it will also apply to blown glass, fiberglass, flat glass and pressed glass manufacturing furnaces. The Department proposes to eliminate the phased compliance option at existing N.J.A.C. 7:27-19.10(f)4 for all glass manufacturing furnaces, because phased compliance is not compatible with proposed amended (d), which requires compliance at the next rebricking.

### **N.J.A.C. 7:27-19.12 Municipal solid waste (MSW) incinerators**

As discussed in the Background, above, the Department does not have a general NO<sub>x</sub> emission standard for MSW incinerators. Instead, for each MSW incinerator, the Department adopted a facility-specific emission limit for NO<sub>x</sub> pursuant to N.J.A.C. 7:27-19.13 to meet the Federal one-hour NAAQS for ozone. The Department reevaluated the facility-specific emission limits for the MSW incinerators in the State, and determined that air pollution control technologies have advanced sufficiently over the past several years to justify further NO<sub>x</sub> emission reductions. The Department proposes at new N.J.A.C. 7:27-19.12 a maximum allowable NO<sub>x</sub> emission concentration of 150 ppmvd for MSW incinerators, based upon the ability of selective non-catalytic reduction (SNCR) systems to reduce emissions more than are now being achieved. SNCR systems are the most common add-on control technology for reducing NO<sub>x</sub> emissions from MSW incinerators.

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Proposed new N.J.A.C. 7:27-19.12(a) requires owners or operators of MSW incinerators to comply with a maximum allowable NO<sub>x</sub> emission concentration of 150 ppmvd at seven percent oxygen based on each calendar day average. A calendar day average is the average of all NO<sub>x</sub> emission concentration readings corrected to seven percent oxygen from the continuous emissions monitoring system in one calendar day. The facility must comply beginning 60 days after the operative day of these new rules and amendments, if compliance is achieved by optimizing an existing NO<sub>x</sub> air pollution control system. A facility would have additional time to comply, by May 1, 2010, if the owner or operator complies by installing new NO<sub>x</sub> air pollution controls on an existing MSW incinerator, or by physically modifying an existing MSW incinerator. The Department anticipates that the additional time is sufficient for such installation or modification to be completed.

Instead of complying with the 150 ppmvd limit, proposed new N.J.A.C. 7:27-19.12(b) allows an owner or operator to comply with an alternative maximum allowable NO<sub>x</sub> emission rate, pursuant to N.J.A.C. 7:27-19.13, discussed below.

Proposed new N.J.A.C. 7:27-19.12(c) requires the owner or operator of any MSW incinerator to install a NO<sub>x</sub> continuous emissions monitoring system on a MSW incinerator and demonstrate compliance using the NO<sub>x</sub> continuous emissions monitoring system.

#### **N.J.A.C. 7:27-19.13 Alternative and facility-specific NO<sub>x</sub> emission rates**

The Department proposes to change the heading of existing N.J.A.C. 7:27-19.13 to more correctly describe the subject of the section, and to make clear that N.J.A.C. 7:27-19.13 applies to alternative maximum allowable emission rates, as well as facility-specific maximum allowable emission rates. The Department proposes to use the consistent term throughout N.J.A.C. 7:27-19.13.

Under existing N.J.A.C. 7:27-19.13, the Department will approve a maximum allowable emission rate not specified in the rules in two situations. In the first, for a source or item of equipment not regulated elsewhere in N.J.A.C. 7:27-19, the owner or operator must obtain Department approval of a facility-specific NO<sub>x</sub> control plan by submitting a proposed NO<sub>x</sub> control plan. For most facilities, sources or items of equipment that were in operation prior to January 23, 1994, the existing rules required the owner or operator to submit the proposed plan by April 23, 1994. Included in the Department's approval of this plan is an emissions rate for that unregulated source or item of equipment. Existing N.J.A.C. 7:27-19.13 refers to this rate as a facility-specific NO<sub>x</sub> emissions limit. In the second situation, for a source or item of equipment for which the owner or operator seeks approval of an alternative maximum allowable emission rate instead of the rate for that source category established elsewhere in N.J.A.C. 7:27-19, the owner or operator is required to submit a request for an alternative maximum allowable emission rate.

Existing N.J.A.C. 7:27-19.13 uses the phrases "NO<sub>x</sub> emissions limit," "emissions limit" and "maximum allowable emission rate." By "NO<sub>x</sub> emissions limit" N.J.A.C. 7:27-19 usually means the "maximum allowable emission rate" at existing N.J.A.C. 7:27-19.5(d), 19.7(h), or 19.8(e). To use consistent terminology within N.J.A.C. 7:27-19.13, the Department proposes to replace throughout N.J.A.C. 7:27-19.13 the phrases "NO<sub>x</sub> emissions limit" and "emissions limit" with the phrase "maximum allowable emission rate."

Existing (a) and (a)1 refer to facility-specific NO<sub>x</sub> emissions limits while existing (a)2 refers to alternative maximum allowable emission rates. Proposed amended subsection (a) is an introductory provision, and refers to both NO<sub>x</sub> emission rates. Proposed amended (a)1 refers only to facility-specific maximum allowable emission rates, and proposed amended (a)2 refers only to alternative maximum allowable emission rates. Each paragraph describes what an owner

or operator of a facility must do to obtain the respective emission rate. The Department proposes to amend (a)1 to eliminate duplicative language, and to make the structure of the paragraph more similar to (a)2. It also proposes to delete the list of source categories, which is not complete, and could lead to confusion.

Proposed N.J.A.C. 7:27-19.13(a)3 is new. If a source operation or item of equipment was issued an alternative maximum allowable emission rate or a facility-specific maximum allowable emission rate before May 1, 2005, then the owner or operator must submit the appropriate application if the owner or operator desires to continue operating under one of those rates.

Existing N.J.A.C. 7:27-19.13(b) explains how a major NO<sub>x</sub> facility obtains approval of a facility-specific NO<sub>x</sub> control plan or an alternative maximum allowable NO<sub>x</sub> emission rate. The Department proposes to remove from (b) two outdated requirements. One required an owner or operator to submit a NO<sub>x</sub> control plan by April 23, 1994. The second required the owner or operator to submit a NO<sub>x</sub> control plan by February 7, 2006. The Department is proposing to amend the remainder of (b), in order that it explain how all NO<sub>x</sub> facilities obtain either a facility-specific NO<sub>x</sub> control plan or an alternative allowable emission rate, as applicable. The Department proposes to relocate the remainder of (b), and (b)1 and (b)2 to proposed (b)3, (b)3i and (b)3ii, respectively, and to correct cross references.

In accordance with proposed new N.J.A.C. 7:27-19.13(b)1, a facility-specific NO<sub>x</sub> control plan approved after the operative date of these amendments will not have an expiration date; therefore, unless the source operation or equipment is modified, altered or reconstructed, the source operation or equipment would continue to be subject to the requirements of that facility-specific NO<sub>x</sub> control plan. In the future, the Department could amend its rules to establish maximum allowable NO<sub>x</sub> emission rates for a source category comprised of sources for which the Department has approved facility-specific allowable rates. If this were to happen, such sources would be subject to the new rate for that source category.

In accordance with proposed new N.J.A.C. 7:27-19.13(b)2, any alternative maximum allowable emission rate the Department approves after the operative date of these amendments will have a term of 10 years, unless the owner or operator modifies, alters or reconstructs the equipment during the plan's term. Within ten years the Department expects technology to have made enough progress for the Department to re-evaluate the approved alternative maximum allowable emission rates to determine if more stringent controls are warranted. If the owner or operator modifies, alters or reconstructs the equipment during the term of the plan, then the owner or operator must apply for a new plan, under proposed (b)6.

Proposed N.J.A.C. 7:27-19.13(b)3 was relocated from existing N.J.A.C. 7:27-19.13(b) and amended. Proposed (b)3 applies only to an owner or operator applying for a facility-specific maximum allowable emission rate. The Department proposes to delete outdated proposed plan submittal requirements

Proposed new N.J.A.C. 7:27-19.13(b)4 requires an owner or operator to submit in writing a request for an alternative maximum allowable emission rate and to include in that request the information listed at N.J.A.C. 7:27-19.13(d).

Proposed new N.J.A.C. 7:27-19.13(b)5 requires each owner or operator of a facility with a facility-specific NO<sub>x</sub> control plan or alternative maximum allowable emission rate approved by the Department before May 1, 2005, to submit a new plan or request, as applicable, to the Department for approval. Proposed (b)5 requires submission of this plan or request by 90 days after the operative date of the new rule and amendments, and would allow an additional 60-day extension upon request to the Department. Proposed (b)5i requires a proposed facility-specific NO<sub>x</sub> control plan to include the information listed at (b)3i and ii, which contain the requirements

of such a plan. Proposed (b)5i requires a request for an alternative maximum allowable emission rate to include the information at 19.13(d), which sets forth the requirements for such a request. According to proposed (b)5ii, if the proposed plan or request is submitted within 90 days after the operative date of the new rules and amendments, the existing plan or request shall terminate on the date specified in the implementation schedule of the plan or request the Department approves. This would allow the existing plan to remain in effect until the Department makes a final decision on the proposed plan or request. According to proposed (b)5iii, if the proposed plan or request is not submitted within 90 days after the operative date of these new rules and amendments, the existing plan or request shall terminate 90 days after the operative date of these new rules and amendments.

Proposed new N.J.A.C. 7:27-19.13(b)6 requires the owner or operator of a facility to re-apply for an alternative maximum allowable emission rate or a facility-specific maximum allowable emission rate, if the affected source operation or the item of equipment is either modified, altered or reconstructed. In such a case, the existing alternative maximum allowable emission rate or facility-specific NO<sub>x</sub> control plan terminates on the start date of that activity. If the owner or operator plans to continue operating under an alternative maximum allowable emission rate or a facility-specific NO<sub>x</sub> control plan, proposed (b)6 requires the owner or operator to apply for a new alternative maximum allowable emission rate or facility-specific NO<sub>x</sub> control plan, as applicable.

Proposed new N.J.A.C. 7:27-19.13(b)7 requires an owner or operator with a 10-year term alternative maximum allowable NO<sub>x</sub> emission rate to re-apply one year prior to the expiration date of the existing alternative maximum allowable NO<sub>x</sub> emission rate. One year is the approximate time for the Department to process an application for an alternative maximum allowable NO<sub>x</sub> emission rate.

Proposed amended N.J.A.C. 7:27-19.13(d)6 requires an owner or operator to submit as part of a request for a proposed alternative maximum allowable NO<sub>x</sub> emission rate or a facility-specific NO<sub>x</sub> control plan, an implementation schedule for the request or plan's proposed control technologies or process alternatives. This will enable the Department to determine whether the owner or operator plans to implement the proposed control measures in a timely manner.

#### **N.J.A.C. 7:27-19.15 Procedures and deadlines for demonstrating compliance**

In light of the proposed amendments to N.J.A.C. 7:27-19.9 and 19.10, concerning asphalt pavement production plants and glass manufacturing furnaces, respectively, the Department proposes to amend N.J.A.C. 7:27-19.15.

Proposed new 19.15(d) and (e) describe when and how owners and operators of asphalt pavement production plants and glass manufacturing furnaces must demonstrate compliance with the subchapter.

Proposed new (d) requires asphalt pavement production plants to demonstrate compliance by meeting the requirements at (a)2. As a result of the proposed amendments, asphalt pavement production plants will not be subject to (a)1, (b) and (c). As proposed, the amended rules gives these plants 180 days from the dates in the schedule at proposed 19.9(f) to demonstrate compliance. Thereafter, the plants must demonstrate compliance at the frequency required under their permits. The proposed 180 day period is consistent with the existing rules' time period for demonstrating compliance, such as in existing 19.15(c).

Proposed N.J.A.C. 7:27-19.15(e) requires the owner or operator of a glass manufacturing furnace to demonstrate compliance with the applicable emission limits at 19.10(a) or (b) or an alternative maximum allowable emission rate determined pursuant to existing 19.10(f)2. As with asphalt pavement production plants, proposed (e)1 allows the owner or operator 180 days after

the first rebricking after the operative date of these amendments to demonstrate compliance. Thereafter, the glass manufacturing furnace's permit will specify how frequently to conduct this demonstration.

Proposed (e)2 provides the method of demonstrating compliance if a continuous emissions monitoring system (CEMS) is not installed. This demonstration would be performed by averaging three stack tests performed in accordance with existing 19.15(a)2, expressing this average in pounds NO<sub>x</sub> emitted per hour and dividing this average by the average tons of glass removed per hour during the same time periods in which the three stack tests were performed. The owner or operator would still be required to conduct the carbon monoxide testing, in accordance with 19.15(a)2.

Proposed (e)3 provides the method of demonstrating compliance if a continuous emissions monitoring system is installed. This demonstration would be performed daily by determining the pounds of NO<sub>x</sub> emitted per day in accordance with 19.15(a)1, divided by the tons of glass removed per day during the same time period. Existing 19.15(a)1 requires compliance based on a block 24 hour average during the ozone season and based on a rolling 30-day average outside the ozone season.

The Department proposes to amend 19.15(a) through (c) to reflect that, as to certain facilities, (a) through (c) do not apply. Existing (d) is proposed to be relocated to (f), in order that it remains at the end of the section, and amended to include proposed new (d) and (e) among the listed subsections.

#### **N.J.A.C. 7:27-19.22 Phased compliance - impracticability of full compliance by the operative date of these amendments**

The Department proposes to amend N.J.A.C. 7:27-19.22 to remove provisions that are no longer applicable and to allow phased compliance for owners or operators of HEDD units that must achieve the NO<sub>x</sub> emission reductions required by Equation 1 at N.J.A.C. 7:27-19.29(c).

The proposed amendment to the section heading refers to the requirement that HEDD units achieve compliance with the NO<sub>x</sub> emissions limits in Equation 1 at N.J.A.C. 7:27-19.29(c), as of the operative date of the amendments. Although the operative date might not be a high electricity demand day, N.J.A.C. 7:27-19.29(c) requires compliance on each high electricity demand day following the operative date. The proposed amendment to (a) limits phased compliance to the sources identified at N.J.A.C. 7:27-19.29(a), who has submitted a phased compliance plan to the Department.

The Department proposes to amend N.J.A.C. 7:27-19.22(b) to require the owners or operators who want to have phased compliance submit a phased compliance plan within 21 days after the operative date of the amendments. A plan must address the implementation of measures to obtain compliance with NO<sub>x</sub> emission reduction requirements, and explain why compliance by the operative date of the amendments is not practicable. Proposed amendments to (b) also delete deadlines that no longer apply.

Proposed amendments to (c) replace the provisions of the proposed compliance plan that are not applicable to HEDD units with a requirement that the plan describe each proposed measure and how it is expected to reduce NO<sub>x</sub> emissions, a schedule of implementation.

In accordance with proposed amended (d), the Department will approve the phased compliance plan based on the NO<sub>x</sub> emission reduction measures. The Department also proposes to amend N.J.A.C. 7:27-19.22(d) to remove the May 31, 1995 date, which is no longer applicable, and to update the references to N.J.A.C. 7:27-19.22(b).

The Department proposes to amend N.J.A.C. 7:27-19.22(e) to update the compliance date, remove the May 31, 1995 date, which is no longer applicable, and to state that compliance

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will be determined based on the emission reduction determined by Equation 1 at N.J.A.C. 7:27-19.29(c).

The Department proposes to amend N.J.A.C. 7:27-19.22(f) to state that the phased compliance plan expires when full compliance is achieved with the emission reduction determined by Equation 1.

The Department proposes to amend N.J.A.C. 7:27-19.22(g) to clarify that all combustion sources affected by the phased compliance plan be operated in a manner that complies with the plan and with all conditions of the Department's approval, to state that the provisions of (g)i and ii apply to all combustion sources affected by the plan, and deletes the reference to implementing selective non-catalytic reduction since this is not appropriate for the emission reduction measures.

#### **N.J.A.C. 7:27-19.29 Use of NO<sub>x</sub> budget allowances by a former DER credit user.**

The Department proposes to amend N.J.A.C. 7:27-19.29 to update cross references.

#### **N.J.A.C. 7:27-19.28 Sewage sludge incinerators**

The Department proposes new N.J.A.C. 7:27-19.28 to establish maximum allowable NO<sub>x</sub> emission rates for sewage sludge incinerators. Under the existing rules, the Department regulates NO<sub>x</sub> emissions from sewage sludge incinerators via facility-specific emission rates. If the proposed maximum allowable emission rates for sewage sludge incinerators were adopted, existing sludge incinerators would not need to submit new facility-specific NO<sub>x</sub> control plans to obtain a facility-specific maximum allowable emission rate.

At proposed new N.J.A.C. 7:27-19.28(a) the Department proposes two maximum allowable NO<sub>x</sub> emission rates in Table 13. Based on actual stack test results from the existing sewage sludge incinerators, the Department determined that the proposed maximum allowable emission rates would be reasonable for the facilities to meet without modifications. Some sewage sludge incinerators may have to revise their existing compliance plan in order to comply with the proposed maximum allowable emission rates.

Instead of complying with the maximum allowable NO<sub>x</sub> emission rates at N.J.A.C. 7:27-19.28(a), proposed N.J.A.C. 7:27-19.28(b) allows an owner or operator to comply with proposed amended N.J.A.C. 7:27-19.3(f), or apply for an alternative maximum allowable NO<sub>x</sub> emission rate at N.J.A.C. 7:27-19.13.

The owner or operator of a facility must demonstrate compliance in accordance with proposed N.J.A.C. 7:27-19.15(c), by conducting stack tests.

#### **7:27-19.29 2009 HEDD emission reduction compliance demonstration protocol**

The Department proposes new N.J.A.C. 7:27-19.29, which contains the requirements for the proposed 2009 HEDD Emission Reduction Compliance Demonstration Protocol (2009 Protocol). As discussed in the Background above, the Department is proposing amendments to reduce NO<sub>x</sub> emissions from high electric demand day electric generating units (HEDD units). HEDD units are electric generating units that are capable of generating 15 MW or more and are operated less than or equal to an average of 50 percent of the time during the immediately preceding three ozone seasons. In other words, they are the electric generating units that are put into service when electricity demand is high. The Department proposes to tighten the emission standards for HEDD units because these units emit significant quantities of NO<sub>x</sub> on high electric demand days, which are typically high temperature and high ozone days during the summer. The Department proposes both short term and long term emission control strategies, intended to

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reduce emissions during high electric demand days. Proposed N.J.A.C. 7:27-19.29 is the short term strategy.

Proposed new N.J.A.C 7:27-19.29(a) lists the applicability criteria of the section. The section applies to owners or operators of HEDD units that operated on July 26, 2005 if the HEDD was a combustion turbine not controlled by water injection or selective catalytic reduction or the HEDD unit was a boiler and was not controlled by selective catalytic reduction or selective non-catalytic reduction; and the NO<sub>x</sub> emission rate of the HEDD was 0.15 pound/MMBTU or greater. The July 26, 2005 date was chosen since it represented the PJM grid's highest electric usage up to that day. The "0.15 pound/MMBTU" NO<sub>x</sub> emission rate was chosen since it represents the higher emitting HEDD units.

Proposed new N.J.A.C 7:27-19.29(b)1 requires the owner or operator to assure NO<sub>x</sub> emission reductions as determined by Equation 1 occur on each HEDD from the operative date of these amendments through September 30, 2014. The proposed new N.J.A.C. 7:27-19.29(b)1 also allows the owner or operator to obtain a phased compliance plan, pursuant to N.J.A.C. 7:27-19.22, which would allow up to a 12 month extension for the owner or operator to obtain the reductions if additional time is necessary to implement the emission reduction measures. Proposed new N.J.A.C 7:27-19.29(b)2 requires the owner or operator to prepare a 2009 Protocol. Proposed new N.J.A.C 7:27-19.29(b)3 requires the owner or operator to submit a 2009 Protocol to the Department within 30 days of the operative date of these amendments. Proposed new N.J.A.C 7:27-19.29(b)4 require the owner or operator to submit an annual report, pursuant to N.J.A.C 7:27-19.29(k).

An emission reduction is the total tons of NO<sub>x</sub> reduction that an owner or operator must achieve on each high electric demand day. In accordance with proposed new N.J.A.C. 7:27-19.29(c), each owner or operator that is subject to this section must first calculate the amount of NO<sub>x</sub> emission reductions that it must achieve on each high electric demand day from the operative date of these amendments through September 30, 2014. This is based upon the baseline emissions, measured in tons of NO<sub>x</sub> that would be emitted on a particular high electric demand day if the owner or operator did not implement the required reductions, divided by the emission factor. The baseline emission figure will change from day to day, depending on the electric demand. The emission factor is the total tons of NO<sub>x</sub> that the owner or operator emitted on July 26, 2005, and must be determined by the owner or operator as outlined in proposed new N.J.A.C. 7:27-19.29(c)2. The quotient of the baseline emissions divided by the emission factor is multiplied by the reduction factor, to determine the required emission reduction for that day. The reduction factor, which the owner or operator must calculate operator as outlined in proposed new N.J.A.C. 7:27-19.29(c)3, a represents the owner or operator's share of the required 19.8 tpd of NO<sub>x</sub> that the Department seeks to achieve from the 2009 Protocol, in order to comply with the Federal 1997 8-hour NAAQS for ozone. As explained above, 19.8 tpd of NO<sub>x</sub> is the Department's share of emission reductions it agreed to achieve in the "Memorandum of Understanding Among the States of the Ozone Transport Commission Concerning the Incorporation of High Electrical Demand Day Emission Reduction Strategies into Ozone Attainment State Implementation Planning" (MOU), signed on March 2, 2007.

Proposed new N.J.A.C 7:27-19.29(d) identifies the contents of a 2009 Protocol. Proposed (d)1 requires the calculation of the Emission Factor and Reduction Factor performed in (c) to be included in the 2009 Protocol. Proposed (d)2 identifies several measures that an owner or operator can select in order to achieve the necessary reductions. Each owner or operator is encouraged to propose any additional measures that he or she anticipates will work for the facility's situation. Some of the measures can be undertaken in states other than New Jersey, inasmuch as some benefit to New Jersey air quality results from reductions in Pennsylvania,

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Delaware, and Maryland. The measures that the owner or operator proposes must result in emission reductions that the owner or operator is not otherwise required to make, and the reduction must be one that the owner or operator has not already committed to make. Proposed (d)3i through 3iv requires that the 2009 Protocol describe the measure that the owner or operator proposes to implement, the anticipated reductions and how they will be measured, and an assurance that the measure is not already required. The 2009 Protocol must also include monitoring requirements (proposed (d)3v) to indicate that the reductions are achieved, and the records (proposed (d)3vi) that the owner or operator will maintain to document the achievement of the reductions. These records are listed at proposed new N.J.A.C 7:27-19.29(e).

In accordance with proposed new N.J.A.C 7:27-19.29(f), within 30 days of the proposed 2009 Protocol's submittal, the Department will determine whether the proposed plan is complete. If it is not complete, the Department will notify the owner or operator of the information that is required, and allow time for submittal of a complete plan. No plan will be approved that does not contain all the required elements, set forth at proposed (d).

In accordance with proposed new N.J.A.C 7:27-19.29(g), the Department can approve the plan, disapprove of the plan, or make revisions to the plan.

In accordance with proposed new N.J.A.C 7:27-19.29(h), an owner or operator may, at any time, revise a 2009 Protocol. Pursuant to proposed (h)1, the revised plan must meet all of the requirements of the initial plan, set forth in proposed (d). Pursuant to proposed (h)2 and 3, the Department will notify the owner or operator of plan deficiencies, approve, revise and approve, or disapprove the proposed revised plan, and notify the owner or operator of the Department's action.

In accordance with proposed new N.J.A.C 7:27-19.29(i), if one of the owners or operators transfers ownership or operation of a HEDD unit or non-HEDD unit that is the subject of a 2009 Protocol, the new owner or operator must submit a revised 2009 Protocol. For instance, if the owner or operator of a turbine or boiler that is included in that owner or operator's 2009 Protocol is sold to another owner or operator, a revised plan must be submitted to the Department in order to document the change in ownership and clarify whether the previous owner or operator will continue to achieve all of the required emission reductions or the new owner or operator will be responsible for any portion of the required emission reductions. The revised 2009 Protocol must state how the new owner or operator will achieve any reductions for which they are responsible. Any revisions to the approved 2009 Protocol must continue to demonstrate that all required emission reductions will continue to be obtained, either by the old owner or operator or by the new owner or operator. The revised plan must be submitted within 30 days of the transfer of ownership or operation, and must meet all of the requirements of a 2009 Protocol. Proposed new N.J.A.C 7:27-19.29(i) applies even if one of the three owners or operators to which this section applies transfers partial ownership.

Proposed new N.J.A.C 7:27-19.29(j) states that emission reduction measures may be implemented at any time as long as all provisions of N.J.A.C. 7:27 have been met, all necessary air pollution control permits have been obtained, and an revised 2009 Protocol has been submitted.

Proposed new N.J.A.C. 7:27-19.29(k) requires each owner or operator to submit an annual report, for calendar years 2009 through 2014, to the Department by January 30th of the following year. The report must include all information necessary to document that the required emission reductions were obtained and demonstrate that the emission reductions are real, quantifiable, surplus and enforceable. This information is necessary so the Department can determine whether the agreed to reductions have been met, and whether the owner or operator otherwise complied with the 2009 Protocol.

### **N.J.A.C. 7:27-19.30 2015 HEDD Emission Limit Achievement Plan**

The 2015 HEDD Emission Limit Achievement Plan (2015 Plan), at proposed N.J.A.C. 7:27-19.30, is part of the Department's proposed long term strategy to reduce emissions during high electric demand days. The rest of the Department's proposed long term strategy is at proposed N.J.A.C. 7:27-19.4 and 5, which require sources to meet more stringent maximum allowable NO<sub>x</sub> emission rates by 2015. A 2015 Plan describes how the owner or operator of a HEDD unit intends to comply with the proposed HEDD maximum allowable NO<sub>x</sub> emission rates.

On or before May 1, 2010, each owner or operator of an HEDD unit must submit the 2015 Plan to the Department. The plan must include, in accordance with proposed 19.30(b), a list of the HEDD units that are expected to be shut down by May 1, 2015; and a list of the HEDD units that the owner or operator proposes to install emission control apparatus, or that will be operated differently in order to comply with the proposed maximum allowable emission rates. The Department does not approve or disapprove of the 2015 Plan, but will review it to determine whether the owner or operator is prepared to meet the 2015 maximum allowable emission rate. The owner or operator will be in violation if it does not submit the plan, or if it does not meet the required emission limits at proposed N.J.A.C. 7:27-19.4 and 19.5 by May 1, 2015.

In order that the Department can monitor the owner or operator's progress toward achieving the measures contained in the 2015 Plan, proposed 19.30(c) requires the owner or operator to submit annually an update describing the progress made that year toward 2015 compliance. An owner or operator shall demonstrate its progress in meeting the proposed schedule for permitting, installation and operation of the proposed control apparatus or modification. An owner or operator could demonstrate progress by listing the dates that new units were installed, that existing units were shut down or modified, or that existing units were in the process of being modified. In the update, the owner or operator must also identify any circumstance that has impeded progress toward 2015 compliance, or that is anticipated in the future and that may impede progress. Such circumstances could include permitting delays, unavailability of control devices, or a control device installed and operated that did not provide the expected emission reductions. The update is to be submitted along with the annual compliance certification that is required under N.J.A.C. 7:27-22. If the owner or operator is revising its 2015 Plan, it can notify the Department through the annual update. (See proposed N.J.A.C. 7:27-19.30(c)7.)

### **N.J.A.C. 7:27-21.1 Definitions**

The Department proposes to add a definition of "operating scenario" to N.J.A.C. 7:27-21.1 since that term is used in the Department's proposed amendments to N.J.A.C. 7:27-21.5. The proposed definition is identical to the definition in N.J.A.C. 7:27-22.

### **N.J.A.C. 7:27-21.5 Required contents of an Emissions Statement**

N.J.A.C. 7:27-21 regulates Emissions Statements, which all major and some non-major facilities must submit to report their actual air contaminant emissions. The Department proposes to amend N.J.A.C. 7:27-21.5, which identifies the required contents of an Emissions Statement. To assist the Department in tracking roof landings at VOC stationary storage tanks and the resulting VOC emissions, proposed new N.J.A.C. 7:27-21.5(j) requires the owner or operator of a VOC stationary storage tank with a floating roof to submit each tank's annual roof landing emissions as a separate operating scenario. An operating scenario is a plan for operating a tank,

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or part of a tank, in a way, or according to a method or process that is different from other ways, methods or processes used at the tank. This operating scenario will be listed separately from other operating scenarios in the facility's emission statement, and eventually in the tank's preconstruction permit upon modification or in the tank's operating permit upon modification or renewal. This operating scenario will also be listed separately in the Department's facility tracking system, New Jersey Environmental Management System (NJEMS) which includes permit information, emissions, and operating history. This will enable the Department to electronically search the NJEMS database for the roof landing emissions for each tank.

If the owner or operator has not implemented all of the control measures that are contained in the tank VOC control plan, or if the floating roof tank is exempt from the requirement to submit a VOC control plan, then the owner or operator must submit a Floating Roof Landing Emission Summary Report, in accordance with proposed (j)2. The Floating Roof Landing Emission Summary Report would report emissions and other tank information to the Department where the owner or operator did not implement all the plan's control measures, and would enable the Department to verify that the tank emitted less than five tons VOC per year if the tank was exempt from submitting a plan. This report will enable the Department to track roof landings and the reasons for them, such as changing stored liquid from one liquid to an incompatible liquid or leasing a tank to a new customer.

#### **N.J.A.C. 7:27A-3.10 Civil administrative penalties for violation of rules adopted pursuant to the Act**

The Department is proposing to amend N.J.A.C. 7:27A-3.10, Air Administrative Procedures and Penalties, to include penalties for violations of the proposed new and amended rules, discussed above. The proposed penalties are consistent with other penalties in N.J.A.C. 7:27A for similar violations, such as the existing penalties at N.J.A.C. 7:27A-3.10(m).

In addition, the Department proposes to designate new penalties as either minor or non-minor in accordance with the Grace Period Law, N.J.S.A. 13:1D-125 through 133, consistent with similar penalty provisions in N.J.A.C. 7:27A-3.10(m).

The Department proposes to delete penalty provisions for violations of those portions of N.J.A.C. 7:27 that are proposed to be deleted.

#### **Social Impact**

The Department anticipates that the proposed new rules and amendments will have a positive social impact, primarily from improved public health and reduced medical costs. The proposed rules will result in the reduction of ozone, VOCs, NO<sub>x</sub>, HAPs, PM<sub>2.5</sub> and other air pollutants.

The proposed rules are primarily designed to reduce VOC and NO<sub>x</sub> emissions, which will help the State make progress toward attainment of the 1997 Federal 8-hour NAAQS for ozone. The NAAQS are the Federal standards established to protect the public from the health effects of the "criteria" pollutants, of which ozone is one. The general public will benefit from the proposed rules because ground-level ozone is a health concern in New Jersey.

Ozone exposure can cause irritation of the lungs. This can make the lungs more vulnerable to diseases such as pneumonia and bronchitis, increase incidents of asthma and susceptibility to respiratory infections, reduce lung function, reduce an individual's ability to exercise and aggravate chronic lung diseases. Increased ozone concentrations severely affect the quality of life for susceptible populations – small children, the elderly, and asthmatics – and present health risks for everyone. Exposure to ozone for several hours at relatively low concentrations significantly reduces lung function and induces respiratory inflammation in

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normal, healthy people during exercise. This decrease in lung function is generally accompanied by symptoms such as chest pain, coughing, sneezing, and pulmonary congestion (MARAMA 2005 Report).

Recent research in Southern California strongly suggests that, in addition to exacerbating existing asthma, ozone also causes asthma in children (MARAMA 2005 Report). Long term exposure may lead to scarring of lung tissue and lowered lung efficiency. Repeated exposure may cause permanent lung damage. When ozone reaches unhealthy levels, children, people who are active outdoors, and people with respiratory disease are most at risk.

The Department estimates that attaining the Federal 1997 8-hour NAAQS 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 (NJDEP 2006 ozone report). As such, implementing the proposed RACT rules would not only yield greater air quality benefit, but also would save lives and money and provide better living conditions for the people of New Jersey, especially the susceptible populations. Based on an article in the April 2007 of Harvard Center for Risk Analysis' newsletter "Risk in Perspective," the Department estimates that ozone exposure results in increased deaths per year in New Jersey ("Relationship between Exposure and Mortality Risk," Risk in Perspective, Vol. 15, Issue 2, p.1 (April 2007); available at <http://www.hcra.harvard.edu/perspective.html>).

Reducing long term exposure to low concentrations of VOCs will also have beneficial health effects. The adverse health effects of VOCs may include elevation of serum enzyme levels, mild cellular changes and changes in lipid metabolism (Colorado Fact Sheet).

Acute effects include eye irritation and watering, nose irritation, throat irritation, headaches, nausea/vomiting, dizziness and asthma exacerbation. Chronic effects include cancer, liver damage, kidney damage and central nervous system damage (Minnesota Fact Sheet).

In addition, several VOCs are also hazardous air pollutants (HAPs) (1990 Clean Air Act Title I, §112(b), 42 U.S.C. § 7412(b)). Cutback asphalts, for example, contain the HAPs hexane, toluene, ethylbenzene, xylenes, naphthalene and benzene. Benzene is also classified as a toxic substance in N.J.A.C. 7:27-17 and is a human carcinogen. HAPs cause serious health effects, including cancer, birth defects, nervous system problems and death (EPA 1993).

NO<sub>x</sub>, too, is a potential health hazard. Long term exposure to low concentrations of nitrogen dioxide (NO<sub>2</sub>), a component of NO<sub>x</sub>, causes adverse health effects. Elevated levels of NO<sub>2</sub> cause damage to the mechanisms that protect the human respiratory tract and can increase a person's susceptibility to, and the severity of, respiratory infections and asthma. Long term exposure to high levels of NO<sub>2</sub> can cause chronic lung disease. It may also affect sensory perception, for example, by reducing a person's ability to smell an odor (Queensland 2006 Report). Other health effects from exposure to NO<sub>2</sub> include shortness of breath and chest pains.

SO<sub>2</sub> belongs to the family of sulfur oxide gases (SO<sub>x</sub>). These gases are formed when fuel containing sulfur, such as coal and oil, is burned, and when gasoline is extracted from oil in petroleum refineries. SO<sub>2</sub> dissolves in water vapor to form acid, and interacts with other gases and particles in the air to form sulfates and other products that can be harmful to people and their environment. Long term exposure to low concentrations of SO<sub>2</sub> causes adverse health effects. SO<sub>2</sub> aggravates existing lung diseases, especially bronchitis, constricts the breathing passages, especially in asthmatic people and people doing moderate to heavy exercise, and causes wheezing, shortness of breath, and coughing. (EPA 2007 SO<sub>2</sub>). High levels of particulate matter appear to worsen the effect of SO<sub>2</sub>, and long term exposures to both pollutants lead to higher rates of respiratory illness (NJDEP 2006 Pollutants Report).

In addition to contributing to the formation of ozone, both NO<sub>x</sub>, and to a lesser extent

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VOCs, contribute to the formation of fine particulate matter (PM<sub>2.5</sub>), either through condensation or complex reactions with other compounds in the atmosphere (EPA 2008 PM). Also, SO<sub>2</sub> may condense into an aerosol component of PM<sub>2.5</sub>.

PM<sub>2.5</sub> is either direct or formed. Direct PM<sub>2.5</sub> are particles emitted directly into the atmosphere from sources such as diesel-powered engines, forest fires, cars, trucks, buses, burning of wood. Formed PM<sub>2.5</sub> are particles produced from the physical and chemical transformation of other vaporous or gaseous pollutants emitted from power plants, industries and automobiles. Fine particulate matter is associated with a number of adverse human health effects, which include premature death, aggravation of respiratory and cardiovascular disease, changes in lung function and increased respiratory symptoms, changes in lung tissues and structure, and altered respiratory defense mechanisms (61 Fed. Reg. 65638, December 13, 1996). The Department estimates that each year there are approximately 1,900 deaths and 53,000 cases of asthma in the State attributable to the exceedance of the Federal 1997 annual NAAQS for PM<sub>2.5</sub>. These proposed rules reduce fine particulate matter in New Jersey.

Table 5 below summarizes the estimated emission reductions from implementing the proposed amendments for each source category

TABLE 5  
Estimated Emission Reductions

<u>Source Category</u>	<u>NO<sub>x</sub></u>	<u>VOC</u>	<u>SO<sub>2</sub></u>
Alternative and facility-specific NO <sub>x</sub> emission rates	To Be Determined at Application Evaluation	-	-
Alternative VOC Emission Limits	-	To Be Determined at Application Evaluation	-
Asphalt Used for Paving	-	2009 & subsequent: 3.6 tpd in O <sub>3</sub> season; 420 tpy (4/16-10/14)	-

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Asphalt Production Plants	2009: 43 tpy; 0.21 tpd O <sub>3</sub> season	-	-
	2010: 86 tpy; 0.42 tpd O <sub>3</sub> season		
	2011: 132 tpy; 0.64 tpd O <sub>3</sub> season		
Boilers Serving Electric Generating Units	2013: 788 tpy; 2.16 tpd O <sub>3</sub> season	-	2013: 2,571 tpy; 7.04 tpd O <sub>3</sub> season
CTG: Flat Wood Paneling Coatings	-	0	-
CTG: Flexible Package Printing	-	2009 & subsequent: 0.08 tpd O <sub>3</sub> season 2009: 19 tpy 2010 and subsequent: 35.3 tpy Additional reductions from BMP	-
CTG: Offset Lithographi c Printing and Letterpress Printing	-	2009 & subsequent: 0.43 tpd in O <sub>3</sub> season 2009: 104.6 tpy 2010 and subsequent: 157 tpy Additional reductions from BMP	-
High Electric Demand Day (HEDD) Units	2009: 19.8 t/HEDD	-	-
	2015: 63.7 t/HEDD based on HEDD units operating on 7/26/05		

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Glass Manufacturing Furnaces	2012: 1,170 tpy; 3.2 tpd O <sub>3</sub> season	-	-				
ICI Boilers & Other Indirect Heat Exchangers	2009: 408 tpy; 1.7 tpd O <sub>3</sub> season 2010: 740 tpy; 2.2 tpd O <sub>3</sub> season 2011: 970 tpy; 2.9 tpd O <sub>3</sub> season	-	-				
Municipal Solid Waste Incinerators	2009 & subsequent: 0.27 tpd O <sub>3</sub> season; 2009: 67 tpy 2010: >100 tpy	-	-				
VOC Stationary Storage Tanks:	-	2010 2.25 tpd O <sub>3</sub> seas; 464 tpy	2011 2.73 tpd O <sub>3</sub> seas; 637 tpy	2013 3.68 tpd O <sub>3</sub> seas; 984 tpy	2016 5.10 tpd O <sub>3</sub> seas; 1,504 tpy	2019 6.53 tpd O <sub>3</sub> seas; 2,024 tpy	-

**Economic Impact**

The Department anticipates that the proposed new rules and amendments will have an economic impact. Some facilities will incur costs, and others will receive an economic benefit, as discussed below.

The specific economic impacts of the proposed new rule and amendments are discussed separately below for each source category.

### Alternative and Facility-specific NO<sub>x</sub> Emission Limits

As the Summary above explained, of the 43 facilities with either a facility-specific emission limit (in an approved facility-specific NO<sub>x</sub> control plan) or an alternative maximum allowable emission rate, 25 or fewer will be impacted by the proposed new rules and amendments to N.J.A.C. 7:27-19.13.

The proposed new rules and amendments will require any facility wishing to continue operating under an approved facility-specific maximum allowable emission rate or alternative maximum allowable emission rate for NO<sub>x</sub> to re-apply for a new facility-specific maximum allowable emission rate or alternative maximum allowable emission rate. Facilities with an alternative maximum allowable emission rate will be required to re-apply for an alternative maximum allowable emission rate every 10 years, so the Department can re-evaluate the rate with respect to possible advances in the art of air pollution control technologies. The Department estimates that the cost to prepare and complete an application for a facility-specific NO<sub>x</sub> control plan or a request for an alternative maximum allowable NO<sub>x</sub> emission rate would range from \$5,000 to \$57,500 depending upon the technical complexity of the application. The proposed new rules and amendments will have an additional cost to a facility if the revised facility-specific NO<sub>x</sub> control plan or alternative maximum allowable emission rate requires installation of additional technologies to control NO<sub>x</sub> emissions. Additional costs could include costs for design, consultants, equipment, operation and monitoring. The annualized cost of NO<sub>x</sub> control will vary depending on the type and size of the source.

### Alternative VOC Emission Limits

Currently there are five facilities in New Jersey that have approved alternative VOC emission limits. The proposed new rules and amendments at N.J.A.C. 7:27-16.17(c) will terminate their current alternative VOC emission limits and require any facility wishing to continue operating under an approved alternative VOC emission limit to apply for a new alternative VOC control plan (which would include a new alternative VOC emission limit) within 60 days after the operative date of these new rules and amendments. The proposed new rules and amendments will require any facility that receives a new Department-approved alternative VOC control plan, to re-apply for an alternative VOC control plan every 10 years, so the Department can re-evaluate the emission rate with respect to possible advances in the art of air pollution control technologies. The Department generally estimates that the cost to prepare and complete an application for an alternative VOC control plan would probably range from \$5,000 to \$57,500 depending upon the technical complexity of the application. The proposed new rules and amendments will have an additional cost to a facility if the Department requires the installation of additional technologies to control VOC emissions. Additional costs could include costs for design, consultants, equipment, operation and monitoring. The annualized cost of VOC control will vary depending on the type and size of the source.

### Asphalt Used for Paving

The proposed cutback and emulsified asphalt amendments at N.J.A.C. 7:27-16.19 will impact manufacturers and users of cutback and emulsified asphalts. In New Jersey there are approximately 50 manufacturers of asphalt used for paving, 23 major asphalt paving contractors, and numerous smaller paving contractors. Asphalt paving contractors, the New Jersey Department of Transportation, and some New Jersey municipalities are among the users of this asphalt.

In order to comply with the proposed new rules and amendments, manufacturers may have to reformulate some of their products or refrain from selling them in New Jersey for use in

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New Jersey. Any current users of cutback asphalt will have to use alternative products from April 16 through October 14. The Department does not anticipate that most asphalt users will experience increased costs as a result of the proposed amendments.

Regarding emulsified asphalt, based on existing material safety data sheets (MSDS) for emulsified asphalts, Department employees' conversations with emulsified asphalt manufacturers, and the OTC's 2006 analysis (see OTC February 2007 Proposal), the Department anticipates that the cost to manufacturers of reformulating emulsified asphalt as a result of the proposed new rules and amendments will be relatively low. There are emulsified asphalts in use that already comply with the proposed amendments. For example, emulsified asphalt suppliers to the New Jersey Department of Transportation indicated that their products already comply with the VOC content limits in the proposed amendments.

Compliant emulsified asphalt is available at prices comparable to high VOC content asphalt mixtures (Connecticut Analysis). Therefore, there should be negligible or no additional cost to purchasers of emulsified asphalt who may currently purchase high VOC content asphalt mixtures.

According to the Asphalt Institute, a United States-based association of international petroleum asphalt producers, manufacturers and affiliated businesses, the use of cutback and emulsified asphalt has significantly decreased in New Jersey as a result of the existing rule. Emulsified asphalt use decreased 44 percent from 1990 to 2001, and cutback asphalt use decreased 75 percent from 1990 to 2001.

The ozone season ban on non-compliant cutback and emulsified asphalt may impact some users. However, there are alternatives for pavement repair that comply with the proposed amendments, such as portable hot and warm mix machines, and emulsions that do not require hot mix asphalt. Portable hot and warm mix road repair services or machines are offered by companies throughout the country, as are road repair products that do not need large equipment and machinery. Replacing non-compliant cutback and emulsified asphalt for maintenance and repair with hot mix or an alternative complying product may increase the short term costs for some pavement repair. However, these alternative products should create a better, longer lasting repair, which may be more cost-effective in the long run and provide a better product.

Manufacturers of asphalt may need to employ a laboratory in order to test asphalt for compliance with the rules. A test of emulsified asphalt using ASTM Method D244 or AASHTO T 59 costs between \$290.00 and \$320.00.

#### Asphalt Pavement Production Plants

The technologies that are available to achieve the NO<sub>x</sub> emission concentrations proposed at N.J.A.C. 7:27-19.9 are retrofitting an existing burner with flue gas recirculation (FGR), and upgrading a burner to a low-NO<sub>x</sub> burner. Based on an equipment life of 10 years, the Department estimates the cost to be \$100,000 for the FGR package and installation, including upgrading the computer-based control, and \$50,000 to upgrade an existing burner to a low NO<sub>x</sub> burner system. The Department estimates the cost-effectiveness to upgrade or retrofit to be in the range of \$2,500 to \$38,000 per ton of NO<sub>x</sub> emissions reduced. Lower cost alternatives, such as implementation of best management practices are feasible for some plants.

The Department expects upgrades and retrofits to improve production efficiency, which results in fuel savings and reduced annual emission fees due to more efficient dryer operation. In addition, significant fuel savings are expected from adopting best management practices. These cost savings have not been accounted for in the above cost estimates.

### Boilers Serving Electric Generating Units

Ten coal-fired boilers are used to generate electrical power at seven New Jersey facilities. The Department does not expect the proposed amendments to N.J.A.C. 7:27-4.2 to cause the owners or operators of the coal-fired boilers to install a control apparatus in order to comply with the proposed maximum particle emission rates. Only one coal-fired boiler - Vineland Municipal Electric Utility unit 10 - would not be in compliance with the proposed maximum particle emission rate and is not required by a consent decree or an administrative consent order to comply with an emission rate that is at least as stringent as the proposed maximum particle emission rate. This boiler is expected to shut down prior to December 15, 2012, in lieu of complying with the mercury rule for coal-fired boilers at N.J.A.C. 7:27- 27.7. Therefore, the Department does not expect the proposed maximum particle emission rates at N.J.A.C. 7:27-4.2 to have an economic impact.

The proposed amendments to N.J.A.C. 7:27-10.2 will cause the owner or operator of the Deepwater Electric Generating Unit (EGU) to install a control apparatus, such as a scrubber, in order to comply with the proposed SO<sub>2</sub> maximum emission rates. The Department expects the cost-effectiveness of installing a scrubber to be less than \$4,600 per ton of SO<sub>2</sub> reduced in 2007 dollars (MACTEC Report July 2007). Carney's Point unit 2, which already has a scrubber installed, may need to increase the amount of reagent that is used by the scrubber in order to ensure continuous compliance with the proposed emission rates. The Department expects increased maintenance and operation costs (including disposal costs) to add extra reagent will be small, approximately \$50.00 per ton of SO<sub>2</sub> emissions reduced, compared to the cost of installing a new scrubber. The Department estimates the use of extra reagent will cause an increase in scrubber by-product, the slurry or solid formed when the reagent reacts with the gaseous SO<sub>2</sub>, of approximately one percent. The owner or operator may sell or give away the slurry by-product from a wet scrubber to be used as a raw material in the cement industry, for manufacturing wallboard, or for agricultural use. The owner or operator may dispose of the solid by-product from a dry scrubber in a landfill at a cost of approximately \$12.00 per dry ton. Any additional control costs that are not absorbed by the electric generating companies are likely to be passed on to the consumer in the form of higher electricity generating rates.

The proposed amendments to N.J.A.C. 7:27-19.4 will cause the owner or operator of the Deepwater EGU to install a control apparatus, such as a selective catalytic reduction system, in order to comply with the proposed maximum allowable NO<sub>x</sub> emission rates. The Department expects the cost-effectiveness of installing, maintaining and operating a new selective catalytic reduction system on the coal-fired boiler to be less than \$1,250 per ton of NO<sub>x</sub> emission reductions in 2007 dollars (NESCAUM Report).

Control costs are likely to be passed on to the consumer in the form of somewhat higher electricity generating rates. Companies that design, build and install these emission control systems could benefit from the proposed amendments as they will experience an increase in demand for their products and services.

### Control Technique Guidelines

The proposed amendments at N.J.A.C. 7:27-16.7, regarding flexible package printing, are anticipated to have an economic impact on the regulated facilities. The CTG document for Flexible Package Printing, EPA 453/R-06-003, published in April 2006, lists the cost-effectiveness associated with the proposed rules to be \$1,300 to \$2,800 per ton of VOC controlled.

The proposed amendments at N.J.A.C. 7:27-16.7 incorporate the recommendations of the EPA, as published in the CTG document for Flatwood Paneling Coatings. The EPA estimates

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that the cost per ton of VOCs reduced, in 2005 dollars, to be \$2,600 for exterior siding; and \$1,900 for interior wall paneling and tileboard.

The proposed amendments at N.J.A.C. 7:27-16.7 incorporate the recommendations of the EPA, as published in the CTG document for Offset Lithographic Printing and Letterpress Printing. The EPA estimates the cost to implement the proposed controls for heatset offset lithographic printing operations, in 2005 dollars, at \$2,010 per ton VOC controlled. If a facility uses lower VOC cleaning materials for Offset Lithographic Presses, the cost-effectiveness estimate is \$855.00 per ton VOC controlled. Also, the reduction in alcohol use in fountain solutions or conversion to alcohol substitutes in fountain solutions results in cost savings, because lower content alcohol products are less expensive.

Implementing Best Management Practices, which are applicable to all surface coating and graphic art source operations included in the CTG documents, should result in economic gains since these practices will prevent coatings from volatilizing. Accordingly, more of the coating will remain on the surface.

#### Glass Manufacturing Furnaces

As discussed above, there are 25 glass manufacturing furnaces in the State. Of these, 14 already comply with the proposed limit at N.J.A.C. 7:27-19.10; consequently, there will be no additional cost for these furnaces as a result of the proposed rules. Two existing furnaces are temporarily inactive. The Department expects that most of the remaining nine glass manufacturing furnaces in the State will install oxyfiring in order to comply with the proposed emission limit and to improve the operation of the furnace. The OTC estimated the cost-effectiveness of installing oxyfiring to be between \$1,250 and \$2,500 per ton of NO<sub>x</sub> removed, in 2001 dollars. Other RACT control measures that could be installed include low NO<sub>x</sub> burners and selective non-catalytic reduction at estimated installation costs from \$920.00 to \$2,340 per ton of NO<sub>x</sub> removed. See [http://www.nj.gov/dep/airworkgroups/docs/wp\\_summary\\_table\\_web.xls](http://www.nj.gov/dep/airworkgroups/docs/wp_summary_table_web.xls) for further information.

The Department expects the proposed new rules and amendments to minimize costs. The proposed amendments require installation of controls at the time of rebricking. This will lessen the economic impact of the proposed new rules and amendments on a plant, since a furnace would not be subject to an unscheduled shutdown to install controls. Also, as a result of reduced emissions that are anticipated as a result of the proposed new rules and amendments, the Department expects glass manufacturing plants to save approximately \$100.00 per ton of NO<sub>x</sub> reduction in annual emission fees. Finally, where oxyfiring is installed, the savings due to less fuel consumption will amount to approximately 15 percent of current fuel cost. The OTC did not consider these savings in the cost estimates cited above.

The Department will experience a manageable increase in workload as a result of the proposed amendments relating to glass manufacturing furnaces. A facility will have to apply for a modification of its permit to install any additional control measure.

#### High Electric Demand Day (HEDD) Units

In New Jersey, there are eight HEDD units that are No. 6 fuel oil-fired boilers (six of which also combust natural gas). These units are primarily used on high electric demand days to generate electrical power at five New Jersey facilities. The proposed new rules and amendments at N.J.A.C. 7:27-19.4(a) will require seven of these boilers to have a control apparatus, such as a low NO<sub>x</sub> burner (LNB) or a Selective Non-Catalytic Reduction (SNCR) system, installed on them in order to comply with the proposed maximum allowable emission rates. The Department expects the cost-effectiveness of installing, maintaining and operating a LNB or SNCR system to

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be in the range of \$600.00 per ton to \$18,000 per ton of NO<sub>x</sub> emissions reduced, with an approximate average of \$5,000 per ton of NO<sub>x</sub> emissions reduced (See MACTEC report February 2007, page 4-22). Any additional control costs that are not absorbed by the electric generating companies are likely to be passed on to the consumer in the form of higher electricity generating rates.

Approximately 160 HEDD units in the State are turbines that are primarily used on high electric demand days to generate electrical power at 27 New Jersey facilities. The proposed new rules and amendments at N.J.A.C. 7:27-19.5 will require approximately 143 of these turbines to either have a control apparatus, such as water injection, installed on them or require the turbine to be replaced entirely in order to comply with the proposed maximum allowable emission rates. The cost-effectiveness of installing water injection is approximately \$44,000 per ton of NO<sub>x</sub> emission reductions. Most of these reductions would occur on high ozone days. Since these units are operated mostly on high electric demand days, which are typically high ozone days, the NO<sub>x</sub> emissions are concentrated in a short period, that is, during high ozone days, when NO<sub>x</sub> emission reductions are most critical. The total replacement cost, including maintenance and operation, for a simple cycle combustion turbine ranges from \$0.5 to 0.8 million per MW. Any additional control costs that are not recovered by the electric generating companies are likely to be passed on to the consumer in the form of higher electricity generating rates.

The cost of implementing the 2009 HEDD Emission Reduction Plan will vary depending on what measures the owner or operator proposes to use in order to obtain the required maximum allowable emission rates. The Department expects the cost of implementing a 2015 HEDD Emission Limit Achievement Plan could be offset by a measure implemented as part of the 2009 Protocol because this measure will also be used to achieve the required 2015 emission rates. If the owner or operator chooses to install a control apparatus or replace an existing HEDD unit to obtain the required 2009 NO<sub>x</sub> emission rates, this measure is likely to achieve compliance with the 2015 emission rates for that particular HEDD unit. If the owner or operator chooses another option, such as combusting natural gas when fuel oil is economically favored, the cost of purchasing natural gas will be minimized because HEDD units are not operated frequently. There will be an additional cost to the owners or operators to prepare the 2009 Protocol, 2009 Protocol annual reports, 2015 Plan and the 2015 Plan annual updates; however, this cost will be minimal compared to the cost of installing a control apparatus or replacing existing equipment. The Department estimates that the total cost to each company to prepare these plans and reports would be between \$20,000 and \$40,000. The more HEDD units in the two plans the higher the cost. This cost may be reduced if the company prepares plans that do not need substantial updating.

#### Industrial/Commercial/Institutional (ICI) Boilers and Other Indirect Heat Exchangers

The OTC completed an analysis of ICI boiler NO<sub>x</sub> control cost estimates using detailed information on direct capital equipment costs, direct installation costs, indirect capital costs, and direct and indirect operating costs. The analysis examined five types of NO<sub>x</sub> control technologies: low-NO<sub>x</sub> burners (LNB), ultra low-NO<sub>x</sub> burners (ULNB), LNB plus flue gas recirculation (LNB+FGR), LNB plus selective non-catalytic reduction (LNB+SNCR), and selective catalytic reduction (SCR). The analysis also considered various fuel types: coal, residual oil, distillate oil, and natural gas. The cost of the controls varies by fuel type, boiler size, current regulatory requirements, current control technology, and boiler firing type. The OTC analysis found that annual cost-effectiveness varied from \$600.00 per ton to \$18,000 per ton. In general, for most scenarios, the cost-effectiveness was estimated to be less than \$5,000 per ton of NO<sub>x</sub> removed (MACTEC Report February 2007, pg 4-22).

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The Department anticipates that the emission reduction from ICI boilers can usually be achieved by installing new low NO<sub>x</sub> burners, flue gas recirculation, or SNCR. The Department estimates that these new rules and amendments will result in the installation of new controls on approximately 250 boilers. Phasing in these controls over three years, as proposed, is anticipated to have less of an economic impact on the burner industry and the owners and operators of ICI boilers or other indirect heat exchangers than if all the boilers were required to meet the proposed emission rates earlier and simultaneously.

Indirect fired heat exchangers other than boilers, such as process heaters, would also be required to comply with the more stringent maximum allowable NO<sub>x</sub> emission rates if they have the same heat input size as ICI boilers. New Jersey's existing rule regulates both ICI boilers and indirect fired process heaters as a common source category, and continues to do so in the proposed amendments to these rules. Since such indirect fired process heaters are similar design to ICI boilers, the same control technology is generally applicable, and the cost of the controls is similar as that for ICI boilers, discussed above.

#### Municipal Solid Waste (MSW) Incinerators

The proposed new rules establish a maximum allowable NO<sub>x</sub> emission concentration for MSW incinerators of 150 ppmvd at seven percent oxygen based on each calendar day average. The Department anticipates that the State's MSW incinerators can meet the proposed standard using existing technology, at a reasonable cost.

The capital cost of installing a selective non-catalytic reduction system (SNCR) on a MSW incinerator is approximately \$1,500 per MMBtu/hr (Institute of Clean Air Companies, 2000, page 7). The primary cost of using a SNCR is in operating expenses (Institute of Clean Air Companies, 2000, page 7). The EPA estimates the cost of operating a SNCR system on an ICI boiler to be \$680.00 to \$1,200 per MMBtu/hr in 1993 dollars (See Table 14 in EPA 1999), which the Department believes would be the approximate cost for operating a SNCR system on an MSW incinerator boiler. This equates to between \$950.00 and \$1,675 in 2006 dollars. The EPA estimates the cost-effectiveness of operating a SNCR system on an MSW incinerator boiler to be \$2,140 per ton of NO<sub>x</sub> emissions reduced in 1990 dollars (See Table 16 in EPA 1999).

The capability exists, through optimization, for a SNCR system to obtain greater NO<sub>x</sub> emission reductions than the State's MSW incinerators are currently achieving. The Department estimates the cost-effectiveness to optimize an SNCR system by switching from a urea-based system to an ammonia-based system to be approximately \$200.00 per ton NO<sub>x</sub> reduced.

#### Sewage Sludge Incinerators

The Department's RACT maximum allowable NO<sub>x</sub> emission rates for sewage sludge incinerators at proposed N.J.A.C. 7:27-19.28 will not economically impact these incinerators, as they all are currently complying with the proposed maximum allowable emission rates.

#### VOC Stationary Storage Tanks

The proposed amendments will apply to any VOC stationary storage tank with an external or internal floating roof subject to N.J.A.C. 7:27-16.2, and will affect mainly refineries, terminals, and pipeline breakout stations. The cost estimates are based on data derived from documents that addressed costs for tanks located in California. It is appropriate to use this data for tanks installed and operated in New Jersey. The many of the manufacturers and vendors who will supply, install, or operate the necessary equipment at the New Jersey facilities are the same as those which service the California facilities. Labor costs for New Jersey and California facilities are similar since the cost of living in these areas of the country are comparable.

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The Department estimates that retrofitting guidepoles and upgrading other deck fittings on external floating roof tanks storing an applicable VOC has a cost-effectiveness, in 2001 dollars, of \$29,000 per ton of VOC emissions reduced, based on a cost of \$10,000 to retrofit a slotted guidepole with pole sleeves, cover and wipers, and \$500.00 per fitting to upgrade other deck fittings (South Coast 2001 Report). Installing gasketed covers or flexible fabric sleeves on each roof column or well and upgrading the other deck fittings on an internal floating roof tank has a cost-effectiveness of \$6,000 per ton of VOC removed in 2001 dollars (South Coast 2001 Report). The Department estimates that upgrading the seals on any floating roof tank storing an applicable VOC has a cost-effectiveness of \$13,200 per ton of VOC reduced as the tank is filled and emptied, in 2001 dollars (South Coast 2001 Report). However, the Department expects that most floating roof tanks are already in compliance with the proposed seal requirements.

There are approximately 240 stationary storage tanks with external floating roofs in the State. The Department proposes to require those that store VOC with a vapor pressure of three pounds per square inch or greater, except for crude oil, to install a dome. Many owners or operators of external floating roof tanks have already installed domes. However, the Department estimates there will be at least 70 other tanks that the proposed rules will cause to install a dome. The Department estimates the cost-effectiveness at \$12,036 per ton of VOCs reduced in 2001 dollars. (South Coast 2001 Report).

Improved deck fittings and installing domes provide additional benefits that would affect a tanks' operating expenses by protecting floating roofs from the weather, reducing maintenance, reducing risk of product contamination, and reducing risk of tank fires.

There are at least 850 VOC stationary storage tanks with internal and external floating roofs in the State. All these tanks will be subject to the proposed roof landing emission rules. The Department estimates the proposed rule will cause 200 to 300 of these tanks to be modified. One possible modification is to include replacing an existing floating roof with one that has an opening to accommodate a vapor recovery line that would go to a vapor control device. This is currently being done in parts of California, such as in the SCAQMD. Another possible modification is to retrofit a tank to meet the landing height requirement. This might be cost prohibitive if this would require piping, sumps or other hardware to be placed underneath the tank. The remaining tanks will not be required to be modified because their roof landing emissions are below five tons per year.

Cost-effectiveness estimates for performing these modifications and operating the installed controls varies from \$2,288 to \$20,000 per ton of VOC reduced based on tank size. Smaller tanks have a higher cost-effectiveness, while larger tanks have a lower cost-effectiveness. The South Coast 1987 Report estimated the cost-effectiveness to be \$4,000 to \$20,000 per ton of VOC reduced; the San Joaquin 2005 Report estimated the cost-effectiveness to be \$2,288 to \$4,290 per ton of VOC reduced; and the Bay Area Air Quality Management District (BAAQMD) 1997 Report estimated the cost-effectiveness to be \$3,000 per ton of VOC reduced. The BAAQMD 1997 Report estimate included the cost of converting an external floating roof tank to an internal floating roof tank, as well as the cost of vapor control. Its low cost estimate resulted from the estimate being performed on a large tank, approximately five million gallons.

The estimated cost to control emissions during a degassing operation is \$6,283 to \$11,781 for a 62,832-barrel floating roof tank, with a cost-effectiveness of \$2,288 to \$4,290 per ton of VOC emissions reduced (San Joaquin 2005 Report). There will be additional cost for tank cleaning that can vary significantly depending upon tank size, contents stored, liquid heel height, sludge level and solids content. The proposed degassing amendments will affect tanks greater than 40,000 gallons in size that store primarily gasoline, ethanol or methyl-tertiary-butyl-

ether (MTBE). The larger the tank and the higher the vapor pressure of the stored contents, the lower the cleaning cost per ton of emissions.

The Department expects costs for inspections to be minimal because owners or operators are already required to perform inspections under the Department's Discharge, Prevention, Containment and Countermeasures (DPCC) program rules and the Federal New Source Performance Standard regulations and/or maximum achievable control technology regulations. The Department's proposed inspection requirements can be performed concurrently with the other inspections.

The proposed new rules and amendments may have a small affect on gasoline prices at the pump. The Department estimates that the overall annualized compliance cost-effectiveness to this industry in its entirety would be a maximum of \$58,000,000 for 2,000 tons per year of VOC reductions in 2018. Throughput of gasoline in these tanks in 2006 exceeded ten billion gallons. Based on that figure, if owners or operators of VOC stationary storage tanks pass on compliance costs to distributors and retailers, the Department would expect gasoline prices at the pump to increase less than \$0.01 per gallon. Some tank owners or operators may not choose to pass some or all of these costs on to distributors and retailers. Distributors and retailers may be impacted if the potential increase in costs of gasoline increases their expenses and dampens demand.

#### Penalty Provisions

The proposed amendments to the penalty schedule in N.J.A.C. 7:27A will have no economic impact on persons who comply with the air pollution control rules. For violators, the economic impact of the proposed rules will vary according to the severity of the air pollution exceedance or other violation. The proposed penalties for violations of proposed additions to N.J.A.C. 7:27-19 are comparable to violations of similar provisions elsewhere in N.J.A.C. 7:27A.

#### **Environmental Impact**

The Department anticipates that the proposed new rules and amendments will have a positive environmental impact. Ozone interferes with the ability of plants to produce and store food, which makes them more susceptible to disease, insects, other pollutants, and harsh weather. Ozone damages the leaves of trees and other plants, ruining the appearance of cities, national parks, and recreation areas. Ozone reduces crop and forest yields and increases plant vulnerability to disease, pests, and harsh weather. This impacts annual crop production throughout the United States, resulting in significant losses, and injures native vegetation and ecosystems. Ground-level ozone also damages certain man-made materials, such as textile, fibers, dyes, and paints, requiring more frequent upkeep and repair.

Another benefit of the proposed new rules amendments is that emissions of SO<sub>2</sub> will also be reduced. NO<sub>x</sub> and SO<sub>2</sub> emissions contribute to the adverse environmental impacts from acid rain. Acid rain causes damage to forests, soil, and aquatic ecosystems; damage to infrastructure and human health; and reduces visibility. Nitric acid and sulfuric acid is formed when NO<sub>x</sub> and SO<sub>2</sub> are released during high-temperature fuel combustion. These pollutants stay in the air for days, sometimes travelling thousands of miles. Precipitation washes these acids out of the atmosphere as acid rain.

In addition to the formation of acid rain, SO<sub>2</sub> and NO<sub>x</sub> condense into an aerosol component of fine particulate matter, or PM<sub>2.5</sub>. Fine particulate matter is particulate matter that is 2.5 microns or less equivalent aerodynamic diameter. To a lesser extent VOCs, also contribute

to the formation of PM<sub>2.5</sub>. Reduction in fine particulate matter in New Jersey will have a positive environmental impact, for the reasons discussed below.

PM<sub>2.5</sub> (direct and formed) contributes to visibility impairment. Visibility impairment, called “regional haze,” occurs when particles and gases scatter and absorb light in the atmosphere. Reduced visibility is a problem in both urban and rural areas but is of most concern in national parks and wilderness areas that are valued for their aesthetic qualities. Without the effects of pollution, a natural visual range is approximately 140 miles in the western United States and 90 miles in the eastern United States. However, over the last few decades, sulfates, nitrates, and other particles in the atmosphere have reduced that range to 33 to 90 miles in the West and 14 to 24 miles in the East (Ceres Investors and Environmentalists for Sustainable Prosperity, Publication and Reports – Benchmarking Air Emissions of the 100 Largest Electric Generation Owners in the U.S., 2002).

The Federal Clean Air Act (CAA) (42 U.S.C. 7491) requires that states prepare a plan that makes reasonable progress towards improving visibility levels, caused by regional haze, in all Federally mandated Class one areas where such impairment is the result of the manmade emissions of air pollutants. New Jersey has a Class 1 visibility area located at the Brigantine Wilderness area of the Edwin B. Forsythe National Wildlife Refuge. Therefore, New Jersey is responsible for developing reasonable progress goals, in conjunction with other States identified as contributing to visibility impairment at Brigantine. The goals are to prevent future degradation, remedy existing impairment and attain natural background visibility conditions in the Class 1 area by the year 2064. The States will need to show increments of progress at ten-year intervals (with the first interval being 2018). The final regional haze State Implementation Plan (SIP) is scheduled to be proposed in September, 2008. Emission reductions from the proposed new rules and amendments will help New Jersey attain the goals for regional haze.

The proposed new rules and amendments are also expected to reduce emissions of HAPs and toxic substances that cause serious environmental effects. For example, some toxic air pollutants such as mercury can deposit onto soils or surface waters, where plants take them up. They can be ingested by animals and eventually magnified up through the food chain. Like humans, animals may experience health problems if exposed to sufficient quantities of air toxics over time. These health effects can include damage to the immune system, as well as neurological, reproductive (such as reduced fertility), developmental, respiratory and other health problems (see EPA 2008 Toxics Website).

Specific impacts by source category follow below.

#### Alternative and Facility-specific NO<sub>x</sub> Emission Limits

The Department expects the proposed new rules and amendments to affect 25 or fewer facilities. The proposed new rules and amendments will require each of these facilities that plan to continue operating under its approved alternative maximum allowable NO<sub>x</sub> emission rate to apply for a new alternative allowable NO<sub>x</sub> emission rate now and every 10 years hereafter. This will cause these facilities to re-evaluate their alternative maximum allowable emission rates with respect to possible advances in the art of air pollution control technologies now and every 10 years.

The proposed new rules and amendments will require each of these facilities that plan to continue operating under its approved facility-specific NO<sub>x</sub> control plan to apply for a new facility-specific NO<sub>x</sub> control plan shortly after the rules are adopted. This will cause these facilities to re-evaluate their facility-specific NO<sub>x</sub> control plans with respect to possible advances in the art of air pollution control technologies almost immediately. The proposed new rules and amendments will have a positive environmental impact if they result in the Department’s

approving facility-specific NO<sub>x</sub> control plans or alternative maximum allowable emission rates that cause facilities to install additional NO<sub>x</sub> control technologies. The Department can not predict any NO<sub>x</sub> emission reductions at this time, because reductions will be determined during the review of applications for alternative maximum allowable emission rates and facility-specific NO<sub>x</sub> control plans.

#### Alternative VOC Emission Limits

Currently the Department has approved alternative VOC emission limits for five facilities. The proposed new rules and amendments will require each of these facilities that plans to continue operating under its approved alternative VOC emission limit to apply for a new alternative VOC emission limit in a new alternative VOC control plan shortly after the rules are adopted, and every 10 years hereafter. This will cause these facilities to re-evaluate their alternative VOC emission limits with respect to possible advances in the art of air pollution control technologies every 10 years. These new rules and amendments will have a positive environmental impact if the new alternative VOC emission limits cause these facilities to install additional VOC control technologies. Future VOC emission reductions will depend on advances in the art of air pollution control technologies, the development of new equipment, and the remaining useful life of the equipment. The Department can not predict any VOC emission reductions at this time, because reductions will be determined during the review of applications for new alternative VOC control plans.

#### Asphalt Used for Paving

The primary environmental benefit from controls on cutback and emulsified asphalt will be a reduction in the emission of VOCs. Also, as discussed in the Social Impact, the proposed new rules and amendments are expected to reduce emissions of hazardous air pollutants (HAPs) (substances listed in 1990 Clean Air Act Title III, Sec. 112(b)) and toxic substances (substances listed in N.J.A.C. 7:27-17), such as hexane, toluene, ethylbenzene, xylenes, naphthalene, hydrogen sulfide and benzene; and PM<sub>2.5</sub> (fine particulate matter of 2.5 microns or less equivalent aerodynamic diameter), some of which is created from VOC emissions.

Based on the MACTEC Report (see MACTEC Report February 2007), the Department estimates that the proposed new rules and amendments for cutback and emulsified asphalt will result in a reduction of VOC emissions in New Jersey of approximately 3.6 tpd in the 2009 ozone season (1.8 tpd for cutback and 1.8 tpd for emulsified).

#### Asphalt Pavement Production Plants

Assuming that each owner or operator chooses to comply with the proposed maximum allowable NO<sub>x</sub> emission rates by a strategy other than a physical modification, instead of installing new controls, the Department's estimated NO<sub>x</sub> emission reductions in tpd during the ozone season would be 0.21 tpd in 2009, 0.42 tpd in 2010 and 0.64 tpd in 2011. The Department's estimated annual emission reductions in tons per calendar year would be 43 tons in 2009, 86 tons in 2010, and 132 tons in 2011. This would amount to an overall 35 percent or more reduction from the 2002 base emissions. These annual estimates would change if an owner or operator complies by making a physical modification to the plant, for which the proposed new rules and amendments allow an additional year to comply.

#### Boilers Serving Electric Generating Units

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The only coal-fired boiler in the State that is not either currently in compliance with the proposed maximum particle emission rate or required by a consent decree or administrative consent order to comply with an emission rate that is at least as stringent as the proposed maximum particle emission rate is Vineland Municipal Electric Utility unit 10. The Department expects this boiler to shut down prior to December 15, 2012, in lieu of complying with the mercury requirements for coal-fired boilers at N.J.A.C. 7:27- 27.

Operation of a dry scrubber with a baghouse will typically result in a 95 percent reduction in SO<sub>2</sub> emissions. If Conectiv Energy installs a scrubber on Deepwater unit 6/8 and achieves a 95 percent reduction in SO<sub>2</sub> emissions, the Department estimates, based on 2002 emission statement data projected to 2009, an annual decrease in SO<sub>2</sub> emissions of over 2,000 tons. If Cogentrix increases SO<sub>2</sub> control on Carneys Point unit 2 in order to obtain compliance with the proposed maximum emission rate, the Department estimates, based on 2002 emission statement data projected to 2009, an annual decrease in SO<sub>2</sub> emissions of over 200 tons. The Department's estimated total projected SO<sub>2</sub> emission reductions in 2013 would be 7.04 tpd during the ozone season and 2,571 tpy.

A selective catalytic reduction system will typically result in a 90 percent reduction in NO<sub>x</sub> emissions. If Conectiv Energy installs a selective catalytic reduction system on Deepwater unit 6/8 and achieves a 90 percent reduction in NO<sub>x</sub> emissions, the Department estimates, based on 2002 emissions statement data projected to 2009, a decrease in NO<sub>x</sub> emissions in 2013 of 2.16 tpd during the ozone season and 788 tpy.

#### Control Techniques Guidelines

As a result of the proposed new rules and amendments, the emission reductions expected from lithographic and letterpress printing are approximately 0.43 tons of VOC per day during the ozone season and, in 2010 and subsequent years, 157 tons of VOC emission reductions per year. These reductions would be primarily from the proposed rules requiring lower VOC content cleaning materials. The emission reductions expected from flexible package printing are approximately 0.08 tons VOC per day during the ozone season and, in 2010 and subsequent years, 35.3 tons per year. No VOC emission reductions are anticipated for flat wood coatings, since there are currently no such facilities in the State. Additional VOC emission reductions are expected from implementing Best Management Practices, such as covering mixing vessels and sealing storage containers.

#### Glass Manufacturing Furnaces

The Department expects the proposed new rules and amendments to cause nine glass manufacturing furnaces to install controls or take other measures to reduce NO<sub>x</sub> emissions. The Department estimates this will result in nearly 1,170 tons per year of NO<sub>x</sub> emission reductions by 2012, which is approximately 3.2 tpd during the ozone season, based on a 2002 NO<sub>x</sub> emissions baseline.

#### High Electric Demand Day (HEDD) Units

The 2009 HEDD Emission Reduction Compliance Demonstration Protocol will reduce NO<sub>x</sub> emissions on high electric demand days by 19.8 tpd, assuming overall potential NO<sub>x</sub> emissions from HEDD units will be similar to HEDD unit emissions on July 26, 2005. If overall potential NO<sub>x</sub> emissions are higher than HEDD unit emissions were on July 26, 2005, the expected NO<sub>x</sub> emission reduction would be proportionately higher. Likewise, if overall potential NO<sub>x</sub> emissions are lower than HEDD unit emissions were on July 26, 2005, the expected NO<sub>x</sub> emission reduction would be proportionately lower. For example, if the potential NO<sub>x</sub> emissions

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are twice the HEDD unit emissions on July 26, 2005, the expected NO<sub>x</sub> emission reduction would be 39.6 tpd (2 times 19.8 tpd) and if potential NO<sub>x</sub> emissions are half of the HEDD unit NO<sub>x</sub> emissions on July 26, 2005, the expected NO<sub>x</sub> emission reduction would be 9.9 tpd (1/2 times 19.8). These emission reductions will occur on each high electric demand day from the operative date of these amendments through September 30, 2014.

A low NO<sub>x</sub> burner or a selective non-catalytic reduction (SNCR) system will typically result in a 40 percent reduction in NO<sub>x</sub> emissions. A water injection (WI) system will typically result in a 55 percent reduction in NO<sub>x</sub> emissions. Replacing existing aeroderivative turbines with newer Dry-Lo NO<sub>x</sub> (DLN) based simple cycle turbines will typically result in a 90 percent reduction in NO<sub>x</sub> emissions. The Department estimates, by applying the proposed 2015 maximum allowable emission rates to the HEDD units that were operating on the reference day of July 26, 2005, that a reduction in NO<sub>x</sub> emissions from HEDD units of 54.9 tpd will be achieved on a high electric demand day similar to July 26, 2005. This result comes from replacing the actual NO<sub>x</sub> emission rates of July 26, 2005 with the maximum allowable NO<sub>x</sub> emission rates proposed at N.J.A.C. 7:27-19.4, Table 3 and N.J.A.C. 7:27-19.5, Table 7. However, peak electric use is forecast to grow 1.5 percent annually in Pennsylvania New Jersey Maryland Interconnection LLC's (PJM) Mid-Atlantic Region through 2017. Applying 1.5 percent annual electric use growth to the 54.9 tpd expected reduction, results in an anticipated NO<sub>x</sub> reduction of 63.7 tpd or more, by 2015 on a high electric demand day. The annual emission reduction will depend on the actual usage of the HEDD units.

The Department expects that the NO<sub>x</sub> emission reduction will be approximately 19.8 tpd on each high electric demand day starting on the operative date of these amendments. The effective emission reduction is likely to grow between 2009 and 2015 (when the 2015 proposed performance standards go into effect) because many HEDD unit owners or operators will install emission controls or replacing high emitting sources with new low emitting sources in order to attain compliance with the proposed 2015 performance standards by May 1, 2015. By May 1, 2015, all HEDD units are expected to be in compliance with the 2015 performance standards and the emission reduction is expected to be approximately 63.7 tpd.

#### Industrial/Commercial/Institutional (ICI) and Other Indirect Heat Exchangers

Assuming that each owner or operator chooses to comply with the proposed maximum allowable NO<sub>x</sub> emission rates by optimizing a boiler's combustion processes, instead of installing new controls, the Department anticipates that the proposed new rules and amendments will result in a reduction of NO<sub>x</sub> emissions of approximately 1.7 tpd during the 2009 ozone season to approximately 2.9 tpd during the 2011 ozone season. The Department expects approximately 408 tons of NO<sub>x</sub> emission reductions in 2009 increasing to approximately 970 tons in 2011. These annual estimates would change if an owner or operator complies by installing new controls, for which the proposed new rules and amendments allow an additional year to comply.

#### Municipal Solid Waste (MSW) Incinerators

The Department anticipates that the proposed 150 ppmvd maximum allowable NO<sub>x</sub> emissions concentration would reduce the amount of ozone in the Ozone Transport Region and other areas affected by the transport of NO<sub>x</sub>. The resulting reduction in ambient ozone concentration is expected to reduce the adverse health effects and damage to the environment described above in this section. Actual NO<sub>x</sub> emission concentrations from the State's 13 MSW incinerators range from 90 to 200 ppm. Actual NO<sub>x</sub> emissions in 2002 for the State's 13 MSW incinerators was 1,803 tpy. MSW incinerators usually set their emission concentrations to a

level below any required limit to reduce the likelihood they will exceed the required limit. Therefore, by May 1, 2010 the Department expects each MSW incinerator to emit NO<sub>x</sub> at a concentration of approximately 130 ppm, which would result in approximately 0.27 tpd of NO<sub>x</sub> emission reductions during the 2009 ozone season. Emitting NO<sub>x</sub> at approximately 130 ppm would result in approximately 1,685 tpy NO<sub>x</sub> emissions. Compared to the 2002 emissions of 1,803 tpy, the Department expects the emission reductions to be approximately 67 tpy in 2009 and greater than 100 tpy in subsequent years.

#### VOC Stationary Storage Tanks

The proposed new rules and amendments require all Range III tanks to upgrade their deck fittings and seals if they are not already upgraded. Range III tanks are those that would be most likely to store gasoline or other high vapor pressure VOC liquids. The Department expects the proposed rules to upgrade deck fittings and seals to yield an emission reduction of approximately 187 tons per year of VOC starting in 2010.

New Jersey emission inventory data indicates VOC emissions of over 400 tpy from at least 70 external floating roof tanks without domes storing gasoline. The proposed new rules and amendments require existing external floating roof tanks storing VOC with a vapor pressure of 3 psia or greater to be retrofitted with domes. Retrofitting external floating roof tanks with domes cuts emissions by an average of 63 percent (SCAQMD Final Staff Report). The proposed compliance date is 10 years after the operative date of the amendments. The Department expects the proposed rules requiring tanks to be retrofitted with domes to yield an additional emission reduction of approximately 13 tons per year of VOC, starting in 2010. In other words, the Department expects approximately a 13 ton reduction in 2010, a 26 ton reduction in 2012, and up to a 130 ton reduction in 2020.

The total roof landing VOC emissions in New Jersey are at least 2,000 tons per year. The total may be 3,000 tons or more because many of these emissions have not been reported in the past. The Department's proposed rules would require an average of 80 percent control of these emissions. The Department estimates approximately 160 tons of additional emission reductions will be achieved each year or as much as 0.5 tons per ozone season day as a result of the proposed roof landing rules. The Department estimates VOC emission reductions in 2020 in the range of 1,400 to 2,400 tons or possibly more. These estimates are difficult to determine because they depend on the tank VOC control plans that the tank owners or operators submit.

The uncontrolled emissions from degassing a tank are approximately 0.5 tons (San Joaquin 2005 Report). Degassing usually occurs once every ten years (SJVUAPCD Final Draft Staff Report). Using these factors, and with a New Jersey tank universe of at least 1,000 floating roof tanks (i.e., those subject to an Operating Permit), the Department estimates that 100 tanks are degassed annually with total degassing emissions of about 50 tons per year. There are additional fixed and floating roof tanks subject to a Preconstruction Permit and Operating Certificate.

The uncontrolled emissions from one degassing and cleaning of a tank are approximately 6.7 tons (Ferry 2007). Assuming that 100 tanks are degassed and cleaned annually, the Department estimates that the annual uncontrolled VOC emissions are approximately 670 tpy. Applying 95 percent control efficiency required by the proposed rules and amendments, the emission reductions during the five month ozone season would be approximately 265 tons.

### **Federal Standards Analysis**

Executive Order No. 27 (1994) and N.J.S.A. 52:14B-1 et seq. (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 Federal standards analysis.

The proposed new rules and amendments are needed to fulfill a Federal Clean Air Act requirement that New Jersey adopt control measures to reduce NO<sub>x</sub>, VOC, SO<sub>2</sub>, particulate emissions to attain the ozone and fine particulate national ambient air quality standards. Therefore, proposal of the new rule and amendments are consistent with Federal requirements.

Based on its review of Federal regulations, the Department has determined that the proposed new rules and amendments for the following source categories do not contain any standards or requirements that are comparable to Federal law: alternative maximum allowable NO<sub>x</sub> emissions rates, facility-specific maximum allowable NO<sub>x</sub> emission rates, alternative VOC emission limits, asphalt pavement production plants, the source categories affected by the proposed control techniques guidelines, and glass manufacturing furnaces. Accordingly, Executive Order No. 27 (1994) and N.J.S.A. 52:14B-1 et seq. (P.L. 1995, c.65), do not require any further analysis for these source categories.

The Clean Air Act, Section 182(b)(2) (42 U.S.C. §7511(b)(2)), requires states, such as New Jersey, that have nonattainment areas to revise their SIPs to include reasonably available control technology for sources of VOC emissions covered by a Control Techniques Guidelines (CTG) document issued after November 15, 1990, and prior to the area's date of attainment. In September 2006, the EPA issued CTG documents for offset lithographic printing and letterpress printing (EPA 453/R-06-002), flexible package printing (EPA 453/R-06-003), and flat wood paneling coatings (EPA 453/R-06-004). (See [http://www.epa.gov/ttn/naaqs/ozone/ctg\\_act/](http://www.epa.gov/ttn/naaqs/ozone/ctg_act/).) The proposed amendments are equivalent to and are not more stringent than these CTG. Accordingly, Executive Order No. 27 (1994) and N.J.S.A. 52:14B-1 et seq. (P.L. 1995, c.65), do not require any further analysis for these source categories.

Based on its review of comparable Federal regulations, the Department has determined that the proposed new rules and amendments for the following source categories contain standards or requirements that exceed the standards or requirements imposed by Federal law: asphalt used for paving, boilers that serve electric generating units, high electric demand day units, ICI boilers and other indirect heat exchangers, municipal solid waste incinerators, and VOC stationary storage tanks. However, as stated above, all of these proposed new rules and amendments are needed to fulfill a requirement, imposed by EPA pursuant to the Federal Clean Air Act, Section 182 (b)(2) 42 U.S.C.7401 et seq., that New Jersey adopt sufficient control measures to meet the NAAQS for ozone and fine particulates. Therefore, the proposed new and amended rules are necessary for the State to comply with Federal requirements. Failure to achieve these reductions could subject the State to Federal sanctions.

Despite the fact that the proposed new rules and amendments are necessary if the State is to meet Federal Requirements, a Federal Standards Analysis follows below by source category.

#### **Asphalt Used for Paving**

In 1979 EPA recommended a seven percent VOC content limit for emulsified asphalt used during the ozone season. The Department is proposing a more stringent VOC content limit (0.1 percent VOC by weight; or 6.0 milliliter of oil distillate in accordance with the ASTM Method D244 or AASHTO T 59) for emulsified asphalt used during the period April 16 through October 14. The entire state of New Jersey is not in attainment with the Federal 1997 8-hour

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NAAQS for ozone. The purpose of the proposed more stringent VOC content limit is to help bring the State into attainment.

The Department has investigated various emission sources to determine where further VOC emission reductions can be achieved. The storage, use or application of emulsified asphalt is one of these emission sources. Emulsified asphalts with a lower VOC content than is in EPA's Asphalt CTG exist and are currently being used by the New Jersey Department of Transportation. EPA's Asphalt CTG has not been revised since 1979 (almost 30 years ago) and is outdated. In 1993, the state of Delaware prohibited VOC in emulsified asphalt manufactured, mixed, used or applied during the ozone season. The OTC has recommended that each state in the OTC region adopt a rule for emulsified asphalt and issued white papers to help states develop rules. On December 12, 2007 the state of Connecticut re-proposed a rule. The Department's proposed VOC content limit for emulsified asphalt is the same as Connecticut's re-proposed limit.

The proposed rules could affect manufacturers of emulsified asphalt. The proposed rules may also affect some asphalt paving contractors and some municipalities in New Jersey, as users of emulsified asphalt. The Department has analyzed the potential costs and benefits, based on compliance in 2009. As discussed in the Economic Impact above, the Department anticipates that the cost to manufacturers of producing emulsified asphalt with the more stringent VOC content limit will be relatively low and that compliant emulsified asphalt is available at prices comparable to high VOC content asphalt mixtures.

The Department anticipates that the proposed new rules and amendments will result in a direct benefit to public health of 3.6 tpd of VOC reduced during the ozone season, and 420 tpy during the regulated period (April 16 through October 14) as well as other benefits described in the Environmental Impacts section.

The 1979 EPA-recommended VOC content limit for emulsified asphalt is outdated. Emulsified asphalts that would comply with the proposed VOC content limit exist and are in use at prices comparable to asphalts with a high VOC content. The proposal to manufacture and use compliant asphalt is not anticipated to pose a financial burden to emulsified asphalt manufacturers or users.

The benefits to public health and the environment outweigh any cost to manufacturers and users in order to help bring the State into attainment with the Federal 1997 8-hour NAAQS for ozone.

#### Boilers Serving Electric Generating Units

The Department has compared proposed N.J.A.C. 7:27-4.2, 10.2(c), and 19.4(a) with analogous Federal regulations, namely New Source Performance Standards (NSPS), 40 CFR Part 60.

Based on its review of these Federal regulations (40 CFR 60.40 and 40 CFR 60.40Da), the Department has determined that the proposed new rules and amendments are more stringent than some of the standards or requirements imposed by the Federal regulations. Standards of Performance for Fossil Fuel Fired Steam Generators for which construction is commenced after August 17, 1971 (40 CFR 60.40 – Subpart D) do not apply to boilers that were constructed prior to August 17, 1971, and not modified or reconstructed since; therefore the Federal regulations do not impose any emission limit for particulates, SO<sub>2</sub> or NO<sub>x</sub> on these sources. Similarly, Standards of Performance for Electric Utility Steam Generating Units for which construction is commenced after September 18, 1978 (40 CFR 60.40Da – Subpart Da) do not apply to boilers that were constructed prior to September 18, 1978, and not modified or reconstructed since;

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therefore the Federal regulations do not impose any emission limit for particles, SO<sub>2</sub> or NO<sub>x</sub> on these sources.

The amendments being proposed by the Department will require all coal-fired boilers in the State to comply with the proposed particle and SO<sub>2</sub> emission limits and all boilers serving electric generating units to comply with the proposed NO<sub>x</sub> emission limits, regardless of installation date and whether or not the source has been modified or reconstructed.

Particles

The proposed rules would set a maximum particle emission rate of 0.0300 pounds/MMBtu for all existing coal-fired boilers in the State and a maximum particulate emission rate of 0.0150 pounds/MMBtu for any coal-fired boiler that is constructed, installed, reconstructed or modified on or after the operative date of the rule. These maximum emission rates are more stringent than NSPS for sources that were installed prior to August 17, 1971 because neither 40 CFR 60.40 nor 40 CFR 60.40Da apply to these boilers. The proposed 0.0300 pounds/MMBtu emission rate is also more stringent than the NSPS for sources that were constructed, reconstructed or modified after August 17, 1971, but before September 18, 1978, and not subsequently reconstructed or modified. The Federal rule at 40 CFR 60.40 requires an emission limit of 0.10 pounds/MMBtu for these sources. Also, for sources constructed, reconstructed or modified after February 28, 2005, 40 CFR 60.42Da allows a less stringent alternative to the 0.0150 pounds/MMBtu emissions limit of 0.030 pounds/MMBtu, as long as the emission reduction is at least 99.8 percent for sources modified after February 28, 2005, or 99.9 percent for sources constructed or reconstructed after February 28, 2005. However, if the construction, reconstruction or modification of the source triggers the Federal Prevention of Significant Deterioration (PSD) rule at 40 CFR 52.21, PSD regulations will require the installation of BACT on the source, which would be capable of achieving the proposed maximum emission rate. Therefore, the proposed maximum emission rate is not more stringent than Federal rules for a new or modified coal-fired boiler that is subject to PSD.

Table 6 below compares the maximum particulate emission rates imposed by Federal NSPS regulations with the proposed maximum particle emission rates as applicable to boilers that were constructed, reconstructed or modified at various times.

TABLE 6  
Comparison of Federal Particulate Emission Limits and Proposed Particle Emission Limits for Boilers

<u>Date Source</u> <u>Was</u> <u>Constructed</u> <u>Reconstructed</u> <u>or Modified</u>	<u>Prior to</u> <u>8/18/71</u>	<u>Starting</u> <u>8/18/71</u> <u>through</u> <u>9/18/78</u>	<u>Starting</u> <u>9/19/78</u> <u>through</u> <u>2/28/05</u>	<u>Starting 2/28/05</u> <u>until the</u> <u>Operative Date</u> <u>of these New</u> <u>Rules and</u> <u>Amendments</u>	<u>On and after the</u> <u>Operative Date</u> <u>of these New</u> <u>Rules and</u> <u>Amendments</u>
	No Applicable Federal Rules	40 CFR 60.40 NSPS Subpart D	40 CFR 60.40Da NSPS Subpart Da	40 CFR 60.40Da NSPS Subpart Da	40 CFR 60.40Da NSPS Subpart Da

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Federal  
Regulations  
(for coal-fired  
only)

			0.14 pounds/MWh	0.14 pounds/MWh
			<b>or</b>	<b>or</b>
			0.015 pounds/MMBtu	0.015 pounds/MMBtu
			<b>or</b>	<b>or</b>
None	0.10 pounds/ MMBtu	<b>Coal:</b> 0.03 pounds/ MMBtu & 99 percent reduction	<b>Modification:</b> 0.03 pounds/MMBtu & 99.8 percent reduction	<b>Modification:</b> 0.03 pounds/MMBtu & 99.8 percent reduction
			<b>or</b>	<b>or</b>
			<b>Construction or Reconstruction:</b> 0.03 pounds/MMBtu & 99.9 percent reduction	<b>Construction or Reconstruction:</b> 0.03 pounds/MMBtu & 99.9 percent reduction

Proposed  
Emission Rates  
(for coal-fired  
only)

**Boiler existing as of the Operative Date:**  
0.0300 pounds/MMBtu<sup>1</sup>

**If Constructed, Reconstructed or Modified after Operative Date:**  
0.0150 pounds/MMBtu<sup>1</sup>

<sup>1</sup> Or as specified in a permit if a more stringent limit is imposed due to SOTA or PSD applicability

SO<sub>2</sub>

The proposed rules would require a maximum SO<sub>2</sub> emission rate of 0.150 pounds/MMBtu (based on a 30 calendar day rolling average) and 0.250 pounds/MMBtu (based on a 24 hour emission rate) for all sources in the State that combust solid fuel. These limits are more stringent than the NSPS for sources that were installed prior to August 17, 1971, because neither 40 CFR 60.40 nor 40 CFR 60.40Da apply to these sources. The proposed emission limits are also more stringent than the NSPS for sources that were constructed, reconstructed or modified after August 17, 1971, but before September 18, 1978, and not subsequently reconstructed or modified. The Federal regulation at 40 CFR 60.40 requires an emission limit of 1.2 pounds/MMBtu for these sources. These limits are also more stringent than NSPS for sources that were constructed, reconstructed or modified after September 18, 1978, but before February 28, 2005, and not subsequently reconstructed or modified (40 CFR 60.40Da requires an emission limit of 1.20 pounds/MMBtu along with an SO<sub>2</sub> reduction of 90 percent or an emission limit of 0.60 pounds/MMBtu along with an SO<sub>2</sub> reduction of 70 percent for these sources).

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For sources that are reconstructed or modified after February 28, 2005, 40 CFR 60.42Da requires an emission limit of 0.150 pounds/MMBtu based on a 30 calendar day rolling average, which the proposed rule also requires. However, the proposed rule also requires an emission limit of 0.250 pounds/MMBtu based on a 24 hour emission rate, which is more stringent than the Federal 0.150 pounds/MMBtu emission limit based on a 30 calendar day rolling average. Therefore, the proposed rule is more stringent than the Federal regulation. Also, NSPS allows an alternative emission limit of 1.4 pounds/MWh or an SO<sub>2</sub> reduction ranging from 90 percent to 95 percent for a source depending on whether the source is constructed, reconstructed or modified after February 28, 2005. If the construction, reconstruction or modification of the source triggers the Federal PSD regulations at 40 CFR 52.21, these Federal PSD regulations will require the installation of BACT on the source, which would be capable of achieving the proposed maximum emission rates. Therefore, the proposed maximum emission rates are not more stringent than Federal regulations for a new, reconstructed or modified coal-fired boiler that is subject to PSD. If the Federal PSD regulations are not triggered the proposed emission rates may or may not be more stringent than the Federal regulations, depending on the characteristics of the combustion unit.

Table 7 below compares the maximum SO<sub>2</sub> emission rates imposed by Federal NSPS regulations with the proposed maximum SO<sub>2</sub> emission rates as applicable to boilers that were constructed, reconstructed or modified at various times.

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**TABLE 7**  
**Comparison of Federal SO<sub>2</sub> Emission Limits and Proposed SO<sub>2</sub> Emission Limits for Boilers**

<u>Date Source was</u> <u>Constructed</u> <u>Reconstructed or</u> <u>Modified</u>	<u>Prior to</u> <u>8/18/71</u>	<u>Starting 8/18/71</u> <u>through 9/18/78</u>	<u>Starting 9/19/78</u> <u>through 2/28/05</u>	<u>After 2/28/05</u>
	No Applicable Federal Rules	40 CFR 60.40 NSPS Subpart D	40 CFR 60.40Da NSPS Subpart Da	40 CFR 60.40Da NSPS Subpart Da
				<b>Construction:</b> 1.4 pounds/MWh <sup>1</sup> <b>or</b> 95 percent reduction <sup>1</sup>
<u>Federal</u> <u>Regulations</u> (for coal-fired only)	None	1.2 pounds/MMBtu	1.20 pounds/MMBtu & 90 percent reduction <b>or</b> 0.60 pounds/MMBtu & 70 percent reduction	<b>Reconstruction:</b> 1.4 pounds/MWh <sup>1</sup> <b>or</b> 0.15 pounds/MMBtu <sup>1</sup> <b>or</b> 95 percent reduction <sup>1</sup>
				<b>Modification:</b> 1.4 pounds/MWh <sup>1</sup> <b>or</b> 0.15 pounds/MMBtu <sup>1</sup> <b>or</b> 90 percent reduction <sup>1</sup>
<u>Proposed</u> <u>Emission Rates</u> (for coal-fired only)			0.150 pounds/MMBtu <sup>1,2</sup> 0.250 pounds/MMBtu <sup>2,3</sup>	

<sup>1</sup> 30 calendar day rolling average basis

<sup>2</sup> Or as specified in a permit if a more stringent limit is imposed due to SOTA or PSD applicability

<sup>3</sup> 24 hour emission rate

### NO<sub>x</sub>

The Department's proposed new rules and amendments would require a maximum allowable NO<sub>x</sub> emissions rate of 1.50 pounds/MWh operative on December 15, 2012 for coal-fired boilers, 2.00 pounds/MWh operative on May 1, 2015 for heavier than No. 2 fuel oil face or cyclone-fired boilers, 1.00 pound/MWh operative on May 1, 2015 for No. 2 and lighter fuel oil-fire boilers, and 1.00 pounds/MWh operative on May 1, 2015 for gas-fired boilers. These maximum emission rates are more stringent than NSPS for sources that were installed prior to August 18, 1971, because neither 40 CFR 60.40 nor 40 CFR 60.40Da applies to these sources.

The proposed maximum allowable emission rates are also more stringent than NSPS for sources that were constructed, reconstructed or modified starting August 18, 1971 through September 18, 1978, and not subsequently reconstructed or modified. The Federal regulation at 40 CFR 60.40 requires an emission limit of 0.70 pounds/MMBtu for coal-fired boilers, 0.30 pounds/MMBtu for oil fired boilers and 0.20 pounds/MMBtu for gas fired boilers. As explained earlier in this proposal, to convert pounds/MMBtu to pounds/MWh, the Department uses a generic heat rate of 10,000 British thermal units per kilowatt hour (Btu/KWh).

The proposed maximum allowable emission rates are also more stringent than NSPS for sources that were constructed, reconstructed or modified starting September 19, 1978 through July 9, 1997. (40 CFR 60.40Da requires an emission limit of 0.50 to 0.60 pounds/MMBtu, based on a 30 calendar day rolling average, along with a 65 percent NO<sub>x</sub> reduction for coal-fired boilers; 0.30 pounds/MMBtu, based on a 30 calendar day rolling average, along with a 30 percent NO<sub>x</sub> reduction for oil-fired boilers; and 0.20 pounds/MMBtu, based on a 30 calendar day rolling average, along with a 25 percent NO<sub>x</sub> reduction for gas-fired boilers).

The proposed maximum emission rates are also more stringent than NSPS for coal, No. 2 fuel oil, lighter than No. 2 fuel oils, or gas-fired boilers that were constructed starting July 10, 1997 through February 28, 2005. (40 CFR 60.40Da requires an emission limit of 1.6 pounds/MWh, based on 30 calendar day rolling average, for these sources). The proposed maximum emission rates are also more stringent than NSPS for boilers that combust No. 2 fuel oil, lighter than No. 2 fuel oil, or gas that were reconstructed starting July 10, 1997 through February 28, 2005. The proposed maximum emission rates are also more stringent than NSPS for boilers that combust coal, No. 2 fuel oil, lighter than No. 2 fuel oil, or gas that were modified starting July 10, 1997 through February 28, 2005. The proposed maximum emission rates are also more stringent than NSPS (40 CFR 60.42Da) for boilers that combust No. 2 and lighter fuel oil or that combust gas that are modified after February 28, 2005.

However, if the construction, reconstruction or modification of the boiler triggers the Federal PSD rule at 40 CFR 52.21, PSD regulations will require the installation of BACT on the boiler, which would be capable of achieving the proposed maximum emission rates. Therefore, the proposed maximum emission rates are not more stringent than Federal regulations for a new, reconstructed or modified coal-fired boiler that is subject to PSD.

Table 8 below compares the NO<sub>x</sub> emission rates imposed by Federal NSPS regulations with the proposed NO<sub>x</sub> emission rates as applicable to boilers that were constructed, reconstructed or modified at various times.

Table 8  
Comparison of Federal Maximum Allowable NO<sub>x</sub> Emission Rates and Proposed Maximum Allowable NO<sub>x</sub> Emission Rates for Boilers

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No Applicable Federal Rules	40 CFR 60.40 NSPS Subpart D	40 CFR 60.40Da NSPS Subpart Da	40 CFR 60.40Da NSPS Subpart Da	40 CFR 60.40Da NSPS Subpart Da	40 CFR 60.40Da NSPS Subpart Da
		<b>Coal:</b> 0.70 pounds/ MMBtu	<b>Coal:</b> 0.50 – 0.60 pounds/ MMBtu <sup>1</sup> & 65 percent reduction	<b>Construction:</b> 1.6 pounds/MWh <sup>1</sup>  <b>Reconstruction:</b> 0.15 pounds/MMBtu <sup>1</sup>	<b>Construction:</b> 1.0 pound/MWh <sup>1</sup>  <b>Reconstruction:</b> 1.0 pound/MWh <sup>1</sup> <b>or</b> 0.11 pounds/MMBtu <sup>1</sup>  <b>Modification:</b> 1.4 pounds/MWh <sup>1</sup> <b>or</b> 0.15 pounds/MMBtu <sup>1</sup>
	None	<b>Oil:</b> 0.30 pounds/ MMBtu	<b>Oil:</b> 0.30 pounds/ MMBtu <sup>1</sup> & 30 percent reduction		
<u>Federal</u> <u>Regulations</u>		<b>Gas:</b> 0.20 pounds/ MMBtu	<b>Gas:</b> 0.20 pounds/ MMBtu <sup>1</sup> & 25 percent reduction		

Proposed  
Emission Rates

**Coal:** 1.50 pounds/MWh<sup>2,5</sup>  
**Heavier than No. 2 Oil:** 2.00 pounds/MWh<sup>3,5</sup>  
**No. 2 and lighter Oil:** 1.00 pound/MWh<sup>3,5</sup>  
**Gas:** 1.00 pound /MWh<sup>4,5</sup>

<sup>1</sup> 30 day rolling average basis

<sup>2</sup> 1.50 pounds/MWh is based on 0.15 pounds/MMBtu

<sup>3</sup> 2.00 pounds/MWh is based on 0.20 pounds/MMBtu

<sup>4</sup> 1.00 pound/MWh is based on 0.10 pounds/MMBtu

<sup>5</sup> Or as specified in a permit if a more stringent limit is imposed due to SOTA or PSD applicability

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The proposed new rules and amendments are needed to fulfill a requirement, imposed by EPA pursuant to the Federal Clean Air Act, 42 U.S.C. 7401 et seq., that New Jersey adopt sufficient control measures to attain the Federal 1997 8-hour NAAQS for ozone and the Federal 1997 annual NAAQS for PM<sub>2.5</sub>. Therefore, proposal of these new rules and amendments is necessary for the State to comply with Federal air quality requirements.

The Department's estimated emission reductions are based on particulate, SO<sub>2</sub> and NO<sub>x</sub> inventory emissions and the control efficiencies of the reasonably available control technologies. The Department has determined that the control technologies are technologically feasible, based on several sources that have already installed, or are in the process of installing control apparatus that will bring the units into compliance with the proposed maximum emission rates. The emission reductions from these proposed rules and amendments are expected to be approximately 17 tpy (0.047 tpd) of particle emission reductions; 2,571 tpy (7.04 tpd) of SO<sub>2</sub> emission reductions; and 788 tpy (2.16 tpd) of NO<sub>x</sub> emission reductions by 2013.

The proposed maximum allowable emission rates are already being complied with by some of the affected boilers in New Jersey and are required to be complied with by other boilers by the ACD and ACO. The proposed rules would ensure that all coal-fired power plants in New Jersey install up-to-date air pollution controls.

Complying with the proposed new rules and amendments will primarily affect unit 6/8 at the Conectiv Deepwater Generating Station, which will have to install an SO<sub>2</sub> control apparatus, such as a scrubber, and install a NO<sub>x</sub> control apparatus, such as a Selective Catalytic Reduction (SCR) system. There is only one boiler serving an EGU in the State that is not an HEDD unit and that does not combust coal. Instead it combusts kerosene and natural gas. This boiler currently complies with the proposed maximum allowable NO<sub>x</sub> emission rate, and therefore would not be impacted by the proposed amendments.

As discussed in more detail in the Economic Impact above, the proposed amendment to the maximum allowable emission rate for particles is not expected to have an economic impact, the estimated cost-effectiveness of SO<sub>2</sub> emission reductions is expected to be less than \$4,800 per ton of SO<sub>2</sub> reduction in 2007 dollars, and the estimated cost-effectiveness of NO<sub>x</sub> emission reductions is expected to be less than \$1,250 per ton of NO<sub>x</sub> reductions in 2007 dollars. Control costs are likely to be passed on to the consumer in the form of somewhat higher electricity generating rates.

Companies that design, build and install these emission control systems could benefit from the proposed amendments as they will experience an increase in demand for their products and services.

The Department anticipates the benefits of the proposed new rules and amendments to be an increase in the quality of life and protection of human health, the environment and agriculture. The Department expects the proposed new rules and amendments to have a significant positive environmental impact. The primary environmental benefit will be a reduction in the emission of NO<sub>x</sub> emissions, which are precursor emissions that lead to the formation of ground level ozone. See this proposal's Social, Environmental and Agriculture Industry Impact sections for an explanation of the health, environmental and agriculture impacts, respectively, of ground level ozone. The Department also expects the proposed rules to significantly reduce emissions of SO<sub>2</sub>. The Department is proposing these new rules and amendments to meet EPA air quality standards. Failure to achieve these air quality standards could subject New Jersey to economic sanctions, which would adversely affect all businesses and taxpayers in the State.

In proposing these amendments the Department has balanced the need to protect the environment and public health and to comply with the EPA requirements against any economic impacts of the rule. Based on similar sources that currently meet these requirements and similar

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sources that have committed to meet these requirements, the Department has determined that these amendments are achievable with currently available technology and are cost-effective. By setting maximum emission standards for all New Jersey electrical generating units, the Department will set a precedent for other states to do the same. The Department has determined that establishing these proposed emission standards, even though more stringent than the Federal rules, is necessary in order to attain air quality standards and to protect the environment and public health.

#### High Electric Demand Day (HEDD) Units

The Department has performed a comparison of proposed N.J.A.C. 7:27-19 with analogous Federal regulations, namely NSPS.

#### HEDD Boilers

Based on its review of these Federal regulations for boilers (40 CFR 60.40 and 40 CFR 60.40Da), the Department has determined that the proposed new rules and amendments exceed many of the standards or requirements imposed by the Federal regulations. Standards of Performance for Fossil Fuel Fired Steam Generators for which construction is commenced after August 17, 1971 (40 CFR 60.40 – Subpart D) do not apply to boilers that were constructed on or before August 17, 1971 and not modified or reconstructed since that time, and therefore, the Federal rules do not impose any maximum allowable NO<sub>x</sub> emission rate on these sources.

Similarly, Standards of Performance for Electric Utility Steam Generating Units for which construction is commenced after September 18, 1978 (40 CFR 60.40Da – Subpart Da) do not apply to boilers that were constructed on or before September 18, 1978 and not modified or reconstructed since. The Federal rules do not impose any maximum allowable NO<sub>x</sub> emission rate on these sources.

However, the proposed new rule and amendments will require all HEDD units which are boilers serving electric generating units to comply with the proposed maximum allowable NO<sub>x</sub> emission rates, regardless of installation date and whether or not the source has been modified or reconstructed.

The Department's proposed new rules and amendments require a maximum allowable NO<sub>x</sub> emissions rate of 2.00 pounds/MWh for heavier than No. 2 fuel oil fired boilers, 1.00 pound/MWh for No. 2 and lighter fuel oil fired boilers and 1.00 pound/MWh for gas fired boilers. These maximum allowable emission rates are more stringent than NSPS for boilers that were installed prior to August 17, 1971 because neither 40 CFR 60.40 nor 40 CFR 60.40Da apply to these boilers.

The proposed maximum allowable emission rates are also more stringent than NSPS for boilers that were constructed, reconstructed or modified after August 17, 1971 but before September 18, 1978 and not reconstructed or modified thereafter. The Federal rule at 40 CFR 60.40 requires an emission limit of 0.30 pounds/MMBtu for oil fired boilers and 0.20 pounds/MMBtu for gas fired boilers. The proposed maximum allowable NO<sub>x</sub> emission rates are also more stringent than NSPS for boilers that were constructed or reconstructed after September 18, 1978, but before July 9, 1997; and for boilers that were modified after September 18, 1978 but before February 28, 2005 and not reconstructed or modified thereafter. The Federal rule at 40 CFR 60.40Da requires an emission limit of 0.30 pounds/MMBtu, based on a 30 calendar day rolling average, along with a 30 percent NO<sub>x</sub> reduction for oil fired boilers; and 0.20 pounds/MMBtu, based on a 30 calendar day rolling average, along with a 25 percent NO<sub>x</sub> reduction for gas fired boilers.

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The proposed maximum allowable NO<sub>x</sub> emission rates are also more stringent than NSPS for No. 2 fuel oil or gas fired boilers that were installed after July 7, 1997, but before February 28, 2005 and not reconstructed or modified thereafter. The Federal rule at 40 CFR 60.40Da requires an emission limit of 1.6 pounds/MWh, based on 30 calendar day rolling average, for these boilers. The proposed NO<sub>x</sub> emission rates are more stringent than the Federal rule No. 2 fuel oil or gas fired boilers that were reconstructed after July 7, 1997 but before February 28, 2005 and not reconstructed or modified thereafter. The Federal rule at 40 CFR 60.40Da requires an emission limit of 0.15 pounds/MMBtu, based on a 30 calendar day rolling average, for these boilers.

For sources that are modified after February 28, 2005, 40 CFR 60.42Da requires 1.4 pounds/MWhr or 0.15 pounds/MMBtu, based on a 30 calendar day rolling average, which is less stringent than the proposed maximum allowable NO<sub>x</sub> emission rate for No.2 and lighter fuel oil or for gas. However, if the construction, reconstruction or modification of the source triggers the Federal Prevention of Significant Deterioration (PSD) rule at 40 CFR 52.21, PSD regulations will require the installation of best available control technology (BACT) on the source, which would be capable of achieving the proposed maximum allowable NO<sub>x</sub> emission rates.

Table 9 below compares the NO<sub>x</sub> emission limits imposed by Federal NSPS regulations with the Department's proposed maximum allowable NO<sub>x</sub> emission rates as applicable to boilers that were constructed, reconstructed or modified at various times.

TABLE 9  
Comparison of Federal NO<sub>x</sub> Emission Limits and  
Proposed Maximum Allowable NO<sub>x</sub> Emission Rates for Boilers

<u>Date Source</u> <u>Was</u> <u>Constructed</u> <u>Reconstructed</u> <u>or Modified</u>	<u>Prior to</u> <u>8/18/71</u>	<u>Starting</u> <u>8/18/71</u> <u>through</u> <u>9/18/78</u>	<u>Starting</u> <u>9/19/78</u> <u>through</u> <u>7/9/97</u>	<u>Starting 7/10/97</u> <u>Through 2/28/05</u>	<u>After 2/28/05</u>
	No Applicable Federal Rules	40 CFR 60.40 NSPS Subpart D	40 CFR 60.40Da NSPS Subpart Da	40 CFR 60.40Da NSPS Subpart Da	40 CFR 60.40Da NSPS Subpart Da

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	<b>Oil:</b> 0.30 pounds/ MMBtu	<b>Oil:</b> 0.30 pounds/ MMBtu <sup>1</sup> & 30 percent reduction	<b>Construction:</b> 1.6 pounds/MWh <sup>1</sup>	<b>Construction:</b> 1.0 pound/MWh <sup>1</sup>
None			<b>Reconstruction:</b> 0.15 pounds/MMBtu <sup>1</sup>	<b>Reconstruction:</b> 1.0 pound/MWh <sup>1</sup> or 0.11 pounds/MMBtu <sup>1</sup>
	<b>Gas:</b> 0.20 pounds/ MMBtu	<b>Gas:</b> 0.20 pounds/ MMBtu <sup>1</sup> & 25 percent reduction		<b>Modification:</b> 1.4 pounds/MWh <sup>1</sup> or 0.15 pounds/MMBtu <sup>1</sup>

Proposed  
Emission Rates

Effective on Operative Date of Proposed Amendments

Heavier than No. 2 Oil: 2.00 pounds/MWh<sup>2</sup>  
No. 2 and lighter Oil: 1.00 pound/MWh<sup>3</sup>  
Gas: 1.00 pound/MWh<sup>3</sup>

<sup>1</sup> 30 day rolling average basis

<sup>2</sup> 2.00 pounds/MWh is based on 0.20 pounds/MMBtu

<sup>3</sup> 1.00 pound/MWh is based on 0.10 pounds/MMBtu

HEDD Turbines

Based on its review of the Federal regulations for turbines (40 CFR 60.330 and 40 CFR 60.4300), the Department has determined that the proposed new rules and amendments exceed many of the standards or requirements imposed by the Federal regulations. Standards of Performance for stationary gas turbines (40 CFR 60.330 – Subpart GG) do not apply to turbines that were constructed on or before October 3, 1977 and not modified or reconstructed since and therefore do not impose any emission limit for NO<sub>x</sub> on these sources. Similarly, Standards of Performance for stationary combustion turbines (40 CFR 60.4300 – Subpart KKKK) do not apply to turbines that were constructed on or before February 18, 2005 and not modified or reconstructed since. The Federal rules do not impose any emission limit for NO<sub>x</sub> on these sources. Also, Subparts GG and KKKK do not regulate turbines that have a heat input of less than 10 MMBtu/hr. However, the proposed new rules and amendments require all turbines to comply with the proposed maximum allowable NO<sub>x</sub> emission rates, regardless of installation date and whether or not the source has been modified or reconstructed.

The Department’s proposed new rules and amendments require that on and after May 1, 2015, all HEDD turbines comply with the following maximum allowable NO<sub>x</sub> emission rates: 0.75 pounds/MWh for gas-fired combined cycle turbines; 1.20 pounds/MWh for oil-fired combined cycle turbines; 1.00 pound/MWh for gas-fired simple cycle turbines; and 1.60 pounds/MWh for oil-fired simple cycle turbines. The proposed maximum allowable NO<sub>x</sub>

emission rates are more stringent than NSPS for turbines that were installed prior to October 3, 1977, because neither 40 CFR 60.330 nor 40 CFR 60.4300 applies to these turbines. It is difficult to determine whether the proposed maximum allowable NO<sub>x</sub> emission rates are more stringent than NSPS emission limits for turbines that were constructed, reconstructed or modified after October 3, 1977, but on or before February 18, 2005 and not reconstructed or modified since. The Federal rule at 40 CFR part 60, subpart KKKK does not apply to these turbines, and the 40 CFR part 60, subpart GG applicable NO<sub>x</sub> emission limit is dependent on the manufacturer's rated heat input for the specific turbine. Therefore, there is no general emission limit that can be used for comparison with the proposed maximum allowable NO<sub>x</sub> emission rates. All turbines with a heat input greater than 10 MMBtu/hr that are constructed, reconstructed or modified after February 18, 2005 are subject to subpart KKKK.

The proposed standards for simple cycle and combined cycle gas fired turbines with a heat input equal to or greater than 10 MMBtu/hr and less than or equal to 50 MMBtu/hr that are constructed after February 18, 2005 are more stringent than the Federal rule at 40 CFR 60.4300, which establishes an emission limit of 2.3 pounds/MWh for these turbines. The proposed standards for both simple cycle and combined cycle gas fired turbines with a heat input greater than 50 MMBtu/hr and less than or equal to 850 MMBtu/hr that are constructed, reconstructed or modified are more stringent than the Federal standards at 40 CFR 60.4300, which established an emission limit of 1.2 pounds/MWh for such turbines that are constructed, and an emission limit of 2.0 pounds/MWh for such turbines that are reconstructed or modified. The proposed standards for both simple cycle and combined cycle oil fired turbines with a heat input equal to or greater than 10 MMBtu/hr and less than or equal to 50 MMBtu/hr that are constructed, reconstructed or modified are, likewise, more stringent than the Federal standards at 40 CFR 60.4300, which establish an emission limit of 5.5 pounds/MWh for constructed turbines, and an emission limit of 8.7 pounds/MWh for reconstructed or modified turbines.

The proposed rules for both simple cycle and combined cycle oil fired turbines with a heat input greater than 50 MMBtu/hr and less than or equal to 850 MMBtu/hr that are constructed, reconstructed or modified are more stringent than the Federal standards at 40 CFR 60.4300, which require an emission limit of 3.6 pounds/MWh for constructed turbines, and an emission limit of 4.7 pounds/MWh for reconstructed or modified turbines. The proposed rules for simple cycle and combined cycle oil fired turbines with a heat input greater than 850 MMBtu/hr that are constructed, reconstructed or modified are more stringent than the Federal rules at 40 CFR 60.4300, which require an emission limit of 1.3 pounds/MWh for these turbines.

Additionally, if the construction, reconstruction or modification of the source triggers Federal PSD review under 40 CFR 52.21, the source will be required to install the best available control technology (BACT) capable of achieving the proposed maximum allowable NO<sub>x</sub> emission rate. Table 10 below shows the NO<sub>x</sub> emission limits that are imposed by Federal NSPS regulations and the Department's proposed maximum allowable NO<sub>x</sub> emission rates as applicable to sources that were constructed, reconstructed or modified at various times.

TABLE 10  
Comparison of Federal NO<sub>x</sub> Emission Limits and  
Proposed Maximum Allowable NO<sub>x</sub> Emission Rates for Turbines

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	Prior to 10/3/77	Starting 10/4/77 through 2/18/05	After 2/18/05
	No applicable Federal rules	NSPS Subpart GG Dependant on manufacturer's rated heat input	NSPS Subpart KKKK
Federal Regulations for All Simple and Combined Cycle Turbines with Heat Input > 10 MMBtu			<p>Gas:</p> <p><u>Construction:</u>            &lt;=50 MMBtu/hr: 2.3 pounds/MWh or 42 ppm            &gt;50 and &lt;=850 MMBtu/hr: 1.2 pounds/MWh or 25 ppm            &gt;850 MMBtu/hr: 0.43 pounds/MWh or 15 ppm</p> <p><u>Reconstruction:</u>            &gt;50 and &lt;=850 MMBtu/hr: 2.0 pounds/MWh or 42 ppm            &gt;850 MMBtu/hr: 0.43 pounds/MWh or 15 ppm</p> <p><u>Modification:</u>            &gt;50 and &lt;=850 MMBtu/hr: 2.0 pounds/MWh or 42 ppm            &gt;850 MMBtu/hr: 0.43 pounds/MWh or 15 ppm</p> <p>Oil:</p> <p><u>Construction:</u>            &lt;=50 MMBtu/hr: 5.5 pounds/MWh or 96 ppm            &gt;50 and &lt;=850 MMBtu/hr: 3.6 pounds/MWh or 74 ppm            &gt;850 MMBtu/hr: 1.3 pounds/MWh or 42 ppm</p>

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Reconstruction:

<=50 MMBtu/hr: 8.7 pounds/MWh or 150 ppm  
 >50 and <=850 MMBtu/hr: 4.7 pounds/MWh or 96 ppm  
 >850 MMBtu/hr: 1.3 pounds/MWh or 42 ppm

Modification:

<=50 MMBtu/hr: 8.7 pounds/MWh or 150 ppm  
 >50 and <=850 MMBtu/hr: 4.7 pound/MWh or 96 ppm  
 >850 MMBtu/hr: 1.3 pound/MWh or 42 ppm

Proposed Emission Rates                      Effective on the one day after the operative date of these amendments

<p>(non-HEDD Turbines of any Heat Input)</p>	<p>Combined Cycle (Gas): 1.3 pounds/MWh          Combined Cycle (Oil): 2.0 pounds/MWh          Simple Cycle (Gas): 2.2 pounds/MWh          Simple Cycle (Oil): 3.0 pounds/MWh</p>
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Effective on May 1, 2015

<p><u>Proposed Emission Rates</u>          (HEDD Turbines of any Heat Input)</p>	<p>Combined Cycle (Gas): 0.75 pounds/MWh<sup>1</sup>          Combined Cycle (Oil): 1.20 pounds/MWh<sup>1</sup>          Simple Cycle (Gas): 1.00 pound/MWh<sup>1</sup>          Simple Cycle (Oil): 1.60 pounds/MWh<sup>1</sup></p>
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<sup>1</sup> Gas rates based on 25 ppm; Oil rates based on 42 ppm; Simple cycle rates based on 35 percent efficiency; Combined cycle rates based on 46 percent efficiency.

The proposed new rules and amendments require each owner or operator of an HEDD unit (turbine or boiler) to submit a 2015 HEDD Emission Limit Achievement Plan (2015 Plan) to the Department by May 1, 2010, and an annual update on the progress in achieving the 2015 Plan. The purpose of the 2015 Plan is to ensure that the owner or operator has a preliminary plan for achieving compliance for each HEDD unit by 2015. The purpose of the annual update is to allow the Department to monitor the progress of the owner or operator in implementing the 2015 Plan and to provide an opportunity for the owner or operator to revise the 2015 Plan. There is no Federal regulation with a similar requirement; therefore, this part of the proposed rules is more stringent than the Federal requirements.

Due to the large number of HEDD units that will be affected by the proposed amendments, the Department has allowed a substantial period of time for these HEDD units to comply with the proposed limits. The Department expects that each owner or operator will be planning for compliance with the 2015 maximum allowable NO<sub>x</sub> emission rates. The Department, through the proposed rules, is requiring the owner or operator to share the plan and

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the status of implementing it with the Department periodically, in order to keep the lines of communications open between the owner or operator and the Department. In this way, the parties can address potential issues early in the process and not delay compliance.

Finally, the proposed new rules and amendments require each of the three major owners or operators of HEDD units to reduce NO<sub>x</sub> emissions on high electric demand days during the interim period the operative date of these amendments through September 30, 2014. As the Summary explained, the owners or operators may obtain these NO<sub>x</sub> emission reductions from any source that is approved by the Department, and the proposed new rules and amendments suggest some emission reduction strategies. The proposed new rules and amendments do not require the reductions to come from any specific source, nor do they require any specific source to meet a given emission limit. There is no similar Federal regulation.

The proposed new rules and amendments are needed to fulfill a requirement, imposed by EPA pursuant to the Federal Clean Air Act, 42 U.S.C. 7401 et seq., that New Jersey adopt sufficient control measures to attain the Federal 1997 8-hour NAAQS for ozone. Therefore, the proposed new rules and amendments are necessary for the State to comply with Federal requirements.

Technological feasibility of the proposed maximum allowable NO<sub>x</sub> emission rates is based on several sources that have already installed a control apparatus to bring the EGUs into compliance with the proposed NO<sub>x</sub> emission rates, or installed new sources that will comply with the proposed maximum allowable NO<sub>x</sub> emission rates. The NO<sub>x</sub> emission reductions from these proposed new rules and amendments are expected to be approximately 19.8 tons per high electric demand day by 2009, and 63.7 tons per high electric demand day by 2015.

As the Summary explained, the proposed new rules and amendments would primarily affect electric generating companies that have boilers serving electric generating units or turbines that are capable of generating 15 MW or more of electrical power and operated less than or equal to an average of 50 percent of the time during the previous three ozone seasons. Also potentially affected would be the companies that design, build and install these control apparatus systems and turbines, consumers of the power generated, and all people who live, work or travel in New Jersey.

As discussed in more detail in the Economic Impact above, the estimated cost-effectiveness of emission reduction for the boilers is expected to be approximately \$600.00 to \$18,000 per ton of NO<sub>x</sub> emission reductions. The cost-effectiveness of installation of water injection on turbines is expected to be approximately \$44,000 per ton of mostly ozone day NO<sub>x</sub> emission reductions, which is equivalent to about \$4,400 per ton for calendar year NO<sub>x</sub> emission reductions. The estimated cost of replacing existing turbines is expected to be approximately \$0.5 to \$0.8 million per MW. The Department anticipates the proposed new rules and amendments will result in an increase in the quality of life and protection of human health, the environment and agriculture. The Department expects the proposed new rules and amendments to have a significant positive environmental impact. The primary environmental benefit will be a reduction in NO<sub>x</sub> emissions, which are precursor emissions that lead to the formation of ground level ozone. As discussed earlier, ground level ozone is breathed by people and animals and comes into contact with crops and other vegetation, as well as man made structures and surfaces. This exposure can cause a variety of adverse effects. It is estimated that these proposed new rules and amendments will result in an emission reduction of 19.8 tons per high electric demand day by 2009 and an emission reduction of 63.7 tons per high electric demand day by 2015.

In addition to the environmental and health benefits, economic benefits, which are difficult to quantify, may also be realized. Owners and employees of businesses will enjoy the

environmental, health and other social benefits of the new amendments. A reduction in air pollution will lead to healthier and more productive workers.

Finally, the Department is proposing these new rules and amendments to meet EPA requirements. Failure to achieve these reductions could subject New Jersey to economic sanctions, which would adversely affect all businesses and taxpayers in the State.

In proposing these new rules and amendments the Department has balanced the need to protect the environment and public health and to comply with EPA requirements against any economic impacts of the proposed new rules and amendments. Based on similar sources that currently meet the proposed requirements, the Department has determined that these proposed new rules and amendments are achievable under current technology and are cost effective. The Department has determined that adopting the proposed new rules and amendments, even though more stringent than the Federal rules, is necessary in order to attain the Federal 1997 8-hour NAAQS for ozone and to protect the environment and public health.

#### Industrial/Commercial/Institutional (ICI) Boilers or other Indirect Heat Exchangers

The Department compared the proposed new rules and amendments at N.J.A.C. 7:27-19.7 to the NSPS at 40 CFR Part 60, and the Acid Rain NO<sub>x</sub> Emission Reduction Program, 40 CFR Part 76. The Department determined that the proposed new rules and amendments are more stringent than the Federal regulations for boilers greater than 100 MMBtu/hr firing liquid fuels.

The purpose of the proposed new rules and amendments for the ICI boilers and other indirect heat exchangers source category is to help bring the State into attainment with the Federal 1997 8-hour NAAQS for ozone. The Department investigated various source categories to determine where further NO<sub>x</sub> emission reductions can be achieved. The Department identified ICI boilers and other indirect heat exchangers as having a Statewide potential of reducing NO<sub>x</sub> emissions by nearly 1,000 tpy by 2011, assuming compliance is achieved by optimizing each boiler's combustion processes. This 2011 estimate would be lower if some small ICI boilers and other indirect heat exchangers comply by installing control devices because the proposed new rules and amendments would allow an extra year to comply.

The proposed new rules and amendments will affect industry, commercial operations, and institutions that own or operate boilers or other indirect heat exchangers that are equal to or greater than 25 MMBtu/hr rated heat input. Beginning the operative date of these amendments, and phased-in over the next two years, allowing smaller units more time to comply, this source category must meet the proposed maximum allowable emission rates proposed at proposed new N.J.A.C. 7:27-19.7(i) Table 9. Proposed new Table 9 proposes emission rates for 10 categories based on heat input rate and fuel type. The Federal NSPS have not established emission rates for seven of these categories. The Department's proposed emission rates for the other three categories are more stringent than the Federal NSPS emission rates. These three categories are for fuel types natural gas only, No. 2 fuel oil, and other liquid fuels for ICI boilers or other indirect heat exchangers with a heat input rate of 100 MMBtu/hr or greater.

Table 11 below compares by heat input and fuel type, the maximum allowable NO<sub>x</sub> emission rates proposed by New Jersey, existing in New Jersey, recommended by the Ozone Transport Commission, and existing in the Federal NSPS regulations.

TABLE 11  
Maximum Allowable NO<sub>x</sub> Emission Rates (in pounds per million BTU)  
for Industrial/Commercial/Institutional Boilers or other Indirect Heat Exchangers  
Fired by Gas or Liquid Fuels

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<u>Heat Input Rate (MMBtu/hr)</u>	<u>Fuel Type</u>	<u>Proposed NJ Rates</u>	<u>Existing NJ Rates</u>	<u>OTC Recommended Rates</u>	<u>Federal NSPS Rates</u>
<u>At least 25 but &lt; 100</u>	Natural gas only	0.05	0.10 <sup>1</sup>	0.05	None
	No. 2 Fuel oil only	0.08	0.12 <sup>1</sup>	0.08	None
	Other gaseous fuels (except refinery fuel gas)	0.20	0.20 <sup>1</sup>	NA	None
	Other liquid fuels	0.20	0.30 <sup>1</sup>	0.20	None
	Dual fuel using fuel oil and natural gas	0.12	0.12	NA	None
<u>100 or greater</u>	Natural gas only	0.10	0.10	0.10	0.10 –0.20
	No. 2 Fuel oil only	0.10	0.20	0.20	0.30 –0.40
	Other gaseous fuels (except refinery fuel gas)	0.20	0.20	NA	None
	Other liquid fuels	0.20	0.20	0.20	0.30 –0.40
	Dual fuel using fuel oil and natural gas	0.20	0.20 to 0.43	0.20	No limits

<sup>1</sup> Existing rates apply to units between 50 and 100 MMBtu/hr. There are no existing rates for units between 25 to less than 50 MMBtu/hr.

As explained in the Economic Impact above, the cost-effectiveness is expected to range from \$600.00 to \$18,000 per ton of NO<sub>x</sub> reduced with the typical cost effectiveness being less than \$5,000 per ton.

The Department examined the stack test results for 46 boilers in the three categories in which the Department proposes a more stringent standard than the Federal regulations. All the results were below the proposed more stringent emission rates. Therefore, the proposed more stringent rates are technologically feasible.

The Department has determined that measures to reduce NO<sub>x</sub> emissions from ICI boilers and other indirect heat exchangers beyond those that are required by existing Federal regulations are necessary to achieve the Federal 1997 8-hour NAAQS for ozone. The Department is proposing to be more stringent than the EPA because the State's ozone air quality exceedance is higher than in most areas in the United States and in the Ozone Transport Region. Therefore, given the demonstrated success of achieving these rates, as explained above in the Background, and New Jersey's need to reduce NO<sub>x</sub> emissions to protect public health, it is reasonable to

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propose that all sources in these three categories meet the Department's proposed maximum allowable emission rates.

#### Municipal Solid Waste (MSW) Incinerators

The Department compared the proposed N.J.A.C. 7:27-19.12 new rules with the Federal NSPS at 40 CFR Part 60 Subpart Cb and finds that the proposed new rules are more stringent than the Federal regulations.

The purpose of the proposed new rules for MSW incinerators is to help bring the State into attainment with the Federal 8-hour NAAQS for ozone. The Department investigated various emission sources to determine where further NO<sub>x</sub> emission reductions can be achieved and concluded that MSW incinerators is one of these source categories. The Department estimated that further control of NO<sub>x</sub> emissions from MSW incinerators would yield a Statewide NO<sub>x</sub> reduction of greater than 100 tpy by 2010.

These proposed rules would affect 13 MSW incinerators located at five facilities. Currently these facilities all comply with the Federal NSPS NO<sub>x</sub> emission standard of 205 ppm (at seven percent oxygen) on a daily average. Ten of the 13 units, located at four of the five facilities, have already installed selective non-catalytic reduction to control NO<sub>x</sub> emissions. The technology exists for optimizing the performance of these existing systems and achieving further NO<sub>x</sub> reductions. The Department expects that a maximum allowable NO<sub>x</sub> emission concentration of 150 ppmvd (at seven percent oxygen) is readily achievable, and expects that actual NO<sub>x</sub> emission concentrations will average 130 ppmvd.

Achieving the proposed maximum allowable emission concentration of 150 ppmvd (at seven percent oxygen) will require the use and optimization of SNCR on each MSW incinerator. Only three of the existing 13 units in the State do not have a SNCR system installed. These three units are located at the Camden County Resource Recovery Facility. As explained in the Economic Impact above, the estimated capital cost to install an SNCR system on an MSW incinerator is approximately \$1,500 per MMBtu/hr, and the estimated cost to operate an SNCR system on an MSW incinerator is between \$950.00 and \$1,675 in 2006 dollars.

The primary health benefit will be through a reduction in the emission of NO<sub>x</sub>. The health and environmental benefits are explained above in the Social Impact and Environmental Impact sections. The Department has determined that these proposed measures to reduce NO<sub>x</sub> from MSW incinerators beyond that which is required by existing Federal rules and regulations are necessary to achieve the Federal 1997 8-hour NAAQS for ozone needed to protect the health and quality of life of New Jersey's citizens.

#### VOC Stationary Storage Tanks

The Department performed a comparison of the proposed rules and amendments to N.J.A.C. 7:27-16.2 to analogous Federal regulations, namely, 40 CFR 60.110b to 60.117b, New Source Performance Standards (NSPS) for VOC Storage Tanks for which Construction, Reconstruction or Modification Commenced after July 23, 1984. These Federal regulations were promulgated pursuant to the Federal Clean Air Act and set forth the substantive Federal standards. Based on its review of Federal regulations, the Department has determined that the proposed rules and amendments are more stringent than the Federal regulations.

Based on the research and surveys done by BAAQMD, SCAQMD, SJVUAPCD and TCEQ the Department has determined that the proposed new rules and amendments are achievable using current technology and are cost effective.

The Department identified control measures based on the Department's VOC emissions inventory, disclosures of previously unreported roof landing emissions, potential emission

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reductions achievable, and technological feasibility of the proposed measures based on research and surveys conducted by TCEQ, BAAQMD, SCAQMD, and SJVUAPCD. The proposed new rules and amendments for storage tanks would primarily affect refineries, terminals, and pipeline companies that produce, store, and transport gasoline. In order to comply with the rules, as explained in the Summary above, those facilities will have to retrofit their tanks with upgraded deck fittings and seals, change work practices, and/or install controls for floating roof landings. Potentially affected are businesses that supply equipment to these facilities, market and distribute the products of these facilities, and consumers.

As explained in the Social Impact and Environmental Impact above, the Department anticipates the benefits of the proposed rules and amendments to be an increase in the quality of life and protection of human health, the environment and agriculture. The primary environmental benefit will be a reduction in the emission of VOCs, which are precursor emissions that lead to the formation of ground-level ozone, exposure to which can cause a variety of adverse effects. The proposed new rules and amendments are also expected to reduce emissions of hazardous air pollutants and toxic substances. The Department estimates that the proposed new rules and amendments will achieve a 2,000-ton VOC emissions reduction by 2019, beyond the current Federal rules. This equates to a VOC emission reduction of approximately 6.5 tpd by 2019.

As discussed in more detail in the Economic Impact above, the Department's estimated cost-effectiveness of emission reduction ranges from \$3,000 to \$29,000 per ton of VOC reduced, there may be less than a one-cent per gallon increase in gasoline prices at the pump, distributors and retailers may be impacted, and the industry's annualized compliance cost-effectiveness would be a maximum of \$58,000,000 for 2,000 tons per year of VOC reductions in 2019. Economic benefits may also be realized. Owners and employees of businesses will enjoy the environmental, health, and other social benefits of the proposed new rules and amendments. A reduction in air pollution will lead to healthier and more productive workers.

The proposed new rules and amendments are needed to fulfill a requirement, imposed by EPA pursuant to the Federal Clean Air Act, 42 U.S.C. §§ 7401 et seq., that New Jersey adopt sufficient control measures to address additional VOC (ozone precursor) emission reductions identified by EPA as being needed for New Jersey to attain the eight-hour ozone standard. Therefore, proposal of these new rules and amendments are necessary for the State to comply with Federal requirements. Failure to achieve these reductions could subject New Jersey to economic sanctions, which would adversely affect all businesses and taxpayers in the State.

In proposing these new rules and amendments, the Department has balanced the need to protect the environment and the public health and to comply with EPA requirements against any economic impacts. The Department has determined that the human health, environmental and economic benefits of the proposed new rules and amendments outweigh the costs to implement them.

### **Jobs Impact**

The Department anticipates the proposed new rules and amendments will have a small impact on jobs in New Jersey.

The Department anticipates the proposed new rules and amendments for cutback and emulsified asphalt, may slightly impact jobs in New Jersey. The additional costs that the proposed new rules and amendments would generate are not anticipated to affect industry operations in such a way as to affect employment in a negative manner since the use of cutback and emulsified asphalt is such a small percent of the asphalt pavement business. In some cases

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additional jobs may be created in the process of reformulating new asphalt used for paving for use in New Jersey. Manufacturers of cutback asphalt may have to shift their business towards emulsified asphalts as a result of the Department proposing EPA's recommendation. Companies that supply emulsified asphalts and portable hot mix road repair services may experience an increase in demand for their products.

The Department expects that the proposed new rules and amendments for boilers serving coal-fired electric generating units may have a slightly positive impact on jobs. Some long term jobs may be created in order to operate and maintain the new control apparatuses and perform additional operation and maintenance tasks associated with getting further emission control out of the existing systems. Some short term jobs will be created based on the need to design, manufacture and install control apparatuses and the need to ensure sufficient control of emissions by the existing control apparatuses. No job loss is expected to result from the proposed new rules and amendments.

The Department anticipates the proposed new rules and amendments for offset lithographic printing and letterpress printing operations and flexible package printing to have no impact on jobs or employment because most of the facilities affected by the proposed new rules and amendments are already controlled to comply with existing state-of-the-art requirements for new or modified equipment. Also, there are no flat wood paneling coating businesses currently in New Jersey. The Department expects the additional work required by implementing best management practices is already being done by most facilities and will not impact jobs.

The Department anticipates little or no overall impact on jobs of the proposed new rules and amendments regarding HEDD units. A few long term jobs may be created in order to operate and maintain the new control apparatuses on seven No. 6 fuel oil fired boilers and approximately 147 turbines. Several short term jobs may be created based on the need to design, manufacture and install control apparatuses on seven additional boilers and approximately 147 turbines. Several short term jobs will be created based on the need to design, manufacture and install new replacement turbines. Operation and maintenance of these new turbines should not have an impact on jobs because these turbines will be replacing existing turbines.

The Department anticipates the proposed new rules and amendments for asphalt pavement production plants, sources with NO<sub>x</sub> or VOC alternative maximum allowable emission rates, sources with NO<sub>x</sub> facility-specific maximum allowable emission rates, glass manufacturing furnaces, industrial/commercial/institutional boilers and other indirect heat exchangers, municipal solid waste incinerators, and VOC stationary storage tanks will have a small positive impact on jobs in New Jersey. While some individual businesses may be affected adversely, the proposed new rules and amendments for all source categories may provide business opportunities for existing businesses or result in the creation of new businesses, which may result in the creation of additional jobs. For example, the resulting need for new air pollution control equipment and environmental consulting to meet the proposed emission limits and increased testing requirements may create some jobs in this sector. Also, the proposed VOC stationary storage tank upgrades and inspections will require additional labor.

The additional costs that the amendments would generate are not anticipated to affect industry operations in such a way as to result in a loss of jobs.

### **Agriculture Industry Impact**

Pursuant to the requirements of P.L. 1998, c.48, adopted on July 2, 1998, the Department has evaluated the proposed new rule and amendments to determine the nature and extent of their impact on the agriculture industry.

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The proposed new rules and amendments are expected to have a positive impact on the agriculture industry of New Jersey. The air quality improvements expected to be realized in New Jersey as a result of the additional NO<sub>x</sub> and VOC control measures, in concert with other ambient ozone control strategies, are expected to have a positive impact on the agriculture industry by reducing the damage that high concentrations of ground-level ozone have on sensitive crops.

The primary environmental benefit would be a reduction in NO<sub>x</sub> and VOCs, which are precursors to the formation of tropospheric (ground-level) ozone that is breathed by people and animals and comes in contact with crops and other vegetation. Ground-level ozone interferes with various plants' ability to produce and store nutrients (EPA 1997 Fact Sheet), which causes the plants to become more susceptible to disease, insects, other pollutants, and harsh weather. This impacts annual crop production throughout the United States, resulting in significant losses, and injures native vegetation and ecosystems.

Taken together, the proposed new rules and amendments would have a positive impact by reducing emissions of NO<sub>x</sub> and VOCs, thereby reducing the formation of ground-level ozone. Therefore, the reduction of NO<sub>x</sub> and VOCs from the proposed new rules and amendments would have a positive impact on the agriculture industry

### **Regulatory Flexibility Analysis**

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 fulltime employees." Based upon this definition, the Department expects that some small businesses will be subjected to additional requirements.

The proposed new rules and amendments for cutback and emulsified asphalt could impact manufacturers and users of cutback and emulsified asphalt that are small businesses. However, the Department does not anticipate that small businesses will need to employ new staff in order to comply with the proposed new rules and amendments. The Department expects manufacturers to use existing staff to reformulate the asphalt if necessary, and asphalt users to use existing employees to apply a modified, but better, product. As explained in the Economic Impact above, asphalt manufacturers may need to employ a laboratory to test asphalt for compliance with the proposed content limits at a cost between \$290.00 and \$320.00.

There are approximately 70 asphalt pavement production plants in New Jersey, all of which meet the definition of "small business." The Department anticipates there will be a cost for most asphalt pavement production plants to comply with the proposed emission limits. The Department proposed two measures to ease this compliance cost. The Department proposed a phased compliance schedule, which requires the larger plants to comply by the operative date of these amendments, if compliance is achieved without physically modifying the dryer or May 1, 2010 if compliance is achieved by physically modifying the dryer, the medium sized plants by May 1, 2010 if compliance is achieved without physically modifying the dryer or May 1, 2011 if compliance is achieved by physically modifying the dryer, and the smallest plants by May 1, 2011 if compliance is achieved without physically modifying the dryer or May 1, 2012 if compliance is achieved by physically modifying the dryer. Also, unlike the OTC proposal (MACTEC Report February 2007) that recommends a specific technology, low NO<sub>x</sub> burners, to achieve NO<sub>x</sub> emission reductions, the Department's proposal requires compliance with more

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stringent NO<sub>x</sub> emission rates and gives facilities the flexibility to choose any technology to comply. The Department expects that some asphalt pavement production plants will be able to comply using these Best Management Practices, without needing to install low NO<sub>x</sub> burners, which would be a cost savings. The proposed Best Management Practices (including inspections) plus the proposed recordkeeping of these activities, will not impose additional costs since these requirements are already in all existing permits.

The proposed rules will affect approximately 18 rotogravure, sheet-fed gravure, or flexographic printing operations and approximately 14 lithographic printing operations. The majority of these 32 facilities meet the definition of “small business.” No letterpress printing operation in New Jersey is a “small business.” Small businesses that have rotogravure, sheet-fed gravure, or flexographic printing source operations would have to comply with more stringent requirements if they install new equipment or modify existing equipment. The small businesses that have lithographic printing operations already appear to be in compliance with the control requirements because of existing state-of-the-art requirements for new or modified equipment.

The proposed rules include measures to minimize the adverse impact of the proposed rules on these small businesses. Small businesses will have several compliance options. For example, rotogravure, sheet-fed gravure, or flexographic printing operations could meet the new requirements either by installing controls or by using coatings with a maximum VOC content. Small businesses that operate rotogravure, sheet-fed gravure, or flexographic printing operations, would not have to meet the new control requirements unless their source operations are newly constructed or modified on or after the operative date of these amendments. Small businesses that operate letterpress or lithographic printing operations would be allowed to use up to 110 gallons of cleaning materials that do not meet the new VOC specifications for cleaning materials. This will provide greater flexibility for a small business since a larger percentage of its cleaning materials would not have to meet the new VOC specifications.

The Department anticipates that no consultants would have to be hired to implement the best management practices or to generate the required best management practice records, and no new recordkeeping systems would have to be purchased and installed to maintain the records. The proposed rules do not require these small businesses to employ certified professionals to comply with the proposed rule. For a discussion of the proposed compliance costs, see the Economic Impact.

Two New Jersey small businesses have boilers greater than 25 MMBTU/hr and therefore would be impacted by the proposed new rules and amendments for ICI boilers and other indirect heat exchangers. These two small businesses will likely need to retrofit their boilers with low NO<sub>x</sub> burners. The Department does not consider the retrofit cost excessive, as discussed in the Economic Impact above, and the cost may be partially or fully recovered through an increase in fuel efficiency. More stringent maximum allowable NO<sub>x</sub> emission rates are justified for these two businesses because their boilers can burn the equivalent of over 175 gallons of oil per hour when operated at maximum capacity, causing significant NO<sub>x</sub> emissions. The health and environmental benefits of the estimated NO<sub>x</sub> emission reductions justify the expected moderate compliance cost. The proposed new rules and amendments would require these two businesses to comply on and after May 1, 2011, a long enough time period to minimize the economic impact on both small businesses. This is the first time that a maximum allowable NO<sub>x</sub> emission rate would be established in New Jersey for ICI boilers between 25 and 50 MMBTU/hr.

The Department does not believe any of the other facilities impacted by the proposed new rule and amendments are small businesses, inasmuch as they each employ more than 100 full time employees.

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In proposing these new rules and amendments, the Department has balanced the need to protect the environment and public health and to comply with the EPA against any economic impacts of the rules upon businesses. No further exemption from coverage can be provided to small businesses, if the full effect of these new rules and amendments is to be achieved. Owners and employees of small businesses will enjoy the environmental, health, and other social benefits of the new rules and amendments. Furthermore, securing the VOC emission reductions that would be realized through the new amendments is required by the EPA pursuant to the Federal Clean Air Act. 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 believes the health and environmental benefits of the estimated NO<sub>x</sub> and VOC emission reductions justify the expected moderate compliance cost to small businesses that will be impacted by these proposed new rules and amendments.

### **Smart Growth Impact**

Executive Order No. 4 (2002) requires State agencies that adopt, amend or repeal any rule to include in the rulemaking document a Smart Growth Impact statement that describes the impact of the proposed rule on the achievement of smart growth and implementation of the State Development and Redevelopment Plan (State Plan). The Department has evaluated this rulemaking to determine the nature and extent of the impacts that the proposed new rules and amendments would have on smart growth and the implementation of the State Plan. The Department does not expect the proposed new rules and amendments to have an adverse impact on the State's achievement of smart growth or implementation of the State Plan.

Many of the operations impacted by the proposed new rules and amendments are concentrated in urban areas targeted for smart growth. The Department expects that reducing emissions as a result of the proposed new rules and amendments will improve air quality in these urban areas making these urban areas more attractive for development, thereby supporting smart growth.

The Department expects the proposed new rules and amendments for boilers serving electric generating units and for HEDD units to have a small positive impact on Smart Growth. Clean power generation will allow more power to be generated to support growth without having as great an impact on the air pollution caused by generation of that power.

Because the proposed new rules and amendments are intended to reduce the emission of NO<sub>x</sub>, VOCs, SO<sub>2</sub> and particulates into the State, thereby helping to protect air quality, the proposed new rules and amendments 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.

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SCAQMD Rule 1178: South Coast Air Quality Management District Rule 1178, "Further Reductions of VOC Emissions from Storage Tanks at Petroleum Facilities (Adopted December 21, 2001) (Amended April 7, 2006.)

South Coast 1987 Report: SCAQMD, Staff Report on Proposed Rule 1149 - Storage Tank Degassing, October 23, 1987.

South Coast 2001 Report: South Coast Air Quality Management District, Final Staff Report Proposed Rule 1178, Further Reductions in VOC Emissions from Storage Tanks at Petroleum Facilities, December 11, 2001.

TCEQ Chapter 115: Texas Commission of Environmental Quality (TCEQ) regulations Chapter 115, "Control of Air Pollution from Volatile Organic Compounds." [http://www.tceq.state.tx.us/assets/public/legal/rules/rule\\_lib/adoptions/06038115\\_ado\\_clean.pdf](http://www.tceq.state.tx.us/assets/public/legal/rules/rule_lib/adoptions/06038115_ado_clean.pdf).

TCEQ Chapter 115 proposal: Published in the Texas Register on December 29, 2006. <http://texinfo.library.unt.edu/texasregister/html/2006/dec-29/PROPOSED/30.ENVIRONMENTAL%20QUALITY.html>.

XRT 2006 Report: Extraordinary Road Trip (XRT) Research Lab, "Ozone – Health and Environmental impacts of Ground-level Ozone," <http://www.extraordinaryroadtrip.org/research-library/air-pollution/understanding-air-pollution/ozone/health.asp>. (Modified December 14, 2006.)

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

CHAPTER 27  
AIR POLLUTION CONTROL  
SUBCHAPTER 4. CONTROL AND PROHIBITION OF PARTICLES FROM  
COMBUSTION OF FUEL

7:27-4.1 Definitions

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

...

**“Construct” or “construction” means to fabricate or erect equipment or control apparatus at a facility where it is intended to be used, but shall not include the dismantling of existing equipment or control apparatus, site preparation, or the ordering, receiving, temporary storage, or installation of equipment or control apparatus. Unless otherwise prohibited by Federal law, this term shall also not include the pouring of footings or placement of a foundation where equipment or control apparatus is intended to be used.**

...

**“Install” or “installation” means to carry out final setup activities necessary to provide equipment or control apparatus with the capacity for use or service. This term includes, but is not limited to, connection of equipment or control apparatus, associated utilities, piping, ductwork or conveyor systems. This term does not include construction, as defined above, or the reconfiguration of equipment or control apparatus to an alternate configuration specified in a permit application and approved by the Department. This term includes relocation of existing equipment or control apparatus.**

...

**“Modify” or “modification” means any physical change in, or change in the method of operation of, existing equipment or control apparatus that increases the amount of actual emissions of any air contaminant emitted by that equipment or control apparatus or that results in the emission of any air contaminant not previously emitted. This term shall not include normal repair and maintenance. A modification may be incorporated into an operating permit through a significant modification, a minor modification, or a seven-day-notice change.**

...

**“Reconstruct” or “reconstruction” means the replacement of part(s) of equipment included in a process unit, or the replacement of part(s) of control apparatus, if the fixed capital cost of replacing the part(s) exceeds both of the following amounts:**

- 1. Fifty percent of the fixed capital cost that would be required to construct a comparable new process unit; or, if it is part(s) of control apparatus that is being replaced, 50 percent of the fixed capital cost that would be required to construct comparable new control apparatus; and**
- 2. \$80,000, in 1995 dollars, adjusted by the Consumer Price Index (CPI).**

...

7:27-4.2 Standards for the emission of particles

- (a) **On and after (the operative date of these amendments), this subsection shall not apply to any coal-fired boiler that is regulated by (b) below. On and after December 15, 2012, this subsection shall not apply to any coal-fired boiler that is regulated by (c) below.** No person shall cause, suffer, allow or permit particles arising from the combustion of fuel to be emitted from any stack or chimney into the outdoor air in excess of the maximum allowable emission rate set forth in the following table. For a heat input rate between any two consecutive rates shown, the maximum allowable emission rate shall be determined by interpolation:

Heat Input Rate (Millions of British Thermal Units per Hour)	Maximum Allowable Emission Rate (Pounds per Hour)
1	00.6
10	06
20	08
30	09
40	10
50	11
60	12
70	13
80	14
90	14.5
100	15
120	16.5
140	17.5
160	18.5
180	19.4
200	20
400	40
600	60
800	80
1,000	100
2,000	200
3,000	300
4,000	400
5,000	500
6,000	600
7,000	700
8,000	800
10,000	1,000

Note: Heat input rate shall be the sum of the heat input rates of all fuel burning equipment discharging through a single stack or chimney.

- (b) **The owner or operator of any coal-fired boiler or any coal-fired boiler particle control apparatus that is constructed, installed, reconstructed or modified and**

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**commences operation on or after (the operative date of this amendment), unless otherwise specified in an enforceable agreement with the Department, shall cause it to emit particles at a rate no greater than 0.0150 pounds per MMBTU and shall demonstrate compliance in accordance with the source's approved permit. Such a coal-fired boiler or particle control apparatus is also subject to state-of-the-art requirements at N.J.A.C. 7:27-8.12 and 22.35, lowest achievable emission rate requirements at N.J.A.C. 7:27-18, and best available control technology requirements at 40 CFR 52.21, incorporated herein by reference, as applicable.**

**(c) The owner or operator of a coal-fired boiler, other than those listed in (b) above, that is in operation prior to (the operative date of this amendment):**

**1. Shall not emit particles on or after December 15, 2012, unless otherwise specified in an enforceable agreement with the Department, at a rate greater than 0.0300 pounds per MMBTU or the permitted emission rate in effect as of (the operative date of this amendment), whichever is lower; and**

**2. Shall demonstrate compliance by June 15, 2013, in accordance with the owner or operator's approved permit for the coal-fired boiler.**

## SUBCHAPTER 10. SULFUR IN SOLID FUELS

### 7:27-10.1 Definitions

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

...  
**“Calendar day” means the 24-hour period from 12:00 midnight to 12:00 midnight the following day.**

...  
**“One-hour block” means a one-hour time period starting on any hour, for example 12:00 midnight to 1:00 A.M., or 1:00 A.M. to 2:00 A.M.**

...  
**“30-calendar-day rolling average emission rate” means the average emission rate over 30 consecutive calendar days determined pursuant to N.J.A.C. 7:27-10.5.**

**“24-hour emission rate” means total emissions in a calendar day determined pursuant to N.J.A.C. 7:27-10.5.**

### 7:27-10.2 Sulfur contents standards

(a) [No] **On and before December 14, 2012, no** person shall store, offer for sale, sell, deliver or exchange in trade, for use in New Jersey, solid fuel which contains sulfur in excess of the percentages by weight set forth in Table 1, except as provided otherwise in this Subchapter.

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- (b) [No] **On and before December 14, 2012, no** person shall use in New Jersey, solid fuel which contains sulfur in excess of the percentages by weight set forth in Table 1.

TABLE 1  
EXISTING SOLID FUEL BURNING UNITS

Type Fuel	Maximum Allowable Percent Sulfur by Weight (Dry Basis)			
	Zone One	Zone Two	Zone Three	Zone Four
Anthracite Coal or Coke	0.8	0.8	0.8	0.8
All other solid Fuels	1.0	1.0	0.2	0.2

- (c) [The] **On and before December 14, 2012, the** provisions of (a) and (b) above shall not apply to solid fuel whose combustion causes sulfur dioxide (SO<sub>2</sub>) emissions from any stack or chimney into the outdoor atmosphere which are demonstrated to the Department as not exceeding, at any time, those quantities of sulfur dioxide expressed in pounds per 1,000,000 British Thermal Units (BTU) gross heat input, set forth in Table 2.

TABLE 2  
EXISTING SOLID FUEL BURNING UNITS

Type Fuel	Maximum Allowable SO <sub>2</sub> Emissions (pounds/million BTU)			
	Zone One	Zone Two	Zone Three	Zone Four
Anthracite Coal and Coke	1.2	1.2	1.2	1.2
All other solid Fuels	1.5	1.5	0.3	0.3

- (d) [Any] **On and before December 14, 2012,** any solid fuel-fired steam generating unit which is located in Zone Three or Zone Four, having a rated hourly capacity of greater than 200,000,000 British Thermal Units (BTU) gross heat input and any group of units at one facility which is located in Zone Three or Zone Four, having a combined rated hourly capacity of greater than 450,000,000 British Thermal Units (BTU) gross heat input, and which were in operation prior to May 6, 1968, shall be subject to the standards specified in Table 1 for Zone One.
- (e) [Any] **On and before December 14, 2012, any** person responsible for the use of bituminous coal who believes that bituminous coal containing a maximum allowable percent sulfur by weight as set forth in Table 1 cannot be used in a specific steam generating unit may submit data to the Department setting forth justification for a less restrictive percent of sulfur content by weight in bituminous coal. The Department may authorize the use of a less restrictive percent of sulfur by weight in bituminous coal. Any less restrictive percent of sulfur content by weight in bituminous coal authorized by the Department shall not exceed 1.5 percent, except as provided in (f) below.

- (f) [The] **On and before December 14, 2012, the** Department may authorize the use of bituminous coal not exceeding a maximum sulfur content of 3.5 percent by weight (dry basis) at existing facilities in Zone One if:
- 1.-5. (No change.)
- (g) [Authorizations]**On and before December 14, 2012, authorizations** granted pursuant to (f) above shall be valid for a period not to exceed five years from the date of issuance and may be renewed upon application to the Department, setting forth reasons and justifications for such renewal, including a demonstration of continued conformance with the provisions of (f) above.
- (h) **On and after December 15, 2012, unless otherwise specified in an enforceable agreement with the Department, the owner or operator of any source that combusts solid fuel shall cause it to emit SO<sub>2</sub> at a 24-hour emission rate no greater than 0.250 pounds per 1,000,000 BTU gross heat input for every calendar day, and at a 30-calendar-day rolling average emission rate no greater than 0.150 pounds per 1,000,000 BTU gross heat input. The owner or operator shall determine each 24-hour emission rate and each 30-calendar-day rolling average emission rate in accordance with N.J.A.C. 7:27-10.5.**
- (i) **Any source that combusts solid fuel, and that is constructed, installed, reconstructed or modified, is also subject to state-of-the-art requirements at N.J.A.C. 7:27-8.12 and 22.35, lowest achievable emission rate requirements at N.J.A.C. 7:27-18, and best available control technology requirements at 40 CFR 52.21 incorporated herein by reference, as applicable.**

**7:27-10.5 SO<sub>2</sub> emission rate determinations**

- (a) **For purposes of N.J.A.C. 7:27-10.2(h), a 24-hour emission rate shall be calculated as follows:**
- 1. Measure the emissions for each one-hour block using a certified Continuous SO<sub>2</sub> Emissions Monitoring System, a certified continuous oxygen emissions monitoring system, and EPA Method 19, "Determination of Sulfur Dioxide Removal Efficiency and Particulate Matter, Sulfur Dioxide, and Nitrogen Oxide Emission Rates," as identified at 40 CFR Part 60, Appendix A, incorporated herein by reference. An owner or operator may seek approval of an alternative Department approved method to use instead of EPA Method 19, only if the owner or operator is combusting clean, unprocessed wood, in which case the owner or operator shall submit a written application to the Department at the address at (c) below; and**
  - 2. Average the emissions determined for the one-hour blocks from (a)1 above for one calendar day during which combustion of solid fuel occurred. The 24-hour emission rate shall include only the one-hour blocks during which solid fuel is combusted. For example, if a source combusted solid fuel from midnight to 4:00 A.M. and did not operate from 4:00 A.M. to midnight, the**

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**24-hour emission rate is calculated by adding the total of the emissions from the four one-hour blocks from midnight to 4:00 A.M. and dividing that sum by four.**

**(b) For purposes of N.J.A.C. 7:27-10.2(h), a 30-calendar-day rolling average emission rate shall be calculated as follows:**

- 1. Pursuant to (a) above, determine the 24-hour emission rates for 30 consecutive calendar days;**
- 2. Divide the sum of the 24-hour emission rates by the total number of days on which the source was operated, during the 30-consecutive-day period, pursuant to (b)4 below. The result is the 30-calendar-day rolling average emission rate for the 30th day;**
- 3. Calculate a new 30-calendar-day rolling average emission rate for each subsequent calendar day pursuant to (b)1 and 2 above; and**
- 4. Any calendar day during which no combustion of solid fuel occurred shall not be included in the 30-calendar-day rolling average emission rate. For example, if a source did not combust solid fuel during two calendar days of a 30-calendar-day rolling average emission rate period, the 24-hour emission rates of the 28 days during which emissions occurred would be used to determine the 30-calendar-day rolling average emission rate. The total emissions for the 28 days would be divided by 28, not 30.**

**(c) The owner or operator submitting a written application to the Department pursuant to (a)1 above shall submit the application to the following address:**

**Assistant Director, Air Quality Permitting Element**  
**Division of Air Quality**  
**New Jersey Department of Environmental Protection**  
**401 East State Street**  
**PO Box 027**  
**Trenton, NJ 08625-0027**

SUBCHAPTER 16. CONTROL AND PROHIBITION OF AIR POLLUTION BY VOLATILE ORGANIC COMPOUNDS

7:27-16.1 Definitions

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

**“AASHTO” means American Association of State Highway and Transportation Officials.**

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**“Aboveground storage tank” or “AST” means any storage tank that is not an underground storage tank.**

...

**“AP-42” means the January 1995, 5th edition of the manual entitled “Compilation of Air Pollutant Emission Factors,” which is published by the EPA, including supplements A through G and any subsequent revisions, as supplemented or amended and incorporated herein by reference. The manual may be obtained from the National Technical Information Service (NTIS), 5285 Port Royal Road, Springfield, Virginia, 22161, (703) 487-4650; or from the Superintendent of Documents, Government Printing Office, Washington, D.C., 20402, (202) 783-3228. In addition, the manual can be accessed electronically through the EPA Technology Transfer Network CHIEF site at <http://www.epa.gov/ttn/chief/ap42/index.html>.**

**“API” means the American Petroleum Institute, 1220 L Street, NW, Washington, DC 20005-4070, <http://www.api.org/>.**

**“API 653” means the API's Standard 653, entitled “Tank Inspection, Repair, Alteration and Reconstruction,” as supplemented or amended and incorporated herein by reference, available from the API, at the address in the definition of “API” above.**

...

**“Asphalt pavement production plant” means a batch type asphalt plant or drum mix asphalt plant operated to manufacture asphalt pavement.**

...

**“Authorized inspection agency” means any one of the following that employs an authorized inspector:**

- 1. An insurance company that is licensed or registered in New Jersey to write aboveground storage tank insurance;**
- 2. An owner or operator of one or more aboveground storage tanks; or**
- 3. An independent organization or person contracted by an aboveground storage tank owner or operator to perform an inspection.**

**“Authorized inspector” means someone who is certified as an Aboveground Storage Tank Inspector in accordance with Appendix D of API 653, and who is an employee of an authorized inspection agency.**

...

**“Capacity” means the volume of a tank, as shown in the permit, or the tank manufacturer’s specifications if a tank does not have a permit, or as determined by Department’s measurements.**

...

**“Clean produced water” means water containing less than 35 milligrams of VOC per liter, as determined by the Diesel Range Organics option under EPA SW-846 Method 8015B or NJDEP Method OQA-QAM-025, Revision 6, and/or, if necessary, EPA SW-846 Test Method 8260, as supplemented or amended, and incorporated herein by reference.**

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**Hydrocarbons heavier than C14, as determined by Test Method ASTM E 260-85, as supplemented or amended and incorporated herein by reference, may be excluded from the total concentration. This term will be used within the context of tank degassing and cleaning operations. EPA SW-846 Method 8015B and EPA SW-846 Test Method 8260 are available from the National Technical Information Service, U.S. Department of Commerce, 5285 Port Royal Road, Springfield, Virginia 22161; phone number 1-800-553-6847. NJDEP Method OQA-QAM-025 Reference 6 is available on the Department's website at [www.nj.gov/dep/oqa/bboard.html](http://www.nj.gov/dep/oqa/bboard.html). Test Method ASTM E 260-85 is available from the American Society for Testing and Materials (ASTM), 100 Barr Harbor Drive, Post Office Box C700, West Conshohocken, PA 19428-2959 or from its website at [www.astm.org](http://www.astm.org).**

**"Cleaning material" means, with respect to a surface coating operation or graphic arts operation, a substance that contains VOCs and that is used for the purpose of removing dirt, grease, oil, or other contaminants from the surfaces of equipment used for the application of surface coatings.**

...

**"Coating of flat wood paneling and printed hardwood" means the coating of hardwood, plywood, particle board, interior wood panels, exterior siding, exterior wood panels, tile boards, and hardboard paneling[, excluding]. This term includes, but is not limited to, cedar, plywood or redwood stocks, composition hard boards, particle boards, plywood panels, and any other panels or siding constructed of solid wood or a wood-containing product. This term excludes the coating of [exterior siding, tile board, or] particle board used in furniture manufacturing.**

...

**"Coldset web lithographic printing" means a lithographic printing process in which ink is allowed to dry naturally through evaporation and absorption.**

...

**"Crude oil" means petroleum extracted from the earth and that has not been processed in a refining operation.**

...

**"Deck fitting" means a functional or operational device on a tank floating roof that substantially closes or seals a penetration in the deck of the floating roof including, but not limited to, any access hatch, fixed roof support column and well, gauge float, gauge hatch, sample port, guidepole, ladder and well, rim vent, roof drain, roof leg, and vacuum breaker, and excluding the rim seal system.**

**"Degassing" means the process of removing organic vapors from a storage tank in preparation for human entry.**

...

**"Domed roof" means a self-supporting fixed roof attached to the top of an external floating roof tank to reduce evaporative losses.**

...

**"Fixed roof tank" means a tank with a roof that is permanently affixed to the shell of the tank.**

...

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[“Fountain solution” means an aqueous solution used in graphic arts operations to dampen the plate and prevent the non-image areas of the plate from accepting the hydrophobic inks used.]

**“Fountain solution” means a solution used in lithographic printing operations that renders the non-image areas unreceptive to ink.**

...

**“Gauge float” means a device to indicate the level of the liquid within a tank. The float rests on the liquid surface inside a gauge well in the tank.**

**“Gauge hatch/sample ports” means a port that consists of a pipe sleeve equipped with a self-closing gasketed cover (to reduce evaporative losses) and allows hand-gauging or sampling of the stored liquid. The gauge hatch/sample port is usually located beneath the gauger’s platform, which is mounted on top of the tank shell. A cord may be attached to the self-closing gasketed cover so that the cover can be opened from the platform.**

...

“Graphic arts operation” means the application of one or more surface coating formulations across portions of a surface using one or more **letterpress, lithographic,** rotogravure or flexographic printers used to produce published material and packaging for commercial or industrial purposes, or any **letterpress, lithographic,** rotogravure or flexographic printers used to produce vinyl or urethane coated fabric or sheets, or any sheet-fed gravure, screen printing, or fabric printing operations together with any associated drying or curing areas. A single graphic arts operation ends after drying or curing and before other surface coating formulations are applied. For any web line, this term means an entire application system, including any associated drying ovens or areas between the supply roll and take-up roll or folder. This term does not include any surface coating operation.

...

**“Guidepole” means an anti-rotation device that is fixed to the top and bottom of a tank, passing through a well in a floating roof. A guidepole may be solid or be equipped with slots or holes for gauging purposes provided the guidepole is equipped with an appropriate sealing device that prevents openings that expose the stored liquid to the atmosphere.**

...

**“Heatset web lithographic printing” means a lithographic printing operation in which ink is dried rapidly by forced-air heating.**

...

**“In-service roof landing” means a roof landing in which the tank is not taken out of service.**

**“Internal floating roof” means a pan type, pontoon type, or double-deck type cover located inside a fixed roof tank that rests upon and is supported by the organic liquid being contained. An internal floating roof is equipped with closure seals to close the space between the roof edge and tank shell.**

...

**“Ladder and well” means a ladder that passes through a well, and is used to access the tank bottom of an internal floating roof tank.**

...

**“Leak-free” means a condition that exists when the reading on a portable hydrocarbon analyzer is less than 500 ppm, expressed as methane, above background,**

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measured using EPA Method 21, as identified in 40 CFR Part 60, Appendix A, Determination of Volatile Organic Compounds Leaks, incorporated herein by reference.

...

“Letterpress printing” or “letterpress printing operation” means printing using cast metal type or plates on which the image or printing areas are raised above the non-printing areas, the ink rollers touch only the top surface of the raised areas, and the surrounding (non-printing) areas are lower and do not receive ink. A letterpress printing operation includes, but is not limited to, a heatset letterpress printing operation.

...

“Liquid mounted primary seal” means a primary seal that is mounted in full contact with the liquid in the annular space between the tank shell and the floating roof.

...

“Lithographic printing” or “lithographic printing operation” means printing by a planographic method in which the image and nonimage areas are on the same geometric plane. A lithographic printing operation includes, but is not limited to, a heatset web lithographic printing operation, a coldset web offset lithographic printing operation, and a sheet-fed offset lithographic printing operation.

...

“Maximum operating level” means the highest achievable level of fluid within a tank, as determined by the structural design of the tank. In the absence of tank specific design information, the maximum operating level is equal to tank capacity.

“Mechanical shoe seal” means a metallic sheet (the shoe) that is held vertically against the vertical tank wall. The shoe is connected by braces to the floating roof and is held tightly against the wall by springs or weighted levers. A flexible coated fabric (envelope) is suspended from the shoe seal to the floating roof to form a vapor barrier over the annular space between the roof and the primary seal.

...

“Mixing vessel” means, with respect to a surface coating operation or graphic arts operation, any equipment used to develop coatings containing VOCs that involves blending two or more input streams.

...

“Modify” or “modification” means any physical change in, or change in the method of operation of, existing equipment or control apparatus that increases the amount of actual emissions of any air contaminant emitted by that equipment or control apparatus or that results in the emission of any air contaminant not previously emitted. This term shall not include normal repair and maintenance. Also, for the purposes of this definition, “air contaminant” shall have the meaning of “category of air contaminants” in a case where the regulatory limit is placed on a grouping of contaminants (such as VOCs) rather than on a single species of contaminant.

...

“Non-contact floating roof” means a roof that is located inside an internal floating roof tank that is supported on pontoons several inches above the liquid surface.

...

“Organic liquid” means any liquid that contains volatile organic compounds (VOCs) including, but not limited to, crude oils and petroleum distillates.

...

**“Pole float” means a device located inside a guidepole that floats on the surface of the stored liquid, and is used to indicate the liquid level inside the tank.**

**“Pole sleeve” means a device that extends from either the cover or the rim of an opening in a floating roof deck to the outer surface of a pole that passes through the opening.**

**“Pole wiper” means a seal that extends from either the cover or the rim of an opening in a floating roof deck to the outer surface of a pole that passes through the opening.**

...

**“Pressure-vacuum vent” means a vent that is used to minimize tank emissions due to breathing effects.**

**“Pressure vessel” means a tank, reservoir, or container that is capable of maintaining working pressures sufficient to prevent organic liquid loss or VOC loss to the atmosphere at all times.**

...

**“Primary seal” means a seal mounted below a secondary seal of a rim seal system that consists of two seals. A primary seal, which is in contact with the floating roof tank shell, can be either mechanical shoe, resilient filled, or wiper type.**

...

**“Resilient filled primary seal” means an envelope filled with resilient foam (non-metallic polyurethane) mounted at the rim of the floating roof that makes contact with the shell. A resilient filled nonmetallic primary seal can be liquid-mounted or vapor-mounted.**

**“Resilient-toroid-type” seal means a core of open-cell foam encapsulated in a coated fabric that is attached to a mounting on the deck perimeter, and is continuous around the floating roof circumference.**

**“Rim mounted secondary seal” means a secondary seal mounted on the rim of the floating roof of a storage tank. Rim mounted secondary seals are effective at reducing losses from the primary seal fabric.**

**“Rim seal system” means a closure device between the shell of the storage tank and the floating roof edge. A rim seal system may consist of two seals, one above the other. The lower seal is referred to as the primary seal and the upper seal is referred to as the secondary seal.**

**“Rim vent” means a vent used on tanks equipped with a seal design, such as a mechanical shoe seal, that creates a vapor pocket in the seal and rim area. The vent is used to release excess pressure or vacuum that is present in the vapor space bounded by the primary-seal shoe, the floating roof rim, the primary seal fabric, and the liquid level. A rim vent usually consists of a weighted pallet that rests on a gasketed cover.**

**“Roof drain” means a drain that permits the removal of rainwater from the surface of external floating roofs. A roof drain may be a closed drainage system that carries**

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rainwater from the surface of the floating roof to the outside of the tank, or an open drainage system consisting of an open pipe that extends a short distance below the bottom of the deck allowing rainwater to drain from the surface of the floating roof into the organic liquid contents of the tank.

“Roof landing” means an event where the liquid level in a floating roof tank is lowered to the point where the floating roof is resting on its legs or is supported from above by cables or hangers, and is no longer floating on the surface of the stored liquid.

“Roof leg” means an adjustable or fixed leg that is attached to the floating roof deck to support or hold the floating roof deck at a predetermined distance off the tank bottom to prevent damage to the fittings located underneath the deck and to allow for tank cleaning or repair. For adjustable legs, the load-carrying element passes through a well or sleeve in the deck.

“Roof opening” means any opening through a floating roof of a storage tank for any deck fitting.

...

“Secondary seal” means a seal mounted above the primary seal of a rim seal system that consists of two seals. Secondary seals can be shoe mounted or rim-mounted.

...

“Sheet-fed offset lithographic printing” means a lithographic printing process in which individual pages of paper are fed into the machine.

“Shoe mounted secondary seal” means a secondary seal mounted on the primary mechanical shoe. Shoe mounted secondary seals are effective at reducing vapor losses from the gaps between the shoe and the tank shell.

...

“Small producer” means an operator, in the business of crude oil production, who:

1. Produces an average of less than 6,000 barrels per day of crude oil from all operations within the county; and

2. Does not engage in refining, transportation, or marketing of refined petroleum products.

...

“Tank battery” means, for crude oil production facilities, an aggregation of two or more tanks where the tanks are located so that no one tank is more than 150 feet from another tank as measured from the closest tank edges, and the tanks are located in the same crude oil production field. “Tank battery” means, for non-crude oil production facilities, an aggregation of two or more tanks located within the same facility, regardless of the distance of the tanks from each other.

...

“Tileboard” means an interior wall paneling product made of hardwood that is designed for use in high moisture areas, such as kitchens and bathrooms.

...

“True vapor pressure” or “TVP” means the equilibrium partial vapor pressure exerted by an organic liquid at actual storage temperature.

**“Underground storage tank” means any tank defined as such in N.J.A.C. 7:14B.**

...

**“Vacuum breaker” means a device used to equalize the pressure of the vapor space across the floating roof deck as the deck is either being landed on or floated off its legs. A vacuum breaker consists of a well with a cover. Attached to the underside of the cover is a guided leg long enough to contact the tank bottom as the floating roof is being landed. When in contact with the tank bottom, the guide leg mechanically lifts the cover off the well.**

...

**“Visible gap” means an opening that exceeds 0.060 inch.**

...

**“Wash coat” means a coating containing binders that raise wood surfaces, prevent undesired staining, and control penetration.**

**“Wiper primary seal” means a continuous annular blade of flexible material (for example, rubber, urethane, or foam filled) fastened to a mounting bracket on the deck perimeter that spans the annular rim space and contacts the tank shell. A wiper seal system may consist of a single primary seal, or dual (multiple) seals where one seal is mounted above the other.**

...

[“Wash coat” means a coating containing binders that raise wood surfaces, prevent undesired staining, and control penetration.]

...

**“Zero gap” means no gap between the tank shell and the seal shall exceed 0.06 inch. The cumulative length of all gaps exceeding 0.02 inch shall not be more than five percent of the circumference of the tank, excluding gaps less than 1.79 inches from vertical seams.**

**“Zero gap pole wiper seal” means a seal with no gap exceeding 0.06 inches between outer surface of the guidepole or gauge well and pole wiper seal.**

7:27-16.2 [Stationary]VOC stationary storage tanks

- (a) The provisions of this section shall apply to any stationary storage tank[s] **that stores only VOC, or that stores VOC and non-VOC, except as set forth in (e) and (f) below.**
- (b) No person shall cause, suffer, allow, or permit the following:
1. The storage of any applicable VOC in any stationary storage tank that has a maximum capacity of 2,000 gallons (7,570 liters) or greater and is exposed to the rays of the sun unless:
    - i. (No change.)
    - ii. An equivalent method of emission control approved by the Department is used; [or]**and**
  2. The storage of any applicable VOC in any stationary storage tank having a

maximum capacity of 10,000 gallons (37,850 liters) or greater unless, **in addition to meeting the requirement in (b)1 above,** such stationary storage tank is equipped with control apparatus as determined in accordance with the procedures for using Table 2A or as approved by the Department as being equally or more effective in preventing the emission of a VOC into the outdoor atmosphere.

Procedure for Using Table 2A  
(No change.)

TABLE 2A  
(No change.)

(c) (No change.)

(d) No person shall cause, suffer, allow, or permit the storage of any VOC in any stationary storage tank subject to the provisions of either (b) above in Ranges II and III or (c) above and equipped with gauging and/or sampling systems unless such systems are [vapor-tight except when gauging or sampling is taking place]**leak-free.**

(e) (No change.)

**(f) The following exemptions apply:**

[(f)]**1.** The provisions of (b) above shall not apply to a stationary storage tank, if the tank is:

[1.]**i.** Maintained under a controlled elevated temperature; [or]

[2.]**ii.** Equipped with a vapor control system reducing by at least 98 percent the weight of VOC emissions to the outdoor atmosphere[.]; **or**

**iii.** **A pressurized storage tank designed to operate in excess of 15 pounds per square inch gauge (psig) without any emissions to the atmosphere except under emergency conditions.**

**2.** **Any fixed roof storage tank having a capacity of less than 40,000 gallons shall be exempt from (q) below.**

**3.** **Any external floating roof tank in Range III that was in existence on (the day before the operative date of these amendments), and that is not degassed and emptied within 120 days after (the operative date of these amendments) shall be temporarily exempt from complying with (l)1i below if the operator has demonstrated to the Department that in order to properly bolt the covers for access hatches and gauge float wells, a flange or other comparable device must be welded to the fitting. The operator shall use equivalent means, such as clamping, to secure the covers during the interim period. However, the owner or operator must comply with (l)1i below the first time the tank is degassed and emptied after 120 days after (the operative date of these amendments).**

- 4. Any external floating roof tank that contains more than 97 percent by volume crude oil shall be exempt from N.J.A.C. (I)2 below, but shall comply with all other applicable requirements of this subchapter.**
  - 5. Any floating-roof tank shall not be required to meet the gap seal requirements at (I)3i through x below while the roof is resting on its legs during the processes of draining, degassing or refilling the tank.**
  - 6. Any floating roof tank subject to a Federally enforceable condition limiting its annual roof landing VOC emissions to less than five tons as calculated by AP-42, Chapter 7, may be exempt from (p) below, at the owner or operator's discretion, provided that the owner or operator shall maintain the records of these calculations pursuant to (s) below and the tank's Operating Permit or Preconstruction Permit, as applicable.**
  - 7. Any external floating roof tank in Range III that is subject to (I)1vi below shall be exempt from (I)13 below.**
  - 8. Any tank at (b) above is exempt from the leak-free condition at (d) above when gauging or sampling is taking place. In addition, a floating roof tank, is exempt from the leak-free condition at (d) above when the condition at (q)1vi below is met during refilling.**
- (g) [Any storage tank in Range III as determined from Table 2A, constructed or installed on or after December 17, 1979, shall be provided with a double seal floating roof or other control apparatus approved by the Department as being equally or more effective in preventing the emission of any VOC into the outdoor atmosphere.](**Reserved**)
- (h) No person shall cause, suffer, allow, or permit the storage of any VOC in any stationary storage tank **in Range III as determined by Table 2** equipped with an external floating roof, unless any such storage tank containing a VOC having a vapor pressure of 1.0 pounds per square inch absolute (50 millimeters of mercury) or greater at standard conditions and having a maximum capacity of 20,000 gallons (75,700 liters) or greater is equipped with a double seal-envelope combination or equipment approved by the Department as being equally or more effective in preventing the emission of any VOC into the outdoor atmosphere. For the secondary seal, the gap area of gaps exceeding one-eighth inch (0.32 centimeters) in width between the seal and the tank wall shall not exceed 1.0 square inch per foot (6.5 square centimeters per 0.3 meters) of tank diameter. Any secondary seal shall be intact, with no visible holes, tears or other openings. **The requirements of this subsection shall remain in effect for any such tank until the rim seal system requirements at (I)3 below become effective for that tank.**
- (i) [No person shall cause, suffer, allow, or permit the storage of any VOC in any stationary storage tank equipped with an external floating roof unless all openings in such roof, excluding emergency roof drains, are covered when not in active use.](**Reserved**)
- (j) (No change.)

NOTE: THIS IS A COURTESY COPY OF THIS RULE PROPOSAL. THE OFFICIAL VERSION WILL BE PUBLISHED IN THE AUGUST 4, 2008 NEW JERSEY REGISTER. SHOULD THERE BE ANY DISCREPANCIES BETWEEN THIS TEXT AND THE OFFICIAL VERSION OF THE PROPOSAL, THE OFFICIAL VERSION WILL GOVERN.

(k) [Any person responsible for the emission of any applicable VOC from any storage tank pursuant to this section shall maintain, for each tank, records specifying each VOC stores and the vapor pressure of each VOC at standard conditions.](Reserved)

**(l) No person shall cause, suffer, allow, or permit the storage of any VOC in any stationary storage tank unless the provisions of this subsection are met.**

**1. The owner or operator of an external floating roof tank in Range III shall, no later than (120 days after the operative date of these amendments) or the first time the tank is emptied and degassed, whichever occurs first, if the tank was in existence on (the day before the operative date of these amendments), or on initial fill if the tank is constructed on or after (the operative date of these amendments):**

**i Equip each access hatch and gauge float well with a cover that is gasketed and bolted. The cover shall be closed at all times, with no visible gaps, except when the hatch or well must be opened for access;**

**ii. Equip each gauge hatch/sample well with a cover that is gasketed. The cover shall be closed at all times, with no visible gaps, except when the hatch or well must be opened for access;**

**iii. Gasket or cover each adjustable roof leg with a VOC impervious sock at all times when the roof is floating;**

**iv. Gasket each rim vent. Rim vents shall be closed at all times, with no visible gaps, when the roof is floating; and shall be set to open only when the roof is being floated off the roof leg supports or when the pressure beneath the rim seal exceeds the manufacturer's recommended setting;**

**v. Gasket each vacuum breaker. Vacuum breakers shall be closed at all times, with no visible gaps, when the roof is floating; and shall be set to open only when the roof is being floated off or is being landed on the roof leg supports;**

**vi. Equip each roof drain with a slotted membrane fabric cover or other device with an equivalent control efficiency that covers at least 90 percent of the area of the opening. The fabric cover shall be impermeable if the liquid is drained into the contents of the tank;**

**vii. Equip each unslotted guidepole well with a gasketed sliding cover and a flexible fabric sleeve or wiper;**

**viii. Equip each unslotted guidepole with a gasketed cover at the end of the pole. The cover shall be closed at all times, with no visible gaps, except when gauging or sampling;**

- ix. Equip each slotted guidepole with a gasketed cover, a pole wiper and a pole sleeve. The pole sleeve shall be extended into the stored liquid;
  - x. Equip each slotted guidepole having a pole float with a gasketed cover, a pole wiper, and a pole float wiper. The wiper or seal of the pole float shall be at or above the height of the pole wiper;
  - xi. Cover each slotted guidepole opening with a gasketed cover at all times, with no visible gaps, except when the cover must be opened for access;
  - xii. Maintain the pole float in a condition such that it floats within the guidepole at all times except when it must be removed for sampling or when the tank is empty;
  - xiii. Except for vacuum breakers and rim vents, ensure that each opening in the external floating roof shall provide a projection below the liquid surface; and
  - xiv. Except for vacuum breakers, rim vents, roof drains, and leg sleeves, equip all other openings in the roof with a gasketed cover or seal that is closed at all times, with no visible gaps, except when the cover or seal must be opened for access.
2. In lieu of complying with the requirement of no visible gap at (l) i, ii, iv, v, viii, xi and xiv above, the owner or operator of an external floating roof tank in Range III may, no later than (120 days after the operative date of these amendments) if the tank was in existence on (the day before the operative date of these amendments), or on initial fill if the tank is constructed on or after (the operative date of these amendments), maintain all roof openings in a leak-free condition at all times except during preventive maintenance, repair, or inspection periods specified at (r) below.
3. The owner or operator of a tank in Range III shall equip the tank with a rim seal system meeting the following requirements prior to the initial fill if the tank was constructed on or after (the operative date of these amendments), or prior to the date the tank is refilled after being degassed for the first time after (the operative date of these amendments), but no later than May 1, 2020 if the tank was in existence on (the day before the operative date of these amendments):
- i. The primary seal shall be a mechanical shoe or liquid mounted;
  - ii. The secondary seal shall be rim mounted and shall not be attached to the primary seal;

- iii. Gaps between the tank shell and the primary seal shall not exceed 1.3 centimeters (1/2 inch) for a cumulative length of 30 percent of the circumference of the tank, and 0.32 centimeters (1/8 inch) for 60 percent of the circumference of the tank. No gap between the tank shell and the primary seal shall exceed 3.8 centimeters (1-1/2 inches). No continuous gap between the tank shell and the primary seal greater than 0.32 centimeters (1/8 inch) shall exceed 10 percent of the circumference of the tank;
- iv. Gaps between the tank shell and the secondary seal shall not exceed 0.32 centimeters (1/8 inch) for a cumulative length of 95 percent of the circumference of the tank. No gap between the tank shell and the secondary seal shall exceed 1.3 centimeters (1/2 inch);
- v. Mechanical shoe primary seals shall be installed so that one end of the shoe extends into the stored organic liquid and the other end extends a minimum vertical distance of 61 centimeters (24 inches) above the stored organic liquid surface;
- vi. The geometry of the shoe shall be such that the maximum gap between the shoe and the tank shell is no greater than doubled the gap allowed by the seal gap criteria specified in (l)3iii above for a length of at least 46 centimeters (18 inches) in the vertical plane above the liquid surface;
- vii. The primary seal envelope shall be made available for unobstructed inspection by the Department, upon request, along its circumference. In the case of riveted tanks with resilient filled primary seals, at least eight such locations shall be made available; for all other types of seals, at least four such locations shall be made available. If the Department deems it necessary, further unobstructed inspection of the primary seal may be required to determine the seal's condition along its entire circumference;
- viii. The secondary seal shall be installed in a way that permits probes up to 3.8 centimeters (1-1/2 inches) in width to be inserted to measure gaps in the primary seal;
- ix. There shall be no holes, tears or openings in the secondary seal or in the primary seal envelope surrounding the annular vapor space enclosed by the roof edge, seal fabric, and secondary seal; and
- x. Except during preventive maintenance, repair, or inspection periods specified at (r) below that do not exceed 72 hours, both the primary seal and the secondary seal shall cover the annular space between the external floating roof and the wall of the storage tank in a continuous fashion, with no visible gaps.

- 4. If an external floating roof tank in Range III stores any VOC with vapor pressure three pounds per square inch absolute or greater at standard conditions, the tank shall be equipped with a domed roof before the tank is refilled after the first time the tank is degassed after (the operative date of these amendments), but no later than May 1, 2020 if the tank was in existence on (the day before the operative date of these amendments), or on initial fill if the tank is constructed on or after (the operative date of these amendments).**
- 5. The owner or operator of a domed external floating roof tank in Range III that is already in operation as of (the operative date of these amendments) shall, prior to the date the tank is refilled after being degassed the first time after (the operative date of these amendments), but no later than May 1, 2020:**

  - i. Comply with (D)1i through xiv above;**
  - ii. Equip the tank with a rim seal system consisting of either a liquid-mounted primary seal, or a primary and a secondary seal, meeting the requirements at (D)3 above, including compliance dates, except a mechanical shoe primary seal required at (D)3v above shall have one end extend a minimum vertical distance of 15 centimeters (six inches) above the stored organic liquid surface and the other end extend into the liquid a minimum of 10 centimeters (four inches); and**
  - iii. Ensure that the concentration of gasoline vapor in the vapor space above the domed external floating roof does not exceed 30 percent of its lower explosive limit.**
- 6. If, on or after (the operative date of these amendments), the owner or operator adds a domed roof to an external floating roof tank in Range III, at the time the owner or operator adds the domed roof the owner or operator shall:**

  - i. Equip the tank with a rim seal system consisting of primary and secondary seals meeting the specifications and compliance dates listed at (D)3 above; and**
  - ii. Ensure that the concentration of gasoline vapor in the vapor space above the domed external floating roof does not exceed 30 percent of its lower explosive limit.**
- 7. On or before the date an internal floating roof tank in Range III is refilled after being degassed for the first time after (the operative date of these amendments), but no later than May 1, 2020, if the tank was in existence on (the day before the operative date of these amendments), or on initial fill if the tank is constructed on or after (the operative date of these amendments) the owner or operator of the tank shall:**

- i. Equip each fixed roof support column and well with a sliding cover that is gasketed or with flexible fabric sleeves;
  - ii. Equip each ladder well with a gasketed cover. The cover shall be closed at all times, with no visible gaps, except when the well must be opened for access;
  - iii. Equip and maintain other roof openings according to the specifications at (I)1 or 4 above;
  - iv. Equip the tank with a rim seal system consisting of either a liquid-mounted primary seal, or a primary and a secondary seal meeting the specifications at (I)3i through x above, except a mechanical shoe primary seal required at (I)3v above shall have one end extend a minimum vertical distance of 15 centimeters (six inches) above the stored organic liquid surface and the other end extend into the liquid a minimum of 10 centimeters (four inches);
  - v. For an internal floating roof installed prior to June 1, 1984, ensure that the concentration of organic vapor in the vapor space above the internal floating roof shall not exceed 50 percent of its lower explosive limit; and
  - vi. For an internal floating roof installed after June 1, 1984, ensure that the concentration of organic vapor in the vapor space above the internal floating roof shall not exceed 30 percent of its lower explosive limit.
8. Any VOC stationary storage tank in Range III as determined from Table 2A shall meet one of the following:
- i. If the tank was constructed or installed on or after December 17, 1979, the tank shall be provided with a double seal floating roof or other control apparatus approved by the Department as being equally or more effective in preventing the emission of any VOC into the outdoor atmosphere. This requirement shall remain in effect for any such tank until (I)3, 5, 6 or 7 above becomes applicable for that tank; or
  - ii. If the tank was constructed or installed prior to December 17, 1979, the requirements of (I)3, 5, 6 or 7 above shall apply as applicable.
9. An owner or operator of a floating roof tank in Range III may replace a primary seal on the floating roof tank only if the replacement primary seal is one of the following:
- i. Liquid mounted multiple wipers with drip curtain and weight;

- ii. Liquid mounted mechanical shoe;
  - iii. Liquid mounted single wiper with drip curtain and weight;
  - iv. Liquid mounted double foam wipers with vapor curtain; or
  - v. An alternative rim seal system, if it is demonstrated to the Department that the alternative rim seal system is better in performance than the rim seal systems at (D)9i through iv above and has a rim seal emission factor that is less than the rim seal systems at (D)9i through iv above.
10. An owner or operator of a floating roof tank in Range III may replace a secondary seal on the floating roof tank only if the replacement secondary seal is one of the following:
- i. Multiple wipers;
  - ii. Single wiper; or
  - iii. An alternative rim seal system, if it is demonstrated to the Department that the alternative rim seal system is better in performance than the rim seal systems at (D)10i and ii above, and has a rim seal emission factor that is less than the rim seal systems at (D)10i and ii above.
11. By (120 days after the operative date of these amendments) if a fixed-roof tank was in existence on (the day before the operative date of these amendments), or by the initial fill if a tank is constructed on or after (the operative date of these amendments), and if the fixed roof tank has a capacity of 40,000 gallons or greater storing any VOC with a vapor pressure of 0.5 pounds per square inch absolute or greater at standard conditions, the owner or operator shall:
- i. Equip any gauging or sampling device on the tank with a leak-free cover which shall be closed at all times, with no visible gaps, except during gauging or sampling;
  - ii. Maintain the fixed roof in a leak-free condition with no holes, tears or uncovered openings; and
  - iii. Install and maintain each roof opening in a leak-free condition at all times.
12. No person shall cause, suffer, allow, or permit the storage of any VOC in any stationary storage tank in Range I or II as determined by Table 2A equipped with an external floating roof, unless any such storage tank containing a VOC having a vapor pressure of 1.0 pounds per square inch

absolute (50 millimeters of mercury) or greater at standard conditions and having a maximum capacity of 20,000 gallons (75,700 liters) or greater is equipped with a double seal-envelope combination or equipment approved by the Department as being equally or more effective in preventing the emission of any VOC into the outdoor atmosphere. For the secondary seal, the gap area of gaps exceeding one-eighth inch (0.32 centimeters) in width between the seal and the tank wall shall not exceed 1.0 square inch per foot (6.5 square centimeters per 0.3 meters) of tank diameter. Any secondary seal shall be intact, with no visible holes, tears or other openings.

13. No person shall cause, suffer, allow, or permit the storage of any VOC in any stationary storage tank equipped with an external floating roof unless all openings in such roof, excluding emergency roof drains, are covered when not in active use. The tank shall be exempt from this paragraph if the tank meets the exemption criteria at (f)7 above.

(m) If a tank is equipped with an external or internal floating roof, the roof shall float on the liquid surface at all times, except during initial fill and during those intervals when the storage vessel is completely emptied or subsequently emptied and refilled.

(n) When performing a roof landing of an external floating roof tank:

1. When the roof is resting on the leg supports or suspended by cables or hangers, the process of filling, emptying, or refilling shall be continuous and shall be accomplished as rapidly as possible; and

2. Any in-service roof landing shall be with the landed height of the floating roof at its minimum setting.

(o) When performing a roof landing of an internal floating roof tank:

1. When the roof is resting on its leg supports or suspended by cables or hangers, the process of filling, emptying, or refilling shall be continuous and shall be accomplished as rapidly as possible; and

2. After the tank is refilled after being degassed for the first time after (the operative date of these amendments), any in-service roof landing shall be with the landed height of the floating roof at its minimum setting.

(p) The owner or operator of any floating roof tank, not exempt pursuant to (f)6 above, used to store a VOC shall:

1. Submit a complete facility-wide tank VOC control plan to the Department for approval at the address listed at (v) below as follows:

i. For any floating roof tank not exempt pursuant to (f)6 above, and existing as of (the operative date of these amendments), submit to the Department in writing the complete facility-wide tank VOC control

**plan by (120 days after the operative date of these amendments); or**

**ii. For any new tank, excluding a tank exempt pursuant to (f)6 above, added to a facility, submit to the Department in writing a new or updated complete facility-wide tank VOC control plan by 120 days after the installation of the newly constructed tank(s);**

**2. Include in the facility-wide tank VOC control plan, for all floating roof tanks, except those floating roof tanks exempt pursuant to (f)6 above, the information in (p)2i and ii below or (p)2i and iii below, as applicable:**

**i. A list of each tank at the facility and the following for each tank:**

**(1) The tank type;**

**(2) The tank volume;**

**(3) The tank diameter;**

**(4) The tank contents;**

**(5) The permit activity number;**

**(6) Any other identifying numbers; and**

**(7) The Bureau of Release Prevention schedule for tank inspection;**

**ii. A schedule to implement one or more of the following emission controls, which must be implemented by (10 years after the operative date of these amendments). This schedule shall be consistent with the facility's schedule for tank removal from service for normal inspection and maintenance and with the facility's schedule for the installation of any new tank(s):**

**(1) A tank configuration such that the bottom of the roof deck can be lowered to one foot or less from the top-most point of the surface of the tank floor;**

**(2) A method that routes all vapors from the tank to a vapor control device with a control efficiency of at least 90 percent, from the time the roof is landed until it is within 10 percent by volume of being refloated; or**

**(3) Other measures approved by the Department as being equally or more effective in preventing VOC emissions to the outdoor atmosphere; and**

**iii. An emissions averaging plan to operate all Range III floating roof tanks that store gasoline, except those tanks exempt pursuant to (f)6 above, such that their average annual roof landing VOC emissions, as calculated in accordance with Chapter 7.1.3.2.2 “Roof Landings” of AP-42, as supplemented or amended and incorporated herein by reference, or as calculated using another method approved by the Department in accordance with (v) below, and after applying any applicable control efficiencies, is less than:**

**(1) Five tons per tank per calendar year from 2011 through 2013;**

**(2) Four tons per tank per calendar year from 2014 through 2016;**

**(3) Three tons per tank per calendar year from 2017 through 2019; and**

**(4) Two tons per tank per calendar year in 2020 and subsequent years.**

**(q) Any part of a degassing and cleaning operation of a stationary storage tank performed during the period May 1 through September 30 shall be performed only as follows:**

**1. The owner or operator shall degas a tank storing a VOC with a vapor pressure equal to or greater than 0.5 psia at standard conditions as follows:**

**i. Empty the tank of the VOC liquid;**

**ii. Minimize VOC vapors in the tank vapor space by one of the following methods:**

**(1) Exhaust VOCs contained in the tank vapor space to a vapor control system rated at a minimum 95 percent efficiency until the organic vapor concentration is 5,000 parts per million by volume (ppmv) or less as methane, or is 10 percent or less of the lower explosive limit, whichever is less;**

**(2) Displace VOCs contained in the tank vapor space to a vapor control system rated at a minimum 95 percent efficiency by filling the tank with a suitable liquid until 90 percent or more of the maximum operating level of the tank is filled. Suitable liquids are organic liquids having a TVP of less than 0.5 psia, water, clean produced water, or produced water derived from crude oil having a TVP less than 0.5 psia; or**

**(3) If the tank is a free-water knockout tank, a person may degas the tank vapor space by restricting the outflow of water and**

**floating off the oilpad, such that at least 90 percent of the tank volume is displaced;**

- iii. Discharge or displace the VOC vapors contained in the tank vapor space to a vapor control system that is leak-free;**
- iv. As appropriate, temporarily remove for no longer than one hour, a suitable tank fitting, such as a manway, to facilitate connection to an external vapor control system; and**
- v. Drain and refill a floating roof tank as a continuous process as rapidly as practicable while the roof is not floating on the surface of the stored liquid.**

**2. The owner or operator shall clean a tank storing a VOC with vapor pressure equal to or greater than 0.5 psia at standard conditions only if:**

**i. At least one of the following cleaning agents is used:**

**(1) Diesel fuel;**

**(2) A solvent with an initial boiling point of greater than 302 degrees Fahrenheit;**

**(3) A solvent with a vapor pressure less than 0.5 psia;**

**(4) A solvent with 50 grams per liter VOC content or less; or**

**(5) Some other Department-approved cleaning agent; or**

**ii. Steam cleaning is performed.**

**3. The owner or operator shall control emissions from the sludge removed from a tank that stores a VOC with a vapor pressure equal to or greater than 1.5 psia at standard conditions by:**

**i. During sludge removal, controlling emissions from the receiving vessel by operating a vapor control system that reduces VOC emissions by at least 95 percent;**

**ii. Transporting removed sludge in leak-free containers; and**

**iii. Storing removed sludge, until final disposal, in leak-free containers, or in tanks that comply with (b) above.**

**(r) The owner or operator of a VOC stationary storage tank shall have an inspection performed by an authorized inspector and maintain the tank as follows:**

- 1. The findings of any tank inspection, whether completed or not, shall be recorded on the Inspection Form at N.J.A.C. 7:27-16 Appendix II, incorporated herein by reference, in accordance with the rule's requirements. If an inspection is stopped before completion, indicate the reason for this action in section J "Comments" of the Inspection Form;**
- 2. During the inspection, the authorized inspector performing the inspection must have a copy of the Preconstruction Permit or the Operating Permit pertinent to the tank being inspected. The authorized inspector shall compare the permit to the existing tank and actual operating conditions of the tank. The authorized inspector shall record any discrepancies between the permit equipment description and the existing tank, or the permit conditions and the actual operating conditions of the tank, as verified during an inspection, in section J "Comments" of the Inspection Form;**
- 3. Annually inspect the ground level periphery of each tank for possible leaks in the tank shell. Complete section D "Ground Level Inspection" of the Inspection Form;**
- 4. Annually complete all necessary calculations and record all required data accordingly in the Inspection Form and Fugitive Emissions Form at N.J.A.C. 7:27-16 Appendix II;**
- 5. For an external floating roof tank in Range III, demonstrate compliance with (l)1 through 3 above, as applicable, by:**
  - i. Annually, from the platform, visually inspecting the roof to check for permit and rule violations, and visually checking the roof for unsealed roof legs, open hatches, open emergency roof drains, or vacuum breakers. Indicate presence of any tears in the fabric of both seals. Record the findings under section F of the Inspection Form;**
  - ii. Annually, inspecting the deck fittings for visible gaps using the 1/8 inch probes, or inspecting the deck fittings for a leak-free condition using EPA Method 21 set forth at 40 CFR Part 60 Appendix A, as supplemented or amended and incorporated herein by reference or, instead of EPA Method 21, using another method approved by the Department. Record any leaks above 500 ppm in the Fugitive Emissions Form;**
  - iii. Annually, inspecting the entire secondary seal for the gap requirements at (l)3iv above using the 1/8 inch and 1/2 inch probes. Record the gap data in section F(4) of the Inspection Form. Record all cumulative gaps between 1/8 inch and 1/2 inch, between 1/2 inch and 1-1/2 inch, and in excess of 1-1/2 inches, in section G of the Inspection Form. Measure all secondary seal gaps greater than 1/2 inch for length and width, and record in section J "Comments" of the Inspection Form; and**

- iv. Every five years and each time the tank is degassed, inspecting the entire primary seal for the gap requirements at (L)3iii above using the 1/8 inch, 1/2 inch and 1-1/2 inch probes. The primary seal shall be inspected by holding back the secondary seal. Record the gap data in section F(5) of the Inspection Form. Record all cumulative gaps between 1/8 inch and 1/2 inch; between 1/2 inch and 1-1/2 inch; and in excess of 1-1/2 inches, in section G of the Inspection Form;
6. For a domed external floating roof tank in Range III existing as of the operative date of these new rules, demonstrate compliance with (L)5 above, by:

  - i. Annually, using an explosimeter, by measuring the concentration of the vapor space above the floating roof in terms of the lower explosive limit (LEL), and recording the reading in section E of the Inspection Form;
  - ii. Annually, by visually inspecting the deck fittings and visible seal of the rim seal system; and
  - iii. Each time the tank is degassed, but no less than once every 10 years, by performing the requirements at (r)5ii (excluding EPA Method 21), iii and iv above;
7. For a domed external floating roof tank in Range III that had a dome installed after the operative date of these new rules, demonstrate compliance with (L)6 above, by performing the requirements at (r)6 above;
8. For an internal floating roof tank in Range III, demonstrate compliance with (L) above, by performing the requirements at (r)6 above;
9. For a fixed roof tank that is subject to (L)11 above, annually demonstrate compliance with (L)11 above by inspecting the fittings located on the roof, piping, pressure relief valves and all other valves, to ensure they are leak-free using EPA Method 21 set forth at 40 CFR Part 60 Appendix A incorporated herein by reference, or using another method approved by the Department. Record any readings in excess of 500 ppm in the Fugitive Emissions Form;
10. The owner or operator of any VOC stationary storage tank shall repair or replace any piping, valve, vent, seal, gasket, or cover of a roof opening that:

  - i. Is defective;
  - ii. Has a visible gap or is not leak-free; or
  - iii. Does not meet any applicable requirement of this section; and

- 11. The owner or operator of a VOC stationary storage tank shall perform the repair or replacement at (r)10 above:**
  - i. If the tank is already degassed, prior to filling; or**
  - ii. If the tank is not degassed, within 45 days after discovery of the needed repair or replacement.**
  
- (s) The owner or operator shall maintain on-site, for each tank, for the time period specified at N.J.A.C. 7:27-16.22(a), unless another time period is specified below:**
  - 1. Records that specify each VOC stored and the vapor pressure of each VOC at standard conditions;**
  - 2. For the owner or operator of a floating roof tank, records of the roof landing emission information required at N.J.A.C. 7:27-21.5(j)1;**
  - 3. If the owner or operator of a floating roof tank has not implemented all control measures pursuant to the tank VOC control plan submitted pursuant to (p) above, or if a floating roof tank is exempt pursuant to (f)5 above, the records of each floating roof landing event including, but not limited to, tank contents before landing and after refilling; landed height of the floating roof; height of any liquid remaining in the bottom of the tank after landing; duration of landing; landing emissions calculated using AP-42, Chapter 7 methodology, and any other records needed to create the "Floating Roof Landing Emission Summary Report" required at N.J.A.C. 7:27-21.5(j)2;**
  - 4. Records relating to the installation of vapor control devices described at (t) below;**
  - 5. For the lifetime of the tank, all inspection reports;**
  - 6. Records of all tank degassing, cleaning and sludge removal activities performed pursuant to (q) above; and**
  - 7. Records of all tank integrity testing schedules that N.J.A.C. 7:1E-4.2(c)1v requires to be included in the "Discharge, Prevention, Containment and Countermeasure Plan."**
  
- (t) On and after (the operative date of these amendments), the owner or operator of any floating roof stationary storage tank that installs a vapor control device in accordance with (p)2ii above shall record operating parameters as follows:**
  - 1. For a thermal oxidizer, the owner or operator shall record the following on a continuous basis or at a frequency approved by the Department:**
    - i. The operating temperature at the exit of the combustion chamber;**

- ii. The carbon monoxide concentration in the flue gas emitted to the outdoor atmosphere; and
    - iii. Upon request of the Department, any other operating parameter relevant to the prevention or control of air contaminant emissions from the tank or the oxidizer;
  2. For a vapor control system that uses carbon or other adsorptive material, the owner or operator shall record the following on a continuous basis or at a frequency approved in writing by the Department:
    - i. The concentration of the total applicable VOCs in the flue gas emitted to the outdoor atmosphere; or
    - ii. Provided that the owner or operator confirms daily that the automatic switching between carbon beds is functioning in accordance with permit conditions, the date of carbon bed replacement; and, upon request of the Department, any other operating parameter relevant to the prevention or control of air contaminant emissions from the tank or the adsorber; and
  3. For any other vapor control device, upon request of the Department, any operating parameter relevant to the prevention or control of air contaminant emissions from the tank or that vapor control device.
- (u) If, during an inspection required at (r) above, or at any other time, the owner or operator determines that a tank does not comply with (l) above, the owner or operator shall submit a written report to the Department including the cause of the non-compliance, corrective actions to achieve compliance and measures taken to prevent a re-occurrence of the non-compliance. If the facility has an operating permit, in accordance with N.J.A.C. 7:27-22, the owner or operator shall include this report as part of the periodic compliance reports required at N.J.A.C. 7:27-22.19(d) and (f). If the facility does not have an operating permit, the owner or operator shall submit this report to the Department within three business days after becoming aware of the non-compliance.
- (v) An owner or operator that seeks Department approval for an alternate method for calculating a tank's roof landing emissions pursuant to (p)2iii above shall:
  1. Prepare an application that includes:
    - i. A description of the proposed alternate method;
    - ii. The parameters in the alternate method; and
    - iii. Supporting documentation that justifies the use of the alternate method; and

**2. Submit a complete application in writing to the Department at:**

**Assistant Director, Air Quality Permitting Element**  
**Division of Air Quality**  
**New Jersey Department of Environmental Protection**  
**401 East State Street**  
**PO Box 027**  
**Trenton, NJ 08625-0027**

7:27-16.3 Gasoline transfer operations

(a)-(h) (No change.)

(i) The owner or operator of a gasoline dispensing facility shall perform the following tests:

1. The owner or operator shall demonstrate the facility's vapor control system is performing properly, as follows:

i. (No change.)

ii. The tests required to be performed pursuant to (i)1i above shall be conducted utilizing the applicable CARB test method cited in Table 3A (except that the Static Pressure Performance Test shall be modified as indicated in Table 3A) which are incorporated herein by reference or utilizing some other method approved by the Department and USEPA. A copy of any CARB procedure cited in Table 3A may be downloaded from CARB's website at <http://www.arb.ca.gov/vapor> or obtained from the Department at the following address:

New Jersey Department of Environmental Protection  
Bureau of Technical Services  
PO Box 437  
[380 Scotch Road]  
[West] Trenton, NJ [08525-0437] **08625-0437**

iii. A vapor control system shall be deemed to have passed a test conducted pursuant to (i)1i above if it meets the performance standards and specifications which are set forth in CARB's Vapor Recovery Certification Procedure (CP - 201), as amended, and which are applicable to the test. A copy of CARB's Vapor Recovery Certification Procedure may be downloaded from CARB's website at <http://www.arb.ca.gov/vapor> or obtained from the Department at the following address:

New Jersey Department of Environmental Protection  
Bureau of Technical Services  
PO Box 437  
[380 Scotch Road]

[West] Trenton, NJ [08525-0437] **08625-0437**

iv.-v. (No change.)

2.-3. (No change.)

Table 3A

(No change.)

(j)-(s) (No change.)

7:27-16.7 Surface coating and graphic arts operations

(a)-(d) (No change.)

(e) The provisions of (c) and (d) above and (h), (i), [and] (j) **and (r)1** below shall not apply to any individual surface coating or graphic arts operation in which the total surface coating formulations containing VOC are applied:

1.-2. (No change.)

(f) The owner or operator of any automobile or light duty truck surface coating operation may, as an alternative to complying, pursuant to (c) above, with the content limits set forth in Table 7A, comply with the provisions of Table 7C pertaining to spray prime and spray topcoat surface coating formulations, provided that the transfer efficiency of the spray coating operation is determined in accordance with a method approved by the Department and the EPA.

TABLE 7A

(No change.)

TABLE 7B

MISCELLANEOUS SURFACE COATING OPERATIONS  
CONTROL CRITERIA AND COMPLIANCE DATES

<u>Type of Operation</u>	Maximum Allowable VOC Content per Volume of Coating (minus water)		Final Compliance Date
	<u>Pounds per Gallon</u>	<u>Kilogram per Liter</u>	
Group I			

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...

Coating of Flat Wood Paneling

December 31, 1983  
through  
(a day before the  
operative date of these  
amendments)

Printed hardwood plywood panels and particleboard panels	2.7	0.32
Natural finish hardwood plywood	3.3	0.40
Hardwood panels	3.6	0.43

**Coating of Flat Wood Paneling and Printed Hardwood**

**(the operative date of these amendments)**

<b><u>Printed interior panels made of hardwood, plywood, or thin particleboard</u></b>	<b><u>2.1</u></b>	<b><u>0.25</u></b>
<b><u>Natural finish hardwood plywood</u></b>	<b><u>2.1</u></b>	<b><u>0.25</u></b>
<b><u>Hardwood panels</u></b>	<b><u>2.1</u></b>	<b><u>0.25</u></b>
<b><u>Exterior Siding</u></b>	<b><u>2.1</u></b>	<b><u>0.25</u></b>
<b><u>Tileboards</u></b>	<b><u>2.1</u></b>	<b><u>0.25</u></b>

Group II

...

TABLE 7C

(No change.)

TABLE 7D

GRAPHIC ARTS OPERATIONS

Part A

(No change.)

Part B

**CONTROL CRITERIA FOR [GRAPHIC ARTS] ROTOGRAVURE, SHEET-FED GRAVURE, AND FLEXOGRAPHIC SOURCE OPERATIONS  
 [EXCEPT SCREEN PRINTING OPERATIONS]**

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Basis	<u>Control Criteria of a Source Operation Constructed Prior to (the operative date of these amendments):</u>
Surface coating formulations <sup>2</sup> that contain water [(except fountain solutions)]:	Maximum [Allowable] <b>allowable</b> volume percent VOC in volatile fraction of surface coating formulations [or fountain solutions] (VOC plus water) as applied. 25.0 [%] percent
[Basis]	[Control Criteria]
Surface coating formulations <sup>2</sup> that do not contain water.	Maximum [Allowable] <b>allowable</b> VOC [Content] <b>content</b> per volume of surface coating formulation (minus water) Pounds per Gallon                      Kilograms [Per] <b>per</b> Liter 2.9    0.35
[Fountain solutions:]	[5.0%, if the temperature of the fountain solution is 55°F or less; or 3.0%, if the temperature of the fountain solution is higher than 55°F]

**Basis**    **Control Criteria of a Source Operation Constructed or Modified on or after (the operative date of these amendments):**

**Surface coating formulations<sup>2</sup>**    **Maximum allowable VOC content of surface coating formulation (minus water):**  
**0.8 pounds VOC/pound solid applied**  
**or**  
**0.16 pounds VOC/pound materials applied**

Part C

(No change.)

**Part D**

**CONTROL CRITERIA FOR FABRIC PRINTING SOURCE OPERATIONS**

<b><u>Basis</u></b>	<b><u>Control Criteria</u></b>
<b><u>Surface coating formulations<sup>2</sup> that contain water:</u></b>	<b><u>Maximum allowable volume percent VOC in volatile fraction of surface coating formulations (VOC plus water) as applied.</u></b>

**25.0 percent**

**Surface coating formulations<sup>2</sup> that do not contain water:**

**Maximum allowable VOC content per volume of surface coating formulation (minus water).**

**Pounds per Gallon**

**Kilograms per Liter**

**2.9**

**0.35**

<sup>1</sup> Control apparatus serving certain graphic arts operations of this type which were constructed prior to July 26, 1994 may have compliance dates on or after July 26, 1994, pursuant to the provisions of (p) below.

<sup>2</sup> This term includes inks and coatings; see definition of “surface coating formulation.”

<sup>3</sup> Except where conductive ink and special purpose screen printing inks and coatings are used.

(g) (No change.)

(h) [Except as provided in (p) below, the] **The** owner or operator of any rotogravure, sheet-fed gravure, flexographic, fabric, or screen printing operation may, as an alternative to complying with the control criteria requirements set forth in Table 7D, pursuant to (c)1 above[, install and use control apparatus which]:

1. [Collects]**For any rotogravure or sheet-fed gravure printing operation installed prior to May 1, 2010, install and use control apparatus that collects** at least 75 percent by volume of the source gas emitted [from a rotogravure or gravure printing operation (sheet fed)], including associated dryers, and prevents from being discharged into the outdoor atmosphere:

i. At least 95 percent by volume of the VOC collected on an hourly basis if a thermal oxidizer is used to control emissions[, except as provided in (p) below]; or

ii. (No change.)

2. [Collects]**For any flexographic printing operation installed prior to May 1, 2010, install and use control apparatus that collects** at least 70 percent by volume of the source gas emitted [from a flexographic printing operation], including **from** associated dryers, and prevents from being discharged into the outdoor atmosphere:

i. At least 95 percent by volume of the VOC collected on an hourly basis if a thermal oxidizer is used to control emissions[, except as provided in (p) below]; or

ii. At least 90 percent by volume of the VOC collected on an hourly basis if a carbon adsorption system or any other control device is used to control emissions[;].

**3. For any rotogravure, sheet-fed gravure, or flexographic printing operation installed or modified on or after May 1, 2010, neither (h)1 nor 2 above shall**

**apply; the operation shall install and use control apparatus that collects at least 85 percent by volume of the source gas emitted from the operation, including associated dryers, and prevents from being discharged into the outdoor atmosphere:**

**i. At least 95 percent by volume of the VOC collected on an hourly basis if a thermal oxidizer is used to control emissions; or**

**ii. At least 90 percent by volume of the VOC collected on an hourly basis if a carbon adsorption system or any other control device is used to control emissions.**

[3. Collects]**4. For any fabric printing operation, install and use control apparatus that collects** at least 70 percent by volume of the source gas emitted [from a fabric printing operation], including **from** associated dryers, and prevents from being discharged into the outdoor atmosphere:

i. At least 95 percent by volume of the VOC collected on an hourly basis if a thermal oxidizer is used to control emissions, except as provided in [(r)]**(p)** below; or

ii. At least 90 percent by volume of the VOC collected on an hourly basis if a carbon adsorption system or any other control device is used to control emissions[; or].

[4. Collects]**5. For any screen printing operation, install and use control apparatus that collects** at least 70 percent by volume of the source gas emitted [from a screen printing operation] and prevents from being discharged into the outdoor atmosphere:

i.-ii. (No change.)

(i)-(o) (No change.)

(p) Notwithstanding the provisions of (h)[1, 2, or 3]**4** above, the owner or operator of any [rotogravure printing operation, gravure (sheet-fed) printing operation, flexographic printing operation, or] fabric printing operation[,] subject to this section pursuant to (a)1 above, may continue to use a control apparatus which was installed and continues to be operated in compliance with a permit issued by the Department for the printing operation prior to July 26, 1994 so long as the control apparatus has not been altered or replaced since the date of approval of the current permit. If and when the control apparatus is altered or replaced, the new or altered control apparatus shall at a minimum meet the requirements set forth in (h)[1, 2, or 3]**4** above.

(q) (No change.)

**(r) The owner or operator of a letterpress printing operation and the owner or operator of a lithographic printing operation shall comply with the following:**

- 1. On and after May 1, 2010, any heatset web lithographic printing operation or heatset letterpress printing operation shall:**
  - i. Achieve greater than 95 percent control of VOC emissions from the dryer; or**
  - ii. Achieve less than 20 parts per million by volume as equivalent hexane emitted from the dryer on a dry basis prior to any dilution of the gas stream with ambient air after the gas stream exits the dryer.**
  
- 2. On and after (the operative date of these amendments), any cleaning material used on any lithographic or letterpress printing press shall:**
  - i. Have a composite VOC vapor pressure less than 10 mm Hg at 20 degrees Celsius; or**
  - ii. Have a VOC content of less than 70 percent by weight.**
  
- 3. On and after (the operative date of these amendments), no greater than a total of 110 gallons per calendar year of cleaning materials that do not meet one of the requirements at (r)2 above may be used to clean a lithographic or letterpress printing press.**
  
- 4. On and after (the operative date of these amendments), a cleaning material used to clean a lithographic or letterpress printing operation is not required to meet (r)2 above for cleaning electronic components of a press, pre-press cleaning operations (for example, platemaking), post-press cleaning operations (for example, binding), or cleaning performed in parts washers or cold cleaners.**
  
- (s) On and after (the operative date of these amendments), the owner or operator of a lithographic printing operation shall comply with the following:**
  - 1. Any fountain solution used in a heatset web lithographic printing operation shall not exceed:**
    - i. A VOC content of 1.6 percent by weight or less; or**
    - ii. A VOC content of 3.0 percent by weight or less if the fountain solution is refrigerated to below 60 degrees Fahrenheit.**
  
  - 2. Any fountain solution used for a coldset web offset lithographic printing operation or a sheet-fed offset lithographic printing operation shall not exceed (s)2i or ii below. This exceedance limitation shall not apply to an operation with a sheet size of 187 square inches or less or a total fountain reservoir of less than one gallon.**

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**i. A VOC content of 5.0 percent by weight or less; or**

**ii. A VOC content of 8.5 percent by weight or less if the fountain solution is refrigerated to below 60 degrees Fahrenheit.**

**(t) On or after (the operative date of these amendments), no person shall cause, suffer, allow, or permit the use of any flat wood paneling coating, printed hardwood coating, or lithographic, letterpress, rotogravure, sheet-fed gravure or flexographic printing operation without implementing the following best management practices:**

**1. All coatings, thinners, and cleaning materials containing any VOC shall be stored in sealed containers;**

**2. All coatings, thinners, and cleaning materials containing any VOC shall be conveyed in sealed containers or pipes;**

**3. Each mixing vessel containing any VOC coating and any other material shall have a cover which is sealed except when adding to, removing from, or mixing in the vessel;**

**4. All used shop towels containing any VOC shall be kept in sealed containers; and**

**5. Record and maintain on-site, logs of the implementation of the best management practices required at (t)1 through 4 above, pursuant to N.J.A.C. 7:27-16.22.**

7:27-16.11 Asphalt **pavement production** plants

(a)-(b) (No change.)

(c) Any owner or operator of an asphalt **pavement production** plant subject to this section shall achieve compliance with this section by May 31, 1995, and maintain compliance with this section thereafter.

(d) Any owner or operator of an asphalt **pavement production** plant subject to this section shall demonstrate compliance with this subchapter in accordance with the procedures at N.J.A.C. 7:27-16.23 before May 31, 1996.

(e) Any owner or operator of any asphalt **pavement production** plant subject to this section shall adjust the combustion process in accordance with the procedure set forth in its permit and certificate or at least once per year beginning in 1995, whichever is more stringent.

(f)-(h) (No change.)

7:27-16.16 Other source operations

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- (a) The provisions of this section apply to any source operation, except source operations in the following categories (Note: Source operations in those categories designated by an asterisk (\*) which have the potential to emit three pounds per hour or more of VOC and which are located at a major VOC facility are regulated by N.J.A.C. 7:27-16.17.):

1.-9. (No change.)

10. Asphalt **pavement production** plants;

11.-19. (No change.)

- (b)-(g) (No change.)

7:27-16.17 [Facility-specific]**Alternative** VOC control requirements

- (a) This section establishes procedures and standards for the establishment of VOC control requirements for any source operation that:

1. (No change.)

2. [If the owner or operator of a source operation] **Is** regulated under N.J.A.C. 7:27-16.2 through 16.16 or 16.18 through 16.21, **whose owner or operator** seeks approval of an alternative VOC control plan, which would apply to the equipment or source operation notwithstanding any control requirement or emission limit which would otherwise apply under this subchapter[.]; **or**

**3. Was issued an alternative VOC control plan prior to (the operative date of these amendments).**

- (b) (No change.)

- (c) [A]**The following requirements shall apply to an** owner or operator seeking approval of an alternative VOC control plan [pursuant to (a)2 above]:

**1. The owner or operator** shall submit to the Department at the address listed in (s) below a proposed alternative VOC control plan prepared in accordance with (d) below. Submission of a proposed alternative VOC control plan does not relieve an owner or operator of any facility, equipment or source operation from complying [by May 31, 1995 for source operations first regulated under this subchapter as amended operative July 26, 1994 or] **by the** compliance dates in other sections of this subchapter. If and when the Department approves [the] **an** alternative VOC control plan, the owner or operator shall be subject to the conditions and requirements of the plan and of the Department's approval[.];

**2. Any alternative VOC control plan approved by the Department after (the operative date of these amendments) shall have a term of 10 years;**

**3. Any owner or operator that has an alternative VOC control plan approved prior to (the operative date of these amendments) by the Department and who plans to continue operating with an alternative VOC control plan, shall submit a proposed plan by (90 days after the operative date of these amendments). The owner or operator may request a 60-day extension pursuant to N.J.A.C. 7:27-16.17(q) to submit the proposed plan;**

**i. If the owner or operator submits a proposed plan by (90 days after the operative date of these amendments) or by the date of any extension approved by the Department, the owner or operator's existing alternative VOC control plan shall terminate on the date specified in the implementation schedule of the alternative VOC control plan the Department approves; and**

**ii. If the owner or operator does not submit a proposed plan by (90 days after the operative date of these amendments), the owner or operator's existing VOC control plan shall terminate on (90 days after the operative date of these amendments);**

**4. If the owner or operator of a facility has an approved alternative VOC control plan for a source operation that was issued after (the operative date of these amendments), intends to modify or reconstruct, such that the VOC emission limit would change, the existing alternative VOC control plan shall terminate on the start date of the modification or reconstruction. If the owner or operator plans to continue operating under an alternative VOC control plan, the owner or operator shall apply, and obtain approval of, a new alternative VOC control plan; and**

**5. If the owner or operator of a facility that has an approved alternative VOC control plan for a source operation that was issued after (the operative date of these amendments), intends to continue operating under a VOC emission limit beyond the expiration date of the existing plan, the owner or operator shall apply for a new alternative VOC control plan at least one year prior to the termination date of the existing plan. The existing plan shall terminate on its termination date or on the date of the Department's final action on the proposed new plan, whichever is later.**

(d) An owner or operator submitting a proposed alternative VOC control plan pursuant to (b)1iii or (c) above shall include the following information in the plan:

1. (No change.)

2. The following information for each source operation listed pursuant to (d)1 above:

i.-ix. (No change.)

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- x. The VOC control technology or technologies or process alternatives which the owner or operator proposes to employ **and an implementation schedule**;

xi.-xiii. (No change.)

3.-4. (No change.)

(e)-(g) (No change.)

- (h) Failure by an owner or operator to submit the additional information requested by the Department pursuant to (g) above within the time stated in the Department's notification shall constitute a violation of this subchapter. In such case, the Department may deny the [request for approval of the] submission and pursue its other remedies.

(i) (No change.)

- (j) Within six months after receiving a complete proposed alternative VOC control plan, the Department shall approve, approve and modify, or disapprove the proposed plan and notify the owner or operator of the decision in writing. The Department shall approve the proposed plan [or request ]only if it satisfies the following requirements:

- 1. The proposed plan [or request ]contains all of the information required under (d) above;

2.-6. (No change.)

(k)-(p) (No change.)

- (q) After receipt of a written request from an owner or operator, the Department may authorize a 60-day extension of the deadline set forth in (b)1 above[, provided that such a request shall include a statement, certified in accordance with N.J.A.C. 7:27-1.39, that notwithstanding the request for extension, the facility will comply with all applicable emission limits set forth in this section by the May 31, 1995 deadline established in (b)2 above]. Such extension may be renewed by the Department upon the written request of the owner or operator [provided that the request for renewal shall also include a statement, certified in accordance with N.J.A.C. 7:27-1.39, that notwithstanding the request for an extension, that the facility will comply with all applicable emission limits set forth in this section by the May 31, 1995 deadline established in (b)2 above]. **After receipt of a written request from an owner or operator, the Department may authorize one 60 day non-renewable extension of the deadline set forth at (c)3 above.** Written requests for the extension of a deadline [submitted] shall be submitted to the address listed below:

[Assistant Director, Air and Environmental Quality Enforcement  
Division of Enforcement Field Operations]

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**Administrator**

**Air Compliance and Enforcement**

Department of Environmental Protection

PO Box 422

401 East State Street, 4th floor

Trenton, New Jersey 08625-0422

(r)-(t) (No change.)

7:27-16.19 Application of cutback and emulsified asphalts

[(a) No person shall cause, suffer, allow, or permit the use of cutback asphalt or emulsified asphalt containing any VOC unless:

1. The material is applied during the periods of January 1 through April 15 or October 15 through December 31;
2. The use is solely as a penetrating prime coat;
3. The emulsified asphalt contains no greater than eight percent VOC by volume and is used for mixed-in-place construction;
4. The material is a cold-mix, stockpile material used for pavement repair; or
5. The user can demonstrate that there are no emissions of VOC from the asphalt under conditions of normal use.]

**(a) On or after April 16, 2009, no person shall use or apply, during the period from April 16 through October 14, cutback asphalt or emulsified asphalt, unless:**

- 1. The asphalt contains no greater than 0.1 percent VOC by weight; or**
- 2. The asphalt produces no greater than 6.0 milliliters of oil distillate, in accordance with ASTM Method D244, Standard Test Methods and Practices for Emulsified Asphalts, or AASHTO T 59, Standard Method of Test for Testing Emulsified Asphalts, both as supplemented or amended and incorporated herein by reference. ASTM Method D244 is available from the American Society for Testing and Materials (ASTM), 100 Barr Harbor Drive, Post Office Box C700, West Conshohocken, Pennsylvania 19428-2959, or from its website [www.astm.org](http://www.astm.org). AASHTO T 59 is available from the American Association of State Highway and Transportation Officials (AASHTO), 444 North Capitol Street N.W., Suite 249, Washington, DC 20001, or from its website [www.transportation.org](http://www.transportation.org).**

**(b) On or after April 16, 2009, no person shall store cutback asphalt or emulsified asphalt during the period from April 16 through October 14 that does not meet the**

**requirements at (a) above, unless the cutback asphalt or emulsified asphalt is stored in a sealed container.**

7:27-16.22 Emission information, [record keeping] **recordkeeping** and testing

- (a) (No change.)
- (b) Any person who owns or operates a source operation subject to any recordkeeping requirement set forth in this subchapter may submit a request in writing to the Department for approval to maintain records other than those specified at N.J.A.C. 7:27-16.2[(k)]**(s)**, 16.3(s), 16.4(o), 16.5(j), 16.6(l), 16.7(m) and (n), 16.13(c), 16.16(g), 16.18(j), 16.20(g) or 16.21(c). The Department and EPA may approve any such request if the person demonstrates to the satisfaction of the Department and EPA that the alternate records to be maintained are at least as effective in documenting that the source operation is operating in compliance with the applicable requirements.
- (c)-(g) (No change.)
- (h) [Any record keeping requirement set forth at N.J.A.C. 7:27-16.2(k), 16.3(s), 16.7(m), 16.7(n), 16.16(g), or 16.20(g), shall become effective on October 1, 1992, except for record keeping based on continuous emission monitoring. Any record keeping requirement based on continuous emission monitoring shall become effective on April 1, 1993.](**Reserved**)
- (i) Any person who reports information to the Department pursuant to the requirements set forth at N.J.A.C. 7:27-16.2([(k)]**(s)**, 16.3(s), 16.7(m) and (n), 16.16(g), or 16.20(g) may assert a confidentiality claim for that information in accordance with the procedures set forth at N.J.A.C. 7:27-1.6 through 1.30.

7:27-16.27 Exceptions

- (a) (No change.)
- (b) The provisions of this subchapter shall not apply to the emissions of VOC from the following source operations:
  - [1. Offset lithography printing operations until November 15, 1994;
  - 2. Surface coating of plastic parts until November 15, 1994;]
  - [3.]**1.** Natural gas pipelines that are not major VOC facilities, with the exception of blowdown events as set forth in N.J.A.C. 7:27-16.21; **and**
  - [4. Industrial wastewater treatment systems until November 15, 1994;
  - 5. All other wastewater treatment facilities until November 15, 1994; and]
  - [6.]**2.** Open burning.

## APPENDIX II

STATE OF NEW JERSEY  
DEPARTMENT OF ENVIRONMENTAL PROTECTION  
N.J.A.C. 7:27-16.2 VOC STATIONARY STORAGE TANKS

### INSPECTIONS

#### Equipment Needed:

**Organic Vapor Analyzer (OVA) calibrated with methane in accordance with EPA Method 21, as supplemented or amended and incorporated herein by reference; explosimeter calibrated with methane (for internal floating roof tanks); liquid resistant measuring tape or device; tank probe (to measure gaps in tank seals - 1/8 inch, 1/2 inch, 1-1/2 inch); flashlight.**

#### Inspection Procedures (N.J.A.C. 7:27-16.2(r)):

- A. Any inspection shall be performed by an authorized inspector.**
- B. The findings of any tank inspection, whether completed or not, shall be recorded on the Inspection Form at N.J.A.C. 7:27-16, Appendix II, prescribed by the Department in accordance with the rule's requirements. If an inspection is stopped before completion, indicate the reason for this action in section J "Comments" of the Inspection Form.**
- C. During the inspection, the person(s) conducting the inspection must have a copy of the Preconstruction Permit or the Operating Permit pertinent to the tank being inspected. Any discrepancies between the permit equipment description and the existing tank or the permit conditions and the actual operating conditions of the tank as verified during an inspection must be recorded in section J "Comments" of the Inspection Form.**
- D. Inspect the ground level periphery of each tank for possible leaks in the tank shell. Complete section D "Ground Level Inspection" of the Inspection Form.**
- E. For external floating roof tanks:**
  - 1. From the platform, visually inspect the roof and check for permit or rule violations. Record the information as shown under section F of the Inspection Form.**
  - 2. During visual inspection of the roof, check for unsealed roof legs, open hatches, open emergency roof drains or vacuum breakers and record the findings on the Inspection Form accordingly. Indicate presence of any tears in the fabric of both seals.**

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- 3. Inspect the roof fittings using the 1/8 inch probes or conduct a EPA Method 21 inspection, as supplemented or amended and incorporated herein by reference, of the roof fittings for a leak-free condition. Record any leaks above 500 ppm in the Fugitive Emissions Form.**
  - 4. Inspect the entire secondary seal using the 1/8 inch and 1/2 inch probes. Record the gap data in section F(4) of the Inspection Form.**
  - 5. When required (which is every five years), inspect the entire primary seal using the 1/8 inch, 1/2 inch, and 1-1/2 inch probes. Inspect the primary seal by holding back the secondary seal. Record the gap data in section F(5) of the Inspection Form.**
  - 6. Record all cumulative gaps between 1/8 inch and 1/2 inch; between 1/2 inch and 1-1/2 inch; and in excess of 1-1/2 inches, for both primary and secondary seals in section G of the Inspection Form. Secondary seal gaps greater than 1/2 inch should be measured for length and width, and recorded in section J “Comments” of the Inspection Form.**
- F. For internal floating roof and domed tanks:**
- 1. Using an explosimeter, measure the concentration of the vapor space above the internal floating roof in terms of lower explosive limit (LEL), and record the reading in section E of the Inspection Form.**
  - 2. Visually inspect the deck fittings and the visible seal of the rim seal system, and record findings in section E of the Inspection Form.**
  - 3. Conduct gap measurements of the deck fittings and rim seal system each time the tank is emptied and degassed but no less than once every 10 years.**
- G. For fixed roof tanks:**
- 1. Inspect the pressure relief valves, piping, valves and fittings located on the roof for leak-free condition. Record any readings in excess of 500 ppm in the Fugitive Emissions Form.**
- H. Complete all necessary calculations and record all required data accordingly in the Inspection Form and Fugitive Emissions Form.**

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## INSPECTION FORM

**\*\*PLEASE COMPLETE FORM LEGIBLY IN BLACK INK\*\***

Program Interest No. \_\_\_\_\_ Permit Activity No. \_\_\_\_\_ Tank ID No. E \_\_\_\_\_

Inspection Date \_\_\_\_\_ Time \_\_\_\_\_

Is this a Follow-up Inspection? No  Yes  If yes, Date of Previous Inspection \_\_\_\_\_

### A. COMPANY INFORMATION:

Company Name \_\_\_\_\_

Location Address \_\_\_\_\_ City \_\_\_\_\_ Zip \_\_\_\_\_

Mailing Address \_\_\_\_\_ City \_\_\_\_\_ Zip \_\_\_\_\_

Contact Person \_\_\_\_\_ Title \_\_\_\_\_

Phone \_\_\_\_\_

### B. INSPECTION CONDUCTED BY:

Name \_\_\_\_\_ Title \_\_\_\_\_

Company Name \_\_\_\_\_ Phone \_\_\_\_\_

Mailing Address \_\_\_\_\_ City \_\_\_\_\_ Zip \_\_\_\_\_

### C. TANK INFORMATION:

Capacity \_\_\_\_\_ (gals) Installation Date \_\_\_\_\_ Tank Diameter \_\_\_\_\_ (ft) Tank Height \_\_\_\_\_ (ft)

Product Type \_\_\_\_\_ Product Vapor Pressure \_\_\_\_\_ (psia)

Type of Tank: Riveted  Welded  Other  (describe) \_\_\_\_\_

Color of Shell \_\_\_\_\_ Color of Roof \_\_\_\_\_

Roof Type: Pontoon  Double Deck  Other  (describe) \_\_\_\_\_

External floating roof

Internal floating roof or domed tank

### D. GROUND LEVEL INSPECTION:

1) Product Temperature \_\_\_\_\_ ° F      2) Product level \_\_\_\_\_ (ft)

3) List type and location of leaks found in tank shell.

\_\_\_\_\_

4) List any discrepancies between the existing equipment and the equipment description on the Permit.

\_\_\_\_\_

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5) Is tank in compliance with Permit conditions? No  Yes  If no, explain \_\_\_\_\_

---

---

**E. INTERNAL FLOATING ROOF OR DOMED TANK:**

- 1) Check vapor space between floating roof and fixed roof with explosimeter. \_\_\_\_\_ Percent LEL.
- 2) Conduct visual inspection of roofs and the visible seal of the rim seal system.
- 3) Are all roof openings covered? No  Yes  If no, explain in Comments section (J) and proceed to part (H)(6).

**F. EXTERNAL FLOATING ROOF TANK (or DOMED TANK AND INTERNAL FLOATING ROOF TANK when needed)**

- 1) On the diagram (below) indicate the location of the ladder, roof drain(s), anti-rotation device(s), platform, gauge well, and vents or other appurtenances. *Note information in relation to North (to the top of the worksheet).*
- 2) Describe any uncovered openings found on the roof in the Comments section (J).
- 3) Identify any tears in the seal fabric. Describe and indicate on diagram (below):
- 4) Secondary Seal Inspection

a. Type of Secondary Seal:

---

- b. Does 1/2" probe drop past seal? No  Yes  If yes, measure length(s) and show on diagram.
- c. Does 1/8" probe drop past seal? No  Yes  If yes, measure length(s) and show on diagram.

4. Record dimensions of gap for gaps

> 1/8" \_\_\_\_\_

> 1/2" \_\_\_\_\_

*NOTE: Record the actual width and cumulative length of gaps in feet and inches. (Do not include gaps > 1/2" in 1/8" measurements)*

**5) Primary Seal Inspection**

- a) Type of Primary Seal:  Shoe;  Tube;  Other \_\_\_\_\_
- b) Shoe seal: Does 1-1/2" probe drop past seal? No  Yes  If yes, measure length(s) and show on diagram.
- c) Shoe seal: Does 1/2" probe drop past seal? No  Yes  If yes, measure length(s) and show on diagram.

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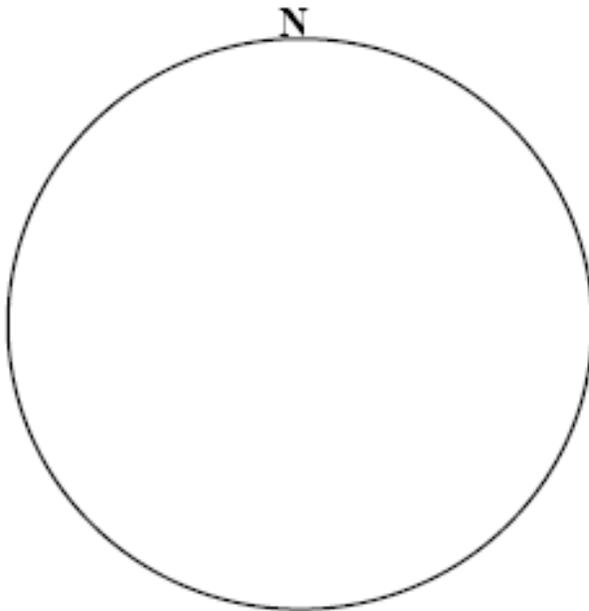
- d) **Tube seal: Does 1/2" probe drop past seal?** No  Yes  **If yes, measure length(s) and show on diagram.**
- e) **All seal types: Does 1/8" probe drop past seal?** No  Yes  **If yes, measure length(s) and show on diagram.**
- f) **Record dimensions of gaps for gaps**
- > 1/8" \_\_\_\_\_
- > 1/2" \_\_\_\_\_
- >1-1/2" \_\_\_\_\_

*NOTE: Record the actual width and cumulative length of gaps in feet and inches. (Do not include gaps > 1/2" in 1/8" measurements, or gaps > 1-1/2" in 1/2" measurements)*

6) **Deck Fitting Inspection**

(Circle one) Does 1/8" probe drop past gasket seal or does seal fail EPA Method 21? No  Yes   
If yes, identify fitting.

NOTE: Show defects using symbols. Show seal gaps and lengths.



<u>Legend</u>	
<u>Equipment</u>	
AD	Antirotational device
GW	Gauge well
┴	Leg stand
RD	Roof drain
*	Emergency roof drain
∞	Vacuum breaker
▲	Vent
PL	Platform & ladder
<u>Defects</u>	
LT	Leg top
‡	Leg pin
OH	Open hatch
V\	Torn seal
-P-	Primary seal gap
-S-	Secondary seal gap

IF INTERNAL FLOATING ROOF OR DOMED TANK, PROCEED TO PART H(6) WHEN APPROPRIATE:

G. **CALCULATIONS - complete all applicable portions of the following:**

Record dimensions of indicated gaps (from F(4)(d), F(5)(b), and F(5)(f)). Record in feet and inches.

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Gaps in primary seal between 1/8 and 1/2 inch: \_\_\_\_\_

Gaps in primary seal between 1/2 and 1-1/2 inch: \_\_\_\_\_

Gaps in primary seal greater than 1-1/2 inches: \_\_\_\_\_

Gaps in secondary seal between 1/8 and 1/2 inch: \_\_\_\_\_

Gaps in secondary seal greater than 1/2 inch: \_\_\_\_\_

Multiply diameter (ft) of tank to determine appropriate gap limits:

5 percent circumference = diameter X 0.157 = \_\_\_\_\_ 60 percent circ. = diam. X 1.88 = \_\_\_\_\_

10 percent circumference = diameter X 0.314 = \_\_\_\_\_ 90 percent circ. = diam. X 2.83 = \_\_\_\_\_

30 percent circumference = diameter X 0.942 = \_\_\_\_\_ 95 percent circ. = diam. X 2.98 = \_\_\_\_\_

**H. DETERMINE COMPLIANCE STATUS OF TANK:**

1) Were any openings found on the roof? No  Yes

2) Were any tears in the seals found? No  Yes

3) Is the product level lower than the level at which the roof would be floating? No  Yes

4) Secondary Seal:

Did 1/2" probe drop between shell and seal? No  Yes

Did cumulative 1/8"- 1/2" gap exceed 95percent circumference length? No  Yes

5) Primary Seal:

Shoe: Did 1-1/2" probe drop between shell and seal? No  Yes

Did cumulative 1/2" - 1-1/2" gap exceed 30 percent circumference length, and did cumulative 1/8 - 1/2" gap exceed 60 percent circumference length? No  Yes

Did any single continuous 1/8" - 1-1/2" gap exceed 10 percent circumference length? No  Yes

Tube: Did 1/2" probe drop between shell and seal? No  Yes

Did cumulative 1/8"- 1/2" gap exceed 95 percent circumference length? No  Yes

6) Internal floating roof (installed before 6/1/84):  
Did percent LEL exceed 50 percent? No  Yes

(installed after 6/1/84) or domed tank: Did percent LEL exceed 30 percent? No  Yes

7) Does tank have permit conditions? No  Yes

Does tank comply with these conditions? No  Yes



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**“I certify under penalty of law that I have personally examined and am familiar with the information submitted in this document and all attached documents and, based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the submitted information is true, accurate and complete. I am aware that there are significant civil and criminal penalties, including the possibility of fine or imprisonment or both, for submitting false, inaccurate or incomplete information.”**

Responsible Official: \_\_\_\_\_ Date: \_\_\_\_\_  
(Signature)

**N.J.A.C. 7:27-16.2(s) requires all inspection reports to be maintained on-site for the lifetime of the tank.**



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## SUBCHAPTER 19. CONTROL AND PROHIBITION OF AIR POLLUTION FROM OXIDES OF NITROGEN

### 7:27-19.1 Definitions

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

...

**“Asphalt pavement production plant” means a batch type asphalt plant or drum mix asphalt plant operated to manufacture asphalt pavement.**

...

**“Blown glass” means glassware shaped by blowing air into a molten glass gather.**

...

**“CFR” means the United States Code of Federal Regulations.**

**“Class I renewable energy” means electric energy produced from solar technologies, photovoltaic technologies, wind energy, fuel cells, geothermal technologies, wave or tidal action, methane gas from landfills and methane gas from a biomass facility that cultivates and harvests the biomass in a sustainable manner.**

**“Class II renewable energy” means electric energy produced at a resource recovery facility or hydro power facility, if the facility is located where retail competition is permitted, and if the Department has determined that the facility meets the highest environmental standards and minimizes any impacts to the environment and local communities.**

**“Clean Air Act” or “CAA” means the Federal Clean Air Act, 42 U.S.C. §§7401 et seq., as amended and supplemented.**

**“Clean distributed generation” means any piece of electric generating equipment that has been verified according to N.J.A.C. 7:27-8.2(f)2 to emit less than:**

- 1. 0.40 pounds of NO<sub>x</sub> per megawatt hour;**
- 2. 0.25 pounds of CO per megawatt hour;**
- 3. 0.10 pounds of PM per megawatt hour; and**
- 4. 0.01 pounds of SO<sub>2</sub> per megawatt hour.**

...

[“CFR” means the United States Code of Federal Regulations.

“Clean Air Act” or “CAA” means the Federal Clean Air Act, 42 U.S.C. §§ 7401 et seq., as amended and supplemented.]

...

**“Demand response” means a measurable, verifiable load reduction that can be dispatched from a central location (for example, the distribution dispatch center PJM).**

...

**“Dual fuel” means a type of boiler capable of combusting more than one type of commercial fuel.**

...

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“Electric generating unit” **or “EGU”** means a combustion or steam generating source used for generating electricity that delivers all or part of its power to the electric power distribution grid for commercial sale.

...

**“Energy efficiency measure” means a program that is aimed at reducing the electricity used by specific end-use devices and systems. Such savings are generally achieved by substituting technically more advanced equipment to produce the same level of end-use services (for example, lighting, heating and motor drive) with less electricity.**

...

**“Fiberglass” means material consisting of fine filaments of glass that are combined into yarn and woven or spun into fabrics, or that are used as reinforcement in other materials or in masses as thermal or as acoustical insulating products for the construction industry.**

...

**“Flat glass” means glass produced by the float, sheet, rolled or plate glass process and formed into windows, windshields, table tops or similar products.**

...

**“Glass removed” means the amount of glass coming out of a glass melting furnace, expressed in short tons per day.**

...

**“Heavier than No. 2 fuel oil” means any fuel oil with an SSU viscosity greater than 45 at 100 degrees Fahrenheit.**

**“High electric demand day” or “HEDD” means the day following a day in which the next day forecast load is estimated to have a peak value of 52,000 megawatts or higher as predicted by the PJM Interconnection 0815 update to its Mid Atlantic Region Hour Ending Integrated Forecast Load, available from PJM Interconnection at <http://oasis.pjm.com/doc/projload.txt>.**

**“High electric demand day unit” or “HEDD unit” means an electrical generating unit, capable of generating 15 megawatts or more, that operated less than or equal to an average of 50 percent of the time during the immediately preceding three ozone seasons.**

...

“Interim period” means the period of time beginning on May 31, 1995, and ending when phased compliance under N.J.A.C. 7:27-19.21[, 19.22] or 19.23 [(as applicable)] is to be completed, **or the period of time for phased compliance under N.J.A.C. 7:27-19.22 as indicated by 2 below, as applicable.**

1. (No change.)
2. For purposes of phased compliance for reasons of practicability pursuant to N.J.A.C. 7:27-19.22, the interim period **begins on (the operative date of these amendments) and ends on the date when [a combustion source] an owner or operator is to attain full compliance with this subchapter, but no later than 12 months after (the operative date of these amendments).**
3. (No change.)

...

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**“MWh” means megawatt-hour.**

...

**“Non-high electric demand day unit” or “non-HEDD unit” means an electrical generating unit that is not an HEDD unit.**

**“No. 2 and lighter fuel oil” means any fuel oil with an SSU viscosity less than or equal to 45 at 100 degrees Fahrenheit.**

...

**“On-specification used oil” means used oil that meets the specifications established in the Recycling Rules at N.J.A.C. 7:26A-6.2(a).**

...

**“Pounds/MWh” means NO<sub>x</sub> emissions in pounds per megawatt-hour of total net energy output, where total net energy output consists of electric output plus useful heat output.**

...

**“Pressed glass” means glassware formed by placing a blob of molten glass in a metal mold, then pressing it with a metal plunger or follower to form the inside shape. The resultant piece, termed mold-pressed, has an interior form independent of the exterior, in contrast to mold-blown glass, in which the interior corresponds to the outer form.**

...

**“Renewable energy” means class I renewable energy or class II renewable energy.**

...

**“Shed load” means the systematic reduction through prior arrangement of system demand by temporarily decreasing load in response to transmission system or area capacity shortages, system instability, or voltage control considerations.**

**“Shift load” means the systematic reduction of system demand by temporarily decreasing load in response to transmission system or area capacity shortages, system instability, or voltage control considerations, through prior arrangement programs designed to encourage consumers to move their use of electricity from on-peak time to off-peak times.**

...

**“SSU viscosity” means the number of seconds it takes 60 cubic centimeters of an oil to flow through the standard orifice of a Saybolt Universal viscometer at 100 degrees Fahrenheit.**

...

**“Used oil” means any oil that has been refined from crude oil, or any synthetic oil, that has been used and as a result of such use, is contaminated by physical or chemical impurities, or unused oil that is contaminated by physical or chemical impurities through storage or handling.**

**“Viscosity” means the measure of a fluid’s resistance to flow.**

...

7:27-19.2 Purpose, scope and applicability

(a) (No change.)

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- (b) The following types of equipment and source operations are subject to the provisions of this subchapter:
- 1.-4. (No change.)
  5. Any rotary dryer located at an asphalt **pavement production** plant;
  - 6.-7. (No change.)
  8. Any glass manufacturing furnace producing borosilicate recipe glass, and having a maximum potential production rate of at least five tons of glass removed from the furnace per day, and having the potential to emit more than 10 tons of NO<sub>x</sub> per year; [and]
  - 9. Any glass manufacturing furnace producing blown glass, fiberglass, flat glass, or pressed glass having the potential to emit more than 10 tons of NO<sub>x</sub> per year;**
  - 10. Any municipal solid waste incinerator;**
  - 11. Any sewage sludge incinerator; and**
  - [9.]**12.** Any other equipment or source operation not specifically listed at (b)1 through [8]**11** above or (c) below that has the potential to emit more than 10 tons of NO<sub>x</sub> per year.

(c)-(f) (No change.)

7:27-19.3 General provisions

(a)-(d) (No change.)

- (e) After receipt of a written request from an owner or operator for an extension of the deadline set forth in (d) above [or the deadline set forth at N.J.A.C. 7:27-19.13(b), the Department may authorize a 60-day renewable extension, provided that the request includes a statement, certified in accordance with N.J.A.C. 7:27-1.39, that notwithstanding the request for an extension, the facility will comply with all applicable emission limits set forth in this subchapter by the May 31, 1995 deadline established in (b) above. Such extension may be renewed by the Department upon the written request of the owner or operator, provided that the request of the renewal shall also include a statement, certified in accordance with N.J.A.C. 7:27-1.39, that notwithstanding the request for an extension, the facility will comply with all applicable emission limits set forth in this subchapter by the May 31, 1995 deadline established in (b) above] **or after receipt of a written request from an owner or operator for an extension of the deadline set forth at N.J.A.C. 7:27-19.13(b)5, the Department will authorize one 60-day non-renewable deadline extension.** Written requests for the extension of a deadline submitted pursuant to this subsection shall be addressed to:

[Assistant Director, Air and Environmental Quality Enforcement  
Division Of Enforcement Field Operations]

**Administrator**

**Air Compliance and Enforcement**

Department of Environmental Protection

PO Box 422

401 East State Street, 4th Floor

Trenton, New Jersey 08625-0422

- (f) In lieu of complying with the applicable emission limits set forth at N.J.A.C. 7:27-19.4, 19.5, 19.7, 19.8, 19.9, [ or ] 19.10 **or 19.28**, the owner or operator of any equipment or source operation listed in N.J.A.C. 7:27-19.2(b) may comply with one of the following, or with a combination of (f)1 and 3 below. The owner or operator of any equipment or source operation listed in N.J.A.C. 7:27-19.2(c) may comply with (f)1, 2 or 4 below[;]. **On and after May 1, 2015, the owner or operator of any HEDD unit shall not use the alternatives in this subsection to comply with any applicable maximum allowable emission rate at N.J.A.C. 7:27-19.4 or 19.5.**

1.-4. (No change.)

- (g) On and after April 25, 2004, no owner or operator of a source operation subject to a NO<sub>x</sub> emissions limit under this subchapter may comply with the limit through the use of discrete emission reduction (DER) credits. Any former DER credit user who used DER credits to comply with a NO<sub>x</sub> emissions limit under this subchapter, and who would continue to require the use of DER credits to comply with that limit, shall achieve compliance with that limit by April 25, 2005 and maintain compliance with that limit thereafter. In the case of a former DER credit user, only, deadlines related to the NO<sub>x</sub> emissions limit compliance deadline that are set forth elsewhere in this subchapter are modified as follows:

1.-2. (No change.)

3. The proposed NO<sub>x</sub> control plan submission deadline established at (d)2 above [and N.J.A.C. 7:27-19.13(b)] is July 25, 2004;

4.-13. (No change.)

- (h)-(j) (No change.)

7:27-19.4 Boilers serving electric generating units

- (a) The owner or operator of any boiler serving an electric generating unit shall cause it to emit NO<sub>x</sub> at a rate no greater than the applicable maximum allowable NO<sub>x</sub> emission rate specified in Tables **1, 2 and 3** below, **as applicable**, unless the owner or operator is complying with N.J.A.C. 7:27-19.3(f) **or unless otherwise specified in an enforceable agreement with the Department. Table 1 is operative through December 14, 2012. Table 2 is operative starting December 15, 2012 through April 30, 2015. Table 3 is**

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**operative on and after May 1, 2015. A boiler serving an electric generating unit is also subject to the state-of-the-art requirements at N.J.A.C. 7:27-8.12 and 22.35, lowest achievable emission rate requirements at N.J.A.C. 7:27-18, and best available control technology requirements at 40 CFR 52.21, incorporated herein by reference, as applicable.**

**TABLE 1**  
**(Operative through December 14, 2012)**  
Maximum Allowable NO<sub>x</sub> Emission Rates for  
Boilers Serving Electric Generating Units  
(pounds per million BTU)

Fuel/Boiler Type	Firing Method		
	Tangential	Face	Cyclone
Coal –Wet Bottom	1.0	1.0	0.60
Coal – Dry Bottom	0.38	0.45	0.55
Oil and/or Gas	0.20	0.28	0.43
Gas Only	0.20	0.20	0.43

**TABLE 2**  
**(Operative from December 15, 2012 through April 30, 2015)**  
**Maximum Allowable NO<sub>x</sub> Emission Rates for**  
**Boilers Serving Electric Generating Units**  
**(pounds per megawatt hour)**

Boiler Type	Firing Method		
	Tangential	Face	Cyclone
<u>Coal</u>	<u>1.50</u>	<u>1.50</u>	<u>1.50</u>
<u>Oil and/or Gas</u>	<u>2.00</u>	<u>2.80</u>	<u>4.30</u>
<u>Gas only</u>	<u>2.00</u>	<u>2.00</u>	<u>4.30</u>

**TABLE 3**  
**(Operative on and after May 1, 2015)**  
**Maximum Allowable NO<sub>x</sub> Emission Rates for**  
**Boilers Serving Electric Generating Units**  
**(pounds per megawatt hour)**

Fuel	
<u>Coal</u>	<u>1.50</u>
<u>Heavier than No. 2 fuel oil</u>	<u>2.00</u>
<u>No. 2 and lighter fuel oil</u>	<u>1.00</u>
<u>Gas only</u>	<u>1.00</u>

(b)-(c) (No change.)

**(d) The owner or operator of a boiler serving an electric generating unit shall demonstrate compliance with its applicable maximum allowable NO<sub>x</sub> emission rate in Table 2 or 3 as follows:**

- 1. Using the methods at N.J.A.C. 7:27-19.15(a), any coal-fired boiler shall demonstrate compliance with the maximum allowable NO<sub>x</sub> emission rate in Table 2 either by June 15, 2013 or, if the boiler is altered to meet the Table 2 emission rate, by the date determined by N.J.A.C. 7:27-19.15(c), whichever date is earlier, and thereafter according to the schedule in the approved permit; and**
  - 2. Using the methods at N.J.A.C. 7:27-19.15(a), any boiler that combusts any fuel other than coal shall demonstrate compliance with the applicable maximum allowable NO<sub>x</sub> emission rate in Table 3 by November 1, 2015 or, if the boiler is altered to meet the applicable Table 3 emission rate, by the date determined by N.J.A.C. 7:27-19.15(c), whichever date is earlier, and thereafter according to the schedule in the approved permit.**
- (e) Each owner or operator identified at N.J.A.C. 7:27-19.29(a) shall submit to the Department a 2009 HEDD Emission Reduction Compliance Demonstration Protocol and annual reports pursuant to N.J.A.C. 7:27-19.29.**
- (f) Each owner or operator of a boiler serving an electric generating unit that is a HEDD unit shall submit to the Department a 2015 HEDD Emission Limit Achievement Plan and annual progress updates pursuant to N.J.A.C. 7:27-19.30.**

**7:27-19.5 Stationary combustion turbines**

- (a) The owner or operator of a simple cycle combustion turbine shall comply with (a)1 through 3 below, as applicable.**

**[(a)]1. Until March 7, 2007, the owner or operator of any stationary simple cycle combustion turbine that has a maximum gross heat input rate of at least 30 million BTUs per hour shall cause it to emit NO<sub>x</sub> at a rate no greater than the applicable maximum allowable NO<sub>x</sub> emission rate specified in Table [2]4 below, unless the owner or operator is complying with N.J.A.C. 7:27-19.3(f). [On and after March 7, 2007, the rates in Table 2 shall apply only to a NO<sub>x</sub> budget source.]**

**2. March 7, 2007 through (the operative date of these amendments), the owner or operator of any simple cycle combustion turbine that has a maximum gross heat input rate of at least 25 million BTUs per hour and is a NO<sub>x</sub> Budget source shall cause it to emit NO<sub>x</sub> at a rate no greater than the applicable maximum allowable NO<sub>x</sub> emission rate specified in Table 4 below, unless the owner or operator is complying with N.J.A.C. 7:27-19.3(f).**

**3. (One day after the operative date of these amendments) through April 30, 2015, the owner or operator of any simple cycle combustion turbine that is a HEDD unit shall cause it to emit NO<sub>x</sub> at a rate no greater than the lesser of the applicable maximum allowable NO<sub>x</sub> emission rate specified in Table 4 below, or the maximum allowable NO<sub>x</sub> emission rate contained in its**

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**preconstruction permit or operating permit, unless the owner or operator is complying with N.J.A.C. 7:27-19.3(f).**

TABLE [2]4<sup>1</sup>  
Maximum Allowable NO<sub>x</sub> Emission Rate for  
Simple Cycle Combustion Turbines  
(Pounds per million BTU)

Fuel Used	<u>Maximum Allowable</u> <u>NO<sub>x</sub> Emission [Limit]Rate</u>
Oil	0.4

Gas

0.2

**<sup>1</sup>Through March 6, 2007, Table 4 applies to any stationary simple cycle combustion turbine that has a maximum gross heat input rate of at least 30 MMBTU per hour.**

**March 7, 2007 through (the operative date of these amendments), Table 4 applies to any simple cycle combustion turbine that has a maximum gross heat input rate of at least 25 million MMBTU per hour and is a NO<sub>x</sub> Budget source.**

**(One day after the operative date of these amendments) through April 30, 2015, Table 4 applies to any simple cycle combustion turbine that is a HEDD Unit.**

**(b) The owner or operator of a combined cycle combustion turbine or a regenerative cycle combustion turbine shall comply with (b)1 through 3 below, as applicable.**

**[(b)1. Until March 7, 2007, the owner or operator of any combined cycle combustion turbine or a regenerative cycle combustion turbine that has a maximum gross heat input rate of at least 30 million BTUs per hour shall cause it to emit NO<sub>x</sub> at a rate no greater than the applicable maximum allowable NO<sub>x</sub> emission rate specified in Table [3]5 below, unless the owner or operator is complying with N.J.A.C. 7:27-19.3(f). [On and after March 7, 2007, the rates in Table 3 shall apply only to a NO<sub>x</sub> budget source.]**

**2. March 7, 2007 through (the operative date of these amendments), the owner or operator of any combined cycle combustion turbine or a regenerative cycle combustion turbine that has a maximum gross heat input rate of at least 25 MMBTU per hour and is a NO<sub>x</sub> Budget source shall cause it to emit NO<sub>x</sub> at a rate no greater than the applicable maximum allowable NO<sub>x</sub> emission rate specified in Table 5 below, unless the owner or operator is complying with N.J.A.C. 7:27-19.3(f).**

**3. (One day after the operative date of these amendments) through April 30, 2015, the owner or operator of any combined cycle combustion turbine or a regenerative cycle combustion turbine that is a HEDD unit shall cause it to emit NO<sub>x</sub> at a rate no greater than the lesser of the applicable maximum allowable NO<sub>x</sub> emission rate specified in Table 5 below, or the maximum allowable NO<sub>x</sub> emission rate contained in its preconstruction permit or operating permit, unless the owner or operator is complying with N.J.A.C. 7:27-19.3(f).**

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TABLE [3]~~5~~<sup>1</sup>  
 Maximum Allowable NO<sub>x</sub> Emission Rate for  
 Combined Cycle or Regenerative Cycle Combustion Turbines  
 (Pounds per million BTU)

Fuel Used	<u>Maximum Allowable NO<sub>x</sub> Emission [Limit]Rate</u>
Oil	[0..35] <del>0.35</del>
Gas	0.15

<sup>1</sup> **Through March 6, 2007, Table 5 shall apply to any combined cycle or regenerative cycle combustion turbine that has a maximum gross heat input rate of at least 30 MMBTU per hour.**

**March 7, 2007 through (the operative date of these amendments), Table 5 shall apply to any combined cycle or regenerative cycle combustion turbine that has a maximum gross heat input rate of at least 25 MMBTU per hour and that is a NO<sub>x</sub> Budget source.**

**(One day after the operative date of these amendments) through April 30, 2015, Table 5 shall apply to any combined cycle or regenerative cycle combustion turbine that is a HEDD Unit.**

(c) (No change.)

**(d) The owner or operator of a stationary combustion turbine shall:**

[(d)]**1.** On and after March 7, 2007 [the owner or operator of any] **through (the operative date of these amendments), if the** stationary combustion turbine [that] has a maximum gross heat input rate of at least 25 million BTU per hour [shall] **and is not a NO<sub>x</sub> budget source,** cause it to emit NO<sub>x</sub> at a rate no greater than the applicable maximum allowable NO<sub>x</sub> emission rate specified in Table [4]~~6~~ below, unless the owner or operator is complying with **(c)1 through 5 above or** N.J.A.C. 7:27-19.3(f) [or (c)1 through 5 below; except that a NO<sub>x</sub> budget source shall be subject to the maximum allowable NO<sub>x</sub> emission rates at Tables 2 and 3 above.]; **and**

**2.** **On and after (one day after the operative date of these amendments), if the stationary combustion turbine is a non-HEDD unit, cause it to emit NO<sub>x</sub> at a rate no greater than the applicable maximum allowable NO<sub>x</sub> emission rate specified in Table 6 below, unless the owner or operator is complying with (c)1 through 5 above or N.J.A.C. 7:27-19.3(f).**

TABLE [4]6<sup>1</sup>  
 Maximum Allowable NO<sub>x</sub> Emission Rate for  
 Stationary Combustion Turbines

<u>Type of Turbine</u>	<u>Type of Fuel</u>	<u>Maximum Allowable NO<sub>x</sub> Emission Rate</u>
Combined cycle combustion turbine or a regenerative cycle combustion turbine	Gas	1.3 pounds of NO <sub>x</sub> per MWh
	Oil	2.0 pounds of NO <sub>x</sub> per MWh
Simple cycle combustion turbine	Gas	2.2 pounds of NO <sub>x</sub> per MWh
	Oil	3.0 pounds of NO <sub>x</sub> per MWh

<sup>1</sup> **March 7, 2007 through (the operative date of these amendments), Table 6 applies to any stationary combustion turbine that has a maximum gross heat input rate of at least 25 million BTU per hour and that is not a NO<sub>x</sub> Budget source. On and after (one day after the operative date of these amendments), Table 6 applies to any stationary combustion turbine that is a non-HEDD unit.**

- (e) (No change.)
- (f) To calculate [lb/MWh] **pounds/MWh** for units where energy is used for other than electric generation, for example useful heat from a combined heat and power unit, that useful energy should be converted to equivalent MWh and added to the electric output. The [lb/MWh] **pounds/MWh** is based on net energy output, for both electric output and useful heat output.
- (g) **On and after May 1, 2015, the owner or operator of a stationary combustion turbine that is a HEDD unit shall:**
  - 1. Cause it to emit NO<sub>x</sub> at a rate no greater than the applicable maximum allowable NO<sub>x</sub> emission rate specified in Table 7 below; and**
  - 2. If the preconstruction permit or operating permit for the HEDD combustion turbine allows it to combust either liquid fuel oil or gaseous fuel, cause it to emit NO<sub>x</sub> at a rate no greater than the applicable maximum allowable NO<sub>x</sub> emission rate for gaseous fuel specified in Table 7 during operation on high electric demand days, regardless of the fuel combusted.**

**TABLE 7<sup>1</sup>**

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**Maximum Allowable NO<sub>x</sub> Emission Rate for any  
Stationary Combustion Turbine that is a HEDD Unit  
(Pounds per megawatt hour)**

<u>Type of Turbine</u>	<u>Type of Fuel</u>	<u>Maximum Allowable NO<sub>x</sub> Emission Rate</u>
<u>Combined cycle combustion turbine or a regenerative cycle combustion turbine</u>	<u>Gas</u>	<u>0.75 pounds of NO<sub>x</sub> per MWh</u>
	<u>Oil</u>	<u>1.20 pounds of NO<sub>x</sub> per MWh</u>
<u>Simple cycle combustion turbine</u>	<u>Gas</u>	<u>1.00 pounds of NO<sub>x</sub> per MWh</u>
	<u>Oil</u>	<u>1.60 pounds of NO<sub>x</sub> per MWh</u>

<sup>1</sup> On and after May 1, 2015, Table 7 applies to any stationary combustion turbine that is a HEDD unit.

(h) Any stationary combustion turbine that is constructed, installed, reconstructed or modified is also subject to state-of-the-art requirements at N.J.A.C. 7:27-8.12 and 22.35, lowest achievable emission rate requirements at N.J.A.C. 7:27-18, and best available control technology requirements at 40 CFR 52.21, incorporated herein by reference, as applicable.

(i) The owner or operator of a stationary combustion turbine shall demonstrate compliance with the applicable maximum allowable NO<sub>x</sub> emission rate pursuant to N.J.A.C. 7:27-19.15 in accordance with the following schedule:

1. For a non-HEDD turbine, compliance with the applicable maximum allowable NO<sub>x</sub> emission rate in Table 6 shall be demonstrated by (180 days after the day after operative date), and thereafter according to the schedule in the approved permit. If, within the period (five years prior to the day after the operative date of the amendments) to (one day after the operative date of the amendments), the owner or operator provided to the Department satisfactory compliance demonstration test results that comply with Table 6, the owner or operator shall be exempt from demonstrating compliance again prior to (180 days after the day after operative date); and

2. For a HEDD turbine, compliance with the applicable maximum allowable NO<sub>x</sub> emission rate in Table 7 shall be demonstrated by November 1, 2015, or, if the HEDD unit is altered to meet the Table 7 emission rate, by November 1, 2015 or the date determined by N.J.A.C. 7:27-19.15(c), whichever date is earlier, and thereafter according to the schedule in the approved permit.

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**(i) Each owner or operator identified at N.J.A.C. 7:27-19.29(a) shall submit to the Department a 2009 HEDD Emission Reduction Compliance Demonstration Protocol and annual reports pursuant to N.J.A.C. 7:27-19.29.**

**(k) Each owner or operator of a stationary combustion turbine that is a HEDD unit shall submit to the Department a 2015 HEDD Emission Limit Achievement Plan and annual progress updates, pursuant to N.J.A.C. 7:27-19.30.**

7:27-19.7 Industrial/commercial/institutional boilers and other indirect heat exchangers

[(a) Beginning in calendar year 1995, and until March 7, 2007, the owner or operator of an industrial/commercial/institutional boiler or other indirect heat exchanger with a maximum gross heat input rate of at least 20 million but less than 50 million BTUs per hour shall:

1. Annually adjust the boiler's combustion process in accordance with N.J.A.C. 7:27-19.16, each calendar year; or
2. Cause the boiler or other indirect heat exchanger to emit NO<sub>x</sub> at a rate no greater than the applicable maximum allowable NO<sub>x</sub> emission rate specified in Table 5 below, and establish compliance with this requirement by continuous emissions monitoring pursuant to N.J.A.C. 7:27-19.15(a)1.

(b) Beginning on May 31, 1995, and until March 7, 2007, the owner or operator of an industrial/commercial/institutional boiler or other indirect heat exchanger with a maximum gross heat input rate of at least 50 million but less than 100 million BTUs per hour shall cause the boiler or other indirect heat exchanger to emit NO<sub>x</sub> at a rate no greater than the applicable maximum allowable NO<sub>x</sub> emission rate specified in Table 5 below, and comply with the requirements of (e) below.

TABLE 5

Maximum Allowable NO<sub>x</sub> Emission Rates for  
Industrial/Commercial/Institutional Boilers and other Indirect Heat Exchangers  
Subject to N.J.A.C. 7:27-19.7(b)  
(pounds per million BTU)

	Firing Method		
Fuel/Boiler Type	Tangential	Face	Cyclone

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Coal -- Wet Bottom	1.0	1.0	0.55
Coal -- Dry Bottom	0.38	0.43	0.55
#2 Fuel Oil	0.12	0.12	0.12
Other Liquid Fuels	0.3	0.3	0.3
Refinery fuel gas	0.20	0.20	N/A
Natural Gas	0.1	0.1	0.1

- (c) Beginning on May 31, 1995, and until March 7, 2007, the owner or operator of an industrial/commercial/institutional boiler or other indirect heat exchanger with a maximum gross heat input rate of at least 100 million BTU[s] per hour shall cause the boiler or other indirect heat exchanger to emit NO<sub>x</sub> at a rate no greater than the applicable maximum allowable NO<sub>x</sub> emission rate specified in Table 6 below, and comply with the applicable requirements of (d) or (e) below.

TABLE 6

Maximum Allowable NO<sub>x</sub> Emission Rates for  
Industrial/Commercial/Institutional Boilers and other Indirect Heat Exchangers  
Subject to N.J.A.C. 7:26-19.7(c)  
(pounds per million BTU)

Fuel/Boiler Type	Firing Method		
	Tangential	Face	Cyclone
Coal -- Wet Bottom	1.0	1.0	0.60
Coal -- Dry Bottom	0.38	0.45	0.55
Oil and/or Gas	0.20	0.28	0.43
Refinery fuel gas	0.20	0.20	N/A
Gas Only	0.20	0.20	0.43]

**(a)-(c) (Reserved)**

- (d) [In addition to complying with (c) above, the] **The** owner or operator of any industrial/commercial/institutional boiler or other indirect heat exchanger with a maximum gross heat input rate of at least 250 million BTUs per hour shall install a continuous emissions monitoring system in accordance with N.J.A.C. 7:27-19.18.
- [(e) Until March 7, 2007, in addition to complying with (b) or (c) above, as applicable, the owner or operator of an industrial/commercial/institutional boiler or other indirect heat exchanger with a maximum gross heat input rate of at least 50 million BTUs per hour but less than 250 million BTUs per hour shall either:
1. Annually adjust the boiler's combustion process in accordance with N.J.A.C. 7:27-19.16, each calendar year; or

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2. Establish compliance with the applicable maximum allowable emission rate by continuous emissions monitoring pursuant to N.J.A.C. 7:27-19.15(a)1.
- (f) Until March 7, 2007, in lieu of complying with a NO<sub>x</sub> emission limit under (b) or (c) above, the owner or operator of an industrial/commercial/institutional boiler or other indirect heat exchanger may comply with N.J.A.C. 7:27-19.3(f).]

**(e)-(f)(Reserved)**

(g) (No change.)

(h) On and after March 7, 2007, **the owner or operator of** an industrial/commercial/institutional boiler or other indirect heat exchanger with a maximum gross heat input rate of at least 50 million BTU per hour, located at a major NO<sub>x</sub> facility, shall cause the boiler or other indirect heat exchanger to emit NO<sub>x</sub> at a rate no greater than the applicable maximum allowable NO<sub>x</sub> emission rate specified in Table [7]8 below, **through the following dates**, unless the owner or operator is complying with N.J.A.C. 7:27-19.3(f)[.]:

- 1. For an industrial/commercial/institutional boiler or other indirect heat exchanger with a maximum gross heat input rate of at least 50 million BTU per hour, but less than 100 million BTU per hour:**
  - i. Through April 30, 2010, if the owner or operator is complying with (i)2i below; or**
  - ii. Through April 30, 2011, if the owner or operator is complying with (i)2ii below; and**
- 2. For an industrial/commercial/institutional boiler or other indirect heat exchanger with a maximum gross heat input rate of at least 100 million BTU per hour or greater:**
  - i. Through (the day before the operative date of these amendments), if the owner or operator is complying with (i)3i below; or**
  - ii. Through April 30, 2010, if the owner or operator is complying with (i)3ii below.**

TABLE [7]8

Maximum Allowable NO<sub>x</sub> Emission Rates for  
Industrial/Commercial/Institutional Boilers or other Indirect Heat Exchangers  
(pounds per million BTU)

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Heat Input Rate (million BTU per hr)	Fuel/Boiler Type	Firing Method		
		Tangential	Face	Cyclone
at least 50 but < 100	Natural gas <b>only</b>	0.10	0.10	0.10
	[#]No. 2 Fuel oil <b>only</b>	0.12	0.12	0.12
	...			

**(i) The owner or operator of an industrial/commercial/institutional boiler or other indirect heat exchanger with a maximum gross heat input rate of at least 25 million BTU per hour, whether or not it is located at a major NO<sub>x</sub> facility, shall cause the boiler or other indirect heat exchanger to emit NO<sub>x</sub> at a rate no greater than the applicable maximum allowable NO<sub>x</sub> emission rate specified at Table 9 below in accordance with the following schedule, unless the owner or operator is complying with N.J.A.C. 7:27-19.3(f):**

- 1. For an industrial/commercial/institutional boiler or other indirect heat exchanger with a maximum gross heat input rate of at least 25 million BTU per hour, but less than 50 million BTU per hour:**
  - i. On and after May 1, 2011, if compliance is achieved without physically modifying the boiler or other indirect heat exchanger; or**
  - ii. On and after May 1, 2012, if compliance is achieved by physically modifying the boiler or other indirect heat exchanger;**
  
- 2. For an industrial/commercial/institutional boiler or other indirect heat exchanger with a maximum gross heat input rate of at least 50 million BTU per hour, but less than 100 million BTU per hour:**
  - i. On and after May 1, 2010, if compliance is achieved without physically modifying the boiler or other indirect heat exchanger; or**
  - ii. On and after May 1, 2011 if compliance is achieved by physically modifying the boiler or other indirect heat exchanger; and**
  
- 3. For an industrial/commercial/institutional boiler or other indirect heat exchanger with a maximum gross heat input rate of at least 100 million BTU per hour or greater:**
  - i. On and after (the operative date of these amendments), if compliance is achieved without physically modifying the boiler or other indirect heat exchanger; or**
  - ii. On and after May 1, 2010, if compliance is achieved by physically modifying the boiler or other indirect heat exchanger.**

**TABLE 9**  
**Maximum Allowable NO<sub>x</sub> Emission Rates for**  
**Industrial/Commercial/Institutional Boilers or Other Indirect Heat Exchangers**  
**Fired by Gas or Liquid Fuels**  
**(pounds per million BTU)**

<b><u>Heat Input Rate</u></b> <b><u>(million BTU per hr)</u></b>	<b><u>Fuel Type</u></b>	<b><u>Rate</u></b> <b><u>(pounds per million BTU)</u></b>
<b><u>at least 25 but &lt; 100</u></b>	<b><u>Natural gas only</u></b>	<b><u>0.05</u></b>
	<b><u>No. 2 Fuel oil only</u></b>	<b><u>0.08</u></b>
	<b><u>Refinery fuel gas and</u></b> <b><u>other gaseous fuels</u></b>	<b><u>0.20</u></b>
	<b><u>Other liquid fuels</u></b>	<b><u>0.20</u></b>
	<b><u>Dual fuel using fuel oil</u></b> <b><u>and natural gas</u></b>	<b><u>0.12</u></b>
	<b><u>at least 100 or greater</u></b>	<b><u>Natural gas only</u></b>
<b><u>No. 2 Fuel oil only</u></b>		<b><u>0.10</u></b>
<b><u>Refinery fuel gas and</u></b> <b><u>other gaseous fuels</u></b>		<b><u>0.20</u></b>
<b><u>Other liquid fuels</u></b>		<b><u>0.20</u></b>
<b><u>Dual fuel using fuel oil</u></b> <b><u>and natural gas</u></b>		<b><u>0.20</u></b>

7:27-19.8 Stationary reciprocating engines

(a)-(d) (No change.)

(e) On and after March 7, 2007, the owner or operator of a stationary reciprocating engine used for generating electricity whether or not it is located at a major NO<sub>x</sub> facility, shall meet the following requirements, unless the owner or operator is complying with N.J.A.C. 7:27-19.3(f):

1. For an engine that has a maximum rated power output of 148 kW or greater, cause it to emit NO<sub>x</sub> at a rate no greater than the applicable maximum allowable NO<sub>x</sub> emission rate specified in Table [8]10 below;

TABLE [8]10

(No change in text.)

2.-3. (No change.)

4. For a group of two or more stationary reciprocating engines, each of which has a rated power output of 37 kW or greater, but less than 148 kW, and whose total combined power output is 148 kW or greater, cause it to emit NO<sub>x</sub> at a rate no greater than the applicable maximum allowable NO<sub>x</sub> emission rate specified in Table [8]10 above.

5. For a modified engine to take advantage of a percent reduction standard specified in Table [8]10 at (e)1 above, or (e)3 above in lieu of the default emission standard, the equivalent grams per bhp-hr limit must be incorporated into a Preconstruction Permit or Operating Permit. To support the permit application, a stack test conducted in accordance with N.J.A.C. 7:27-19.15(a)2, utilizing a protocol developed using the protocol templates in Technical Manual 1004, available at the Department's website at [www.state.nj.us/dep/aqpp/techman.html](http://www.state.nj.us/dep/aqpp/techman.html), must be used to establish the baseline emission rate prior to modification. The engine must have had the combustion processes adjusted using the procedures at N.J.A.C. 7:27-19.16 prior to the stack test. The protocol and test results must be approved by the Bureau of Technical Services (BTS).

(f) (No change.)

7:27-19.9 Asphalt **pavement production** plants

(a) The owner or operator of [a batch type or drum mix] **an** asphalt **pavement production** plant shall cause it to emit NO<sub>x</sub> at a rate no greater than [200 ppmvd at seven percent O<sub>2</sub>] **the applicable maximum allowable NO<sub>x</sub> emission concentrations specified in Table 11 below, in accordance with the schedule specified at (f) below.**

**TABLE 11**

<b><u>Maximum Allowable NO<sub>x</sub> Emission Concentrations for Asphalt Pavement Production Plants (ppmvd at seven percent O<sub>2</sub>)</u></b>	
<b><u>Fuel Type</u></b>	<b><u>NO<sub>x</sub> Emission Concentration</u></b>
<b><u>Natural gas</u></b>	<b><u>75</u></b>
<b><u>No. 2 fuel oil</u></b>	<b><u>100</u></b>
<b><u>No. 4 fuel oil, heavier fuel oils or on- specification used oil or any mixture of these three oils</u></b>	<b><u>125</u></b>

(b) At least annually, the owner or operator of an asphalt **pavement production** plant subject to (a) above shall adjust the combustion process of the aggregate dryer in accordance with N.J.A.C. 7:27-19.16.

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[(c) In lieu of complying with a NO<sub>x</sub> emission limit under (a) above, the owner or operator of an asphalt plant may comply with one of the following, or with a combination of (c)1 and 3 below:

1. An emissions averaging plan approved by the Department pursuant to N.J.A.C. 7:27-19.6 and 19.14, which includes the combustion source in question as an averaging unit;
2. An alternative maximum allowable emission rate for the unit, approved by the Department pursuant to N.J.A.C. 7:27-19.13;
3. A seasonal fuel switching plan for the unit, approved by the Department pursuant to N.J.A.C. 7:27-19.14 and 19.20; or
4. A plan for phased compliance for the unit, approved by the Department pursuant to N.J.A.C. 7:27-19.14 and N.J.A.C. 7:27-19.21, 19.22 or 19.23.]

**(c) In lieu of complying with a NO<sub>x</sub> emission limit under (a) above, the owner or operator of an asphalt pavement production plant may comply with N.J.A.C. 7:27-19.3(f).**

**(d) The owner or operator of an asphalt pavement production plant shall perform the following best management practices:**

- 1. Reduce aggregate moisture content by:**
  - i. Covering the aggregate stockpile to prevent high water content due to rain; or**
  - ii. Designing and operating stockpiles for water drainage and removing sand and aggregate from piles at a sufficient height above the base to avoid charging wet mix to the dryer;**
- 2. Conduct monthly inspections of the flights in the dryer when the dryer is in use to determine the degree of wear and the need for replacement. If necessary, replace or modify a flight with an appropriate flight for the applicable combustion zone; and**
- 3. Annually inspect the air system and repair air system leaks to minimize excess air.**

**(e) The owner or operator of an asphalt pavement production plant shall record and maintain onsite logs of the implementation of the best management practices required in (d) above. Each record shall be maintained in accordance with N.J.A.C. 7:27-19.19.**

**(f) The owner or operator of an asphalt pavement production plant shall comply with the NO<sub>x</sub> emission concentrations at (a) above in accordance with the following schedule:**

**1. An asphalt pavement production dryer with a maximum gross heat input rate of less than 100 MMBTU/hr, shall comply:**

**i. On and after May 1, 2011, if compliance is achieved without physically modifying the dryer; or**

**ii. On and after May 1, 2012, if compliance is achieved by physically modifying the dryer.**

**2. An asphalt pavement production dryer with a maximum gross heat input of at least 100 MMBTU/hr, but less than 120 MMBTU/hr, shall comply:**

**i. On and after May 1, 2010, if compliance is achieved without physically modifying the dryer; or**

**ii. On and after May 1, 2011, if compliance is achieved by physically modifying the dryer.**

**3. An asphalt pavement production dryer with a maximum gross heat input of at least 120 MMBTU/hr or greater shall comply:**

**i. On and after (the operative date of these amendments), if compliance is achieved without physically modifying the dryer; or**

**ii. On and after May 1, 2010, if compliance is achieved by physically modifying the dryer.**

7:27-19.10 Glass manufacturing furnaces

(a) The owner or operator of any commercial container glass manufacturing furnace listed in N.J.A.C. 7:27-19.2(b)6, **specialty container glass manufacturing furnace listed in N.J.A.C. 7:27-19.2(b)7, borosilicate recipe glass manufacturing furnace listed in N.J.A.C. 7:27-19.2(b)8, or pressed glass manufacturing furnace, blown glass manufacturing furnace or fiberglass manufacturing furnace listed in N.J.A.C. 7:27-19.2(b)9** shall cause the furnace to emit no more than [5.5] **4.0** pounds of NO<sub>x</sub> per ton of glass removed from the furnace.

(b) The owner or operator of any [specialty container] **flat** glass manufacturing furnace listed in N.J.A.C. 7:27-19.2(b)7 shall cause the furnace to emit no more than [11] **9.2** pounds of NO<sub>x</sub> per ton of glass removed from the furnace.

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- (c) [The owner or operator of a borosilicate recipe glass manufacturing furnace listed in N.J.A.C. 7:27-19.2(b)8 shall:
1. By January 1, 1994, determine the baseline NO<sub>x</sub> emission rate from the furnace by either:
    - i. Conducting source emissions testing in accordance with N.J.A.C. 7:27-19.17; or
    - ii. Using the results of source emissions testing conducted at any time after November 15, 1990, provided that the procedures used for the source emission testing meet the requirements of N.J.A.C. 7:27-19.17;
  2. By July 1, 1994, submit one of the following to the Department:
    - i. A written plan detailing how the NO<sub>x</sub> emission rate from the furnace will be reduced by 30 percent from the baseline emission rate measured in (c)1 above; or
    - ii. A demonstration that the NO<sub>x</sub> emissions from the furnace, as measured by the source emissions testing performed under (c)1 above, are at least 30 percent less than the uncontrolled NO<sub>x</sub> emissions from the furnace as of a date no earlier than November 15, 1990;
  3. Before the date specified in (d) below, implement the plan detailed in (c)2i above (unless the owner or operator has submitted the demonstration described in (c)2ii above); and
  4. Beginning on the date specified in (d) below, cause the furnace to emit NO<sub>x</sub> at a rate no greater than the reduced rate described in (c)2i above, or to continue to emit NO<sub>x</sub> at a rate no greater than the rate demonstrated under (c)2ii above.]  
**(Reserved)**
- (d) A glass manufacturing furnace subject to this subchapter shall comply with the requirements of (a)[,] **and** (b)[, (c)3 and (c)4] above beginning **on and after May 1, 2010** on the [earlier of the following:
1. The] first date [after January 23, 1994 on which] **of startup after which** rebricking of the furnace is completed.]; or
  2. May 1, 1997.]
- (e) (No change.)

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(f) In lieu of complying with a NO<sub>x</sub> emission limit under (a)[,] **or** (b)[ or (c)] above, the owner or operator of a glass manufacturing furnace may comply with one of the following, or with a combination of (f)1 and 3 below:

1. (No change.)
2. An alternative maximum allowable emission rate for the furnace, approved by the Department pursuant to N.J.A.C. 7:27-19.13; **or**
3. A seasonal fuel switching plan for the furnace, approved by the Department pursuant to N.J.A.C. 7:27-19.14 and 19.20[; or].
- [4. A plan for phased compliance for the furnace, approved by the Department pursuant to N.J.A.C. 7:27-19.14 and N.J.A.C. 7:27-19.21, 19.22 or 19.23.]

7:27-19.12 [(Reserved)]**Municipal solid waste (MSW) incinerators**

**(a) The owner or operator of a MSW incinerator of any size shall cause it to emit NO<sub>x</sub> at a maximum allowable emission concentration of 150 ppmvd at seven percent oxygen based on a calendar day average:**

- 1. On and after (60 days after the operative date of these new rules and amendments), if compliance is achieved by optimizing the existing NO<sub>x</sub> air pollution control system without modifying the MSW incinerator; or**
- 2. On and after May 1, 2010, if compliance is achieved by installing a new NO<sub>x</sub> air pollution control system on an existing MSW incinerator or by physically modifying an existing MSW incinerator.**

**(b) In lieu of complying with the maximum allowable emissions concentration at (a) above, the owner or operator of a MSW incinerator may comply by obtaining an alternative maximum allowable NO<sub>x</sub> emission rate approved by the Department pursuant to N.J.A.C. 7:27-19.13.**

**(c) The owner or operator of any MSW incinerator shall install a NO<sub>x</sub> continuous emissions monitoring system on a MSW incinerator satisfying the requirements of N.J.A.C. 7:27-19.18 and shall demonstrate compliance with (a) or (b) above using the NO<sub>x</sub> continuous emissions monitoring system.**

7:27-19.13 [Facility-specific] **Alternative and facility-specific maximum allowable** NO<sub>x</sub> emission[s limits] **rates**

(a) This section establishes procedures and standards for the establishment of **alternative maximum allowable NO<sub>x</sub> emission rates and** facility-specific **maximum allowable** NO<sub>x</sub> emission[s limits] **rates** in the following circumstances:

1. If **the owner or operator of** a major NO<sub>x</sub> facility [contains] **seeks approval of a maximum allowable emission rate for** any source operation or item of equipment of a category not listed in N.J.A.C. 7:27-19.2(b) or (c) [(that is, any source operation or item of equipment other than a boiler serving an electric generating unit, an industrial/commercial/institutional boiler, a stationary combustion turbine, a stationary reciprocating engine, a rotary dryer located at an asphalt plant, or a glass manufacturing furnace)] that has the potential to emit more than 10 tons of NO<sub>x</sub> per year, except as provided in (p) below[; or], **Such a rate approved by the Department pursuant to N.J.A.C. 7:27-19.13 shall be called a facility-specific maximum allowable emission rate. The owner or operator shall obtain this rate by submitting a proposed facility-specific NO<sub>x</sub> control plan pursuant to (b) below;**
  2. If the owner or operator of a source operation or item of equipment listed in N.J.A.C. 7:27-19.2(b) or (c) seeks approval of an alternative maximum allowable emission rate, which would apply to the equipment or source operation in lieu of the **maximum allowable** emission [limit] **rate** that would otherwise apply under this subchapter. **The owner or operator shall obtain this rate by submitting a request for an alternative maximum allowable emission rate pursuant to (b) below; or**
  3. **If the owner or operator of a source operation or item of equipment was issued a facility-specific maximum allowable emissions rate or an alternative maximum allowable emission rate for that source operation or item of equipment prior to May 1, 2005, and if the owner or operator would like to continue to operate under this rate, the owner or operator shall submit a proposed facility-specific NO<sub>x</sub> control plan or a request for an alternative maximum allowable emission rate, as applicable, pursuant to (b) below.**
- (b) The owner or operator of a [major NO<sub>x</sub>] facility described in (a)[1] above shall obtain the Department's written approval of a facility-specific NO<sub>x</sub> control plan **or an alternative maximum allowable emission rate** [in accordance with this section.]**as follows:**
1. **Any facility-specific NO<sub>x</sub> control plan, including the facility-specific maximum allowable emission rate, approved by the Department after (the operative date of these new rules and amendments) shall not have an expiration date, except in accordance with (b)6 below;**
  2. **Any alternative maximum allowable emission rate approved by the Department after (the operative date of these new rules and amendments) shall have a term of 10 years, unless the source operation or item of equipment with the alternative maximum allowable emission rate is modified, altered or reconstructed during the term of the plan. If the source operation or item is modified, altered or reconstructed, (b)6 below shall also apply and the owner or operator shall also meet the requirements at (b)6 below;**

- 3.** [For any facility, equipment or source operation that is in operation prior to January 23, 1994, the] **Any** owner or operator **in (a)1** shall submit to the Department in writing a proposed **facility-specific** NO<sub>x</sub> control plan for the facility, [by April 23, 1994 or by a later date approved by the Department pursuant to N.J.A.C. 7:27-19.3(e). For any facility, equipment or source operation that is subject to a NO<sub>x</sub> emissions limit under this subchapter as set forth at N.J.A.C. 7:27-19.5(d), 19.7(h), or 19.8(e), the owner or operator shall submit to the Department in writing a proposed NO<sub>x</sub> control plan for the facility by February 7, 2006.] In the proposed **facility-specific** NO<sub>x</sub> control plan, the owner or operator shall include:

Recodify existing 1. and 2. as **i. and ii.** (No change in text.)

- 4.** **Any owner or operator of a facility described in (a)2 above shall submit to the Department a written request for an alternative maximum allowable emission rate for each applicable source operation or item of equipment. In the request, the owner or operator shall include the information listed in (d) below;**

- 5.** **Any owner or operator of a facility described in (a)3 above shall submit to the Department a written request for an alternative maximum allowable emission rate or a proposed facility-specific NO<sub>x</sub> control plan by (90 days after the operative date of these amendments). The owner or operator may request a 60-day extension pursuant to N.J.A.C. 7:27-19.3(e) to submit the request or proposed plan;**

**i. In the proposed facility-specific NO<sub>x</sub> control plan, the owner or operator shall include the information listed at (b)3i and ii above. In a request for an alternative maximum allowable emission rate, the owner or operator shall include the information listed at (d) below;**

**ii. If the owner or operator submits a request or proposed plan by (90 days after the operative date of these new rules and amendments) or by the date of any extension approved by the Department, the owner or operator's existing alternative maximum allowable emission rate or facility-specific maximum allowable emission rate, as applicable, shall terminate on the date stated in the implementation schedule of the request or proposed plan that the Department approves; and**

**iii. If the owner or operator does not submit a request or proposed plan or extension request by (90 days after the operative date of these new rules and amendments), the owner or operator's existing alternative maximum allowable emission rate or facility-specific maximum allowable emission rate shall terminate on (90 days after the operative date of these amendments);**

**6. If the owner or operator of a facility has an approved alternative maximum allowable emission rate or an approved facility-specific maximum allowable emission rate for a source operation or item of equipment, and intends to modify, alter or reconstruct that source operation or item of equipment, such that the alternative or facility-specific maximum allowable emission rate would change, the existing alternative or facility-specific maximum allowable emission rate shall terminate on the start date of the modification, alteration or reconstruction. If the owner or operator plans to continue operating under an alternative or facility-specific maximum allowable emission rate, the owner or operator shall, pursuant to this section, apply for and obtain approval of a new alternative maximum allowable emission rate or facility-specific NO<sub>x</sub> control plan prior to operation of the modified, altered or reconstructed source operation or item of equipment; and**

**7. If the owner or operator of a facility that has an approved 10-year term alternative maximum allowable emission rate plans to continue operating under an alternative maximum allowable emission rate beyond the existing rate's expiration date, the owner or operator shall submit a request for a new alternative maximum allowable emission rate at least one year prior to the termination date of the existing alternative maximum allowable emission rate. The existing rate shall terminate on its termination date or on the date of the Department's final action on the proposed new alternative maximum allowable emission rate, whichever is later.**

(c) (No change.)

(d) In addition to the information required under (b) or (c) above, as applicable, the owner or operator shall include the following information in a proposed NO<sub>x</sub> control plan or request for an alternative maximum allowable emission rate:

1. For each source operation or item of equipment listed in (b)[1]**3i** above or (c)1 above, as applicable, a list of all NO<sub>x</sub> control technologies available for use with the equipment or source operation;

2.-3. (No change.)

4. An estimate of the remaining useful life of each source operation or item of equipment listed in (b)[1]**3i** above or (c)1 above, as applicable;

5. (No change.)

6. For each source operation or item of equipment listed in (b)[1]**3i** above or (c)1 above, as applicable, the NO<sub>x</sub> control technology or technologies which the owner or operator proposes to employ **and an implementation schedule**;

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7. For each source operation or item of equipment listed in (b)[1]3i above or (c)1 above, as applicable, a proposed **maximum allowable** NO<sub>x</sub> emission [limit] **rate**;
  - 8.-9. (No change.)
- (e)-(f) (No change.)
- (g) Within six months after receiving a complete proposed NO<sub>x</sub> control plan or request for an alternative maximum allowable emission rate, the Department shall approve, approve and modify, or disapprove the proposed plan or request and notify the owner or operator of the decision in writing. The Department shall approve the proposed plan or request only if it satisfies the following requirements:
    - 1.-3. (No change.)
    4. The emission [limit] **rate** proposed for each source operation and item of equipment is the lowest rate which can practicably be achieved at a cost within the limits described in (g)3iii and iv above;
    5. The cost of achieving an additional emission reduction beyond each proposed [limit] **emission rate** would be disproportionate to the size and environmental impact of that additional emission reduction; and
    6. (No change.)
  - (h) Any alternate **maximum allowable** emissions [limit] **rate** pursuant to [N.J.A.C. 7:27-19.13](c) above or NO<sub>x</sub> Control Plan pursuant to [7:27-19.13](b) above approved by the Department will be submitted to EPA for approval as a revision to the State Implementation Plan (SIP) for ozone.
  - (i)-(m) (No change.)
  - (n) The owner or operator of a facility described in (a)1 above shall implement the NO<sub>x</sub> control plan (including, without limitation, complying with the **maximum allowable** emission [limits] **rates** set forth in the plan) approved by the Department by May 31, 1995, or by March 7, 2007 for any facility, equipment or source operation that is subject to a **maximum allowable** NO<sub>x</sub> emissions [limit] **rate** under this subchapter as set forth at N.J.A.C. 7:27-19.5(d), 19.7(h), or 19.8(e), and maintain compliance with the plan and all conditions of the Department's approval thereafter. The owner or operator of a source operation or item of equipment for which the Department has approved an alternative maximum allowable emission rate shall cause it to emit NO<sub>x</sub> at a rate no greater than the approved alternative **maximum allowable emission** rate.
  - (o)-(p) (No change.)

7:27-19.15 Procedures and deadlines for demonstrating compliance

- (a) [The] **Except as set forth in (d) and (e) below, the** owner or operator of equipment or a source operation subject to an emission limit under this subchapter shall demonstrate compliance with the emission limit as follows:

1.-2. (No change.)

- (b) [For] **Except as set forth in (d) and (e) below,** any equipment or source operation subject to this subchapter that was in operation before January 1, 1995, the owner or operator shall demonstrate compliance with this subchapter in accordance with (a)1 or 2 above by May 31, 1996, and thereafter at the frequency set forth in the permit for such equipment or source operation, except that the owner or operator of any facility, equipment or source operation that is subject to a NO<sub>x</sub> emissions limit under this subchapter as set forth at N.J.A.C. 7:27-19.5(d), 19.7(h), or 19.8(e), and that is in operation before November 7, 2005 shall demonstrate compliance with this subchapter in accordance with (a)1 or 2 above by March 7, 2008. Test results that demonstrate compliance with a new requirement within the five years preceding November 7, 2005 shall be accepted by the Department as satisfying this test requirement, if the testing and test report were reviewed by the Department and found satisfactory.

- (c) [For] **Except as set forth in (d) and (e) below, for** any equipment or source operation subject to this subchapter which commences operations or is altered after January 1, 1995, the owner or operator shall demonstrate compliance with this subchapter in accordance with (a)1 or 2 above within 180 days from the date on which the source commences operation, and thereafter at the frequency set forth in the permit for such equipment or source operation.

- (d) For any equipment or source operation at an asphalt pavement production plant subject to a NO<sub>x</sub> emissions limit at N.J.A.C. 7:27-19.9(a), the owner or operator shall demonstrate compliance with this subchapter in accordance with (a)2 above, within 180 days from the date at N.J.A.C. 7:27-19.9(f)1, 2 or 3, and thereafter at the frequency set forth in the permit for such equipment or source operation.**

- (e) The owner or operator of any glass manufacturing furnace identified at N.J.A.C. 7:27-19.2(b)6 through 9 shall demonstrate compliance with the emission limit at N.J.A.C. 7:27-19.10(a), (b) or (f)2, as applicable, as follows:**

- 1. Within 180 days after the first date after (the operative date of this amendment) on which rebricking of the furnace is completed, and thereafter at the frequency set forth in the permit for such glass manufacturing furnace, the owner or operator shall demonstrate compliance in accordance with (e)2 or 3 below, whichever is applicable.**

**2. If a continuous emissions monitoring system has not been installed on the glass manufacturing furnace the owner or operator shall:**

- i. Determine the average pounds of NO<sub>x</sub> emitted per hour by averaging three one-hour tests in accordance with (a)2 above;**
- ii. Determine the average tons of glass removed per hour during the same time period as the three one-hour tests in (e)2i above;**
- iii. Divide the average pounds of NO<sub>x</sub> emitted per hour determined in (e)2i by the average tons of glass removed per hour determined in (e)2ii. The quotient is pounds of NO<sub>x</sub> emitted per of ton glass removed;**
- iv. Compare the quotient to the emission limit specified at N.J.A.C. 7:27-19.10(a), (b) or (f)2, as applicable; and**
- v. Comply with the CO testing requirements at (a)2 above.**

**3. If a continuous emissions monitoring system has been installed on the glass manufacturing furnace, on a daily basis the owner or operator shall:**

- i. Determine the average pounds of NO<sub>x</sub> emitted per day in accordance with (a)1i or ii above, as applicable;**
- ii. Determine the tons of glass removed per day during the same day as in (e)3i above;**
- iii. Divide the average pounds of NO<sub>x</sub> emitted per day determined in (e)3i by the tons of glass removed per day determined in (e)3ii. The quotient is pounds of NO<sub>x</sub> emitted per ton of glass removed; and**
- iv. Compare the quotient to the emission limit at N.J.A.C. 7:27-19.10(a), (b) or (f)2, as applicable.**

[d]**(f)** An exceedance of any applicable NO<sub>x</sub> emission limit set forth in this subchapter, determined through testing or monitoring performed pursuant to (a)[, (b), or (c)] **through (e)** above or otherwise, is a violation of this subchapter.

7:27-19.21 Phased compliance - repowering

(a)-(d) (No change.)

(e) An owner or operator who has obtained the Department's approval of a repowering plan shall:

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- 1.-8. (No change.)
9. If the plan includes a boiler serving an electric generating unit, cause the repowered boiler serving an electric generating unit to emit NO<sub>x</sub> at a rate no higher than the applicable maximum allowable NO<sub>x</sub> listed in Table [9]**12** below (provided however, that the NO<sub>x</sub> emission limits in Table [9]**12** shall not be construed to limit the owner or operator's obligations under (e)8 above); and
10. (No change.)

TABLE [9] **12**

(No change in text.)

7:27-19.22 Phased compliance - impracticability of full compliance by [May 31, 1995] **(the operative date of these amendments)**

- (a) [The] **Any** owner or operator [of a combustion source included in a] **listed at N.J.A.C. 7:27-19.29(a) who has submitted a** phased compliance plan **to the Department** is authorized to comply with the plan if the Department approves the plan pursuant to this section and N.J.A.C. 7:27-19.14. The owner or operator's compliance with the plan is in lieu of [causing the combustion source to comply with the emission limit under N.J.A.C. 7:27-19.4, 19.5, 19.7, 19.8, 19.9 or 19.10 that would otherwise apply to the combustion source] **achieving by (the operative date of these amendments) the NO<sub>x</sub> emission reductions required by Equation 1 at N.J.A.C. 7:27-19.29(c).**
- (b) By [June 22, 1995] **(21 days after the operative date of these amendments)**, an owner or operator seeking approval of a phased compliance plan shall submit to the Department an application for approval of the phased compliance plan pursuant to N.J.A.C. 7:27-19.14. If an owner or operator fails to submit the application by [June 22, 1995] **(21 days after the operative date of these amendments)**, the Department may reject the application. The Department may elect to process a late application, based on how late the application is, the nature and extent of the owner or operator's efforts to submit the application on time, and whether the owner or operator advised the Department before the application due date that a late application would be submitted. If the Department elects to process a late application, the pendency of the application shall not be a defense to a violation of [a NO<sub>x</sub> emission limit] **the requirement at N.J.A.C. 7:27-19.29(b)1 to achieve the NO<sub>x</sub> emission reductions calculated pursuant to Equation 1 at N.J.A.C. 7:27-19.29(c)** to which the [source] **owner or operator** is subject in the absence of an approved plan. In the application, the owner or operator shall include the following information in addition to the information required under N.J.A.C. 7:27-19.14:
  1. (No change.)

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2. A description of the steps that the owner or operator has taken to [cause each combustion source included in the plan to attain compliance with the applicable NO<sub>x</sub> emission limit under this subchapter] **obtain compliance with the NO<sub>x</sub> emission reduction requirements at N.J.A.C. 7:27-19.29;** and
  3. For each [combustion source] **measure** included in the plan, a detailed explanation of the reasons why the owner or operator believes that [compliance with the applicable NO<sub>x</sub> emission limit by May 31, 1995] **implementation of the measure by (the operative date of these amendments)** is impracticable.
- (c) The owner or operator shall include the following information in the phased compliance plan with respect to each [combustion source] **measure** included in the plan:
- [1. Information sufficient to identify the combustion source, including a brief description (for example, “dry-bottom coal-fired boiler serving an electric generating unit”), its location, its permit number, the company stack designation, and any other identifying numbers, and any other information necessary to distinguish it from other equipment owned or operated by the owner or operator;]
- 1. A description of the measure and how it is expected to reduce NO<sub>x</sub> emissions;**
2. [A] **For each measure that requires modification of a combustion source, such as installation of a control apparatus, a** proposed schedule setting dates by which the owner or operator will complete the following milestones for the [combustion source] **measure**:
    - i.-iv. (No change.)
    - v. Attain full compliance with the [applicable NO<sub>x</sub> emission limit under this subchapter] **NO<sub>x</sub> emission reduction determined by Equation 1 at N.J.A.C. 7:27-19.29(c);**

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- [3. The NO<sub>x</sub> control measures or technology that the owner or operator proposes to employ during the interim period; and]
  - 3. For each NO<sub>x</sub> emission reduction measure that does not require modification of a combustion source, a proposed schedule setting dates by which the owner or operator shall complete all applicable milestones for implementing the measure; and**
  4. Any other information that the Department requests, which is reasonably necessary to enable it to determine whether [the operation of combustion sources included in the phased compliance plan will comply with the requirements of this section] **each proposed NO<sub>x</sub> emission reduction measure will achieve the NO<sub>x</sub> emission reduction determined by Equation 1 at N.J.A.C. 7:27-19.29(c).**
- (d) The Department shall approve a phased compliance plan only if the following requirements are satisfied with respect to each [combustion source] **NO<sub>x</sub> emission reduction measure** included in the plan:
1. (No change.)
  2. The information submitted under (b)[1ii]**2** above establishes that the owner or operator has made a good faith effort to [cause the combustion source to attain compliance with the applicable NO<sub>x</sub> emission limit under this subchapter] **obtain compliance with the NO<sub>x</sub> emission reduction determined by Equation 1 at N.J.A.C. 7:27-19.29(c) by implementing all available NO<sub>x</sub> emission reduction measures that can be reasonably implemented prior to (the operative date of these amendments);**
  3. The information submitted under (b)[1iii]**3** above, evaluated in light of the criteria set forth in (e) below, establishes that it is impracticable for the [combustion source to attain compliance with the applicable NO<sub>x</sub> emission limit under this subchapter by May 31, 1995] **NO<sub>x</sub> emission reduction measure to be implemented prior to (the operative date of these amendments);** and
  4. (No change.)
- (e) In determining whether compliance with the [applicable NO<sub>x</sub> emission limit under this subchapter by May 31, 1995] **emission reduction determined by Equation 1 at N.J.A.C. 7:27-19.29(c) by (the operative date of these amendments)** is impracticable, the Department shall apply the following criteria:
- 1.-3. (No change.)
  4. The nature, extent and probability of any harm to public safety or welfare that could result from accelerating construction and/or installation in order to attain

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compliance by [May 31, 1995] **(the operative date of these amendments)**. For example, if it were probable that the owner or operator of the electric generating utility could not [cause all of its electric generating units to] attain compliance by that date without subjecting a substantial number of customers to voltage reductions and/or interruptions in electric service, that fact would be relevant in establishing impracticability.

- (f) On the date that the approved **phased** compliance plan provides for [a combustion source to] the owner or operator to attain full compliance with [the applicable NO<sub>x</sub> emission limit under this subchapter] **the emission reduction determined by Equation 1 at N.J.A.C. 7:27-19.29(c)**, the Department's approval of the **phased compliance** plan shall expire. Upon expiration of the Department's approval, the [combustion source] **owner or operator** shall be subject to all applicable requirements of [this subchapter] **N.J.A.C. 7:27-19.29**, including the NO<sub>x</sub> emission [limits] **reduction** that would have [applied to the source] **been required** in the absence of an approved plan.
- (g) An owner or operator who has obtained the Department's approval of a phased compliance plan shall:
1. Operate all combustion sources [included in] **affected by** the plan in a manner that complies with the plan and with all conditions of the Department's approval;
  - 2-3. (No change.)
  4. During the interim period, control NO<sub>x</sub> emissions from [the] **all** combustion sources as follows:
    - i. (No change.)
    - ii. By seasonally combusting natural gas in accordance with N.J.A.C. 7:27-19.20, [implementing selective non-catalytic reduction,] or implementing other measures that the Department determines are appropriate in light of the costs involved and the total quantity of NO<sub>x</sub> reductions that will be achieved until the full compliance date listed in (c)2v above.

7:27-19.27 Use of NO<sub>x</sub> budget allowances by a former DER credit user

- (a) (No change.)
- (b) The number of NO<sub>x</sub> budget allowances to be retired during any given calendar year pursuant to (a) above shall be determined as follows:
1. Determine the allowable NO<sub>x</sub> emissions for the equipment or control apparatus for the calendar year in question by calculating the quantity of NO<sub>x</sub> emissions in

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tons per year (tpy) which would be allowed for the equipment or control apparatus. The allowable NO<sub>x</sub> emissions for a single fuel shall be the total BTU (higher heating value) burned in the calendar year times the maximum allowable NO<sub>x</sub> emission rate, in pounds per million BTU, for the equipment or control apparatus in question, converted to tons per year (by dividing by 2,000). The allowable NO<sub>x</sub> emissions for a stationary internal combustion engine shall be the total number of horsepower hours produced in the calendar year times the maximum allowable NO<sub>x</sub> emission rate, in grams per horsepower hour, for the equipment or control apparatus in question, converted to tons per year (by dividing by 908,000). Maximum allowable NO<sub>x</sub> emission rates are codified at N.J.A.C. 7:27-19.4(a), Table 1; 19.5(a), Table [2]4; 19.5(b), Table [3]5; 19.7(b), Table [4]6; N.J.A.C. 7:27-19.7(c), Table 5] and N.J.A.C. 7:27-19.8(a), (b) and (c). If more than one fuel is burned, determine the allowable emission separately for each fuel and then sum these allowable emissions;

2. (No change.)

(c) (No change.)

#### **7:27-19.28 Sewage sludge incinerators**

**(a) The owner or operator of a sewage sludge incinerator shall cause it to emit NO<sub>x</sub> at a rate no greater than the applicable maximum allowable NO<sub>x</sub> emission rate specified in Table 13 below, unless the owner or operator is complying with N.J.A.C. 7:27-19.3(f).**

**TABLE 13**  
**Maximum Allowable NO<sub>x</sub> Emission Rates for Sewage Sludge Incinerators**  
**(pounds of NO<sub>x</sub> per ton of dry sewage sludge)**

<b><u>Multiple Hearth</u></b>	<b><u>7.0</u></b>
<b><u>Fluidized Bed</u></b>	<b><u>2.5</u></b>

**(b) In lieu of complying with the maximum allowable NO<sub>x</sub> emissions rate at (a) above, the owner or operator of a sewage sludge incinerator may comply with N.J.A.C. 7:27-19.3(f), or obtain an alternative maximum allowable NO<sub>x</sub> emission rate approved by the Department pursuant to N.J.A.C. 7:27-19.13.**

**(c) The owner or operator shall demonstrate compliance with (a) or (b) above in accordance with N.J.A.C. 7:27-19.15(a)2.**

#### **7:27-19.29 2009 HEDD Emission Reduction Compliance Demonstration Protocol**

**(a) This section shall apply to any owner or operator of a HEDD unit, or their successors or assigns, that operated on July 26, 2005, and that meets the following:**

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1. If a HEDD unit is a combustion turbine and was not controlled by water injection or SCR, or is a boiler and was not controlled by SCR or SNCR; and
2. The NO<sub>x</sub> emission rate of a HEDD unit was 0.15 pounds per MMBTU or greater. To determine the emissions rate of the HEDD unit, the owner or operator shall obtain the emission rate, in lb/MMBtu, for the HEDD unit for July 26, 2005 from the USEPA Clean Air Markets Division (CAMD) NO<sub>x</sub> emission data, which as of (the date of this rulemaking) can be found at <http://camddataandmaps.epa.gov/gdm/>.

(b) Each owner or operator identified in (a) above shall:

1. Assure that the NO<sub>x</sub> emission reductions, determined by Equation 1 at (c) below, occur on each high electric demand day from (the operative date of these amendments) through September 30, 2014, unless the Department approves a phased compliance plan pursuant to N.J.A.C. 7:27-19.22 with a later initial compliance date. All emission reductions must be obtained through one or more measures that meet the requirements at (d) below;
2. Prepare a 2009 HEDD Emission Reduction Compliance Demonstration Protocol, hereafter referred to as the 2009 Protocol, in accordance with (d) below. Each emission reduction measure that is used to obtain emission reductions shall be included in the 2009 Protocol;
3. Submit to the Department, at the address below, by (30 days after the operative date of this rule), a 2009 Protocol; and
4. Submit to the Department, at the address below, an annual report, pursuant to (k) below.

Chief, Bureau of Operating Permits  
Air Quality Permitting Program  
Department of Environmental Protection  
PO Box 027  
Trenton, NJ 08625-0027.

(c) The owner or operator shall achieve the NO<sub>x</sub> emission reductions determined by Equation 1 on each high electric demand day. Equation 1 is:

$$ER = (BE \div EF) \times RF$$

Where:

ER, BE, EF and RF are in units of tons of NO<sub>x</sub> per high electric demand day (t/HEDD);

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**ER (Emission Reduction) = The total tons of NO<sub>x</sub> reductions that is required from an owner or operator on each high electric demand day;**

**BE (Baseline Emission) = The total tons of NO<sub>x</sub> that would be emitted on each high electric demand day, if the owner or operator did not implement any emission reduction measures. This calculation is based on total actual operation of HEDD units for that high electric demand day;**

**EF (Emission Factor) = The total tons of NO<sub>x</sub> that were emitted by all of the owner or operator's HEDD units on July 26, 2005. In order to calculate EF, the owner or operator shall obtain the NO<sub>x</sub> emitted, in tons, for each HEDD unit operated on July 26, 2005, from the USEPA Clean Air Markets Division (CAMD) NO<sub>x</sub> emission data, which as of (the date of this rulemaking) can be found at <http://camddataandmaps.epa.gov/gdm/>; and**

**RF (Reduction Factor) = The HEDD NO<sub>x</sub> emission reduction factor for each owner or operator shall be the sum of all Unit Reduction Factors (URF). A URF shall be calculated, in tons, for each HEDD unit that operated on July 26, 2005, using the following equation:  $URF = (UE \times C)$**

**Where:**

**URF (Unit Reduction Factor) = The reduction of NO<sub>x</sub> emissions, in tons, emitted by a HEDD unit on July 26, 2005 that would have occurred if the unit had been controlled;**

**UE (Unit Emissions) = The tons of NO<sub>x</sub> emissions emitted by a HEDD unit on July 26, 2005 obtained from the USEPA Clean Air Markets Division (CAMD) NO<sub>x</sub> emission data, which as of (the date of this rulemaking) can be found at <http://camddataandmaps.epa.gov/gdm/>; and**

**C (Control Factor) = If the HEDD unit is a combustion turbine that was not controlled with water injection or Selective Catalytic Reduction (SCR) on July 26, 2005, then C is equal to 0.4. If the HEDD unit is a boiler that was not controlled with SCR or Selective**

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Non-Catalytic Reduction (SNCR) controls on July 26, 2005, then C is equal to 0.3. If the HEDD unit is a combustion turbine that was controlled with water injection or SCR on July 26, 2005, or a boiler that was controlled with SCR or SNCR on July 26, 2005, then C is equal to 0.

**(d) The 2009 Protocol shall include the following:**

- 1. The calculations performed in (c) above for EF and RF;**
- 2. A list of measures used to obtain the required emission reductions determined by Equation 1. The measures must result in emission reductions that are real, quantifiable, enforceable, surplus, and are not required to comply with any State or Federal permit, regulation, enforceable agreement, or high electric demand day emission reduction program. Any of the following measures may be considered to achieve the required emission reductions:**
  - i. Installation of a control apparatus on an existing HEDD unit that is located in New Jersey, Pennsylvania, Delaware, or Maryland;**
  - ii. Reduction in the usage of any HEDD unit that is located in New Jersey, Pennsylvania, Delaware, or Maryland;**
  - iii. Installation of a control apparatus on an existing non-HEDD unit that is located in New Jersey, Pennsylvania, Delaware, or Maryland;**
  - iv. Commitment to combust natural gas in any HEDD unit that is permitted to combust either natural gas or fuel oil during high electric demand days when it would be economically preferred to combust fuel oil;**
  - v. Implementation of an energy efficiency measure in New Jersey, as long as the energy efficiency measure was not committed to prior to (the operative date of these amendments);**
  - vi. Implementation of a demand response measure in New Jersey such as:**
    - (1) A measure that shifts load, as long as the demand response measure was not committed to prior to (the operative date of these amendments); or**



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- 1. The date of each high electric demand day;**
- 2. The actions taken to reduce emissions;**
- 3. The start and end time for operation of each EGU operated during that high electric demand day;**
- 4. The total hours of operation for each EGU in (e)3 above;**
- 5. The type of fuel combusted by each EGU in (e)3 above;**
- 6. The hourly fuel use for each EGU in (e)3 above;**
- 7. The hourly Load in MW for each EGU in (e)3 above;**
- 8. The hourly heat input in MMBtu/hr to each EGU in (e)3 above;**
- 9. The hourly water injection rate for each EGU in (e)3 above;**
- 10. The hourly ammonia injection rate for each EGU in (e)3 above;**
- 11. The catalytic bed temperature for each EGU in (e)3 above;**
- 12. The CEM values or documentation on how the baseline and actual NO<sub>x</sub> emission rates were calculated for each EGU in (e)3 above;**
- 13. Any other data needed to calculate baseline and actual NO<sub>x</sub> emissions for each EGU in (e)3 above;**
- 14. Calculations and results for the following:**
  - i. Baseline NO<sub>x</sub> emissions (BE in Equation 1, at (c) above);**
  - ii. Actual NO<sub>x</sub> emissions after 2009 Protocol control measures, calculated pursuant to the approved 2009 Protocol;**
  - iii. Required NO<sub>x</sub> emission reduction (ER in Equation 1, at (c) above);  
and**
  - iv. Actual NO<sub>x</sub> emission reduction (BE – actual emissions resulting from 2009 Protocol measures);**
- 15. The fuel prices for that high electric demand day; and**

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- 16. Any other records necessary to document the emission reductions achieved.**
- (f) Within 30 calendar days after receiving a proposed 2009 Protocol, the Department will notify the owner or operator in writing whether the proposed 2009 Protocol includes all of the information required under (d) above. If the proposed 2009 Protocol is incomplete:**
- 1. The Department will include in the notice a list of the deficiencies, a statement of the additional information required to make the proposed 2009 Protocol complete, and a time by which the owner or operator must submit a complete proposed 2009 Protocol;**
  - 2. The owner or operator shall correct the deficiencies listed in the Department's notice within the time stated in the Department's notice; and**
  - 3. The Department may disapprove the proposed 2009 Protocol if the owner or operator fails to correct the deficiencies within the time stated in the Department's notice.**
- (g) The Department may approve, revise and approve, or disapprove the proposed 2009 Protocol based on whether or not the proposed 2009 Protocol contains the contents required by (d) above. The Department will notify the owner or operator of the action in writing.**
- (h) The owner or operator may revise the 2009 Protocol at any time as follows:**
- 1. The owner or operator shall submit to the Department, at the address at (b) above, a proposed revised 2009 Protocol. The proposed revised 2009 Protocol shall include all the information required by (d) above;**
  - 2. The Department will notify the owner or operator of any deficiencies pursuant to (f) above; and**
  - 3. The Department may approve, revise and approve, or disapprove the proposed revised 2009 Protocol based on whether or not the proposed revised 2009 Protocol contains the contents required by (d) above. The Department will notify the owner or operator of the action in writing.**
- (i) If the owner or operator of a HEDD or non-HEDD unit that is included in an approved 2009 Protocol changes between (the operative date of these amendments) and September 30, 2014, the old owner or operator shall submit a revised 2009 Protocol to the Department, at the address in (b) above, within 30 calendar days of the change taking place, for approval in accordance with (h) above. The revised 2009 Protocol shall demonstrate that all required emission reductions will continue to be obtained, and shall clearly define how the required emission reductions will be**

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**obtained henceforth and which owner or operator shall be responsible for achieving the required emission reductions. Any shared responsibility for the emission reductions shall be clearly defined in the revised 2009 Protocol.**

**(j) An owner or operator may implement any emission reduction measure that meets the requirements at (d) above if the owner or operator has obtained all necessary permit modifications pursuant to N.J.A.C. 7:27-8 and 22, submits a revised 2009 Protocol to the Department at the address at (b) above within 30 days of implementing the measure, and maintains compliance with all other applicable provisions of N.J.A.C. 7:27.**

**(k) Each owner or operator identified in (a) above shall submit an annual report, for calendar years 2009 through 2014, to the Department to the address at (b) above, by January 30th of the following year. (For example, the annual report for 2009 is due on January 30, 2010.) At a minimum, the annual report shall include the following information, as applicable, for each measure and each high electric demand day:**

**1. The actions taken to reduce emissions;**

**2. The baseline and actual emissions in total tons;**

**3. For measures not associated with an EGU unit, the annual report shall include any documentation required by the approved 2009 Protocol; and**

**4. For measures associated with an EGU unit, the annual report shall include:**

**i. The total hours of operation for each EGU;**

**ii. The type of fuel combusted;**

**iii. The hourly fuel use;**

**iv. The hourly load in MW;**

**v. The hourly heat input in MMBtu/hr;**

**vi. The hourly water injection rate;**

**vii. The hourly ammonia injection rate;**

**viii. The catalytic bed temperature;**

**ix. The CEM values or documentation on how the baseline and actual NO<sub>x</sub> emission rates were calculated;**

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x. Any other data used to calculate baseline and actual NO<sub>x</sub> emissions;

xi. The calculations and results for:

(1) Baseline NO<sub>x</sub> emissions (BE in Equation 1, at (c) above);

(2) Actual NO<sub>x</sub> emissions after emission reduction measures;

(3) Required NO<sub>x</sub> emission reduction (ER in Equation 1, at (c) above); and

(4) Actual NO<sub>x</sub> emission reduction (BE – actual emissions after emission reduction measures);

xii. Fuel prices; and

xiii. Any other documentation required by the Department in the approved 2009 Protocol.

7:27-19.30 2015 HEDD Emission Limit Achievement Plan

(a) Each owner or operator of an HEDD unit shall submit to the Department at the address below, by May 1, 2010, a 2015 HEDD Emission Limit Achievement Plan, hereafter referred to as the 2015 Plan.

Chief, Bureau of Operating Permits  
Air Quality Permitting Program  
Department of Environmental Protection  
PO Box 027  
Trenton, NJ 08625-0027

(b) The 2015 Plan shall describe how the owner or operator intends to comply with the 2015 HEDD maximum allowable NO<sub>x</sub> emission rates for each HEDD unit owned or operated. The 2015 Plan shall include the following:

1. A list of HEDD units that are expected to be shut down by May 1, 2015, in lieu of complying with the applicable maximum allowable NO<sub>x</sub> emission rate(s) in Table 3 at N.J.A.C. 7:27-19.4(a) for boilers or Table 7 at N.J.A.C.7:27-19.5(g) for turbines. The following information shall be included for each HEDD unit that is expected to be shut down:

i. The name of the facility at which the HEDD unit is located;

ii. The facility ID number;

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- iii. The emission unit ID number;
- iv. The HEDD unit description;
- v. The proposed schedule for shut down;
- vi. An explanation of any obstacles that may prevent this shut down; and
- vii. Any other documentation that would identify the unit or clarify the above information; and

2. A list of HEDD units on which the owner or operator proposes to install a control apparatus, or for which the owner or operator proposes to operate differently, in order to obtain compliance with the applicable maximum allowable NO<sub>x</sub> emission rate(s) in Table 3 at N.J.A.C. 7:27-19.4(a) for boilers or Table 7 at N.J.A.C. 7:27-19.5(g) for turbines. The following information shall be included for each such HEDD unit:

- i. The name of the facility at which the HEDD unit is located;
- ii. The facility ID number;
- iii. The emission unit ID number;
- iv. The HEDD unit description;
- v. A description of the proposed control apparatus or change to the current operation;
- vi. An explanation of what the expected emission control efficiency will be and what emission rate will be achievable with the proposed control apparatus or change to the current operation;
- vii. The proposed schedule for permitting, installation and operation of the proposed control apparatus or change to the current operation;
- viii. An explanation of any obstacles that may prevent the installation of the proposed control apparatus or change to the current operation; and
- ix. Any other documentation that would identify the unit or clarify the above information.

(c) Each owner or operator of an HEDD unit shall submit to the Department, with the annual compliance certification, submitted pursuant to N.J.A.C. 7:27-22, for the

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**calendar years 2010 through 2014, an update on the progress of the 2015 Plan. All HEDD units shall be included in the update. For each HEDD unit owned or operated, the following information shall be included in the update:**

- 1. The name of the facility at which the HEDD unit is located;**
- 2. The facility ID number;**
- 3. The emission unit ID number;**
- 4. The HEDD unit description;**
- 5. The progress made toward achieving the proposed schedule for permitting, installation and operation at (b)2vii above;**
- 6. An explanation of any obstacles that have been encountered or are anticipated and how they will be overcome; and**
- 7. An explanation of any revisions to the 2015 Plan.**

## SUBCHAPTER 21. EMISSION STATEMENTS

### 7:27-21.1 Definitions

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

...

**“Operating scenario” means a plan for operating a facility or a portion thereof in a way, or according to a method, or using methods or processes, which are different from other methods or processes used at the facility, or portion thereof. An operating scenario may be incorporated into a permit through issuance of an initial operating permit, minor modification, significant modification, or authorized through a seven-day-notice.**

...

### 7:27-21.5 Required contents of an Emission Statement

(a)-(i) (No change.)

**(i) The owner or operator of any VOC stationary storage tank with a floating roof shall include the following roof landing emission information:**

- 1. As part of the Emission Statement, submit each tank’s annual roof landing emissions as a separate operating scenario; and**

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- 2. As supporting documentation, submit with the Emission Statement an annual electronic report titled “Floating Roof Landing Emission Summary Report” if the owner or operator of a floating roof tank has not implemented all control measures in the tank VOC control plan submitted pursuant to N.J.A.C. 7:27-16.2(p), or if a floating roof tank is exempt pursuant to N.J.A.C. 7:27-16.2(f)6. The report shall contain the following information for each tank:**
- i. The tank NJID Number;**
  - ii. The total roof landing emissions;**
  - iii. The tank roof type (internal floating roof, external floating roof, or domed external floating roof);**
  - iv. The total number of roof landing events;**
  - v. A list of each VOC, including different grades and specifications of gasoline, stored in the tank for any part of the year;**
  - vi. The vapor pressure at standard conditions for the contents listed at v above;**
  - vii. The floating roof lander height setting, where lander height is the distance between the bottom of the roof deck and the top most point of the surface of the tank floor;**
  - viii. The diameter of the tank roof; and**
  - ix. The permit activity number if the tank is operating under a Preconstruction Permit and Operating Certificate.**

CHAPTER 7:27A  
AIR ADMINISTRATIVE PROCEDURES AND PENALTIES

SUBCHAPTER 3. CIVIL ADMINISTRATIVE PENALITIES 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, whether the violation is minor or non-minor in accordance with (q) through (t) below, and the civil administrative penalty amounts for

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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.-3. (No change.)

4. The violations of N.J.A.C. 7:27-4, Control and Prohibition of Particles from the Combustion of Fuel, and the civil administrative penalty amounts for each violation, per source, are as set forth in the following table:

<b>Citation</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>
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N.J.A.C. 7:27-4.2 **(a), (b) and (c)**

**CLASS**

**Maximum Actual Emissions**

For less than 10 pounds per hour:

1. Less than 25 percent over the allowable standard	NM	\$2,000 <sup>3</sup>	\$4,000 <sup>3</sup>	\$10,000 <sup>3</sup>	\$30,000 <sup>3</sup>
2. From 25 through 50 percent over the allowable standard	NM	\$4,000 <sup>3</sup>	\$8,000 <sup>3</sup>	\$20,000 <sup>3</sup>	\$50,000 <sup>3</sup>
3. Greater than 50 percent over the allowable standard	NM	\$8,000 <sup>3</sup>	\$16,000 <sup>3</sup>	\$40,000 <sup>3</sup>	\$50,000 <sup>3</sup>

From 10 pounds through 22.8 pounds per hour:

1. Less than 25 percent over the allowable standard	NM	\$6,000 <sup>3</sup>	\$12,000 <sup>3</sup>	\$30,000 <sup>3</sup>	\$50,000 <sup>3</sup>
2. From 25 through 50 percent over the allowable standard	NM	\$8,000 <sup>3</sup>	\$16,000 <sup>3</sup>	\$40,000 <sup>3</sup>	\$50,000 <sup>3</sup>

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- |  |    |                       |                       |                       |                       |
|--|----|-----------------------|-----------------------|-----------------------|-----------------------|
| 3. Greater than 50 percent over the allowable standard | NM | \$10,000 <sup>3</sup> | \$20,000 <sup>3</sup> | \$50,000 <sup>3</sup> | \$50,000 <sup>3</sup> |
|--|----|-----------------------|-----------------------|-----------------------|-----------------------|

For greater than 22.8 pounds per hour:

- |   |    |                       |                       |                       |                       |
|---|----|-----------------------|-----------------------|-----------------------|-----------------------|
| 1. Less than 25 percent over the allowable standard       | NM | \$8,000 <sup>3</sup>  | \$16,000 <sup>3</sup> | \$40,000 <sup>3</sup> | \$50,000 <sup>3</sup> |
| 2. From 25 through 50 percent over the allowable standard | NM | \$10,000 <sup>3</sup> | \$20,000 <sup>3</sup> | \$50,000 <sup>3</sup> | \$50,000 <sup>3</sup> |
| 3. Greater than 50 percent over the allowable standard    | NM | \$10,000 <sup>3</sup> | \$20,000 <sup>3</sup> | \$50,000 <sup>3</sup> | \$50,000 <sup>3</sup> |

...

5.-9. (No change.)

10. The violations of N.J.A.C. 7:27-10, Sulfur in Solid Fuels, and the civil administrative penalty amounts for each violation, per source, are as set forth in the following table:

Citation	Class	Type of Violation	First Offense	Second Offense	Third Offense	Fourth and Each Subsequent Offense
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<u>N.J.A.C. 7:27-10.2(h) and 10.5(a), (b) and (c)</u>	<u>Conditions and Provisions Detected by Continuous Monitoring System</u>	<u>See N.J.A.C. 7:27A-3.10(n) for the calculation of civil administrative penalties.</u>				
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<sup>3</sup> Revoke Certificate to Operate Under N.J.A.C. 7:27-8 (if applicable)

11.-15. (No change.)

16. The violations of N.J.A.C. 7:27-16, Control and Prohibition of Air Pollution by Volatile Organic Compounds (VOC), and the civil administrative penalty amounts for each violation, are as set forth in the following table:

Citation	Class	Type of Violation	First Offense	Second Offense	Third Offense	Fourth and Each Subsequent Offense
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Citation	Class	Type of Violation	First Offense	Second Offense	Third Offense	Fourth and Each Subsequent Offense
[N.J.A.C. 7:27-16.2(g)	Floating Roof	NM	\$2,000 <sup>3</sup>	\$4,000	\$10,000 <sup>3</sup>	\$30,000 <sup>3</sup>
N.J.A.C. 7:27-16.2(h)	Seal-Envelope	NM	\$2,000 <sup>3</sup>	\$4,000	\$10,000 <sup>3</sup>	\$30,000 <sup>3</sup>
N.J.A.C. 7:27-16.2(i)	Roof Openings	NM	\$600 <sup>3</sup>	\$1,200	\$3,000 <sup>3</sup>	\$9,000 <sup>3</sup>
N.J.A.C. 7:27-16.2(k)	Records	M	\$500 <sup>3</sup>	\$1,000	\$2,500 <sup>3</sup>	\$7,500 <sup>3</sup> ]
<u>N.J.A.C. 7:27-16.2(l)1</u>	<u>Install and maintain gaskets, covers, sleeves and openings</u>	<u>NM</u>	<u>\$600<sup>3</sup></u>	<u>\$1,200<sup>3</sup></u>	<u>\$3,000<sup>3</sup></u>	<u>\$9,000<sup>3</sup></u>
<u>N.J.A.C. 7:27-16.2(l)2</u>	<u>Install and maintain rim seal system</u>	<u>NM</u>	<u>\$2,000<sup>3</sup></u>	<u>\$4,000<sup>3</sup></u>	<u>\$10,000<sup>3</sup></u>	<u>\$30,000<sup>3</sup></u>
<u>N.J.A.C. 7:27-16.2(l)4</u>	<u>Install domed roof</u>	<u>NM</u>	<u>\$2,000<sup>3</sup></u>	<u>\$4,000<sup>3</sup></u>	<u>\$10,000<sup>3</sup></u>	<u>\$30,000<sup>3</sup></u>
<u>N.J.A.C. 7:27-16.2(l)5iii</u>	<u>Maintain vapor space LEL</u>	<u>NM</u>	<u>\$600<sup>3</sup></u>	<u>\$1,200<sup>3</sup></u>	<u>\$3,000<sup>3</sup></u>	<u>\$9,000<sup>3</sup></u>
<u>N.J.A.C. 7:27-16.2(l)6i</u>	<u>Install and maintain rim seal system</u>	<u>NM</u>	<u>\$2,000<sup>3</sup></u>	<u>\$4,000<sup>3</sup></u>	<u>\$10,000<sup>3</sup></u>	<u>\$30,000<sup>3</sup></u>
<u>N.J.A.C. 7:27-16.2(l)6ii</u>	<u>Maintain vapor space LEL</u>	<u>NM</u>	<u>\$600<sup>3</sup></u>	<u>\$1,200<sup>3</sup></u>	<u>\$3,000<sup>3</sup></u>	<u>\$9,000<sup>3</sup></u>
<u>N.J.A.C. 7:27-16.2(l)7i, ii, iii, v, vi</u>	<u>Install and maintain gaskets, covers, sleeves, openings and vapor space</u>	<u>NM</u>	<u>\$600<sup>3</sup></u>	<u>\$1,200<sup>3</sup></u>	<u>\$3,000<sup>3</sup></u>	<u>\$9,000<sup>3</sup></u>
<u>N.J.A.C. 7:27-16.2(l)7iv</u>	<u>Install and maintain rim seal system</u>	<u>NM</u>	<u>\$2,000<sup>3</sup></u>	<u>\$4,000<sup>3</sup></u>	<u>\$10,000<sup>3</sup></u>	<u>\$30,000<sup>3</sup></u>
<u>N.J.A.C. 7:27-16.2(l)8</u>	<u>Install and maintain floating roof or equivalent</u>	<u>NM</u>	<u>\$2,000<sup>3</sup></u>	<u>\$4,000<sup>3</sup></u>	<u>\$10,000<sup>3</sup></u>	<u>\$30,000<sup>3</sup></u>
<u>N.J.A.C. 7:27-16.2(l)9</u>	<u>Replace primary seal</u>	<u>NM</u>	<u>\$2,000<sup>3</sup></u>	<u>\$4,000<sup>3</sup></u>	<u>\$10,000<sup>3</sup></u>	<u>\$30,000<sup>3</sup></u>
<u>N.J.A.C. 7:27-16.2(l)10</u>	<u>Replace secondary Seal</u>	<u>NM</u>	<u>\$2,000<sup>3</sup></u>	<u>\$4,000<sup>3</sup></u>	<u>\$10,000<sup>3</sup></u>	<u>\$30,000<sup>3</sup></u>
<u>N.J.A.C. 7:27-16.2(l)11</u>	<u>Install and maintain covers and openings</u>	<u>NM</u>	<u>\$600<sup>3</sup></u>	<u>\$1,200<sup>3</sup></u>	<u>\$3,000<sup>3</sup></u>	<u>\$9,000<sup>3</sup></u>
<u>N.J.A.C.</u>	<u>Install and maintain</u>	<u>NM</u>	<u>\$2,000<sup>3</sup></u>	<u>\$4,000<sup>3</sup></u>	<u>\$10,000<sup>3</sup></u>	<u>\$30,000<sup>3</sup></u>

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Citation	Class	Type of Violation	First Offense	Second Offense	Third Offense	Fourth and Each Subsequent Offense
<u>7:27-16.2(l)12</u> <u>N.J.A.C.</u>	<u>floating roof</u> <u>Install and maintain covers and openings</u>	<u>NM</u>	<u>\$600<sup>3</sup></u>	<u>\$1,200<sup>3</sup></u>	<u>\$3,000<sup>3</sup></u>	<u>\$9,000<sup>3</sup></u>
<u>7:27-16.2(l)13</u> <u>N.J.A.C.</u>	<u>Internal floating roof</u>	<u>NM</u>	<u>\$2,000<sup>3</sup></u>	<u>\$4,000<sup>3</sup></u>	<u>\$10,000<sup>3</sup></u>	<u>\$30,000<sup>3</sup></u>
<u>7:27-16.2(m)</u> <u>N.J.A.C.</u>	<u>Roof Landings</u>	<u>NM</u>	<u>\$2,000<sup>3</sup></u>	<u>\$4,000<sup>3</sup></u>	<u>\$10,000<sup>3</sup></u>	<u>\$30,000<sup>3</sup></u>
<u>7:27-16.2(n) and (o)</u> <u>N.J.A.C.</u>	<u>Submit control plan</u>	<u>NM</u>	<u>\$600<sup>3</sup></u>	<u>\$1,200<sup>3</sup></u>	<u>\$3,000<sup>3</sup></u>	<u>\$9,000<sup>3</sup></u>
<u>7:27-16.2(p)</u> <u>N.J.A.C.</u>	<u>Storage tank degassing and cleaning</u>	<u>NM</u>	<u>\$2,000<sup>3</sup></u>	<u>\$4,000<sup>3</sup></u>	<u>\$10,000<sup>3</sup></u>	<u>\$30,000<sup>3</sup></u>
<u>7:27-16.2(q)</u> <u>N.J.A.C.</u>	<u>Inspect storage tank</u>	<u>NM</u>	<u>\$600<sup>3</sup></u>	<u>\$1,200<sup>3</sup></u>	<u>\$3,000<sup>3</sup></u>	<u>\$9,000<sup>3</sup></u>
<u>7:27-16.2(r)</u> <u>N.J.A.C.</u>	<u>Maintain storage tank</u>	<u>NM</u>	<u>\$2,000<sup>3</sup></u>	<u>\$4,000<sup>3</sup></u>	<u>\$10,000<sup>3</sup></u>	<u>\$30,000<sup>3</sup></u>
<u>7:27-16.2(r)6</u> <u>N.J.A.C.</u>	<u>Maintain records</u>	<u>M</u>	<u>\$500<sup>3</sup></u>	<u>\$1,000<sup>3</sup></u>	<u>\$2,500<sup>3</sup></u>	<u>\$7,500<sup>3</sup></u>
<u>7:27-16.2(s)</u> <u>N.J.A.C.</u>	<u>Maintain records</u>	<u>M</u>	<u>\$500<sup>3</sup></u>	<u>\$1,000<sup>3</sup></u>	<u>\$2,500<sup>3</sup></u>	<u>\$7,500<sup>3</sup></u>
<u>7:27-16.2(t)</u> <u>N.J.A.C.</u>	<u>Submit report</u>	<u>M</u>	<u>\$500<sup>3</sup></u>	<u>\$1,000<sup>3</sup></u>	<u>\$2,500<sup>3</sup></u>	<u>\$7,500<sup>3</sup></u>
<u>7:27-16.2(u)</u>						

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N.J.A.C. 7:27-16.7(r) and (s)

CLASS Letterpress and lithographic printing

Maximum Actual Emissions

For less than 10 pounds per hour:

<u>1. Less than 25 percent over the allowable standard</u>	<u>NM</u>	<u>\$2,000<sup>3</sup></u>	<u>\$4,000<sup>3</sup></u>	<u>\$10,000<sup>3</sup></u>	<u>\$30,000<sup>3</sup></u>
<u>2. From 25 through 50 percent over the allowable standard</u>	<u>NM</u>	<u>\$4,000<sup>3</sup></u>	<u>\$8,000<sup>3</sup></u>	<u>\$20,000<sup>3</sup></u>	<u>\$50,000<sup>3</sup></u>
<u>3. Greater than 50 percent over the allowable standard</u>	<u>NM</u>	<u>\$8,000<sup>3</sup></u>	<u>\$16,000<sup>3</sup></u>	<u>\$40,000<sup>3</sup></u>	<u>\$50,000<sup>3</sup></u>

From 10 pounds through 22.8 pounds

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**per hour:**

<b><u>1. Less than 25 percent over the allowable standard</u></b>	<b><u>NM</u></b>	<b><u>\$6,000<sup>3</sup></u></b>	<b><u>\$12,000<sup>3</sup></u></b>	<b><u>\$30,000<sup>3</sup></u></b>	<b><u>\$50,000<sup>3</sup></u></b>
<b><u>2. From 25 through 50 percent over the allowable standard</u></b>	<b><u>NM</u></b>	<b><u>\$8,000<sup>3</sup></u></b>	<b><u>\$16,000<sup>3</sup></u></b>	<b><u>\$40,000<sup>3</sup></u></b>	<b><u>\$50,000<sup>3</sup></u></b>
<b><u>3. Greater than 50 percent over the allowable standard</u></b>	<b><u>NM</u></b>	<b><u>\$10,000<sup>3</sup></u></b>	<b><u>\$20,000<sup>3</sup></u></b>	<b><u>\$50,000<sup>3</sup></u></b>	<b><u>\$50,000<sup>3</sup></u></b>

**For greater than 22.8 pounds per hour:**

<b><u>1. Less than 25 percent over the allowable standard</u></b>	<b><u>NM</u></b>	<b><u>\$8,000<sup>3</sup></u></b>	<b><u>\$16,000<sup>3</sup></u></b>	<b><u>\$40,000<sup>3</sup></u></b>	<b><u>\$50,000<sup>3</sup></u></b>
<b><u>2. From 25 through 50 percent over the allowable standard</u></b>	<b><u>NM</u></b>	<b><u>\$10,000<sup>3</sup></u></b>	<b><u>\$20,000<sup>3</sup></u></b>	<b><u>\$50,000<sup>3</sup></u></b>	<b><u>\$50,000<sup>3</sup></u></b>
<b><u>3. Greater than 50 percent over the allowable standard</u></b>	<b><u>NM</u></b>	<b><u>\$10,000<sup>3</sup></u></b>	<b><u>\$20,000<sup>3</sup></u></b>	<b><u>\$50,000<sup>3</sup></u></b>	<b><u>\$50,000<sup>3</sup></u></b>

<b><u>N.J.A.C. 7:27-16.7(t)</u></b>	<b><u>Best management practices</u></b>	<b><u>NM</u></b>	<b><u>\$500.00</u></b>	<b><u>\$1,000</u></b>	<b><u>\$2,500</u></b>	<b><u>\$7,500</u></b>
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<b><u>N.J.A.C. 7:27-16.19(a)</u></b>	<b><u>Cutback and Emulsified Asphalt</u></b>	<b><u>NM</u></b>	<b><u>\$1,000</u></b>	<b><u>\$2,000</u></b>	<b><u>\$5,000</u></b>	<b><u>\$15,000</u></b>
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<b><u>N.J.A.C. 7:27-16.19(b)</u></b>	<b><u>Storage</u></b>	<b><u>NM</u></b>	<b><u>\$500<sup>3</sup></u></b>	<b><u>\$1,000</u></b>	<b><u>\$2,500</u></b>	<b><u>\$7,500</u></b>
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<sup>3</sup> Revoke Certificate to Operate Under N.J.A.C. 7:27-8 (if applicable)

17.-18. (No change.)

19. The violations of N.J.A.C. 7:27-19, Control and Prohibition of Air Pollution from Oxides of Nitrogen, and the civil administrative penalty amounts for each violation, are as set forth in the following table:

<b><u>Citation</u></b>	<b><u>Class</u></b>	<b><u>Type of Violation</u></b>	<b><u>First Offense</u></b>	<b><u>Second Offense</u></b>	<b><u>Third Offense</u></b>	<b><u>Fourth and Each Subsequent Offense</u></b>
...						
<b><u>N.J.A.C. 7:27-19.4(c)</u></b>	<b><u>Adjust Combustion</u></b>	<b><u>NM</u></b>	<b><u>\$2,000</u></b>	<b><u>\$4,000</u></b>	<b><u>\$10,000</u></b>	<b><u>\$30,000</u></b>
<b><u>N.J.A.C. 7:27-19.4(e)</u></b>	<b><u>Submit report</u></b>	<b><u>M</u></b>	<b><u>\$2,000</u></b>	<b><u>\$4,000</u></b>	<b><u>\$10,000</u></b>	<b><u>\$30,000</u></b>

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Citation	Class	Type of Violation	First Offense	Second Offense	Third Offense	Fourth and Each Subsequent Offense
<b><u>N.J.A.C. 7:27-19.4(f)</u></b>	<b><u>Submit HEDD plan and updates</u></b>	<b><u>M</u></b>	<b><u>\$2,000</u></b>	<b><u>\$4,000</u></b>	<b><u>\$10,000</u></b>	<b><u>\$30,000</u></b>
...						
N.J.A.C. 7:27-19.5(d) <b><u>and (g)</u></b>	Actual Emission (pounds per megawatt hour):					
	3-10 MW Turbine					
	1. Less than 25 percent over the allowable standard	<b><u>NM</u></b>	\$2,000	\$4,000	\$10,000	\$30,000
	2. From 25 through 50 percent over the allowable standard	<b><u>NM</u></b>	\$4,000	\$8,000	\$20,000	\$50,000
	3. Greater than 50 percent over the allowable standard	<b><u>NM</u></b>	\$8,000	\$16,000	\$40,000	\$50,000
	11-50 MW Turbine					
	1. Less than 25 percent over the allowable standard	<b><u>NM</u></b>	\$6,000	\$12,000	\$30,000	\$50,000
	2. From 25 through 50 percent over the allowable standard	<b><u>NM</u></b>	\$8,000	\$16,000	\$40,000	\$50,000
	3. Greater than 50 percent over the allowable standard	<b><u>NM</u></b>	\$10,000	\$20,000	\$50,000	\$50,000
	Greater than 50 MW Turbine					
	1. Less than 25 percent over the allowable standard	<b><u>NM</u></b>	\$8,000	\$16,000	\$40,000	\$50,000
	2. From 25 through 50 percent over the allowable standard	<b><u>NM</u></b>	\$10,000	\$20,000	\$50,000	\$50,000
	3. Greater than 50 percent over the allowable standard	<b><u>NM</u></b>	\$10,000	\$20,000	\$50,000	\$50,000
N.J.A.C. 7:27-19.5(e)	Adjust Combustion Process	<b><u>NM</u></b>	\$2,000	\$4,000	\$10,000	\$30,000
<b><u>N.J.A.C. 7:27-19.5(h)</u></b>	<b><u>Actual Emission (pounds per megawatt hour):</u></b>					
	<b><u>3-10 MW Turbine HEDD Unit</u></b>					
	<b><u>1. Less than 25 percent over the allowable standard</u></b>	<b><u>NM</u></b>	<b><u>\$2,000</u></b>	<b><u>\$4,000</u></b>	<b><u>\$10,000</u></b>	<b><u>\$30,000</u></b>

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Citation	Class	Type of Violation	First Offense	Second Offense	Third Offense	Fourth and Each Subsequent Offense
	<b><u>2. From 25 through 50 percent over the allowable standard</u></b>	<b><u>NM</u></b>	<b><u>\$4,000</u></b>	<b><u>\$8,000</u></b>	<b><u>\$20,000</u></b>	<b><u>\$50,000</u></b>
	<b><u>3. Greater than 50 percent over the allowable standard</u></b>	<b><u>NM</u></b>	<b><u>\$8,000</u></b>	<b><u>\$16,000</u></b>	<b><u>\$40,000</u></b>	<b><u>\$50,000</u></b>
	<b><u>11-50 MW Turbine HEDD Unit</u></b>					
	<b><u>1. Less than 25 percent over the allowable standard</u></b>	<b><u>NM</u></b>	<b><u>\$6,000</u></b>	<b><u>\$12,000</u></b>	<b><u>\$30,000</u></b>	<b><u>\$50,000</u></b>
	<b><u>2. From 25 through 50 percent over the allowable standard</u></b>	<b><u>NM</u></b>	<b><u>\$8,000</u></b>	<b><u>\$16,000</u></b>	<b><u>\$40,000</u></b>	<b><u>\$50,000</u></b>
	<b><u>3. Greater than 50 percent over the allowable standard</u></b>	<b><u>NM</u></b>	<b><u>\$10,000</u></b>	<b><u>\$20,000</u></b>	<b><u>\$50,000</u></b>	<b><u>\$50,000</u></b>
	<b><u>Greater than 50 MW Turbine HEDD Unit</u></b>					
	<b><u>1. Less than 25 percent over the allowable standard</u></b>	<b><u>NM</u></b>	<b><u>\$8,000</u></b>	<b><u>\$16,000</u></b>	<b><u>\$40,000</u></b>	<b><u>\$50,000</u></b>
	<b><u>2. From 25 through 50 percent over the allowable standard</u></b>	<b><u>NM</u></b>	<b><u>\$10,000</u></b>	<b><u>\$20,000</u></b>	<b><u>\$50,000</u></b>	<b><u>\$50,000</u></b>
	<b><u>3. Greater than 50 percent over the allowable standard</u></b>	<b><u>NM</u></b>	<b><u>\$10,000</u></b>	<b><u>\$20,000</u></b>	<b><u>\$50,000</u></b>	<b><u>\$50,000</u></b>
<b><u>N.J.A.C. 7:27-19.5(j)</u></b>	<b><u>Demonstrate compliance</u></b>	<b><u>M</u></b>	<b><u>\$2,000</u></b>	<b><u>\$4,000</u></b>	<b><u>\$10,000</u></b>	<b><u>\$30,000</u></b>
<b><u>N.J.A.C. 7:27-19.5(k) and (l)</u></b>	<b><u>Submit reduction plan and updates</u></b>	<b><u>M</u></b>	<b><u>\$2,000</u></b>	<b><u>\$4,000</u></b>	<b><u>\$10,000</u></b>	<b><u>\$30,000</u></b>
...						
[N.J.A.C. 7:27-19.7(a)]	Adjust combustion process	NM	\$2,000	\$4,000	\$10,000	\$30,000
N.J.A.C. 7:27-19.7(b) or (c)	Industrial/Commercial/ Institutional boilers and other indirect heat exchangers					

Actual Emission (pounds per million BTU):

Less than 25 MMBTU per hour

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1. Less than 25 percent over the allowable standard	NM	\$2,000	\$4,000	\$10,000	\$30,000
2. From 25 through 50 percent over the allowable standard	NM	\$4,000	\$8,000	\$20,000	\$50,000
3. Greater than 50 percent over the allowable standard	NM	\$8,000	\$16,000	\$40,000	\$50,000

25-50 MMBTU per hour

1. Less than 25 percent over the allowable standard	NM	\$6,000	\$12,000	\$30,000	\$50,000
2. From 25 through 50 percent over the allowable standard	NM	\$8,000	\$16,000	\$40,000	\$50,000
3. Greater than 50 percent over the allowable standard	NM	\$10,000	\$20,000	\$50,000	\$50,000

Greater than 50 MMBTU per hour

1. Less than 25 percent over the allowable standard	NM	\$8,000	\$16,000	\$40,000	\$50,000
2. From 25 through 50 percent over the allowable standard	NM	\$10,000	\$20,000	\$50,000	\$50,000
3. Greater than 50 percent over the allowable standard	NM	\$10,000	\$20,000	\$50,000	\$50,000]

N.J.A.C. Heat input rate of  
7:27-19.7(d) [or (e)] 250 MMBTU per  
hour or greater

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	Failure to install CEM	NM	\$10,000	\$20,000	\$50,000	\$50,000
	[Heat input rate of 50 MMBTU to less than 250 MMBTU per hour					
	Adjust combustion process or install CEM	NM	\$2,000	\$4,000	\$10,000	\$30,000]
N.J.A.C. 7:27-19.7(g)1	Adjust Combustion 5-10 million BTU per hour	<u>NM</u>	\$500	\$1,000	\$2,500	\$7,500
N.J.A.C. 7:27-19.7(g)2	Adjust Combustion 10-20 million BTU per hour	<u>NM</u>	\$1,000	\$2,000	\$5,000	\$15,000
N.J.A.C. 7:27-19.7(g)3	Adjust Combustion 20 million BTU per hour or greater	<u>NM</u>	\$2,000	\$4,000	\$10,000	\$30,000
N.J.A.C. 7:27-19.7(h)	Actual Emissions (pounds per million BTU)					
	1. Less than 25 percent over the allowable standard	<u>NM</u>	\$8,000	\$16,000	\$40,000	\$50,000
	2. From 25 through 50 percent over the allowable standard	<u>NM</u>	\$10,000	\$20,000	\$50,000	\$50,000
	3. Greater than 50 percent over the allowable standard	<u>NM</u>	\$10,000	\$20,000	\$50,000	\$50,000
<b><u>N.J.A.C. 7:27-19.7(i) Actual Emissions (pounds per million BTU)</u></b>						
<b><u>25-100 MMBTU per hour</u></b>						
	<b><u>1. Less than 25 percent over the allowable standard</u></b>	<u>NM</u>	<u>\$6,000</u>	<u>\$12,000</u>	<u>\$30,000</u>	<u>\$50,000</u>
	<b><u>2. From 25 through 50 percent over the allowable standard</u></b>	<u>NM</u>	<u>\$8,000</u>	<u>\$16,000</u>	<u>\$40,000</u>	<u>\$50,000</u>
	<b><u>3. Greater than 50 percent over the</u></b>	<u>NM</u>	<u>\$10,000</u>	<u>\$20,000</u>	<u>\$50,000</u>	<u>\$50,000</u>

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**allowable standard**

**Greater than 100 MMBTU per hour**

<b><u>1. Less than 25 percent over the allowable standard</u></b>	<b><u>NM</u></b>	<b><u>\$8,000</u></b>	<b><u>\$16,000</u></b>	<b><u>\$40,000</u></b>	<b><u>\$50,000</u></b>
<b><u>2. From 25 through 50 percent over the allowable standard</u></b>	<b><u>NM</u></b>	<b><u>\$10,000</u></b>	<b><u>\$20,000</u></b>	<b><u>\$50,000</u></b>	<b><u>\$50,000</u></b>
<b><u>3. Greater than 50 percent over the allowable standard</u></b>	<b><u>NM</u></b>	<b><u>\$10,000</u></b>	<b><u>\$20,000</u></b>	<b><u>\$50,000</u></b>	<b><u>\$50,000</u></b>

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<b><u>N.J.A.C. 7:27-19.9(d)</u></b>	<b><u>Perform best management practice</u></b>	<b><u>NM</u></b>	<b><u>\$1,200</u></b>	<b><u>\$2,400</u></b>	<b><u>\$6,000</u></b>	<b><u>\$18,000</u></b>
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<b><u>N.J.A.C. 7:27-19.9(e)</u></b>	<b><u>Record best management practice</u></b>	<b><u>M</u></b>	<b><u>\$1,200</u></b>	<b><u>\$2,400</u></b>	<b><u>\$6,000</u></b>	<b><u>\$18,000</u></b>
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<b><u>N.J.A.C. 7:27-19.12(a)</u></b>	<b><u>MSW Incinerator Conditions and Provisions Detected by Continuous Monitoring System</u></b>	<b><u>See N.J.A.C. 7:27A-3.10(n) for the calculation of civil administrative penalties.</u></b>				
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<b><u>N.J.A.C. 7:27-19.15(c) and (e)</u></b>	<b><u>Demonstrate Compliance</u></b>	<b><u>M</u></b>	<b><u>\$2,000</u></b>	<b><u>\$4,000</u></b>	<b><u>\$10,000</u></b>	<b><u>\$30,000</u></b>
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**N.J.A.C. 7:27-19.28 Sewage Sludge Incinerators**

**Maximum Actual Emissions**

**For less than 5.7 pounds per hour for VOC and NO<sub>x</sub>:**

<b><u>1. Less than 25 percent over the allowable standard</u></b>	<b><u>NM</u></b>	<b><u>\$6,000</u></b>	<b><u>\$12,000</u></b>	<b><u>\$30,000</u></b>	<b><u>\$50,000</u></b>
	<b><u>NM</u></b>	<b><u>\$8,000</u></b>	<b><u>\$16,000</u></b>	<b><u>\$40,000</u></b>	<b><u>\$50,000</u></b>

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**2. From 25 through 50 percent over the allowable standard**

**3. Greater than 50 percent over the allowable standard**      **NM**      **\$10,000**      **\$20,000**      **\$50,000**      **\$50,000**

**For greater than 5.7 pounds per hour NO<sub>x</sub>**

**1. Less than 25 percent over the allowable standard**      **NM**      **\$8,000**      **\$16,000**      **\$40,000**      **\$50,000**

**2. From 25 through 50 percent over the allowable standard**      **NM**      **\$10,000**      **\$20,000**      **\$50,000**      **\$50,000**

**3. Greater than 50 percent over the allowable standard**      **NM**      **\$10,000**      **\$20,000**      **\$50,000**      **\$50,000**

**N.J.A.C. 7:27-19.29(b)1**      **Submit Plan**      **M**      **\$2,000**      **\$4,000**      **\$10,000**      **\$30,000**

**N.J.A.C. 7:27-19.29(b)2 and 3**      **Implement Plan**      **NM**      **\$10,000**      **\$20,000**      **\$50,000**      **\$50,000**

**N.J.A.C. 7:27-19.29(i)**      **Submit Report**      **M**      **\$2,000**      **\$4,000**      **\$10,000**      **\$30,000**

**N.J.A.C. 7:27-19.29(k)**      **Submit Permit Application**      **M**      **\$2,000**      **\$4,000**      **\$10,000**      **\$30,000**

**N.J.A.C. 7:27-19.30(a)**      **Submit Plan**      **M**      **\$2,000**      **\$4,000**      **\$10,000**      **\$30,000**

**N.J.A.C. 7:27-19.30(c)**      **Submit Report**      **M**      **\$2,000**      **\$4,000**      **\$10,000**      **\$30,000**

20.-32. (No change.)

(n)-(t) (No change.)