

Attachment D

Equipment Table

[illegible]

Attachment E

Emission Unit Form(s)

ATTACHMENT E - Emission Unit Form

Emission Unit Description

Emission unit ID number: GT1	Emission unit name: General Electric Model 7FA Turbine	List any control devices associated with this emission unit: none	
Provide a description of the emission unit (type, method of operation, design parameters, etc.): GT1 is a General Electric Model 7FA simple cycle combustion turbine			
Manufacturer: General Electric	Model number: 7FA	Serial number:	
Construction date:	Installation date: 2001	Modification date(s): Not applicable	
Design Capacity (examples: furnaces - tons/hr, tanks - gallons): 167.8 MW while firing natural gas at an ambient temperature of 59° F and 60% relative humidity			
Maximum Hourly Throughput: 1,571mm Btu/hr.	Maximum Annual Throughput: 13.77 x 10 ⁶ mm Btu (14.02 x 10 ⁹ scf/yr. both GT1 and GT2. This number is reduced by 889 cu. ft. for each gallon of oil combusted)	Maximum Operating Schedule: 24hrs./day 365 days/yr.	
Fuel Usage Data (fill out all applicable fields)			
Does this emission unit combust fuel? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No		If yes, is it? <input type="checkbox"/> Indirect Fired <input checked="" type="checkbox"/> Direct Fired	
Maximum design heat input and/or maximum horsepower rating: 1,571mmBtu/hr. (167.8 MW while firing natural gas at an ambient temperature of 59° F and 60% relative humidity)		Type and Btu/hr rating of burners:	
List the primary fuel type(s) and if applicable, the secondary fuel type(s). For each fuel type listed, provide the maximum hourly and annual fuel usage for each. Natural Gas SCC: 2-01-002-01 (primary fuel) Fuel Oil SCC: 2-02-001-03			
Describe each fuel expected to be used during the term of the permit.			
Fuel Type	Max. Sulfur Content	Max. Ash Content	BTU Value
Natural Gas	pipeline	pipeline	931.1/scf (see attached gas analysis)
Fuel Oil	0.05%	0.001	137,000/gal. (see attached Diesel analysis)

Emissions Data		
Criteria Pollutants	Potential Emissions	
	PPH	TPY
Carbon Monoxide (CO)	32 (natural gas) 72 (fuel Oil)	116 (combined- both GT1 and GT2)
Nitrogen Oxides (NO _x)	65 (natural gas) 470 (fuel Oil)	241 (combined- both GT1 and GT2)
Lead (Pb)		
Particulate Matter (PM _{2.5})		
Particulate Matter (PM ₁₀)	18 (natural gas) 39 (Fuel Oil)	75(combined- both GT1 and GT2)
Total Particulate Matter (TSP)		
Sulfur Dioxide (SO ₂)	2.5 (Natural Gas) 103 (Fuel Oil)	53 (combined- both GT1 and GT2)
Volatile Organic Compounds (VOC)	3.0 (Natural Gas) 8.0 (Fuel Oil)	12 (combined- both GT1 and GT2)
Hazardous Air Pollutants	Potential Emissions	
	PPH	TPY
Formaldehyde	1.7	7 (combined- both GT1 and GT2)
Sulfuric Acid	11 (fuel Oil)	5.6 (combined- both GT1 and GT2)
PAH's		1.2 (combined- both GT1 and GT2)
Regulated Pollutants other than Criteria and HAP	Potential Emissions	
	PPH	TPY

Applicable Requirements

List all applicable requirements for this emission unit. For each applicable requirement, include the underlying rule/regulation citation and/or construction permit with the condition number. (Note: Title V permit condition numbers alone are not the underlying applicable requirements). If an emission limit is calculated based on the type of source and design capacity or if a standard is based on a design parameter, this information should also be included.

1. Sulfur content of fuel combusted shall be no more than 0.8% by wt. [40 CFR § 60.333(b) 45CSR13 Permit No. R13-2373 Other Requirements (B)(6)]
2. NO_x from turbine stacks shall not exceed 109 ppmv on a dry basis at 15% O₂ [40 CFR § 60.332(a) (1), 45CSR13 Permit No. R13-2373, Other Requirements (B)(6)]
3. At all times the turbines shall be operated in a manner consistent with good air pollution control practices [40 CFR § 60.333(b) 45CSR13 Permit No. R13-2373, Other Requirements (B)(6)]
4. Emissions from the turbines shall not exceed the limits in existing TV Permit – *compliance with streamlined SO₂ limit assures compliance with 45CSR §10-3.1* [45CSR13 – Permit No. R13-2373 Specific Requirement (A) (1-3); 45 CSR§30-5.1.c]
5. Combustion Turbines (both GT1 & GT2) shall not combust more than 14.02 x 10⁹ scf/yr of fuel cumulatively on a rolling 12-month basis. When fuel oil is combusted the above limit shall be reduced by 889cf of natural gas for each gallon of fuel oil combusted. [45CSR13 – Permit No. R13-2373 Specific Requirement (A)(4); 45CSR§30-5.1.c]
6. When low sulfur distillate fuel oil is fired, water injection shall be utilized to control NO_x emissions. [45CSR13 – Permit No. R13-2373 Specific Requirement (A)(5).]
7. A dry low NO_x combustion system shall be installed, maintained, and operated so as to control NO_x emissions from the combustion turbines (both GT1 and GT2) when natural gas is fired [45CSR13 – Permit No. R13-2373 Specific Requirement (A)(6).]
8. The annual average sulfur content of the low sulfur distillate fuel shall not exceed 0.05 percent. [45CSR13 – Permit No. R13-2373 Specific Requirement (A)(7).]
9. The annual average sulfur content of the natural gas shall not exceed 0.5 grains per 100 scf. [45CSR13 – Permit No. R13-2373 Specific Requirement (A)(8).]
10. The gas turbines (GT1 and GT2) are Phase II Acid Rain affected units under 45CSR33 as defined by 40 CFR § 72.6, and as such are required to meet the requirements of 40 CFR Parts 72,73,74,75,76, 77 and 78.

 X Permit Shield

For all applicable requirements listed above, provide monitoring/testing/recordkeeping/reporting which shall be used to demonstrate compliance. If the method is based on a permit or rule, include the condition number or citation. (Note: Each requirement listed above must have an associated method of demonstrating compliance. If there is not already a required method in place, then a method must be proposed.)

1. Shall comply with the monitoring requirements as found in 40 CFR 75 [40 CFR § 72.9(b)(1);45CSR33]
2. NO_x monitor on combustion turbine following procedures in 40 CFR 60.13 or 40 CFR Part 75as appropriate [45CSR – Permit No. R13-2373 Specific Requirement (A)(9).]
3. Install and operate a continuous monitoring system to monitor and record the fuel consumption and the ratio of water to fuel being fired in the turbine. The system shall be accurate to within 5.0% and approved by the administrator. [40 CFR § 60.334(a); 45CSR13 Permit No. R13-2373 Other Requirements (B)(6), 45CSR16]
4. The sulfur content of the fuel being fired in the turbines shall be monitored and recorded in accordance with 40CFR 75. [40 CFR § 60.334(b)(2); 45CSR13 Permit No. R13-2373 Other Requirements (B)(6) & (B)(7); 45CSR§30-5.1]
5. Stack testing to be conducted on one turbine during term of permit to determine compliance with CO, VOC, PM-10 and sulfuric acid mist in accordance with EPA methods. [45CSR§30-5.1.c]
6. Continual compliance with the mass emission limits in the existing permit. The required calculations must be performed every 15 minutes utilizing average minute data values for the parameters. The hourly averages will then be used to create the monthly and 12-month rolling average emission reports. Calculations are performed for Heat Input, NO_x based on CEMs, SO₂ based on sulfur content, PM-10 based

on most recent source test, VOC based on most recent source test, CO based on most recent source test and H₂SO₄ based on the most recent source test. [45CSR§30-5.1c.]

7. Maintain daily records of the amount of fuel combusted in turbine [45CSR13 – Permit No. R13-2373 Other Requirements(B)(10)]
8. Reporting requirements of 40 CFR§60.334(j) by submitting reports of excess emissions and monitor downtime, in accordance with 40 CFR§60.7(c). Excess emissions shall be reported for all periods of unit operation, including startup, shutdown, and malfunction. For the purpose of reports required under 40 CFR§60.7(c), periods of excess emissions and monitor downtime that shall be reported are defined by 40 CFR§60.334(j). all required reports shall be submitted to both WV DEP and USEPA in accordance with 3.4.3[40CFR§§60.334(j) and 60.7(c); 45CSR13 – Permit No. R13-2373 Other Requirements (B)(9)]

Are you in compliance with all applicable requirements for this emission unit? ☒ Yes ☐ No

If no, complete the Schedule of Compliance Form as ATTACHMENT F.

ATTACHMENT E - Emission Unit Form

Emission Unit Description

Emission unit ID number: GT2	Emission unit name: General Electric Model 7FA Turbine	List any control devices associated with this emission unit: none
----------------------------------------	---------------------------------------------------------------------	--------------------------------------------------------------------------

Provide a description of the emission unit (type, method of operation, design parameters, etc.):
GT2 is a General Electric Model 7FA simple cycle combustion turbine

Manufacturer: General Electric	Model number: 7FA	Serial number:
------------------------------------------	-----------------------------	-----------------------

Construction date:	Installation date: 2001	Modification date(s): Not applicable
---------------------------	-----------------------------------	------------------------------------------------

Design Capacity (examples: furnaces - tons/hr, tanks - gallons):
167.8 MW while firing natural gas at an ambient temperature of 59° F and 60% relative humidity

Maximum Hourly Throughput: 1,571mm Btu/hr.	Maximum Annual Throughput: 13.77 x 10 ⁶ mm Btu (14.02 x 10 ⁹ scf/yr. both GT1 and GT2. This number is reduced by 889 cu. ft. for each gallon of oil combusted)	Maximum Operating Schedule: 24hrs./day 365 days/yr.
------------------------------------------------------	------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------	---------------------------------------------------------------

Fuel Usage Data (fill out all applicable fields)

Does this emission unit combust fuel? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	If yes, is it? <input type="checkbox"/> Indirect Fired <input checked="" type="checkbox"/> Direct Fired
------------------------------------------------------------------------------------------------------------------	-----------------------------------------------------------------------------------------------------------------------

Maximum design heat input and/or maximum horsepower rating: 1,571mmBtu/hr. (167.8 MW while firing natural gas at an ambient temperature of 59° F and 60% relative humidity)	Type and Btu/hr rating of burners:
---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------	-------------------------------------------

List the primary fuel type(s) and if applicable, the secondary fuel type(s). For each fuel type listed, provide the maximum hourly and annual fuel usage for each.
Natural Gas SCC: 2-01-002-01 (primary fuel)
Fuel Oil SCC: 2-02-001-03

Describe each fuel expected to be used during the term of the permit.

Fuel Type	Max. Sulfur Content	Max. Ash Content	BTU Value
Natural Gas	pipeline	pipeline	931.1/scf (see attached gas analysis)
Fuel Oil	0.05%	0.001	137,000/gal. (see attached Diesel analysis)

Emissions Data		
Criteria Pollutants	Potential Emissions	
	PPH	TPY
Carbon Monoxide (CO)	32 (natural gas) 72 (fuel Oil)	116 (combined- both GT1 and GT2)
Nitrogen Oxides (NO _x)	65 (natural gas) 470 (fuel Oil)	241 (combined- both GT1 and GT2)
Lead (Pb)		
Particulate Matter (PM _{2.5})		
Particulate Matter (PM ₁₀)	18 (natural gas) 39 (Fuel Oil)	75(combined- both GT1 and GT2)
Total Particulate Matter (TSP)		
Sulfur Dioxide (SO ₂)	2.5 (Natural Gas) 103 (Fuel Oil)	53 (combined- both GT1 and GT2)
Volatile Organic Compounds (VOC)	3.0 (Natural Gas) 8.0 (Fuel Oil)	12 (combined- both GT1 and GT2)
Hazardous Air Pollutants	Potential Emissions	
	PPH	TPY
Formaldehyde	1.7	7 (combined- both GT1 and GT2)
Sulfuric Acid	11 (fuel Oil)	5.6 (combined- both GT1 and GT2)
PAH's		1.2 (combined- both GT1 and GT2)
Regulated Pollutants other than Criteria and HAP	Potential Emissions	
	PPH	TPY

Applicable Requirements

List all applicable requirements for this emission unit. For each applicable requirement, include the underlying rule/regulation citation and/or construction permit with the condition number. (Note: Title V permit condition numbers alone are not the underlying applicable requirements). If an emission limit is calculated based on the type of source and design capacity or if a standard is based on a design parameter, this information should also be included.

1. Sulfur content of fuel combusted shall be no more than 0.8% by wt. [40 CFR § 60.333(b) 45CSR13 Permit No. R13-2373 Other Requirements (B)(6)]
2. NO_x from turbine stacks shall not exceed 109 ppmv on a dry basis at 15% O₂ [40 CFR § 60.332(a) (1), 45CSR13 Permit No. R13-2373, Other Requirements (B)(6)]
3. At all times the turbines shall be operated in a manner consistent with good air pollution control practices [40 CFR § 60.333(b) 45CSR13 Permit No. R13-2373, Other Requirements (B)(6)]
4. Emissions from the turbines shall not exceed the limits in existing TV Permit – *compliance with streamlined SO₂ limit assures compliance with 45CSR §10-3.1* [45CSR13 – Permit No. R13-2373 Specific Requirement (A) (1-3); 45 CSR§30-5.1.c]
5. Combustion Turbines (both GT1 & GT2) shall not combust more than 14.02 x 10⁹ scf/yr of fuel cumulatively on a rolling 12-month basis. When fuel oil is combusted the above limit shall be reduced by 889cf of natural gas for each gallon of fuel oil combusted. [45CSR13 – Permit No. R13-2373 Specific Requirement (A)(4); 45CSR§30-5.1.c]
6. When low sulfur distillate fuel oil is fired, water injection shall be utilized to control NO_x emissions. [45CSR13 – Permit No. R13-2373 Specific Requirement (A)(5).]
7. A dry low NO_x combustion system shall be installed, maintained, and operated so as to control NO_x emissions from the combustion turbines (both GT1 and GT2) when natural gas is fired [45CSR13 – Permit No. R13-2373 Specific Requirement (A)(6).]
8. The annual average sulfur content of the low sulfur distillate fuel shall not exceed 0.05 percent. [45CSR13 – Permit No. R13-2373 Specific Requirement (A)(7).]
9. The annual average sulfur content of the natural gas shall not exceed 0.5 grains per 100 scf. [45CSR13 – Permit No. R13-2373 Specific Requirement (A)(8).]
10. The gas turbines (GT1 and GT2 are Phase II Acid Rain affected units under 45CSR33 as defined by 40 CFR § 72.6, and as such are required to meet the requirements of 40 CFR Parts 72,73,74,75,76, 77 and 78.

☒ Permit Shield

For all applicable requirements listed above, provide monitoring/testing/recordkeeping/reporting which shall be used to demonstrate compliance. If the method is based on a permit or rule, include the condition number or citation. (Note: Each requirement listed above must have an associated method of demonstrating compliance. If there is not already a required method in place, then a method must be proposed.)

1. Shall comply with the monitoring requirements as found in 40 CFR 75 [40 CFR § 72.9(b)(1);45CSR33]
2. NO_x monitor on combustion turbine following procedures in 40 CFR 60.13 or 40 CFR Part 75 as appropriate [45CSR – Permit No. R13-2373 Specific Requirement (A)(9).]
3. Install and operate a continuous monitoring system to monitor and record the fuel consumption and the ratio of water to fuel being fired in the turbine. The system shall be accurate to within 5.0% and approved by the administrator. [40 CFR § 60.334(a); 45CSR13 Permit No. R13-2373 Other Requirements (B)(6), 45CSR16]
4. The sulfur content of the fuel being fired in the turbines shall be monitored and recorded in accordance with 40CFR 75. [40 CFR § 60.334(b)(2); 45CSR13 Permit No. R13-2373 Other Requirements (B)(6) & (B)(7); 45CSR§30-5.1]
5. Stack testing to be conducted on one turbine during term of permit to determine compliance with CO, VOC, PM-10 and sulfuric acid mist in accordance with EPA methods. [45CSR§30-5.1.c]
6. Continual compliance with the mass emission limits in the existing permit. The required calculations must be performed every 15 minutes utilizing average minute data values for the parameters. The hourly averages will then be used to create the monthly and 12-month rolling average emission reports. Calculations are performed for Heat Input, NO_x based on CEMs, SO₂ based on sulfur content, PM-10 based

on most recent source test, VOC based on most recent source test, CO based on most recent source test and H₂SO₄ based on the most recent source test. [45CSR§30-5.1c.]

7. Maintain daily records of the amount of fuel combusted in turbine [45CSR13 – Permit No. R13-2373 Other Requirements(B)(10)]
8. Reporting requirements of 40 CFR§60.334(j) by submitting reports of excess emissions and monitor downtime, in accordance with 40 CFR§60.7(c). Excess emissions shall be reported for all periods of unit operation, including startup, shutdown, and malfunction. For the purpose of reports required under 40 CFR§60.7(c), periods of excess emissions and monitor downtime that shall be reported are defined by 40 CFR§60.334(j). all required reports shall be submitted to both WV DEP and USEPA in accordance with 3.4.3[40CFR§§60.334(j) and 60.7(c); 45CSR13 – Permit No. R13-2373 Other Requirements (B)(9)]

Are you in compliance with all applicable requirements for this emission unit? ☒ Yes ☐ No

If no, complete the Schedule of Compliance Form as ATTACHMENT F.