

WEST COUNTY POWER PARTNERS, LLC

11401 Lamar Avenue
Overland Park, Kansas 66211
Tel: (913) 458-2000
Fax: (913) 458-2934

527 Logwood
San Antonio, TX 78221
Ph: 210-475-8000
Fax: 210-475-8060

Florida Power & Light Company
West County Energy Center – Unit 3
Permit No. – PSD-FL-396
DEP File No. – 0990646-002-AC

RECEIVED

NOV 04 2011

DIVISION OF AIR
RESOURCE MANAGEMENT

WCPP Project 161354
WCPP Files 14.0100/32.0440
WCPP3-2011-TP-395
November 3, 2011

E-mail, Express Mail

Ms. Lynn Searce
Florida Department of Environmental Protection
Division of Air Resource Management
Bureau of Air Regulation
2600 Blair Stone Road, MS 5500
Tallahassee, FL 32399-2400

Subject: **West County Energy Center - Unit #3 CT Performance Curves**


Dear Ms. Searce:

On behalf of Florida Power & Light Company (FPL) and its Designated Representative, Christian Kiernan, the West County Power Partners LLC (WCPP), EPC Contractor for construction of the new combined cycle generating Unit 3 at the FPL West County Energy Center, is submitting the combustion turbine performance curves per West County's Air Permit (Permit No. PSD-FL-396, Performance Restrictions, #7). These curves are the same as were submitted previously for Units 1 & 2 at West County. This submittal is being done to ensure the files are complete for the site.

If you have any questions about this notification or the attachment, please contact Terry Apple at (913) 458-7220 or John Rachal at (561) 784-8048.

Very truly yours,

WEST COUNTY POWER PARTNERS, LLC



for Mike Perkins
Project Executive

Enclosure

cc: Dave McNeal, USEPA Air, Pesticides and Toxics Management
Carlos Martinez, USEPA Clean Air Markets Division
Leigh Pell, FDEP Air Resource Management
Lennon Anderson, FDEP Southeast District
Lee Hoefert, FDEP Southeast District
Mike Halpin, FDEP Division of Air Resources Management, Director
Cindy Mulkey, FDEP Sitting, Program Administrator
Syed Arif, FDEP, Administrator
Kimberly Ousdahl, ACF/JB

Christian Kiernan, FPL Designated Representative
Laxmana Tallam, PBC Health Department
Jim Stormer, PBC Health Department
Tom Tittle, PBC Health Department
Tom Young, FPL Construction Project General Manager
Peter Holzapfel, FPL Plant General Manager
David Fawcett, FPL West County Environmental Leader
Rachel Godino, FPL Environmental Project Manager
Matthew Wetmore, FPL PGD Technical Services Specialist
Robert Bennett, FPL Project Engineer
Mike Perkins, WCPP Project Executive
John Rachal, WCPP Senior Project Manger
Terry Apple, WCPP Project Manager/ Project File
William Stevenson, WCPP Environmental Specialist



5. CORRECTION CURVES

Reference Correction

Item	Net Output Correction Curve	Heat Rate Correction Curve	Exhaust Flow Correction Curve	Exhaust Temp. Correction Curve
Ambient Air Dry Bulb Temperature	E01-05228-01(R2)			
Ambient Pressure	E01-05228-03(R2)			
Relative Air Humidity	E01-05228-02(R2)			
Fuel Gas Supply Temperature	NA	E01-05228-11(R2)	NA	
Fuel Gas Calorific Value and C/H ratio	E01-05228-08(R1)			
Gas Turbine Generator Frequency	E01-05228-06(R2)			
Excess Exhaust Static Pressure Loss	E01-05228-05(R2)			
Combustor Cooling Steam Heat Duty	E01-05228-09(R2) [△]			
Degradation	E01-01908(R1)		E01-02970(R1)	
GT Generator Efficiency	KC918369			
Combustor Cooling Steam Heat Duty	E01-05228-D1 (R0)	E01-05228-D2 (R0)	NA	
Turbine Cooling Air Heat Duty	E01-05228-D3 (R0)	E01-05228-D4 (R0)	NA	

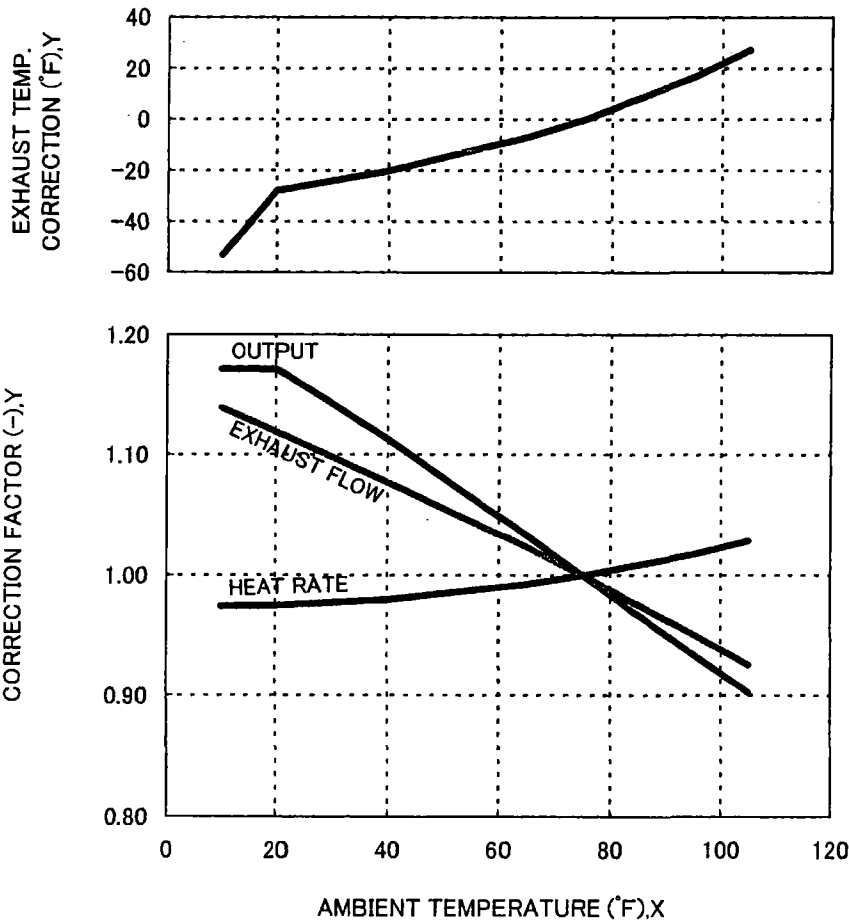


MITSUBISHI COMBUSTION TURBINE EXPECTED PERFORMANCE CURVE

Model No. M 501G

CORRECTION FACTOR
FOR
AMBIENT TEMPERATURE vs. OUTPUT, HEAT RATE, EXHAUST FLOW
and EXHAUST TEMPERATURE

[CONDITION]
FUEL : Natural GAS
AMBIENT PRESSURE : 14.67psi
RELATIVE HUMIDITY : 60%
FREQUENCY : 60Hz



mitsubishi MITSUBISHI COMBUSTION TURBINE EXPECTED PERFORMANCE CURVE

Model No. M 501 G

CORRECTION EQUATION
FOR
AMBIENT TEMPERATURE vs. OUTPUT, HEAT RATE, EXHAUST FLOW
and EXHAUST TEMPERATURE

[CONDITION]	
FUEL	: Natural GAS
AMBIENT PRESSURE	: 14.67psi
RELATIVE HUMIDITY	: 60%
FREQUENCY	: 60Hz

OUTPUT

10-20F	$y = 1.1715576$
20-105F	$y = -0.00000142x^2 - 0.002984329x + 1.231812178$

HEAT RATE

10-20F	$y = 0.00008248x + 0.97407149$
20-105F	$y = -0.000000002x^3 + 0.000006391x^2 - 0.000134379x + 0.974972801$

EXHAUST FLOW

10-20F	$y = -0.00198600x + 1.15898862$
20-105F	$y = -0.00000321x^2 - 0.00186902x + 1.15823275$

EXHAUST TEMPERATURE

10-20F	$y = 2.51712x - 78.2316$
20-105F	$y = 0.00451945x^2 + 0.07735822x - 31.22377275$

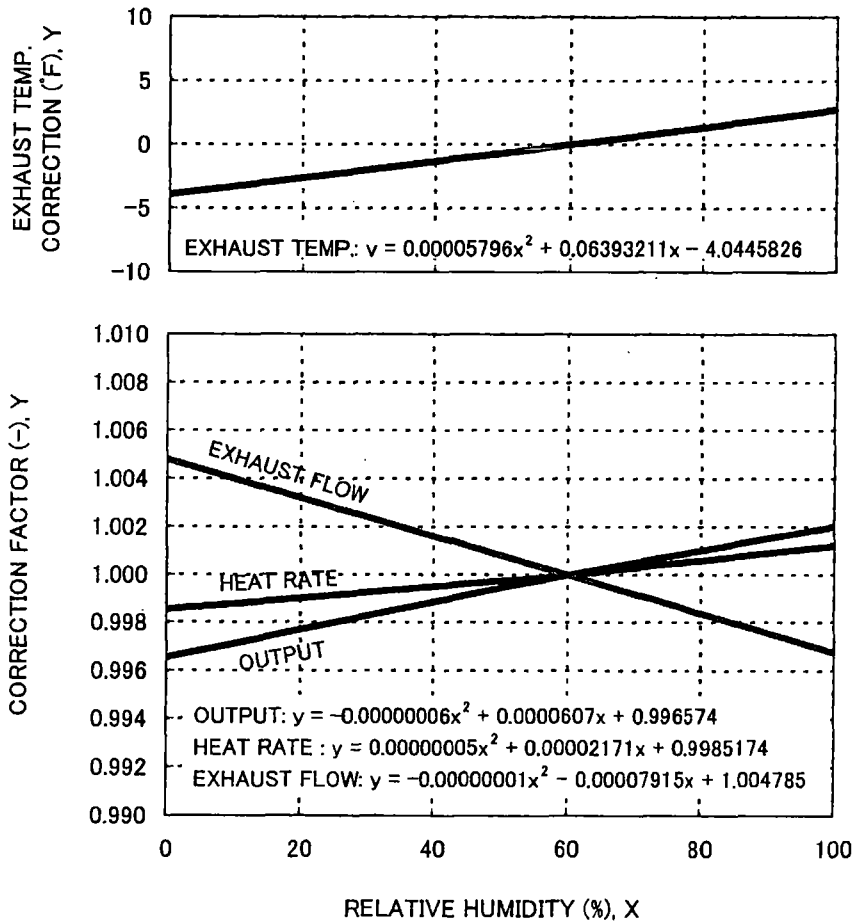


MITSUBISHI COMBUSTION TURBINE EXPECTED PERFORMANCE CURVE

Model No. M501 G

CORRECTION FACTOR FOR RELATIVE HUMIDITY vs. OUTPUT, HEAT RATE, EXHAUST FLOW and EXHAUST TEMPERATURE

[CONDITION]
 FUEL : Natural GAS
 AMBIENT TEMP. : 75°F
 AMBIENT PRESSURE : 14.67psi
 FREQUENCY : 60Hz



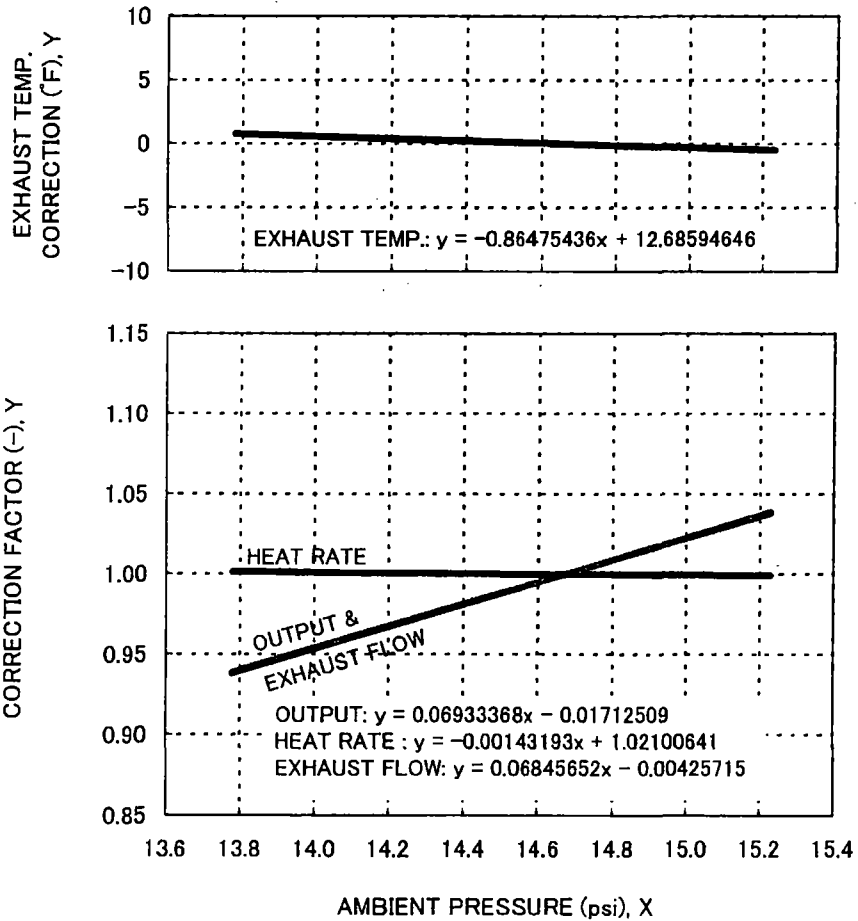


MITSUBISHI COMBUSTION TURBINE EXPECTED PERFORMANCE CURVE

Model No. M501 G

CORRECTION FACTOR FOR AMBIENT PRESSURE vs. OUTPUT, HEAT RATE, EXHAUST FLOW and EXHAUST TEMPERATURE

[CONDITION]
 FUEL : Natural GAS
 AMBIENT TEMP. : 75°F
 RELATIVE HUMIDITY : 60%
 FREQUENCY : 60Hz

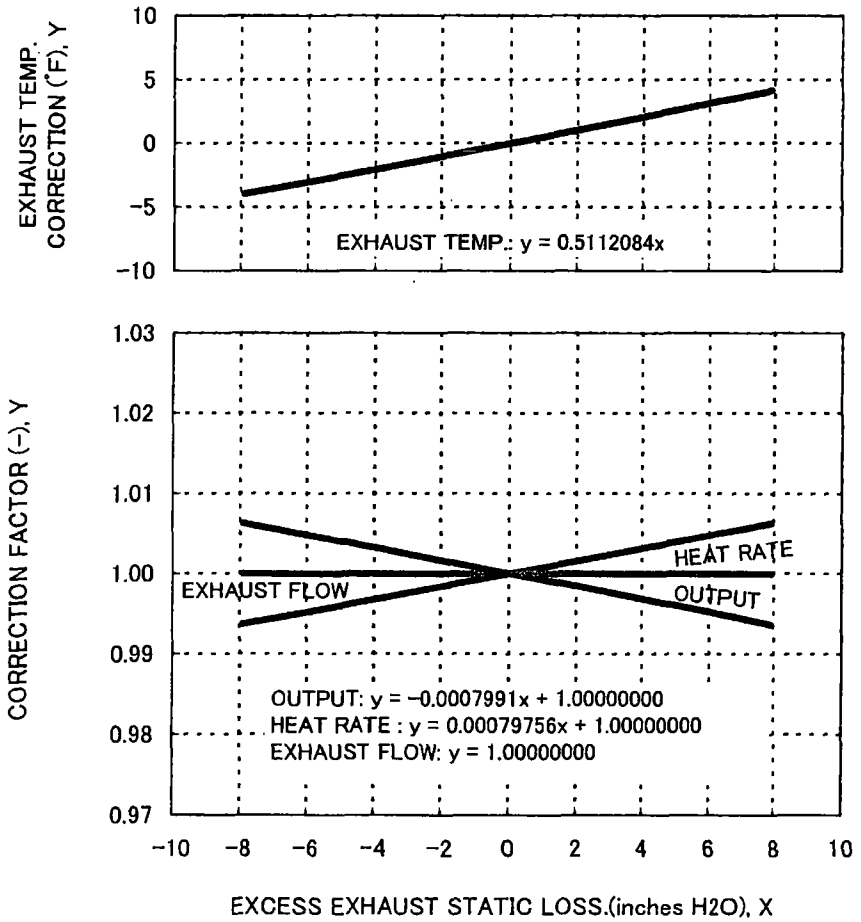


MITSUBISHI COMBUSTION TURBINE EXPECTED PERFORMANCE CURVE

Model No. M501 G

**CORRECTION FACTOR
 FOR
 EXCESS EXHAUST STATIC LOSS vs. OUTPUT, HEAT RATE, EXHAUST FLOW
 and EXHAUST TEMPERATURE**

[CONDITION]
 FUEL : Natural GAS
 AMBIENT TEMP. : 75°F
 AMBIENT PRESSURE : 14.67psi
 RELATIVE HUMIDITY : 60%
 FREQUENCY : 60Hz
 EXHAUST STATIC LOSS : 12.2 inches H2O

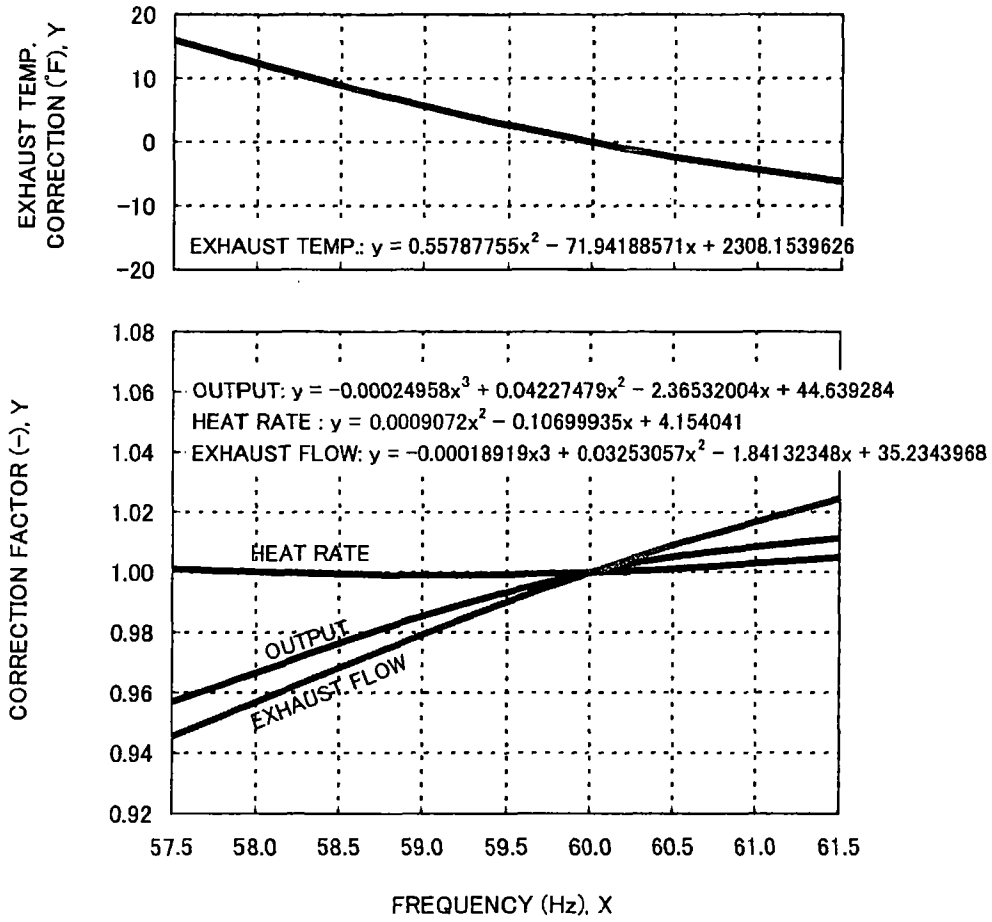


MITSUBISHI COMBUSTION TURBINE EXPECTED PERFORMANCE CURVE

Model No. M501 G

**CORRECTION FACTOR
FOR
FREQUENCY vs. OUTPUT, HEAT RATE, EXHAUST FLOW
and EXHAUST TEMPERATURE**

[CONDITION]
 FUEL : Natural GAS
 AMBIENT TEMP. : 75°F
 AMBIENT PRESSURE : 14.67psi
 RELATIVE HUMIDITY : 60%

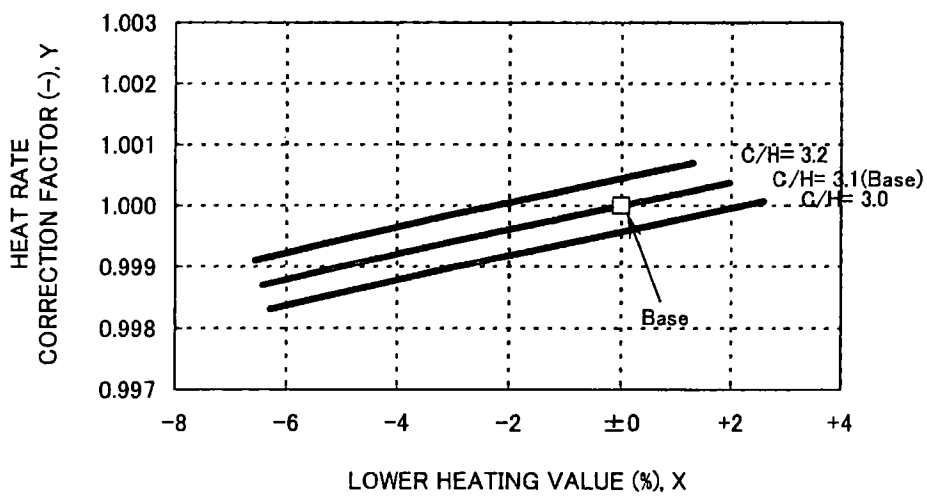
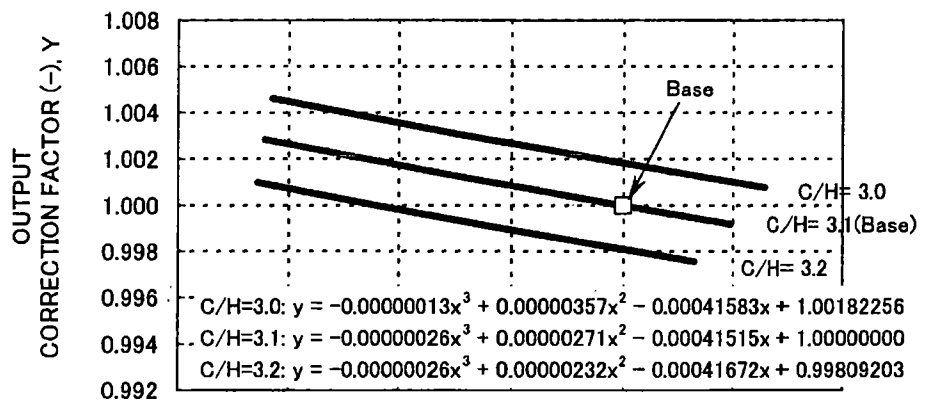


MITSUBISHI COMBUSTION TURBINE EXPECTED PERFORMANCE CURVE

Model No. M501 G

**CORRECTION FACTOR
FOR
LOWER HEATING VALUE vs. OUTPUT, HEAT RATE, EXHAUST FLOW
and EXHAUST TEMPERATURE (1/2)**

[CONDITION]
 FUEL : Natural GAS
 AMBIENT TEMP. : 75°F
 AMBIENT PRESSURE : 14.67psi
 RELATIVE HUMIDITY : 60%
 FREQUENCY : 60Hz



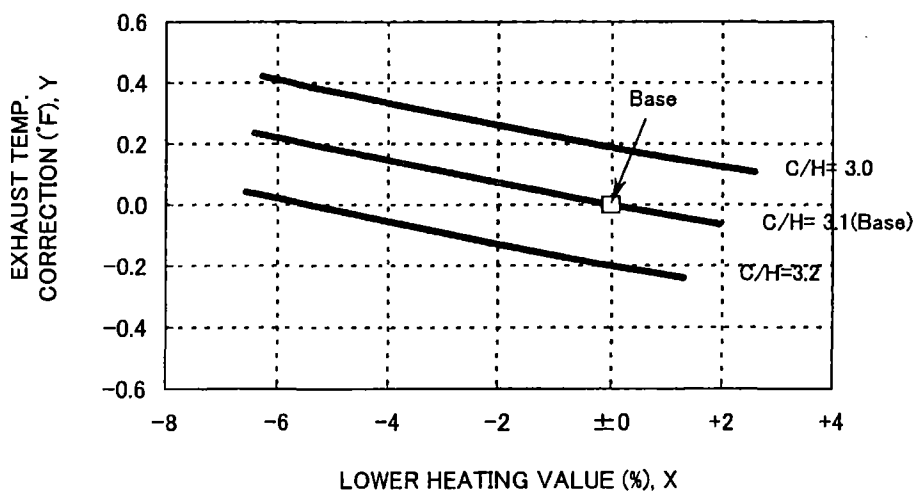
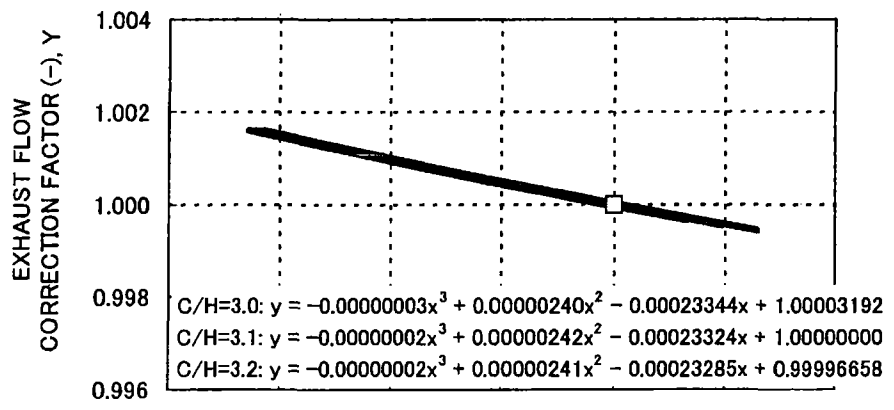
C/H=3.0: $y = 0.00000016x^3 - 0.00000053x^2 + 0.00019123x + 0.99957844$
 C/H=3.1: $y = 0.00000016x^3 - 0.00000049x^2 + 0.00019173x + 1.00000000$
 C/H=3.2: $y = 0.00000009x^3 - 0.00000075x^2 + 0.00019374x + 1.00044499$

MITSUBISHI COMBUSTION TURBINE EXPECTED PERFORMANCE CURVE

Model No. M501 G

**CORRECTION FACTOR
 FOR
 LOWER HEATING VALUE vs. OUTPUT, HEAT RATE, EXHAUST FLOW
 and EXHAUST TEMPERATURE (2/2)**

[CONDITION]
 FUEL : Natural GAS
 AMBIENT TEMP. : 75°F
 AMBIENT PRESSURE : 14.67psi
 RELATIVE HUMIDITY : 60%
 FREQUENCY : 60Hz



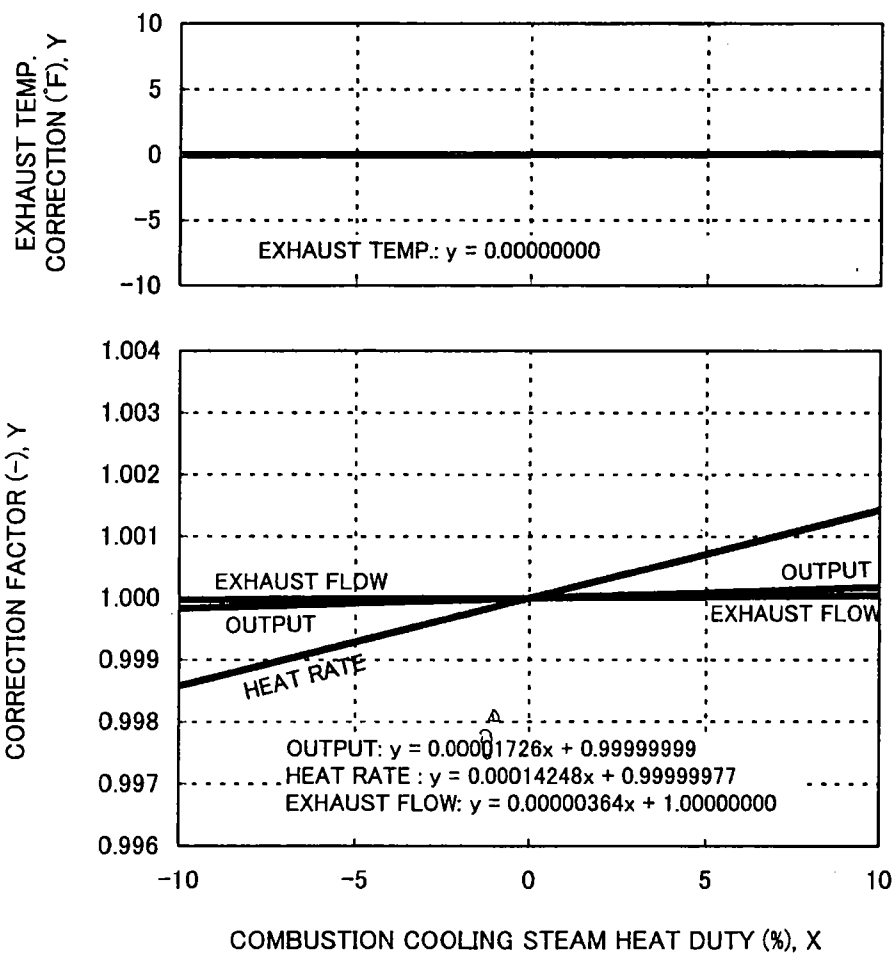
$C/H=3.0: y = 0.00005285x^3 + 0.00082474x^2 - 0.03423881x + 0.18828155$
 $C/H=3.1: y = 0.00008099x^3 + 0.00089106x^2 - 0.03434501x$
 $C/H=3.2: y = 0.00013109x^3 + 0.00148578x^2 - 0.03290035x - 0.19955483$

MITSUBISHI COMBUSTION TURBINE EXPECTED PERFORMANCE CURVE

Model No. M501G

CORRECTION FACTOR FOR COMBUSTION COOLING STEAM HEAT DUTY vs. OUTPUT, HEAT RATE, EXHAUST FLOW and EXHAUST TEMPERATURE

[CONDITION]
 FUEL : Natural GAS
 AMBIENT TEMP. : 75°F
 AMBIENT PRESSURE : 14.67psi
 RELATIVE HUMIDITY : 60%
 FREQUENCY : 60Hz
 COOLING STEAM DURY : 6.95Gcal/h





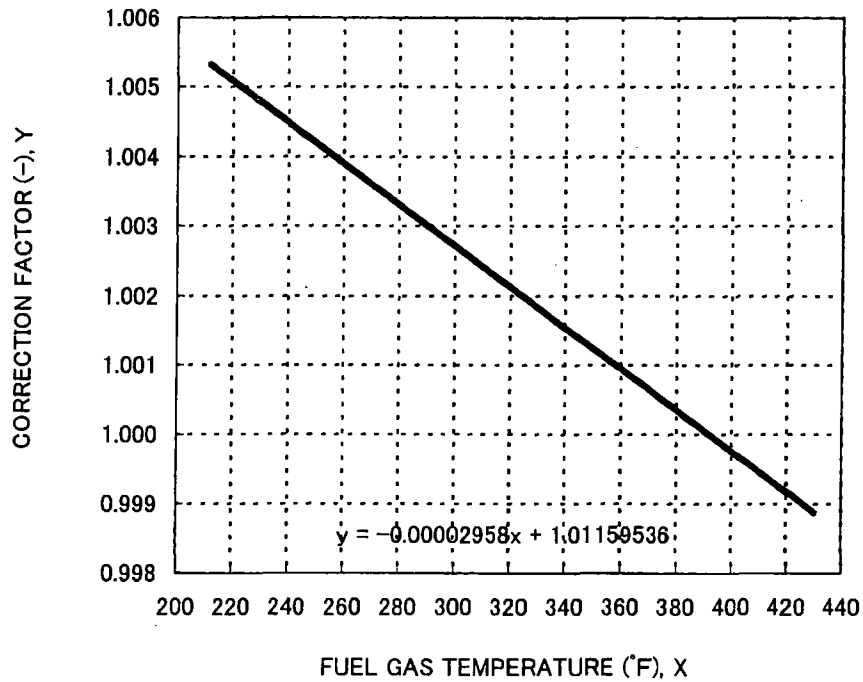
MITSUBISHI COMBUSTION TURBINE EXPECTED PERFORMANCE CURVE

Model No. M501 G

CORRECTION FACTOR
FOR
FUEL GAS TEMPERATURE vs. HEAT RATE

[CONDITION]

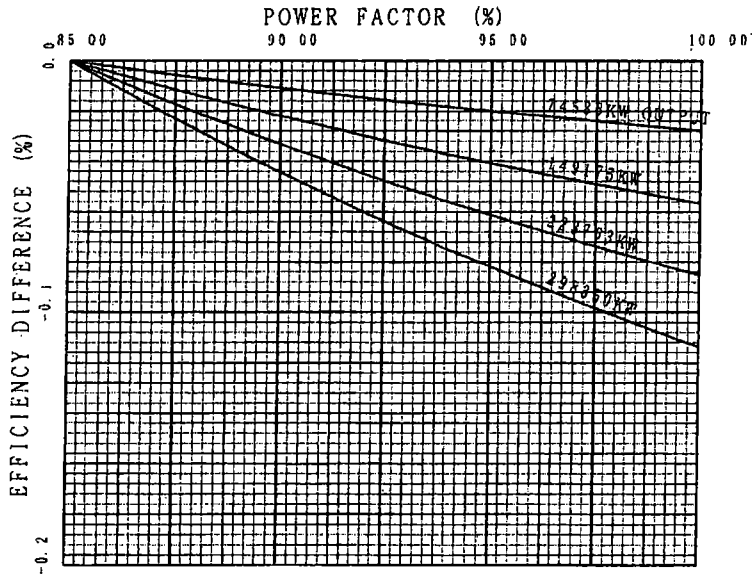
FUEL : Natural GAS
AMBIENT TEMP. : 75°F
AMBIENT PRESSURE : 14.67psi
RELATIVE HUMIDITY : 60%
FREQUENCY : 60Hz
FUEL GAS TEMPERATURE : 392deg.F



West County Energy Center GTG
 351000 KVA, 298350 KW, 85.00 % PF, 60 HZ, 3600 min⁻¹
 21 KV, 9650 A, 0.30 MPag GAS PRESS., 330 V EXC.
 HYDROGEN-COOLED TURBINE GENERATOR
 EFFICIENCY CORRECTION CURVE

EFFICIENCY AT 85.00 % PF CAN BE ESTIMATED BY ADDING EFFICIENCY DIFFERENCE VALUE TO EFFICIENCY AT A CERTAIN POWER FACTOR.

(NOTE) EFFICIENCY IS CALCULATED AT GENERATOR TERMINAL
 EXCITER LOSS AND FIELD WINDING LOSS ARE NOT INCLUDED IN THE CALCULATION

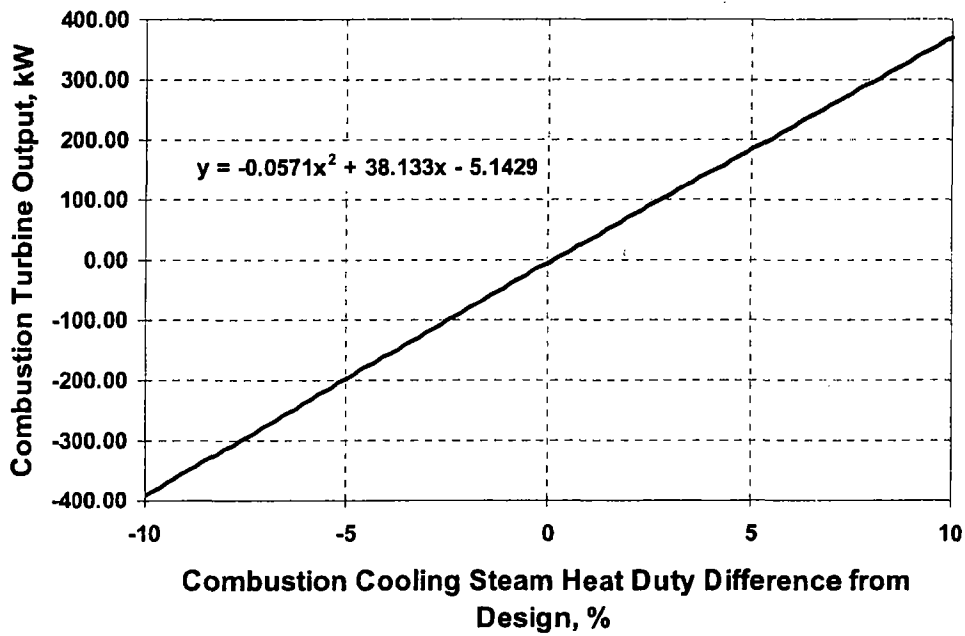


APPROVED	<i>Z. Michida</i>
CHECKED	<i>R. B...</i>
DESIGNED	Dec. 5, '05 A. Yoshii

KC918369

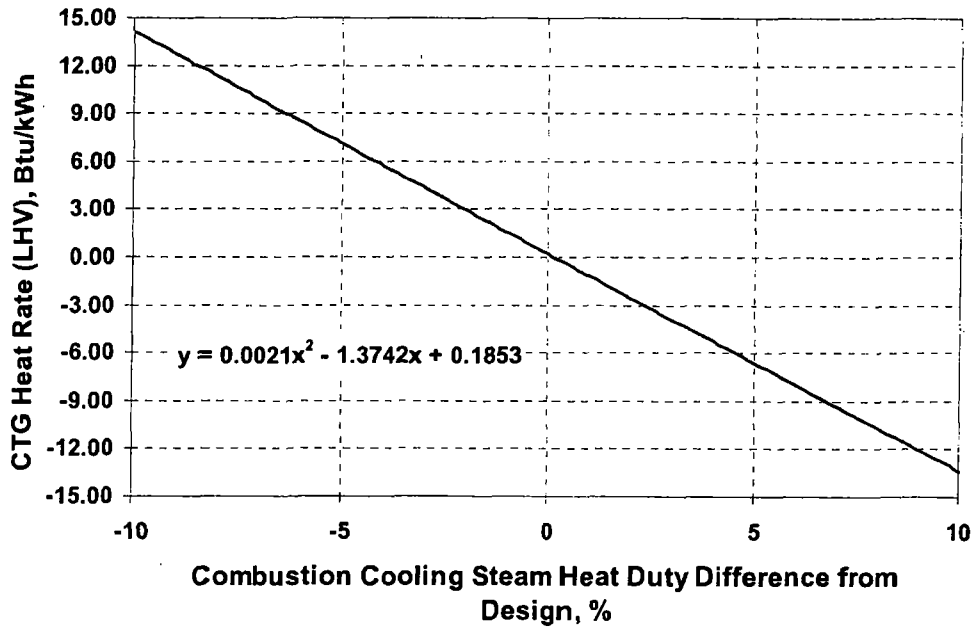
**Correction Curve
For
Combustion Cooling Steam Heat Duty vs. Combustion Turbine Output**

Design Conditions	
Fuel	Natural Gas
Ambient Temperature	75 deg F
Ambient Pressure	14.67 psi
Relative Humidity	60 %
Frequency	60 Hz
Base Case Combustion Cooling Steam Duty	28.00 mmBtu/hr



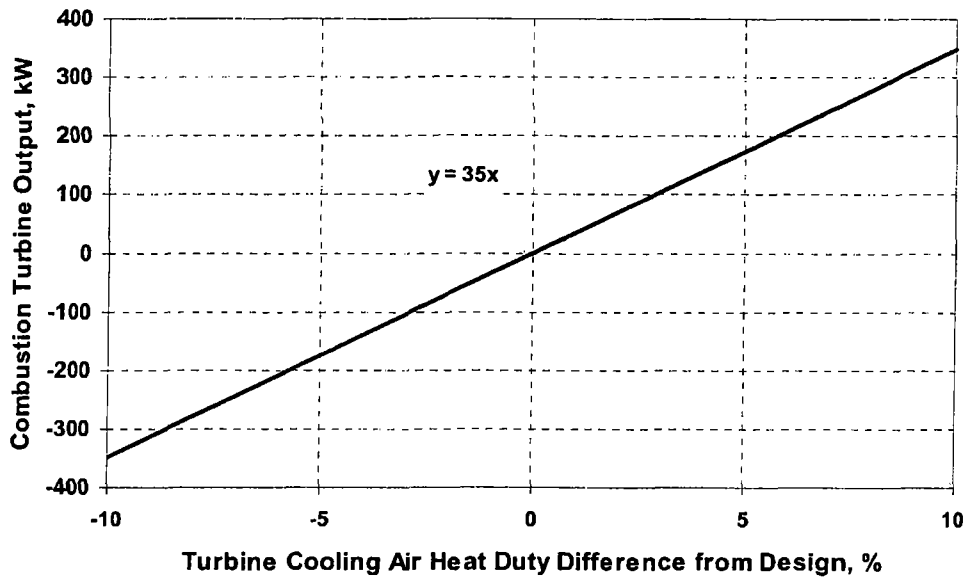
**Correction Curve
For
Combustion Cooling Steam Heat Duty vs. Combustion Turbine Heat Rate**

Design Conditions	
Fuel	Natural Gas
Ambient Temperature	75 deg F
Ambient Pressure	14.67 psi
Relative Humidity	60 %
Frequency	60 Hz
Base Case Combustion Cooling Steam Duty	28.00 mmBtu/hr



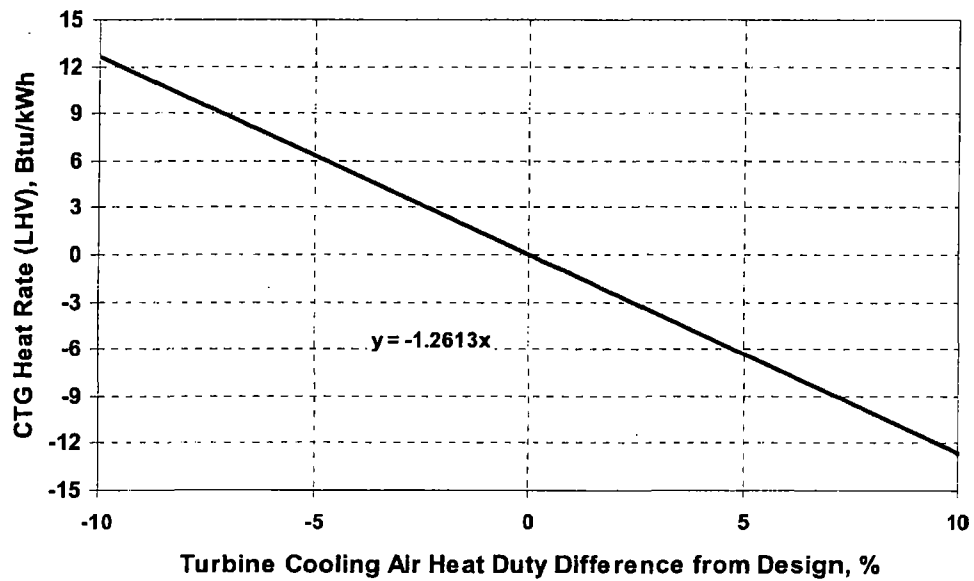
**Correction Curve
For
Turbine Cooling Air Heat Duty vs. Combustion Turbine Output**

Design Conditions	
Fuel	Natural Gas
Ambient Temperature	75 deg F
Ambient Pressure	14.67 psi
Relative Humidity	60 %
Frequency	60 Hz



**Correction Curve
For
Turbine Cooling Air Heat Duty vs. Combustion Turbine Heat Rate**

Design Conditions	
Fuel	Natural Gas
Ambient Temperature	75 deg F
Ambient Pressure	14.67 psi
Relative Humidity	60 %
Frequency	60 Hz



S4-75053