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East Tennessee Natural Gas, LLC  
5400 Westheimer Court  
Houston, TX 77056

Mailing Address:  
P.O. Box 1642  
Houston, TX 77251-1642



2011 MAR 30 PM 1:33

65-0028-01-S3

March 29, 2011

VIA OVERNIGHT DELIVERY

Mr. Barry R. Stephens, Director  
Division of Air Pollution Control  
Tennessee Department of Environment and Conservation  
9<sup>th</sup> Floor, L&C Annex  
401 Church Street  
Nashville, TN 37243-1531  
(615) 532-0554

RE: **PLANT-WIDE GREENHOUSE GAS COMBUSTION EMISSIONS SUMMARY**  
**PERMIT NO. 963779P**  
**EMISSION SOURCE REFERENCE NO. 65-0028-01**  
**STATION 3110 – WARTBURG**

Dear Mr. Stephens:

East Tennessee Natural Gas, LLC is submitting Greenhouse Gas Emissions for the Wartburg Compressor Station. Forms APC V.INDEX and APC V.29 and supporting calculations are enclosed with this letter.

Should you have any questions concerning this matter, please contact Sabino Gomez at (713) 989-8342.

Sincerely,

A handwritten signature in blue ink that reads "Victoria L. Wagner".

Victoria L. Wagner  
EHS Manager – US Operations

Enclosures

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**EAST TENNESEE NATURAL GAS, LLC**  
**STATION 3110 – WARTBURG**  
**Permit No. 963779P**  
**Emission Source Reference No. 65-0028-01**

**GREENHOUSE GAS EMISSIONS UPDATE**

**TENNESSEE DEPARTMENT OF ENVIRONMENT AND CONSERVATION**  
**DIVISION OF AIR POLLUTION CONTROL**

**MARCH 2011**



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MAJOR SOURCE OPERATING PERMIT APPLICATION  
INDEX OF AIR POLLUTION PERMIT APPLICATION FORMS

1. ADMINISTRATION		
This application contains the following forms:	APC Form V.1, Facility Identification	
	APC Form V.2, Operations and Flow Diagrams	
2. EMISSIONS SOURCE DESCRIPTION		TOTAL NUMBER OF THIS FORM
This application contains the following forms (one form for each incinerator, printing operation, fuel burning installation, etc.):	APC Form V.3, Stack Identification	
	APC Form V.4, Fuel Burning Non-Process Equipment	
	APC Form V.5, Stationary Gas Turbines or Internal Combustion Engines	
	APC Form V.6, Storage Tanks	
	APC Form V.7, Incinerators	
	APC Form V.8, Printing Operations	
	APC Form V.9, Painting and Coating Operations	
	APC Form V.10, Miscellaneous Processes	
	APC Form V.33, Stage I and Stage II Vapor Recovery Equipment	
	APC Form V.34, Open Burning	
3. AIR POLLUTION CONTROL SYSTEM		TOTAL NUMBER OF THIS FORM
This application contains the following forms (one form for each control system in use at the facility):	APC Form V.11, Control Equipment - Miscellaneous	
	APC Form V.12, Condensers	
	APC Form V.13, Adsorbers	
	APC Form V.14, Catalytic or Thermal Oxidation Equipment	
	APC Form V.15, Cyclones/Settling Chambers	
	APC Form V.16, Electrostatic Precipitators	
	APC Form V.17, Wet Collection Systems	
	APC Form V.18, Baghouse/Fabric Filters	

## MAJOR SOURCE OPERATING PERMIT APPLICATION - INDEX OF AIR POLLUTION PERMIT APPLICATION FORMS

4. COMPLIANCE DEMONSTRATION		TOTAL NUMBER OF THIS FORM
This application contains the following forms (one form for each incinerator, printing operation, fuel burning installation, etc.):	APC Form V.19, Compliance Certification - Monitoring and Reporting - Description of Methods for Determining Compliance	
	APC Form V.20, Continuous Emissions Monitoring	
	APC Form V.21, Portable Monitors	
	APC Form V.22, Control System Parameters or Operating Parameters of a Process	
	APC Form V.23, Monitoring Maintenance Procedures	
	APC Form V.24, Stack Testing	
	APC Form V.25, Fuel Sampling and Analysis	
	APC Form V.26, Record Keeping	
	APC Form V.27, Other Methods	
	APC Form V.28, Emissions from Process Emissions Sources / Fuel Burning Installations / Incinerators	
	APC Form V.29, Emissions Summary for the Facility or for the Source Contained in This Application	1
	APC Form V.30, Current Emissions Requirements and Status	
	APC Form V.31, Compliance Plan and Compliance Certification	
	APC Form V.32, Air Monitoring Network	
<p>5. STATEMENT OF COMPLETENESS AND CERTIFICATION OF COMPLIANCE</p> <p>I have reviewed this application in its entirety and to the best of my knowledge, and based on information and belief formed after reasonable inquiry, the statements and information contained in this application are true, accurate, and complete. I have provided all the information that is necessary for compliance purposes and this application consists of _____ pages and they are numbered from page _____ to _____. The status of this facility's compliance with all applicable air pollution control requirements, including the enhanced monitoring and compliance certification requirements of the Federal Clean Air Act, is reported in this application along with the methods to be used for compliance demonstration.</p> <p>Fulkra J. Mason, Vice-President Southeast Operations <span style="float: right;">713-627-5400</span></p>		
Name and Title of Responsible Official	Telephone Number with Area Code	
Signature of Responsible Official	Date of Application	

(FOR DEFINITION OF RESPONSIBLE OFFICIAL, SEE INSTRUCTIONS FOR APC FORM V.1)



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MAJOR SOURCE OPERATING PERMIT APPLICATION  
EMISSION SUMMARY FOR THE FACILITY OR FOR THE SOURCES CONTAINED IN THIS APPLICATION

1. FACILITY NAME:

Wartburg Compressor Station

2. COMPLETE THE FOLLOWING EMISSIONS SUMMARY FOR REGULATED AIR POLLUTANTS AT THIS FACILITY OR FOR THE SOURCES CONTAINED IN THIS APPLICATION.

AIR POLLUTANT	SUMMARY OF MAXIMUM ALLOWABLE EMISSIONS		SUMMARY OF ACTUAL EMISSIONS	
	TONS PER YEAR	RESERVED FOR STATE USE ( POUNDS PER HOUR- ITEM 4, APC V.28 )	TONS PER YEAR	RESERVED FOR STATE USE ( POUNDS PER HOUR- ITEM 4, APC V.28 )
PARTICULATES ( TSP )				
SULFUR DIOXIDE				
VOLATILE ORGANIC COMPOUNDS				
CARBON MONOXIDE				
LEAD				
NITROGEN OXIDES				
TOTAL REDUCED SULFUR				
MERCURY				
ASBESTOS				
BERYLLIUM				
VINYL CHLORIDES				
FLUORIDES				
GASEOUS FLUORIDES				
GREENHOUSE GASES (See attached calculations)	27,194 CO2-e Tons/yr		3,956 CO2-e Tons/yr	

( CONTINUED ON NEXT PAGE )

Potential Plant-Wide Greenhouse Gas (GHG) Combustion Emissions Summary  
3110 - Wartburg Compressor Station

Combustion Emission Source	Design Rating (MMBtu/hr)	Maximum Operating Schedule (hr/yr)	Worst-case Fuel	Default Fuel Heat Value (Btu/scf)	Maximum Annual Fuel Use (MMscf/yr)	CO <sub>2</sub> Emission Factor (kg/MMBtu)	CO <sub>2</sub> GWP	Tons CO <sub>2</sub> -e	N <sub>2</sub> O Emission Factor (kg/MMBtu)	N <sub>2</sub> O GWP	Tons CO <sub>2</sub> -e	CH <sub>4</sub> Emission Factor (kg/MMBtu)	CH <sub>4</sub> GWP	Tons CO <sub>2</sub> -e	Total CO <sub>2</sub> -e Tons
T-1A	16.42	8760	Natural Gas	1028	139.90	53.02	1	8410.44	1.00E-04	310	4.92	1.00E-03	21	3.33	8,418.69
T-2A	16.42	8760	Natural Gas	1028	139.90	53.02	1	8410.44	1.00E-04	310	4.92	1.00E-03	21	3.33	8,418.69
T-3A	16.42	8760	Natural Gas	1028	139.90	53.02	1	8410.44	1.00E-04	310	4.92	1.00E-03	21	3.33	8,418.69
3110-35	3.60	8760	Natural Gas	1028	30.68	53.02	1	1844.26	1.00E-04	310	1.08	1.00E-03	21	0.73	1,846.07
Domestic*		8760	Natural Gas	1028	1.5324	53.02	1	92.13	1.00E-04	310	0.05	1.00E-03	21	0.04	92.22
Total GHG CO <sub>2</sub> -e Tons:															27,194.36

\*Domestic combustion sources include building space heaters, office furnace, water heater, cook stove. Maximum fuel use is 4x recorded meter volume for 2010.

Example Calculation:

MMscf/yr = maximum potential fuel consumption per year (MMscf)  
 1028 = Heat value of natural gas (EPA default)  
 2.206 = lb/kg conversion factor  
 GHG EF = GHG emission factor (kg/MMBtu)  
 GWP = Global Warming Potentials (CO<sub>2</sub>-e)

$$\frac{\text{MMscf}}{\text{yr}} \times \frac{1028 \text{ Btu}}{\text{scf}} \times \frac{2.206 \text{ lb}}{\text{kg}} \times \frac{\text{kg}}{\text{MMBtu}} \times \frac{\text{GWP}}{2000 \text{ lb}} = \text{Tons CO}_2\text{-e/yr}$$

Actual Plant-Wide Greenhouse Gas (GHG) Combustion Emissions Summary  
3110 - Wartburg Compressor Station

Combustion Emission Source	Design Rating (MMBtu/hr)	Actual Operating Schedule (hr/yr)	Worst-case Fuel	Default Fuel Heat Value (Btu/scf)	Actual* Annual Fuel Use (MMscf/yr)	CO <sub>2</sub> Emission Factor (kg/MMBtu)	CO <sub>2</sub> GWP	Tons CO <sub>2</sub> -e	N <sub>2</sub> O Emission Factor (kg/MMBtu)	N <sub>2</sub> O GWP	Tons CO <sub>2</sub> -e	CH <sub>4</sub> Emission Factor (kg/MMBtu)	CH <sub>4</sub> GWP	Tons CO <sub>2</sub> -e	Total CO <sub>2</sub> -e Tons
T-1A	16.42	1391	Natural Gas	1028	22.214	53.02	1	1335.49	1.00E-04	310	0.78	1.00E-03	21	0.53	1,336.80
T-2A	16.42	1429	Natural Gas	1028	22.821	53.02	1	1371.98	1.00E-04	310	0.80	1.00E-03	21	0.54	1,373.32
T-3A	16.42	1271	Natural Gas	1028	20.298	53.02	1	1220.28	1.00E-04	310	0.71	1.00E-03	21	0.48	1,221.48
3110-35	3.60	8	Natural Gas	1028	0.028	53.02	1	1.68	1.00E-04	310	0.00	1.00E-03	21	0.00	1.69
Domestic*		8760	Natural Gas	1028	0.3831	53.02	1	23.03	1.00E-04	310	0.01	1.00E-03	21	0.01	23.05
Total GHG CO <sub>2</sub> -e Tons:															3,956.35

\*Domestic combustion sources include building space heaters, office furnace, water heater, cook stove.  
Actual fuel volume as recorded for 2010 for respective emission source was used to determine GHG emissions.

Example Calculation:

MMscf/yr = maximum potential fuel consumption per year (MMscf)  
1028 = Heat value of natural gas (EPA default)  
2.206 = lb/kg conversion factor  
GHG EF = GHG emission factor (kg/MMBtu)  
GWP = Global Warming Potentials (CO<sub>2</sub>-e)

$$\frac{\text{MMscf}}{\text{yr}} \times \frac{1028 \text{ Btu}}{\text{scf}} \times \frac{2.206 \text{ lb}}{\text{kg}} \times \frac{\text{kg}}{\text{MMBtu}} \times \frac{\text{GWP}}{2000 \text{ lb}} = \text{Tons CO}_2\text{-e/yr}$$