

State of New Jersey

**Department of Environmental Protection
Air Quality Permitting**

**General Permit (GP 021)
Combined Heat and Power Combustion Turbine(s) less than
or equal to
65 MMBTU per hour**

This General Permit allows for the construction, installation, reconstruction, modification and operation of:

- A single Combined Heat and Power (CHP) combustion turbine, with or without duct burner, having a combined maximum heat input rate less than or equal to 65 million BTU per hour (MMBtu/hr) based on the higher heating value (HHV) of the fuel; or
- Multiple CHP combustion turbines, with or without duct burners, having a combined maximum heat input rate less than or equal to 65 MMBtu/hr based on the HHV of the fuel.

The potential to emit (PTE) for the equipment covered under this General Permit shall be established based on the General Permit Number selected by the Permittee on the Registration Form.

Each facility may possess only one GP-021 at any time. If a facility wants to replace or make changes to an existing source that's already registered under GP-021, then a new General Permit registration is required. This new General Permit registration will supersede the existing General Permit.

This General Permit can only be used for CHP combustion turbine unit with total designed Efficiency (E) greater than or equal to 65 percent.

This General Permit is applicable to a single or multiple CHP combustion turbine(s) with or without duct burner combusting the following gaseous or liquid fuels: natural gas or propane as gaseous fuel and kerosene or distillate oil as liquid fuel.

The maximum allowable sulfur content in kerosene and distillate oil shall be less than or equal to 0.0015 percent (15 parts per million) by weight.

I. DEFINITIONS

The terms used in this General Permit shall have the meanings given to them in N.J.A.C. 7:27-et seq. or as defined below:

"Combined heat and power combustion turbine unit" means a unit in which excess, or byproduct heat energy produced by combustion turbine(s), with or without duct burner(s), can be used in direct process applications or indirectly to produce steam, or other useful heat recovery not used for performance enhancement of the combustion turbine.

"Continuous emissions monitoring system" or "CEMS" means a device that continuously measures the emissions from one or more source operations.

"Department" means the New Jersey Department of Environmental Protection.

"Distillate Oil" means Number 2 fuel oil or diesel.

"Duct burner" means a piece of equipment used with a combustion turbine or a stationary reciprocating engine to increase the steam generating capacity of heat recovery steam generators. A duct burner consists of pipes and small burners that are placed in the exhaust duct upstream of the heat recovery steam generator. The duct burner allows firing of fuel to supplement the exhaust heat energy of the turbine or engine. A duct burner is a type of indirect heat exchanger.

"Fuel transfer" means the period of time from initiation of the transfer process in the combustion turbine between natural gas and liquid fuel to the completion of this process, not to exceed 30 minutes.

"Maximum heat input rate" means, for a given piece of fuel burning equipment, its maximum steady state fuel firing rate, in BTU per hour of gross heat input based on the fuel's higher heating value (HHV), as determined by the design rating of the equipment manufacturer. Fuel limiting device such as an orifice plate restriction, control valve limiting mechanism, or any device can not be used to lower the maximum design heat input rating.

"NSPS KKKK" means Standards of Performance for New Stationary Sources as promulgated under 40 CFR 60, commonly referred to as New Source Performance Standards, applicable to a stationary combustion turbine with a heat input at peak load equal to or greater than 10 MMBtu/hr, that commences construction, modification, or reconstruction after February 18, 2005.

"Shutdown of combustion turbine" means the period of time from initial lowering of combustion turbine output to below 50 percent of full load to the cessation of combustion turbine operation not to exceed 30 minutes.

“**Start-up of combustion turbine**” means the period of time from initiation of combustion turbine operation until it reaches a steady state of 50 percent full load conditions, not to exceed 60 minutes.

II. AUTHORITY

This General Permit is issued under the authority granted to Air Quality Permitting pursuant to N.J.S.A. 26:2C-9.2. This General Permit shall allow for inspections and evaluations to assure conformance with all applicable provisions of N.J.A.C. 7:27 et seq., NSPS Subpart A and NSPS Subpart KKKK. An opportunity for public comment on this General Permit was provided on November 1, 2010.

III. APPLICABILITY

This General Permit allows for the construction, installation, reconstruction, modification and operation of:

- A single Combined Heat and Power (CHP) combustion turbine, with or without duct burner, having a combined maximum heat input rate less than or equal to 65 MMBtu/hr based on the HHV of the fuel; or
- Multiple CHP combustion turbines, with or without duct burners, having a combined maximum heat input rate less than or equal to 65 MMBtu/hr based on the HHV of the fuel.

The potential to emit (PTE) for the equipment covered under this General Permit shall be established based on the General Permit Number selected by the Permittee on the Registration Form.

Each facility may possess only one GP-021 at any time. If a facility wants to replace or make changes to an existing source that’s already registered under GP-021, then a new General Permit registration is required. This new General Permit registration will supersede the existing General Permit.

This General Permit can only be used for CHP combustion turbine unit with total design Efficiency (E) greater than or equal to 65 percent.

The total design efficiency of the combined heat and power units shall be calculated using equations [eq1], [eq2], and [eq3] in accordance with NSPS KKKK shown below:

$$E = P / (\text{Fuel Input} / 3.413 \times 10^6 \text{ Btu/MW-hr}) \text{-----} [\text{eq1}]$$

$$P = (P_e)t + P_s + P_o \text{-----} [\text{eq2}]$$

Where:

P = gross energy output of the combustion turbine system in MW

Fuel Input = amount of fuel used by the turbine and the duct burner in Btu/hr

(Pe)t = electrical energy output of the combustion turbine in MW

Ps = is the useful thermal energy of the steam measured relative to ISO conditions, not used to generate additional electric or mechanical output, in MW, calculated as follows:

$$P_s = Q \times H / (3.413 \times 10^6 \text{ Btu/MWh}) \text{ ----- [eq3]}$$

Where:

Q = measured steam flow rate in lb/hr

H = enthalpy of the steam at measured temperature and pressure relative to ISO conditions in Btu/lb, and,

3.413×10^6 = conversion from Btu/hr to MW

Po = is the other useful heat recovery, measured relative to ISO conditions, not used for steam generation or performance enhancement of the combustion turbine.

This General Permit is applicable to a CHP combustion turbine with or without duct burner combusting the following gaseous or liquid fuels: natural gas or propane as gaseous fuel and Kerosene or Distillate oil as liquid fuel.

The maximum allowable sulfur content in kerosene and distillate oil shall be less than or equal to 0.0015 percent (15 parts per million) by weight.

IV. MONITORING, RECORDKEEPING AND REPORTING

This General Permit includes monitoring requirements using stack emissions testing and/or continuous emissions monitoring system (CEMS), as well as recordkeeping and reporting requirements that are sufficient to demonstrate the facility's compliance with the applicable State and Federal requirements consistent with the following:

1. Provisions to implement the testing and monitoring requirements of N.J.A.C. 7:27-8.13, the recordkeeping and reporting requirements of N.J.A.C. 7:27-8.13(d)(4), and all emissions monitoring and analysis procedures or compliance assurance methods required under the applicable requirements.
2. This General Permit requires initial stack testing for compliance with CO, NOx, and VOC limits for turbine units with maximum heat input rate less than or equal to 65 MMBtu/hr (HHV). Subsequent compliance with NOx and CO limits will be demonstrated through one of the following two methods:

Monitoring Method 1. Annual stack emission testing

Monitoring Method 2. CEMS.

3. The provisions of NSPS KKKK also require initial stack testing to comply with NSPS KKKK NO_x limit and subsequent compliance will be demonstrated either through the use of CEMS or annual stack emissions testing. See monitoring, recordkeeping and reporting requirements in Compliance Plan at Section VIII.

Eligibility for this General Permit is based on maximum heat input rate and the amount of each fuel used. Permittees are required to monitor the amount of each fuel used and maintain documentation of the maximum heat input rate for the combustion turbine and the duct burner on site. The combustion turbine and the duct burner's potential to emit and the amount of each fuel used are based on the General Permit Number under Options Table 2 for CHP-Turbine selected in Section VII.

The provisions in the General Procedures for General Permits, located at www.state.nj.us/dep/aqpp, apply to the equipment covered by this General Permit.

V. EXCLUSIONS

In addition to the exclusions specified in the General Procedures for General Permits, this General Permit may not be used where annual emissions of any air contaminant from the General Permit would increase emissions from the facility by such amounts that would make the facility subject to the requirements pursuant to N.J.A.C. 7:27-18 (Emission Offset Rule) or 40 CFR 51, Appendix S (Emission Offset Interpretative Ruling), 40 CFR 52.21 (PSD), or make the facility a major source of HAPs as defined in 40 CFR 63 (National Emission Standards for Hazardous Air Pollutants for Source Categories).

Any facility that obtains General Permit(s) must determine that each General Permit does not trigger N.J.A.C. 7:27-18 (Emission Offset Rule) or 40 CFR 51, Appendix S (Emission Offset Interpretative Ruling), 40 CFR 52 (PSD), or make the facility a major source for HAPs as defined in 40 CFR 63 (National Emission Standards for Hazardous Air Pollutants for Source Categories). The basis for this determination must be kept on site and included with the next Permit modification that increases actual emissions. If found that the General Permit has caused the facility to be subject to the above regulations, the authorization contained in the General Permit is null and void and installation of equipment under this General Permit will subject the facility to **appropriate** enforcement action.

This General Permit can not be used to register the following equipment:

1. Simple cycle turbines or Combined cycle turbines that are used exclusively for producing electricity.
2. Combustion turbines with duct burner or combustion turbines without the duct burner with a maximum gross heat input rate greater than 65 MM BTU per hour (HHV) .

3. Combustion turbines or duct burner that combust fuels other than natural gas, propane, kerosene, and distillate oil. Fuels that are not allowed to be combusted include, but are not limited to, the following commercial fuels including fuels such as No. 4, No. 5 or No. 6 fuel oil, and non commercial fuels including such as crankcase oil, spec-oil, or any other used oils, landfill or refinery gas, facility byproducts, or any other type of waste materials, exclusively or in mixtures with commercial fuels.
4. Direct-fired external combustion processes including but not limited to space heaters or process heaters associated with a manufacturing process;
5. Incinerators, furnaces, kettles, crucibles, stills, roasters, re-boilers, engines, kilns, and other combustion equipment that does not meet the applicability criteria in Section III.
6. Duct burner operating independently from the combustion turbine.

VI. EQUIPMENT/CONTROL SPECIFICATIONS

The permittee shall retain on site the following specifications for each CHP combustion turbine unit:

1. The maximum heat input rate of each CHP combustion turbine unit, measured in millions BTU/hr (HHV), per written manufacturer's specifications or the manufacturer's nameplate on the equipment.
2. Each CHP combustion turbine unit must be designed to meet the emission levels summarized in Table 1 below with or without control apparatus.

Table 1: Emission Levels For Pollutants		
Fuel	Pollutant	Emission Levels PPMVD @ 15% O₂
Gaseous Fuel	Nitrogen Oxides (NO_x)	15.0
	Carbon Monoxide (CO)	50.0
	Volatile Organic Compounds (VOC)	25.0
	Ammonia (NH₃)	**5.00
*Liquid fuel	NO_x	65.0
	CO	50.0
	VOC	25.0
	NH₃	**5.00

* Sulfur content in liquid fuel is limited to a maximum of 0.0015 % by weight.

** Applicable when Selective Catalytic Reduction (SCR) is used for NO_x control.

3. Each CHP combustion turbine unit equipped with continuous emission monitors (CEMs) for NO_x and CO, and any process monitor must retain their manufacturer's specifications on site.
4. The stack of each CHP combustion turbine unit must have a height of at least 35 feet. Restrictions to the stack height ensure that the health risk associated with any HAPs will remain negligible.
5. Fuel flow rate and cumulative fuel use monitors are required.

VII. POTENTIAL TO EMIT (PTE)

1. There are four choices of General Permit Numbers under Annual fuel limits in Table 2 for Options listed below. Each General Permit Number has associated potential to emit (PTE) limits for criteria pollutants, in tons per year (tpy) with corresponding gaseous fuel usage in million cubic feet per year (MMCF/yr) and liquid fuel usage in gallons per year (gal/yr).

The annual PTE is based on the maximum allowable gaseous fuel limit plus backup liquid fuel limit based on a 12 consecutive month period (rolling one-month basis). Fuel totalizers and fuel flow monitors are required.

When registering for this General Permit, only one General Permit Number can be selected from one of the four General Permit Numbers listed under Table 2 Options Annual Fuel Limits. Selection of a General Permit Number establishes a permit potential to emit for the contaminants associated with that number.

2. The PTE limits for short term emissions in pound per hour (lb/hr) for each fuel(s) are calculated in the registration form, by entering the maximum heat input rate (HHV) of the CHP combustion turbine (s) and duct burner(s) if any, in the registration form. The maximum heat input rate should be the same as entered in Section D of the registration form.

The permittee should enter the maximum heat input rate (HHV) of the CHP combustion turbine (s) and duct burner(s) if any, into Section D of the registration form to get the pound per hour values of criteria pollutants and submit to the Department the completed registration form when registering for this General Permit. A separate Section D has to be filled out for each CHP combustion turbine (with or without duct burner).

Table 2: OPTIONS ANNUAL FUEL LIMITS POTENTIAL TO EMIT (IN TONS PER YEAR) ARE ESTABLISHED BY SELECTING THE TOTAL FUEL LIMIT FOR ALL COMBINED HEAT AND POWER COMBUSTION TURBINES AND DUCT BURNERS COMBUSTING ANY OF THE FUELS LISTED BELOW								
General Permit Number	(Natural Gas /Propane)	(Kerosene/ Distillate oil)	Total Suspended Particulates (TSP)	Particulate Matter (PM-10)	Sulfur Dioxide (SO ₂)	Carbon Monoxide (CO)	Volatile Organic Compounds (VOC)	Nitrogen Oxides (NO _x)
	MMcf/ yr	gallons/yr	tpy	tpy	tpy	tpy	tpy	tpy
CHP-021-1	105	11,630	1.15	1.15	0.184	6.09	1.74	3.16
CHP-021-2	210	23,261	2.29	2.29	0.464	15.5	3.48	6.33
CHP-021-3	314	34,981	3.44	3.44	0.696	23.3	5.22	9.5
CHP-021-4	412	45,746	4.50	4.50	0.910	30.5	6.85	12.5

NOTE:

“NSPS KKKK” calculations methods used to estimate emission rates at 65% total efficiency.

In order to determine compliance with the total gaseous fuel limit, any Permittee that combusts propane must convert gallons propane, using the following formula: annual volume of propane burned (in gallons) multiplied by the factor 37.0 = equivalent volume propane (in standard cubic feet.)

For SO₂, the PTE annual emissions listed in Options Table were calculated using emission factors from AP-42, Fifth Edition, Volume 1, Chapter 3, Tables 3.1-2a. NO_x, CO and VOC are based on State of the Art Manual for Stationary Combustion Turbines – 2nd Revision, December 21, 2004 ppm values of NO_x at 15ppmvd @15% O₂ natural gas and NO_x at 65 ppmvd @15% O₂ distillate oil, CO at 50 ppmvd @15% O₂ for both natural gas and distillate oil, VOC at 25ppmvd @15% O₂ for both natural gas and distillate oil. TSP and PM₁₀ emissions are taken from manufacturer’s (Solar Turbines) recommended values. Emission Factors for propane taken the same as for natural gas and emission factors for kerosene taken the same as for distillate oil.

VIII. COMPLIANCE PLAN

The equipment covered by this General Permit is subject to the applicable requirements listed on the following pages.

FACILITY SPECIFIC REQUIREMENTS

Ref. No.	Applicable Requirement	Monitoring Requirement	Recordkeeping Requirement	Submittal/Action Requirement
1	In addition to this Compliance Plan, all conditions contained in the document "General Procedures for General Permits", posted at http://www.nj.gov/dep/aqpp , shall also be subject to enforcement. [N.J.A.C 7:27-8.13]	None	None	None
2	The permittee shall ensure combustion equipment included in this General Permit is easily identifiable by clear and conspicuous labeling, including manufacturer name, model number, serial number, and maximum heat input rate. [N.J.A.C. 7:27-8.13]	None	None	None
3	This equipment shall not cause any air contaminant, including an air contaminant detectable by the sense of smell, to be present in the outdoor atmosphere in such quantity and duration which is, or tends to be, injurious to human health or welfare, animal or plant life or property, or would unreasonably interfere with the enjoyment of life or property, except in areas over which the owner or operator has exclusive use or occupancy.[N.J.A.C. 7:27-5]	None	None	Notify by phone. Upon occurrence of event. Any operation of the equipment which may cause a release of air contaminants in a quantity or concentration which poses a potential threat to public health, welfare, or the environment or which might reasonably result in citizen complaints shall be reported by the Permittee as required by the Air Pollution Control Act. The Permittee shall immediately notify the Department of any non-compliance by calling the Environmental Action Hotline at (877) 927-6337.[N.J.S.A 26:2C-19(e)]

FACILITY SPECIFIC REQUIREMENTS

Ref. No.	Applicable Requirement	Monitoring Requirement	Recordkeeping Requirement	Submittal/Action Requirement
4	<p>The combustion turbines with the duct burner or the combustion turbines without the duct burner, included in this General Permit shall have a combined maximum heat input rate of less than or equal to 65 million BTU per hour, based on Higher Heating Value (HHV). The owner or operator shall not operate the combustion turbine unit greater than the maximum heat input rate listed in Section C of the registration form, page 2.[N.J.A.C. 7:27-8.13]</p>	<p>Other: Monitored by manufacturer's specification. [N.J.A.C. 7:27-8.13]</p>	<p>Other: Maintain the manufacturer's specification showing maximum heat input rate for the combustion turbine and duct burner on-site for the life of the equipment. The permittee shall keep the completed registration form for the duration of the General Permit and make it available to the Department upon request. [N.J.A.C. 7:27-8.13]</p>	<p>None</p>
5	<p>Initial Stack testing: The Permittee shall conduct a comprehensive stack test to demonstrate compliance with the CO, NO_x, and VOC emission limits in this compliance plan for each fuel combusted in the turbine, in accordance with State and NSPS requirements. For turbines with supplemental duct burner, the duct burner shall be in operation during the performance test.</p> <p>Testing must be conducted at worst-case permitted operating conditions with regard to meeting the applicable emission standards, but without creating an unsafe condition. The permittee shall provide BTS with the turbine load performance curve with the protocol. [N.J.A.C. 7:27-8.13]</p>	<p>Monitored by stack emission testing once initially, based on the average of three Department validated stack test runs. Stack test shall be conducted once initially. See references # 9, 10, 11, 12, 17, 18, 19, 20 and monitoring requirements.</p> <p>Subsequent compliance with NO_x and CO emission limits shall be demonstrated by either Monitoring Method 1 (see reference # 39) or Method 2 (see reference # 46). [N.J.A.C. 7:27-8.13(d)]</p>	<p>Recordkeeping by stack test results at the approved frequency. The stack test results shall be kept on site for five years and made available to the Department upon request. [N.J.A.C. 7:27-8.13(d)(3)]</p>	<p>Stack Test – Submit protocol, conduct test and submit results: As per the approved schedule. The Permittee shall submit a stack test protocol to the Bureau of Technical Services (BTS) at PO Box 437, Trenton, NJ 08625 within 60 days from the date of the registration for this permit or not later than 60 days after the date of the initial operation of the turbines, whichever is later.</p> <p>Within 30 days of protocol approval, the Permittee must contact BTS at 609-530-4041 to schedule a mutually acceptable test date.</p> <p>The stack test must be conducted within 180 days from the date of registration for this permit or not later than 180 days after the date of the initial operation of the turbines, whichever is later.</p>

FACILITY SPECIFIC REQUIREMENTS

Ref. No.	Applicable Requirement	Monitoring Requirement	Recordkeeping Requirement	Submittal/Action Requirement
				<p>The stack test report must be submitted to BTS within 45 days after performing the stack test. A summary of the test results must be submitted to the appropriate Regional Enforcement Office at the address available at http://www.nj.gov/dep/enforcement/air.html</p> <p>The test results must be certified by a licensed professional engineer or certified industrial hygienist. Test results shall be reported in units <u>lbs/hr, lbs/MWh, lbs/MM Btu, ppmvd @ 15% O₂</u>. [N.J.A.C. 7:27-8.13(d)(4)].</p>
6	<p>No Visible Emissions. Except for start-up and shutdown, equipment shall not be operated in a manner that will cause visible emissions, exclusive of visible condensed water vapor. [N.J.A.C. 7:27-8.13]</p>	<p>Monitored by visual determination daily. When burning kerosene or distillate oil, the Permittee shall conduct daily visual opacity inspections during daylight hours while the source is operating. The individual conducting the daily opacity inspections does not need to be a certified opacity reader. If visible emissions are observed, the Permittee shall do the following: 1. verify that the equipment and/or control device causing the emission is operating according to manufactures specifications and the air permit compliance plan. If the equipment or control device is not operating properly, the Permittee shall take corrective action immediately to eliminate the excess emissions. 2. If the corrective action taken in step (1) do not correct the visible emission</p>	<p>Recordkeeping by manually logging of parameter or storing data in a computer data system upon occurrence of event. Upon observing visible emissions, the permittee shall make the following records:</p> <ol style="list-style-type: none"> (1) Date and time of inspection; (2) Emission Point number; (3) Operational status of equipment; (4) Observed results and conclusions; (5) Description of corrective action taken if needed; (6) Date and time opacity problem was solved, if applicable; (7) Date, time and results of inspection per N.J.A.C. 7:2B-2, if applicable; and (8) Name of person(s) conducting inspection. <p>No recordkeeping is required when visible emissions were not</p>	<p>Notify by phone: Upon occurrence of event. If the corrective action to eliminate the visible emissions is not successful within 24 hours, the Permittee shall notify the Department upon occurrence of noncompliance as determined by the certified opacity reader immediately by calling the Environmental Action Hotline at (877) 927-6337. N.J.A.C. 7:27-8.13(d)(4)].</p>

FACILITY SPECIFIC REQUIREMENTS

Ref. No.	Applicable Requirement	Monitoring Requirement	Recordkeeping Requirement	Submittal/Action Requirement
		problem within 24 hours the permittee shall perform a visual check by a certified opacity reader, in accordance with N.J.A.C. 7:2B-2 to demonstrate compliance with the applicable requirement. [N.J.A.C. 7:27-8.13(d)].	observed.[N.J.A.C. 7:27-8.13(d)(3)]	
7	Particulate emission limit from the combustion of fuel determined in Table at N.J.A.C. 7:27-4.2(a) based on maximum heat input rate of source. [N.J.A.C. 7:27- 4.2(a)]	None	None	None
8	The maximum allowable sulfur content in kerosene and distillate oil shall be less than or equal to 0.0015 percent (15 parts per million) by weight. [N.J.A.C. 7:27-8.13]	Monitored by review of fuel delivery records once per bulk fuel shipment. For each kerosene or distillate oil delivery received, the Permittee shall review written documentation of the delivery to ensure the maximum allowable sulfur content is not being exceeded. Such written documentation can include but is not limited to: Bill of Lading, Delivery Invoice, Certificate of Analysis. [N.J.A.C. 7:27-8.13(d)].	Recordkeeping by invoices / bills of lading/ certificate of analysis per delivery, showing fuel sulfur content. All records shall be kept on-site for at least five (5) years, and made readily accessible to the Department upon request. [N.J.A.C. 7:27-8.13(d)(3)].	None
9	CO ≤ 50 ppmvd@15% O ₂ , except during startup, shutdown, and fuel transfer, based on Table 1, Section VI Equipment/Control Specifications of this General Permit. [N.J.A.C. 7:27-8.13]	CO: Monitored by stack emission testing once initially. See stack test requirements in this permit at Reference #5. [N.J.A.C. 7:27-8.13(d)].	CO: Recordkeeping by stack test results once initially. See stack test requirements in this permit at Reference #5. [N.J.A.C. 7:27-8.13(d)(3)].	Stack Test – Submit protocol, conduct test and submit results: Once initially. See stack test requirements in this permit at Reference #5. [N.J.A.C. 7:27-8.13(d)(4)].
10	VOC (Total) ≤ 25 ppmvd@15% O ₂ , except during startup, shutdown, and fuel transfer, based on Table 1, Section VI Equipment/Control Specifications of this General Permit. [N.J.A.C. 7:27-8.13]	VOC (Total): Monitored by stack emissions testing once initially. See stack test requirements in this permit at Reference #5. [N.J.A.C. 7:27-8.13(d)].	VOC (Total): Recordkeeping by stack test results once initially. See stack test requirements in this permit at Reference #5. [N.J.A.C. 7:27-8.13(d)(3)].	Stack Test – Submit protocol, conduct test and submit results: Once initially. See stack test requirements in this permit at Reference #5. [N.J.A.C. 7:27-8.13(d)(4)].
11	NO _x (Total) ≤ 15 ppmvd@15% O ₂ while combusting natural gas or propane, except during startup, shutdown, and fuel transfer based	NO _x (Total): Monitored by stack emissions testing once initially. See stack test requirements in this permit at Reference #5. [N.J.A.C. 7:27-	NO _x (Total): Recordkeeping by stack test results once initially. See stack test requirements in this permit at Reference #5. [N.J.A.C. 7:27-	Stack Test – Submit protocol, conduct test and submit results: Once initially. See stack test requirements in this permit at Reference #5. [N.J.A.C.

FACILITY SPECIFIC REQUIREMENTS

Ref. No.	Applicable Requirement	Monitoring Requirement	Recordkeeping Requirement	Submittal/Action Requirement
	on Table 1, Section VI Equipment/Control Specifications of this General Permit. [N.J.A.C. 7:27-8.13]	8.13(d)].	8.13(d)(3)].	7:27-8.13(d)(4)].
12	NOx (Total) ≤ 65 ppmvd@15% O ₂ , while combusting kerosene or distillate oil, except during startup, shutdown, and fuel transfer based on Table 1, Section VI Equipment/Control Specifications of this General Permit. [N.J.A.C. 7:27-8.13]	NOx (Total): Monitored by stack emissions testing once initially. See stack test requirements in this permit at Reference #5. [N.J.A.C. 7:27-8.13(d)].	NOx (Total): Recordkeeping by stack test results once initially. See stack test requirements in this permit at Reference #5. [N.J.A.C. 7:27-8.13(d)(3)].	Stack Test – Submit protocol, conduct test and submit results: Once initially. See stack test requirements in this permit at Reference #5. [N.J.A.C. 7:27-8.13(d)(4)].
13	Ammonia ≤ 5 ppmvd@15% O ₂ , Applicable if Selective Catalytic Reduction (SCR) is used for NOx control based on Table 1, Section VI Equipment/Control Specifications of this General Permit. [N.J.A.C. 7:27-8.13]	Other: Monitoring by complying with the manufacturer’s recommended maintenance procedures. [N.J.A.C. 7:27-8.13(d)].	Other: Recordkeeping by keeping the manufacturer’s design specification and recommended maintenance procedures on site. [N.J.A.C. 7:27-8.13(d)(3)].	None.
14	Compliance with self imposed annual emission limits selected by the Permittee in the Options Table 2 on the General Permit Registration Form for the following air contaminants (NOx, VOC, CO, SO ₂ , TSP and PM-10) shall be based on the actual natural gas, propane, kerosene and distillate oil consumption. [N.J.A.C. 7:27-8.13] The Permittee shall comply with the hourly emission limits established during the registration process. The hourly limits are based on the maximum heat input rate (HHV) of the turbine unit. [N.J.A.C. 7:27-8.13]	Monitored by fuel flow/firing rate instrument continuously. Permittee shall install and operate an in line flow meter monitoring the total amount of fuel burned each 12 consecutive month period (rolling one-month basis). [N.J.A.C. 7:27-8.13(d)]	Recordkeeping by data acquisition system (DAS) / electronic data storage continuously. Each month during operation the permittee shall record: 1. Fuel type; 2. Current reading from the fuel totalizer(s); 3. Monthly fuel usage; 4. Sum and record the current monthly fuel usage with the previous eleven (11) month fuel usage totals to determine the consecutive twelve (12) month total. All records of the actual fuel consumption shall be kept on-site for at least five (5) years, and made readily accessible to the Department upon request. The permittee shall keep on-site the	Notify by Phone: Upon occurrence of event. The permittee shall notify the Department of any non-compliance with their self-imposed fuel limit within 24 hours of discovery by calling the Environmental Action Hotline at (877) 927-6337.[N.J.A.C. 7:27-8.13(d)].

FACILITY SPECIFIC REQUIREMENTS

Ref. No.	Applicable Requirement	Monitoring Requirement	Recordkeeping Requirement	Submittal/Action Requirement
			completed registration form containing hourly emission limits, for the duration of the General Permit and make it available to the Department upon request. [N.J.A.C. 7:27- 8.13(d)(3)]	
15	This General Permit can only be used for combined heat and power (CHP) unit whose total design efficiency >= 65%. [N.J.A.C. 7:27-8.13]	Monitored by calculations prior to startup and upon request of the Department. The formulae for calculating the total efficiency are provided in Section III of this General Permit. [N.J.A.C. 7:27-8.13(d)].	Other: Recordkeeping by keeping the manufacturer's design specification and copy of calculations on site for the life of the system.[N.J.A.C. 7:27-8.13(d)(3)]	None
16	Stack height of the combustion turbine unit >= 35 ft. [N.J.A.C. 7:27-8.13]	None	None	None
17	NOx (Total) <=42 ppmvd@15%O ₂ . This limit applies to a turbine that has heat input at peak load at or greater than 10 MMBtu/hr (HHV) but less or equal to 50 MMBtu/hr (HHV) firing natural gas and used for electric generation. [NSPS KKKK], [40 CFR 60.4320(a)]	NOx (Total): Monitored by stack emissions testing once initially, based on the average of three Department validated stack test runs. The permittee required to comply with this NOx limit shall conduct an initial performance test. Stack emission tests shall be based on the average of three Department validated stack test runs. Test methods and procedures shall be consistent with the requirements of 40 CFR 60.4400 or if a NOx diluent CEMS is installed, consistent with 40 CFR 60.4405. The performance test must be done at any load condition within plus or minus 25 percent of 100 percent of peak load. Alternatively, the testing might be performed at the highest achievable load point, if at least 75 percent of peak load cannot be achieved in practice. For turbines with supplemental duct burner NOx	NOx (Total): Recordkeeping by stack test results once initially. [40 CFR 60.4400]	Submit a report: As per the approved schedule. The owner or operator shall submit a written report of the results of each performance test before the close of business on the 60 th day following the completion of the performance test [40 CFR 60.4375(b)]

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Ref. No.	Applicable Requirement	Monitoring Requirement	Recordkeeping Requirement	Submittal/Action Requirement
		<p>measurements shall be taken after the duct burner, which has to be in operation during the performance test. Subsequent compliance with NOx emission limits shall be demonstrated by either Monitoring Method 1 (see reference # 39) or Method 2 (see reference # 46). [40 CFR 60.4400]</p>		
18	<p>NOx (Total) ≤ 25 ppmvd@15% O₂. This limit applies to a turbine that has heat input at peak load greater than 50 MMBtu/hr (HHV) but less or equal to 65 MMBtu/hr (HHV) firing natural gas. [NSPS KKKK], [40 CFR 60.4320(a)]</p>	<p>NOx (Total): Monitored by stack emissions testing once initially, based on the average of three Department validated stack test runs. The permittee required to comply with this NOx limit shall conduct an initial performance test. Stack emission tests shall be based on the average of three Department validated stack test runs. Test methods and procedures shall be consistent with the requirements of 40 CFR 60.4400 or if a NOx diluent CEMS is installed, consistent with 40 CFR 60.4405. The performance test must be done at any load condition within plus or minus 25 percent of 100 percent of peak load. Alternatively, the testing might be performed at the highest achievable load point, if at least 75 percent of peak load cannot be achieved in practice. For turbines with supplemental duct burner NOx measurements shall be taken after the duct burner, which has to be in operation during the performance test. Subsequent compliance with NOx emission limits shall be demonstrated by either Monitoring Method 1 (see reference # 39) or Method 2 (see reference # 46). [40 CFR 60.4400]</p>	<p>NOx (Total): Recordkeeping by stack test results once initially [40 CFR 60.4400]</p>	<p>Submit a report: As per the approved schedule. The owner or operator shall submit a written report of the results of each performance test before the close of business on the 60th day following the completion of the performance test [40 CFR 60.4375(b)]</p>

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Ref. No.	Applicable Requirement	Monitoring Requirement	Recordkeeping Requirement	Submittal/Action Requirement
19	<p>NOx (Total) ≤ 96 ppmvd@15% O₂. This limit applies to a turbine that has heat input at peak load at or greater than 10 MMBtu/hr (HHV) but less or equal to 50 MMBtu/hr (HHV) firing fuels other than natural gas and used for electric generation [NSPS KKKK], [40 CFR 60.4320(a)]</p>	<p>NOx (Total): Monitored by stack emissions testing once initially, based on the average of three Department validated stack test runs. The permittee required to comply with this NOx limit shall conduct an initial performance test. Stack emission tests shall be based on the average of three Department validated stack test runs. Test methods and procedures shall be consistent with the requirements of 40 CFR 60.4400 or if a NOx diluent CEMS is installed, consistent with 40 CFR 60.4405. The performance test must be done at any load condition within plus or minus 25 percent of 100 percent of peak load. Alternatively, the testing might be performed at the highest achievable load point, if at least 75 percent of peak load cannot be achieved in practice. For turbines with supplemental duct burner NOx measurements shall be taken after the duct burner, which has to be in operation during the performance test. Subsequent compliance with NOx emission limits shall be demonstrated by either Monitoring Method 1 (see reference # 39) or Method 2 (see reference # 46). [40 CFR 60.4400]</p>	<p>NOx (Total): Recordkeeping by stack test results once initially [40 CFR 60.4400]</p>	<p>Submit a report: As per the approved schedule. The owner or operator shall submit a written report of the results of each performance test before the close of business on the 60th day following the completion of the performance test [40 CFR 60.4375(b)]</p>
20	<p>NOx (Total) ≤ 74 ppmvd@15% O₂. This limit applies to a turbine that has heat input at peak load greater than 50 MMBtu/hr (HHV) but less or equal to 65 MMBtu/hr (HHV) firing fuels other than natural gas [NSPS KKKK], [40 CFR</p>	<p>NOx (Total): Monitored by stack emissions testing once initially, based on the average of three Department validated stack test runs. The permittee required to comply with this NOx limit shall conduct an initial performance test. Stack emission</p>	<p>NOx (Total): Recordkeeping by stack test results once initially [40 CFR 60.4400]</p>	<p>Submit a report: As per the approved schedule. The owner or operator shall submit a written report of the results of each performance test before the close of business on the 60th day following the completion of the performance test [40 CFR</p>

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Ref. No.	Applicable Requirement	Monitoring Requirement	Recordkeeping Requirement	Submittal/Action Requirement
	60.4320(a)]	tests shall be based on the average of three Department validated stack test runs. Test methods and procedures shall be consistent with the requirements of 40 CFR 60.4400 or if a NOx diluent CEMS is installed, consistent with 40 CFR 60.4405. The performance test must be done at any load condition within plus or minus 25 percent of 100 percent of peak load. Alternatively, the testing might be performed at the highest achievable load point, if at least 75 percent of peak load cannot be achieved in practice. For turbines with supplemental duct burner NOx measurements shall be taken after the duct burner, which has to be in operation during the performance test. Subsequent compliance with NOx emission limits shall be demonstrated by either Monitoring Method 1 (see reference # 39) or Method 2 (see reference # 46). [40 CFR 60.4400]		60.4375(b)]
21	SO ₂ ≤ 0.06 lb/MMBtu. No owner or operator shall burn any fuel which contains total potential sulfur emissions in excess of specified limit. If the turbine simultaneously fires multiple fuels, each fuel must meet this requirement. [NSPS KKKK], [40 CFR 60.4330(a)(2)]	Other: The permittee shall monitor the fuel sulfur limit by review of fuel delivery records per delivery, or certificate of analysis specifying that a. The fuel oil has potential sulfur emissions of less than 0.06 lb SO ₂ /MMBtu heat input, b. The total sulfur content for natural gas use is 20 grains of sulfur or less per 100 standard cubic feet. [40 CFR 60.4365]	SO ₂ : Recordkeeping by invoices / bills of lading or certificate of analysis per delivery showing fuel sulfur content. All records shall be kept on-site for at least five (5) years, and made readily accessible to the Department upon request. [N.J.A.C. 7:27-8.13(d)(3)]	Submit documentation of compliance: Once initially. The Permittee shall furnish the Administrator and NJDEP a written report of the results. The permittee shall demonstrate that the potential sulfur emissions from each type of fuel do not exceed potential sulfur emissions of 0.060 lb SO ₂ per MMBtu heat input using sources of information listed in 40 CFR 60.4365(a) [40 CFR 60.8(a)]
22	The owner or operator shall operate and maintain the subject stationary combustion turbine, air pollution control equipment, and monitoring	None	None	None

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Ref. No.	Applicable Requirement	Monitoring Requirement	Recordkeeping Requirement	Submittal/Action Requirement
	equipment in a manner consistent with good air pollution control practices for minimizing emissions at all times including during startup, shutdown and malfunction. [NSPS KKKK], [40 CFR 60.4333(a)]			
23	The owner or operator of a combined heat and power unit complying with the output-based standard shall install, calibrate, maintain, and operate meters for useful recovered energy flow rate, temperature, and pressure to continuously measure the total thermal energy output of the effected unit in BTU per hour. [NSPS KKKK], [40 CFR 60.4335(b)(4)]	Monitored by other method (provide description) continuously. The useful energy flow rate, temperature, and pressure shall be monitored to continuously measure the total thermal energy output in BTU per hour, and shall be installed, calibrated, maintained, and operated according to the manufacturer's instructions. [40 CFR 60.4345(d)]	Recordkeeping by data acquisition system (DAS) / electronic data storage continuously. [N.J.A.C. 7:27-8.13(d)(3)].	None
24	The owner or operator may elect not to monitor the total sulfur content of the fuel combusted in the turbine if the fuel is demonstrated not to exceed potential sulfur emissions of 0.060 lb SO ₂ /MMBtu heat input for units located in continental areas. [NSPS KKKK], [40 CFR 60.4365]	Other: The required demonstration that the total sulfur content of the fuel does not exceed potential sulfur emissions of 0.060 lb SO ₂ /MMBtu shall be made using a current valid purchase contract, tariff sheet or transportation contract specifying that in continental areas the maximum total sulfur content for oil use is 0.05 weight percent (500 ppmw) and for natural gas use is 20 grains of sulfur or less per 100 standard cubic feet. [40 CFR 60.4365(a)]	Recordkeeping by fuel certification receipts at the approved frequency. The owner or operator shall keep copies of valid purchase contracts, tariff sheets or transportation contracts specifying that in continental areas the maximum total sulfur content for oil use is 0.05 weight percent (500 ppmw) and for natural gas use is 20 grains of sulfur or less per 100 standard cubic feet. [40 CFR 60.4365]	Demonstrate Compliance: Once initially. The owner or operator shall submit the required determination to the Administrator using the sources of information described in 40 CFR 60.4365(a) showing the maximum total sulfur content for continental areas for oil use at 0.05 weight percent or less and for natural gas at 20 grains of sulfur or less per 100 standard cubic feet or to demonstrate that fuel has potential sulfur emissions of less than 0.060 lb SO ₂ /MMBtu heat input. [40 CFR 60.4365(a)]
25	All requests, reports, applications, submittals, and other communications to the Administrator pursuant to Part 60 shall be submitted in duplicate to the Regional Office of US Environmental Protection Agency.	None	None	Submit a report: As per the approved schedule to EPA Region 2 as required by 40 CFR 60. [40 CFR 60.4 (a)].

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Ref. No.	Applicable Requirement	Monitoring Requirement	Recordkeeping Requirement	Submittal/Action Requirement
	Submit information to: Director, Division of Enforcement & Compliance Assistance, US EPA, Region 2 Region 2, 290 Broadway, New York, NY 10007-1866. [NSPS A], [40 CFR 60.4 (a)].			
26	Copies of all information submitted to EPA pursuant to 40 CFR Part 60, must also be submitted to the appropriate Regional Enforcement Office of the NJDEP. [NSPS A], [40 CFR 60.4 (b)].	None	None	Submit a report: As per the approved schedule to the appropriate Regional Enforcement Office of the NJDEP as required by 40 CFR 60. [40 CFR 60.4 (b)].
27	The owner or operator subject to the provisions of 40 CFR Part 60, shall notify the Administrator in writing, of the date of construction or reconstruction of the facility as defined under 40 CFR Part 60 Subpart A. Notification shall be postmarked no later than 30 days after such date. [NSPS A], [40 CFR 60.7 (a)(1)].	None	None	Submit notification: Upon occurrence of event to EPA Region 2 and the appropriate Regional Enforcement Office of NJDEP as required by 40 CFR 60.7 [40 CFR 60.7 (a)(1)].
28	The owner or operator subject to the provisions of 40 CFR Part 60 shall furnish the Administrator written notification or, if acceptable to both the Administrator and the owner or operator of a source, electronic notification, of the actual date of initial startup of an affected facility postmarked within 15 days after such date. [40 CFR 60.7(a)(3)]	None.	None.	Submit notification: Upon occurrence of event to EPA Region 2 and the appropriate Regional Enforcement Office of NJDEP as required by 40 CFR 60.7 [40 CFR 60.7(a)(3)]
29	The owner or operator subject to the provisions of 40 CFR Part 60 shall furnish the Administrator written notification or, if acceptable to both the Administrator and the owner or operator of a source, electronic notification, of any physical or	None	None	Submit notification: Upon occurrence of event to EPA Region 2 and the appropriate Regional Enforcement Office of NJDEP as required by 40 CFR 60.7 [40 CFR 60.7 (a)(4)].

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Ref. No.	Applicable Requirement	Monitoring Requirement	Recordkeeping Requirement	Submittal/Action Requirement
	operational change to an existing facility which may increase the emission rate of any air pollutant to which a standard applies, unless that change is specifically exempted under an applicable subpart or in Section 60.14(e). This notice shall be postmarked 60 days or as soon as practicable before the change is commenced and shall include information describing the precise nature of the change, present and proposed emission control systems, productive capacity of the facility before and after the change, and the expected completion date of the change. The Administrator may request additional relevant information subsequent to this notice. [NSPS A], [40 CFR 60.7 (a)(4)].			
30	The owner or operator shall maintain records of the occurrence and duration of any startup, shutdown, or malfunction in the operation of an affected facility; any malfunction of the air pollution control equipment; or any periods during which a continuous monitoring system or monitoring device is inoperative. [NSPS A]. [40 CFR 60.7 (b)].	None	Recordkeeping by manual logging of the parameter or storing data in a computer data system upon occurrence of event. The records should be kept in a permanent form suitable for inspections. [40 CFR 60.7 (b)].	Submit an Excess Emissions and Monitoring System Performance Report (EEMPR): Semi-annually beginning on the 30 th day of the 6 th month following initial performance tests. The report shall contain the information required in 40 CFR 60.7(b) and shall be postmarked by the 30th day following the end of each six-month period. The report shall be submitted to the EPA Region 2 Administrator and the appropriate Regional Enforcement Office of NJDEP and be in the format specified at 40 CFR Part 60.7(c) and 40 CFR Part 60.7(d). [40 CFR 60.7 (c)].
31	Any owner or operator subject to the	None	Other: The file shall include all	None

FACILITY SPECIFIC REQUIREMENTS

Ref. No.	Applicable Requirement	Monitoring Requirement	Recordkeeping Requirement	Submittal/Action Requirement
	<p>provisions of this part shall maintain a file of all measurements, including continuous monitoring system, monitoring device, and performance testing measurements; all continuous monitoring system performance evaluations; all continuous monitoring system or monitoring device calibration checks; adjustments and maintenance performed on these systems or devices; and all other information required by this part recorded in a permanent form suitable for inspection. [NSPS A], [40 CFR 60.7 (f)].</p>		<p>measurements (including continuous monitoring system, monitoring device, and performance testing measurements), all continuous monitoring system performance evaluations, all continuous monitoring system or monitoring device calibration checks, all adjustments /maintenance performed on these systems or devices, and all other information required by 40 CFR Part 60 recorded in a permanent form suitable for inspection. The file shall be retained for at least two years following the dates of the record, except as prescribed in 40 CFR 60.7(f)(1) through (3). Sources subject to 40 CFR 70, are required to retain records of all required monitoring data and support information for a period of at least 5 years from the date of the monitoring sample, measurement, report, or application, per 40 CFR 70.6(a)(3)(ii)(B).[40 CFR 60.7 (f)].</p>	
32	<p>Within 60 days after achieving the maximum production rate at which the affected facility will operate, but not later than 180 days after initial startup of the facility, the owner or operator shall conduct performance test(s) and shall furnish the Administrator a written report of the results. [NSPS A], [40 CFR 60.8 (a)].</p>	None	None	<p>Submit a report: At a common schedule agreed upon by the operator and the Administrator. The owner or operator shall submit results of the performance test(s) to the Administrator. [NSPS A], [40 CFR 60.8 (a)].</p>
33	<p>Performance tests shall be conducted under conditions the Administrator specifies to the plant operator based on representative performance of the</p>	None	None	None

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Ref. No.	Applicable Requirement	Monitoring Requirement	Recordkeeping Requirement	Submittal/Action Requirement
	facility. Operations during periods of startup, shutdown and malfunction shall not constitute representative conditions for the purpose of the performance test nor shall emissions in excess of the level of the applicable emission limit during periods of startup, shutdown and malfunction be considered a violation of the applicable emission limit unless otherwise specified in the applicable standard. [NSPS A], [40 CFR 60.8 (c)].			
34	The owner or operator shall provide the Administrator at least 30 days prior notice of any performance test and shall provide adequate performance testing facilities as specified in 40 CFR Part 60.8(e) . [NSPS A], [40 CFR 60.8 (d)].	None	None	None
35	Unless otherwise specified in the applicable subpart, each performance test shall consist of three separate runs using the applicable test method. [NSPS A], [40 CFR 60.8 (f)].	None	None	None
36	Compliance with NSPS standards specified in this permit, other than opacity, shall be determined only by performance tests established by 40 CFR 60.8, unless otherwise specified in NSPS. [NSPS A], [40 CFR 60.11(a)].	None	None	None
37	At all times, including periods of startup, shutdown, and malfunctions, owners and operators shall, to the extent particle, maintain and operate the facility, including associated air pollution control equipment in a	None	None	None

FACILITY SPECIFIC REQUIREMENTS

Ref. No.	Applicable Requirement	Monitoring Requirement	Recordkeeping Requirement	Submittal/Action Requirement
	manner consistent with good air pollution control practice for minimizing air emissions. [NSPS A]. [40 CFR 60.11 (d)].			
38	No owner or operator subject to the provisions of this part shall build, erect, install, or use any article, machine, equipment or process, the use of which conceals an emission which would otherwise constitute a violation of an applicable standard. Such concealment includes, but is not limited to, the use of gaseous diluents to achieve compliance with an opacity standard or with a standard which is based on the concentration of a pollutant in the gases discharged to the atmosphere. [NSPS A]. [40 CFR 60.12]	None	None	None
39	Monitoring Method 1: CHP combustion turbine units using annual stack testing for subsequent compliance with NOx and CO limits are subject to Reference Nos. 40 through 45. [N.J.A.C. 7:27-8.13]			
40	The Permittee shall conduct a comprehensive stack test annually to demonstrate compliance with the NOx and CO emission limits in this compliance plan for each fuel combusted in the turbine, in accordance with State and NSPS requirements. For turbines with supplemental duct burner, the duct burner shall be in operation during the performance test. Testing must be conducted at worst-	Other: See reference # 42, 43 and 44 monitoring requirements. [N.J.A.C. 7:27-8.13(d)]	Recordkeeping by stack test results annually. The stack test results shall be kept on site for five years and made available to the Department upon request [N.J.A.C. 7:27-8.13(d)(3)]	Stack Test – Submit protocol, conduct test and submit results: As per the approved schedule. The Permittee shall submit for review and approval a proposed stack test protocol to the Bureau of Technical Services (BTS) at PO Box 437, Trenton, NJ 08625 each year, no fewer than 90 calendar days prior to conducting its annual stack emission testing. Alternatively the Permittee may request BTS to use the approved protocol.

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Ref. No.	Applicable Requirement	Monitoring Requirement	Recordkeeping Requirement	Submittal/Action Requirement
	<p>case permitted operating conditions with regard to meeting the applicable emission standards, but without creating an unsafe condition. The permittee shall provide BTS with the turbine load performance curve with the protocol. [N.J.A.C. 7:27-8.13]</p>			<p>Within 30 days of protocol approval, the Permittee must contact BTS at 609-530-4041 to schedule a mutually acceptable test date.</p> <p>The stack test must be conducted within 12 months following the previous test, and in no less than 180 days between the tests. The complete stack test report must be submitted to BTS within 45 days after performing the stack test.</p> <p>A summary of the test results must be submitted to the appropriate Regional Enforcement Office at the address available at http://www.nj.gov/dep/enforcement/air.html</p> <p>The test results must be certified by a licensed professional engineer or certified industrial hygienist. Test results shall be reported in units of ppmvd @ 15% O₂. [N.J.A.C. 7:27-8.13(d)(4)].</p>
41	<p>The owner or operator of a stationary combustion turbine shall adjust the combustion process in accordance with the procedure set forth at N.J.A.C. 7:27-19.16, the specific procedures for combustion adjustment monitoring specified in NJDEP Technical Manual 1005, and according to manufacturer's recommended procedures and maintenance schedules. [N.J.A.C. 7:27-8.13]</p>	<p>Monitored by periodic emission monitoring upon performing combustion adjustment. Monitoring shall be done in accordance with the specific procedures for combustion adjustment monitoring specified in NJDEP Technical Manual 1005. [N.J.A.C. 7:27-8.13(d)]</p>	<p>Recordkeeping by data acquisition system (DAS) / electronic data storage upon performing combustion adjustment or by manual logging of parameter or storing data in a computer data system. The owner or operator shall record the following information for each adjustment and retain it for a minimum of five years:</p> <ol style="list-style-type: none"> 1. The date of the adjustment and the times at which it began and ended; 	None.

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Ref. No.	Applicable Requirement	Monitoring Requirement	Recordkeeping Requirement	Submittal/Action Requirement
			<p>2. The name, title and affiliation of the person who made the adjustment;</p> <p>3. The type of procedure and maintenance performed;</p> <p>4. The concentration of NO_x, CO and O₂ measured before and after the adjustment was made; and</p> <p>5. The type and amount of fuel used over the 12 months prior to the adjustment. [N.J.A.C. 7:27-8.13(d)]</p>	
42	NO _x (Total) ≤ 15 ppmvd@15% O ₂ while combusting natural gas or propane, except during startup, shutdown, and fuel transfer based on Table 1, Section VI Equipment/Control Specifications of this General Permit. [N.J.A.C. 7:27-8.13]	NO _x (Total): Monitored by stack emissions testing annually. See stack test requirements in this permit at Reference #40. [N.J.A.C. 7:27-8.13(d)].	NO _x (Total): Recordkeeping by stack test results annually. See stack test requirements in this permit at Reference #40. [N.J.A.C. 7:27-8.13(d)(3)].	Stack Test – Submit protocol, conduct test and submit results: As per the approved schedule. See stack test requirements in this permit at Reference #40. [N.J.A.C. 7:27-8.13(d)(4)].
43	NO _x (Total) ≤ 65 ppmvd@15% O ₂ while combusting kerosene or distillate oil, except during startup, shutdown, and fuel transfer, based on Table 1, Section VI Equipment/Control Specifications of this General Permit. [N.J.A.C. 7:27-8.13]	NO _x (Total): Monitored by stack emissions testing annually. See stack test requirements in this permit at Reference #40. [N.J.A.C. 7:27-8.13(d)].	NO _x (Total): Recordkeeping by stack test results annually. See stack test requirements in this permit at Reference #40. [N.J.A.C. 7:27-8.13(d)(3)].	Stack Test – Submit protocol, conduct test and submit results: As per the approved schedule. See stack test requirements in this permit at Reference #40. [N.J.A.C. 7:27-8.13(d)(4)].
44	CO ≤ 50 ppmvd@15% O ₂ , except during startup, shutdown, , and fuel transfer, based on Table 1, Section VI Equipment/Control Specifications of this General Permit. [N.J.A.C. 7:27-8.13]	CO: Monitored by stack emissions testing annually. See stack test requirements in this permit at Reference #40. [N.J.A.C. 7:27-8.13(d)].	CO: Recordkeeping by stack test results annually. See stack test requirements in this permit at Reference #40. [N.J.A.C. 7:27-8.13(d)(3)].	Stack Test – Submit protocol, conduct test and submit results: As per the approved schedule. See stack test requirements in this permit at Reference #40. [N.J.A.C. 7:27-8.13(d)(4)].
45	To demonstrate continuous compliance with applicable NO _x limit, the owner or operator of the turbine that does not use water or	Monitored by stack emissions testing annually, based on the average of three Department validated stack test runs.	Recordkeeping by stack test results annually. [NSPS KKKK] [40 CFR 60.4400]	None

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Ref. No.	Applicable Requirement	Monitoring Requirement	Recordkeeping Requirement	Submittal/Action Requirement
	<p>steam injection shall perform annual performance NOx tests in accordance with 40 CFR 60.4400. If the NOx test result is less than or equal to 75% of the NOx emission limit the frequency of subsequent testing may be reduced to once every 2 years (no more than 26 calendar months following the previous performance test). If the results of any subsequent performance test exceed 75% of the NOx limit, an annual performance testing must be resumed. [NSPS KKKK] [40 CFR 60.4340(a)]</p>	<p>Test methods and procedures shall be consistent with the requirements of 40 CFR 60.4400. [NSPS KKKK] [40 CFR 60.4400]</p>		
46	<p>Monitoring Method 2: CHP combustion turbine units using CEMS for subsequent compliance with NOx and CO limits are subject to Reference Nos. 47 through 59.</p>	None	None	None
47	<p>Continuous Emission Monitoring System (CEMS): The Permittee shall submit an equipment protocol to the Department, in accordance with the NJDEP Technical Manual 1005, for review and approval. Continuous emission monitors and continuous emission data recorders shall be installed and operated to measure and record the concentration of <u>CO, NOx, and O₂</u>. The permittee shall submit a Performance Specification Test (PST) protocol to the Department for review and approval. The permittee shall conduct a PST test using a protocol approved by the Department for all continuous emissions monitors (CEMS). The</p>	None	None	<p>CEMS/COMS - Submit equipment protocol, submit a PST protocol, conduct PST and submit results: As per the approved schedule. Submit an equipment protocol within 60 days from the date of the registration for this permit to the Department for review and approval. Submit a performance test protocol within 60 days from the date of the registration for this permit or within 60 days after the date of the initial operation of the turbines, whichever is later to the Department for review and approval. Install all approved monitoring equipment and conduct a PST within 180 days from the date of the registration for this permit or within</p>

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Ref. No.	Applicable Requirement	Monitoring Requirement	Recordkeeping Requirement	Submittal/Action Requirement
	permittee shall submit the results of any required PST test to the Department for review and approval. [N.J.A.C. 7:27-8.13]			180 days after the date of the initial operation of the turbines, whichever is later. Submit results within 30 days of the testing. [N.J.A.C. 7:27-8.13(d)(4)].
48	The permittee shall develop a QA/QC plan for all CEMS/COMS required by this permit prepared in accordance with the NJDEP Technical Manual 1005 posted on the AQPP webpage at http://www.state.nj.us/dep/aqpp . [N.J.A.C. 7:27-8.13]	Other: The QA/QC coordinator shall be responsible for reviewing the QA/QC plan on an annual basis. [N.J.A.C. 7:27-8.13(d)]	Other: Maintain readily accessible records of the QA/QC plan including QA date and quarterly reports. [N.J.A.C. 7:27-8.13(d)(3)]	None
49	The permittee shall submit an Excess Emission Monitoring Systems Performance Report to the appropriate Regional Enforcement Office (REO) for review and approval. This report shall be submitted to the REO whether or not an emission exceedance has occurred. [N.J.A.C. 7:27-8.13]	None	None	Submit an Excess Emissions and Monitoring Systems Performance Report (EEMPR): Every April 30, July 30, October 30, and January 30 for the preceding quarter year (the quarter years begin on January 1, April 1, July 1, and October 1) electronically through the NJDEP online EEMPR web portal for review and approval. Quarterly EEMPR reports shall include all quarterly and annual QA data. [N.J.A.C. 7:27-8.13(d)(4)].
50	The owner or operator of a stationary combustion turbine shall adjust the combustion process in accordance with the procedure set forth at N.J.A.C. 7:27-19.16, the specific procedures for combustion adjustment monitoring specified in NJDEP Technical Manual 1005, and according to manufacturer's recommended procedures and maintenance schedules. [N.J.A.C. 7:27-8.13]	Monitored by continuous emission monitoring system upon performing combustion adjustment. The Permittee shall monitor the combustion adjustment process using continuous emission monitoring. [N.J.A.C. 7:27-8.13(d)]	Recordkeeping by data acquisition system (DAS) / electronic data storage upon performing combustion adjustment or by manual logging of parameter or storing data in a computer data system. The owner or operator shall record the following information for each adjustment and retain for a minimum of five years: 1. The date of the adjustment and the times at which it began and ended;	None.

FACILITY SPECIFIC REQUIREMENTS

Ref. No.	Applicable Requirement	Monitoring Requirement	Recordkeeping Requirement	Submittal/Action Requirement
			<p>2. The name, title and affiliation of the person who made the adjustment;</p> <p>3. The type of procedure and maintenance performed;</p> <p>4. The concentration of NO_x, CO and O₂ measured before and after the adjustment was made; and</p> <p>5. The type and amount of fuel used over the 12 months prior to the adjustment. [N.J.A.C. 7:27-8.13(d)]</p>	
51	NO _x (Total) ≤ 15 ppmvd@15% O ₂ while combusting natural gas or propane, except during startup, shutdown, and fuel transfer based on Table 1, Section VI Equipment/Control Specifications of this General Permit. [N.J.A.C. 7:27-8.13]	NO _x (Total): Monitored by continuous emission monitoring system continuously based on a 3 hour rolling average based on a 1 hour block average. See CEMS requirements in this permit at Reference # 47 through #49. [N.J.A.C. 7:27-8.13(d)].	NO _x (Total): Recordkeeping by data acquisition system (DAS) / electronic data storage continuously. See CEMS requirements in this permit at Reference # 47 through #49. [N.J.A.C. 7:27-8.13(d)(3)].	CEMS/COMS - Submit equipment protocol, submit a PST protocol, conduct PST and submit results: As per the approved schedule. See CEMS requirements in this permit at Reference # 47 through #49. [N.J.A.C. 7:27-8.13(d)(4)].
52	NO _x (Total) ≤ 65 ppmvd@15% O ₂ while combusting kerosene or distillate oil, except during startup, shutdown, and fuel transfer based on Table 1, Section VI Equipment/Control Specifications of this General Permit. [N.J.A.C. 7:27-8.13]	NO _x (Total): Monitored by continuous emission monitoring system continuously based on a 3 hour rolling average based on a 1 hour block average. See CEMS requirements in this permit at Reference # 47 through #49. [N.J.A.C. 7:27-8.13(d)].	NO _x (Total): Recordkeeping by data acquisition system (DAS) / electronic data storage continuously. See CEMS requirements in this permit at Reference # 47 through #49. [N.J.A.C. 7:27-8.13(d)(3)].	CEMS/COMS - Submit Equipment protocol, submit a PST protocol, conduct PST and submit results: As per the approved schedule. See CEMS requirements in this permit at Reference # 47 through #49. [N.J.A.C. 7:27-8.13(d)(4)].
53	CO ≤ 50 ppmvd@15% O ₂ , except during startup, shutdown, , and fuel transfer based on Table 1, Section VI Equipment/Control Specifications of this General Permit. [N.J.A.C. 7:27-8.13]	CO: Monitored by continuous emission monitoring system continuously based on a 3 hour rolling average based on a 1 hour block average. See CEMS requirements in this permit at Reference # 47 through #49. [N.J.A.C. 7:27-8.13(d)].	CO: Recordkeeping by data acquisition system (DAS) / electronic data storage continuously. See CEMS requirements in this permit at Reference # 47 through #49. [N.J.A.C. 7:27-8.13(d)(3)].	CEMS/COMS - Submit equipment protocol, submit a PST protocol, conduct PST and submit results: As per the approved schedule. See CEMS requirements in this permit at Reference # 47 through #49. [N.J.A.C. 7:27-8.13(d)(4)].
54	The owner or operator of a turbine	Monitored by continuous emissions	Recordkeeping by data acquisition	None

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	shall install, calibrate, maintain, and operate a continuous emission monitoring system (CEMS) consisting of a NOx monitor and a diluent gas O2 or CO2 monitors to determine the hourly NOx emission rate in ppm. [NSPS KKKK] [40 CFR 60.4335(b)(1)] and [40 CFR 60.4340(b)(1)]	monitoring systems continuously. The continuous emission monitoring system as described in 40 CFR 60.4335(b) shall be consistent with the requirements of 40 CFR 60.4335(b) and 40 CFR 60.4345.[40 CFR 60.4345]	system (DAS) / electronic data storage continuously. [40 CFR 60.4345]	
55	For turbines without water and steam injection complying with NOx CEMS instead of annual performance tests, the permittee shall install and certify each NOx diluent CEMS in accordance with Performance Specifications 2 (PS2) as described in appendix B to 40 CFR 60. The 7 day calibration drift should be based on unit operating days, not calendar days. Upon the Bureau of Technical Services of NJDEP approval, Procedure 1 in appendix F to 40 CFR 60 is not required. The relative accuracy test audit (RATA) shall be performed on a lb/MMBtu basis. [NSPS KKKK], [40 CFR 60.4345(a)]	Monitored by continuous emissions monitoring system continuously. During each full unit operating hour, both the NOx monitor and the diluent monitor must complete a minimum of one cycle of operation (Sampling, analyzing, and data recording) for each 15-minute quadrant of the hour, to validate the hour, as specified in 40 CFR 60.13(e)(2). The permittee shall follow procedure described in 40 CFR 60.4345(b) for partial unit operating hours. [40 CFR 60.4345(b)].	Recordkeeping by manual logging of parameter or storing data in a computer data system once initially. The permittee shall develop and keep on-site a quality assurance (QA) plan for all of the continuous monitoring equipment. For NOx CEMS and fuel flow meters, the QA program and plan described in section 1 of appendix B to 40 CFR 75 may, with state approval, satisfy this requirement. [40 CFR 60.4345(e)]	None
56	The owner or operator shall submit reports of excess emissions and monitor downtime in accordance with 40 CFR 60.7(c) for Nitrogen oxides. Excess emissions shall be reported for all periods of unit operation, including startup, shutdown and malfunction. An excess emissions as defined in 40 CFR 60.4380(b)1 is any unit operating period in which the 4-hour (for simple cycle turbines) or 30-day	Other: For the purposes of identifying excess emissions based on data from the continuous emission monitoring equipment the permittee shall follow procedures described in 40 CFR 60.4350(a), (b), (c), (e), (f), (g), and (h). If a NOx diluent CEMS meets the requirements of 40 CFR 75, the only quality assured data from the CEMS shall be used to identify excess emissions. Periods where the missing data substitution procedures	Other: The owner or operator shall maintain copies of all reports on site. [N.J.A.C. 7:27-8.13(d)(3)].	Submit an Excess Emissions and Monitoring System Performance Report (EEMPR): Semi-annually beginning on the 30 th day of the 6 th month following initial performance tests. All reports required under 40 CFR 60.7(c) must be postmarked by the 30th day following the end of each 6-moth period. [40 CFR 60.4395]

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Ref. No.	Applicable Requirement	Monitoring Requirement	Recordkeeping Requirement	Submittal/Action Requirement
	<p>rolling average NOx emission rate exceeds the applicable emission limit in 40 CFR 60.4320. A period of monitor downtime is any unit operating hour in which the data for any of the following parameters are either missing or invalid: NOx concentration, CO2 or O2 concentration, fuel flow rate, steam flow rate, steam temperature, steam pressure, or megawatts. The steam flow rate, steam temperature, and steam pressure are only required if used for compliance demonstration. [NSPS KKKK], [40 CFR 60.4380(b)]</p>	<p>in subpart D of 40 CFR 75 are applied are to be reported as monitor downtime.[40 CFR 60.4350]</p>		
57	<p>The owner or operator shall submit to the Administrator, for each pollutant monitored, an excess emissions and monitoring systems performance report and a summary report form. [NSPS A], [40 CFR 60.7 (c)].</p>	None	None	<p>Submit an Excess Emissions and Monitoring System Performance Report (EEMPR): Semi-annually beginning on the 30th day of the 6th month following initial performance tests. The report shall be postmarked by the 30th day following the end of each calendar half. The report shall be submitted and be in a format as specified at 40 CFR 60.7(c) and 40 CFR 60.7(d). [40 CFR 60.7 (c)].</p>
58	<p>All continuous emission monitoring systems and monitoring devices shall be installed and operational prior to conducting performance tests specified under 40 CFR Part 60.8. The owner or operator shall follow manufacturer's written recommendations for installation, operation and calibration of the device. [NSPS A], [40 CFR 60.13 (b)].</p>	<p>Other: During any performance test required under 40 CFR Part 60.8 or within 30 days thereafter, the owner or operator shall conduct a performance evaluation of the continuous opacity monitoring system in accordance with applicable performance specification in Appendix B of 40 CFR Part 60. [40 CFR 60.13 (c)].</p>	None	<p>Within 60 days of completion of the performance test, furnish the Administrator two or, upon request, more copies of the results of the performance evaluation. Submit a report: As per the approved schedule. [40 CFR 60.13 (c)(2)]</p>

FACILITY SPECIFIC REQUIREMENTS

Ref. No.	Applicable Requirement	Monitoring Requirement	Recordkeeping Requirement	Submittal/Action Requirement
59	The owner or operator shall perform zero and span adjustments daily for continuous emission monitors and continuous opacity monitors following procedures outlined in 40 CFR 60.13 (d) 1 & 2. [NSPS A], [40 CFR 60.13 (d)].	None	Other: Maintain records in accordance with 40 CFR 60.7(f). The file shall include all measurements (including continuous monitoring system, monitoring device, and performance testing measurements), all continuous monitoring system performance evaluations, all continuous monitoring system or monitoring device calibration checks, all adjustments/maintenance performed on these systems or devices, and all other information required by 40 CFR Part 60 recorded in a permanent form suitable for inspection. The file shall be retained for at least two years following the dates of the record, except as prescribed in 40 CFR 60.7(f)(1) through (3). Sources subject to 40 CFR 70, are required to retain records of all required monitoring data and support information for a period of at least 5 years from the date of the monitoring sample, measurement, report, or application, per 40 CFR 70.6(a)(3)(ii)(B). [40 CFR 60.13 (d)].	None