

Capacity Test Corrections

Date: June 20, 2005
Unit: JEC Unit 1 11:00-12:00

Report Date 11/09/2007

Test Conditions

Tw=ambient wet bulb temp.	73.27	Deg. F
Tcwi=circ. water inlet temp	90.64	Deg. F
T'w=mean coincident wet bulb temp.	75.40	Deg. F
Tcwo=circ. water outlet temp.	115.53	Deg. F
Pc=condenser backpressure	3.96	In. Hg.
Run Macro SATTEMP to get sat temp	1.94	Psi
Tsat=saturation temp. of condenser (from macro)	125.06	Deg. F
Gross generation	789.00	MW
Station power	55.00	MW
Uncorrected net load	734.00	MW

Correction Calculations

Condenser Circulating Water Inlet Temperature Correction

T'cwi= corrected circ. water inlet temp.

$$T'cwi = Tcwi + .6(T'w - Tw) = 91.92 \text{ Deg. F}$$

Condenser Pressure Correction

X=condenser heat transfer coefficient

$$X = \ln((Tsat - Tcwi) / (Tsat - Tcwo)) = 1.28$$

$$C = \text{inlet water temp. correction factor test @ } Tcwi = 1.076$$

$$C' = \text{inlet water tempo. correction factor expected @ } T'cwi = 1.080$$

(FROM HEI TABLES INLET WATER TEMP. CORRECTION) $1 - e^{-x'}$

X'=rating heat transfer exponent

$$X' = X(C'/C) = 1.29$$

T'sat=rating steam saturation temperature

$$T'sat = T'cwi + \frac{Tcwo - Tcwi}{1 - e^{-x'}} = 126.28 \text{ Deg. F}$$

$$\text{Backpressure at Saturation Temperature } T'sat = 2.01 \text{ Psia}$$

$$\text{Backpressure at Saturation Temperature } T'sat = 4.09 \text{ In Hg. A}$$

Corrected Gross Generation (P'g)

Backpressure Correction to Heat Rate is calculated below

Slope of backpressure correction to heat rate curve 1.25 % per 1 in. backpressure change

$$\text{Correction factor} = 0.9983$$

$$P'g = \text{Gross Load} * (\text{Correction Factor}) = 787.68$$

Corrected Net Generation **732.68**

-Transformer Losses	2.00
-Outside Station Power	3.01

JEC Corrected Net Generation **727.67**

TEST UNIT NET HEAT RATE

Coal Flow klb/hr	934.71
Coal HHV btu/lb	8384
Heat Input	7836595
Plant Net MW	734.00
Transformer Losses	2.00
External Aux Power	3.01
Actual Net MW	728.99
Heat Rate btu/kwh	10750

Capacity Test Corrections

Date: June 20, 2005
Unit: JEC Unit 1 12:00-13:00

Report Date 11/09/2007

Test Conditions

Tw=ambient wet bulb temp.	75.39 Deg. F
Tcwi=circ. water inlet temp	90.79 Deg. F
T'w=mean coincident wet bulb temp.	75.40 Deg. F
Tcwo=circ. water outlet temp.	116.95 Deg. F
Pc=condenser backpressure	4.10 In. Hg.
Run Macro SATTEMP to get sat temp	2.01 Psi
Tsat=saturation temp. of condenser (from macro)	126.34 Deg. F
Gross generation	785.00 MW
Station power	55.00 MW
Uncorrected net load	730.00 MW

Correction Calculations

Condenser Circulating Water Inlet Temperature Correction

T'cwi= corrected circ. water inlet temp.

$$T'cwi = Tcwi + .6(T'w - Tw) = 90.80 \text{ Deg. F}$$

Condenser Pressure Correction

X=condenser heat transfer coefficient

$$X = \ln((Tsat - Tcwi) / (Tsat - Tcwo)) = 1.33$$

$$C = \text{inlet water temp. correction factor test @ } Tcwi = 1.077$$

$$C' = \text{inlet water tempo. correction factor expected @ } T'cwi = 1.077$$

(FROM HEI TABLES INLET WATER TEMP. CORRECTION) $1 - e^{-x'}$

X'=rating heat transfer exponent

$$X' = X(C'/C) = 1.33$$

T'sat=rating steam saturation temperature

$$T'sat = T'cwi + \frac{Tcwo - Tcwi}{1 - e^{-X'}} = 126.35 \text{ Deg. F}$$

$$\text{Backpressure at Saturation Temperature } T'sat = 2.01 \text{ Psia}$$

$$\text{Backpressure at Saturation Temperature } T'sat = 4.10 \text{ In Hg. A}$$

Corrected Gross Generation (P'g)

Backpressure Correction to Heat Rate is calculated below

$$\text{Slope of backpressure correction to heat rate curve} = 1.25 \text{ \% per 1 in. backpressure change}$$

$$\text{Correction factor} = 1.0000$$

$$P'g = \text{Gross Load} * (\text{Correction Factor}) = 784.99$$

Corrected Net Generation 729.99

$$\text{-Transformer Losses} = 2.00$$

$$\text{-Outside Station Power} = 3.14$$

JEC Corrected Net Generation 724.85

TEST UNIT NET HEAT RATE

Coal Flow klb/hr	938.41
Coal HHV btu/lb	8384
Heat Input	7867609
Plant Net MW	730.00
Transformer Losses	2.00
External Aux Power	3.14
Actual Net MW	724.86
Heat Rate btu/kwh	10854

Capacity Test Corrections

Date: June 20, 2005
Unit: JEC Unit 1 13:00-14:00

Report Date 11/09/2007

Test Conditions

Tw=ambient wet bulb temp.	75.76 Deg. F
Tcwi=circ. water inlet temp	90.94 Deg. F
T'w=mean coincident wet bulb temp.	75.40 Deg. F
Tcwo=circ. water outlet temp.	117.08 Deg. F
Pc=condenser backpressure	4.11 In. Hg.
Run Macro SATTEMP to get sat temp	2.02 Psi
Tsat=saturation temp. of condenser (from macro)	126.43 Deg. F
Gross generation	797.00 MW
Station power	54.00 MW
Uncorrected net load	743.00 MW

Correction Calculations

Condenser Circulating Water Inlet Temperature Correction

T'cwi= corrected circ. water inlet temp.

$$T'cwi = Tcwi + .6(T'w - Tw) = 90.72 \text{ Deg. F}$$

Condenser Pressure Correction

X=condenser heat transfer coefficient

$$X = \ln((Tsat - Tcwi) / (Tsat - Tcwo)) = 1.33$$

$$C = \text{inlet water temp. correction factor test @ } Tcwi = 1.077$$

$$C' = \text{inlet water temp. correction factor expected @ } T'cwi = 1.076$$

(FROM HEI TABLES INLET WATER TEMP. CORRECTION) $1 - e^{-X}$

X'=rating heat transfer exponent

$$X' = X(C'/C) = 1.33$$

T'sat=rating steam saturation temperature

$$T'sat = T'cwi + \frac{Tcwo - Tcwi}{1 - e^{-X'}} = 126.22 \text{ Deg. F}$$

Backpressure at Saturation Temperature T'sat 2.01 Psia

Backpressure at Saturation Temperature T'sat 4.09 In Hg. A

Corrected Gross Generation (P'g)

Backpressure Correction to Heat Rate is calculated below

Slope of backpressure correction to heat rate curve 1.25 % per 1 in. backpressure change

Correction factor 1.0003

$$P'g = \text{Gross Load} * (\text{Correction Factor}) = 797.23$$

Corrected Net Generation **743.23**

-Transformer Losses 2.00

-Outside Station Power 3.14

JEC Corrected Net Generation **738.09**

TEST UNIT NET HEAT RATE

Coal Flow klb/hr	958.82
Coal HHV btu/lb	8384
Heat Input	8038735
Plant Net MW	743.00
Transformer Losses	2.00
External Aux Power	3.14
Actual Net MW	737.86
Heat Rate btu/kwh	10895

Capacity Test Corrections

Date: June 20, 2005
Unit: JEC Unit 1 14:00-15:00

Report Date 11/09/2007

Test Conditions

T _w =ambient wet bulb temp.	74.73	Deg. F
T _{cwi} =circ. water inlet temp	91.09	Deg. F
T' _w =mean coincident wet bulb temp.	75.40	Deg. F
T _{cwo} =circ. water outlet temp.	116.89	Deg. F
P _c =condenser backpressure	4.10	In. Hg.
Run Macro SATTEMP to get sat temp	2.01	Psi
T _{sat} =saturation temp. of condenser (from macro)	126.34	Deg. F
Gross generation	802.00	MW
Station power	54.00	MW
Uncorrected net load	748.00	MW

Correction Calculations

Condenser Circulating Water Inlet Temperature Correction

T'_{cwi}= corrected circ. water inlet temp.

$$T'_{cwi} = T_{cwi} + 0.6(T'_w - T_w) = 91.49 \text{ Deg. F}$$

Condenser Pressure Correction

X=condenser heat transfer coefficient

$$X = \ln((T_{sat} - T_{cwi}) / (T_{sat} - T_{cwo})) = 1.32$$

$$C = \text{inlet water temp. correction factor test @ } T_{cwi} = 1.077$$

$$C' = \text{inlet water tempo. correction factor expected @ } T'_{cwi} = 1.079$$

(FROM HEI TABLES INLET WATER TEMP. CORRECTION) $1 - e^{-X'}$

X'=rating heat transfer exponent

$$X' = X(C'/C) = 1.32$$

T'_{sat}=rating steam saturation temperature

$$T'_{sat} = T'_{cwi} + \frac{T_{cwo} - T_{cwi}}{1 - e^{-X'}} = 126.72 \text{ Deg. F}$$

Backpressure at Saturation Temperature T'_{sat} 2.03 Psia

Backpressure at Saturation Temperature T'_{sat} 4.14 In Hg. A

Corrected Gross Generation (P'g)

Backpressure Correction to Heat Rate is calculated below

Slope of backpressure correction to heat rate curve 1.25 % per 1 in. backpressure change

Correction factor 0.9995

$$P'g = \text{Gross Load} * (\text{Correction Factor}) = 801.57$$

Corrected Net Generation

747.57

-Transformer Losses	2.00
-Outside Station Power	3.14

JEC Corrected Net Generation

742.43

TEST UNIT NET HEAT RATE

Coal Flow klb/hr	952.19
Coal HHV btu/lb	8384
Heat Input	7983195
Plant Net MW	748.00
Transformer Losses	2.00
External Aux Power	3.14
Actual Net MW	742.86
Heat Rate btu/kwh	10747

Capacity Test Corrections

Date: June 20, 2005
Unit: JEC Unit 2 11:00-12:00

Report Date 11/09/2007

Test Conditions

Tw=ambient wet bulb temp.	73.90	Deg. F
T _{ci} =circ. water inlet temp	92.08	Deg. F
T _w =mean coincident wet bulb temp.	75.40	Deg. F
T _{co} =circ. water outlet temp.	116.12	Deg. F
P _c =condenser backpressure	3.74	In. Hg.
Run Macro SATTEMP to get sat temp	1.84	Psi
T _{sat} =saturation temp. of condenser (from macro)	122.97	Deg. F
Gross generation	789.00	MW
Station power	55.00	MW
Uncorrected net load	734.00	MW

Correction Calculations

Condenser Circulating Water Inlet Temperature Correction

T_{ci}'= corrected circ. water inlet temp.

T_{ci}'= T_{ci}+0.6(T_w-T_w)= 92.98 Deg. F

Condenser Pressure Correction

X=condenser heat transfer coefficient

X=ln((T_{sat}-T_{ci})/(T_{sat}-T_{co}))= 1.51

C=inlet water temp. correction factor test @T_{ci} 1.080

C'=inlet water temp. correction factor expected @ T_{ci}' 1.083
(FROM HEI TABLES INLET WATER TEMP. CORRECTION) 1-e^{-x'}

X'=rating heat transfer exponent

X'=X(C'/C)= 1.51

T_{sat}'=rating steam saturation temperature

T_{sat}'=T_{ci}'+T_{co}-T_{ci} / (1 - e^{-x'}) = 123.84 Deg. F

Backpressure at Saturation Temperature T_{sat} 1.88 Psia

Backpressure at Saturation Temperature T_{sat} 3.83 In Hg. A

Corrected Gross Generation (P'_g)

Backpressure Correction to Heat Rate is calculated below

Slope of backpressure correction to heat rate curve 1.25 % per 1 in. backpressure change

Correction factor 0.9989

P'_g= Gross Load*(Correction Factor) 788.11

Corrected Net Generation 733.11

-Transformer Losses 2.00

-Outside Station Power 2.74

JEC Corrected Net Generation 728.37

TEST UNIT NET HEAT RATE

Coal Flow klb/hr	941.10
Coal HHV btu/lb	8384
Heat Input	7890170
Plant Net MW	734.00
Transformer Losses	2.00
External Aux Power	2.74
Actual Net MW	729.26
Heat Rate btu/kwh	10819

Capacity Test Corrections

Date: June 20, 2005
Unit: JEC Unit 2 12:00-13:00

Report Date 11/09/2007

Test Conditions

Tw=ambient wet bulb temp.	74.67	Deg. F
Tcwi=circ. water inlet temp	93.02	Deg. F
T'w=mean coincident wet bulb temp.	75.40	Deg. F
Tcwo=circ. water outlet temp.	117.33	Deg. F
Pc=condenser backpressure	3.88	In. Hg.
Run Macro SATTEMP to get sat temp	1.91	Psi
Tsat=saturation temp. of condenser (from macro)	124.31	Deg. F
Gross generation	789.00	MW
Station power	55.00	MW
Uncorrected net load	734.00	MW

Correction Calculations

Condenser Circulating Water Inlet Temperature Correction

T'cwi= corrected circ. water inlet temp.

$$T'cwi = Tcwi + .6(T'w - Tw) = 93.46 \text{ Deg. F}$$

Condenser Pressure Correction

X=condenser heat transfer coefficient

$$X = \ln((Tsat - Tcwi) / (Tsat - Tcwo)) = 1.50$$

$$C = \text{inlet water temp. correction factor test @ } Tcwi = 1.083$$

$$C' = \text{inlet water tempo. correction factor expected @ } T'cwi = 1.084$$

(FROM HEI TABLES INLET WATER TEMP. CORRECTION) $1 - e^{-X'}$

X'=rating heat transfer exponent

$$X' = X(C'/C) = 1.50$$

T'sat=rating steam saturation temperature

$$T'sat = T'cwi + \frac{Tcwo - Tcwi}{1 - e^{-X'}} = 124.74 \text{ Deg. F}$$

Backpressure at Saturation Temperature T'sat 1.93 Psia

Backpressure at Saturation Temperature T'sat 3.93 In Hg. A

Corrected Gross Generation (P'g)

Backpressure Correction to Heat Rate is calculated below

Slope of backpressure correction to heat rate curve 1.25 % per 1 in. backpressure change

Correction factor 0.9994

$$P'g = \text{Gross Load} * (\text{Correction Factor}) = 788.56$$

Corrected Net Generation

733.56

-Transformer Losses 2.00

-Outside Station Power 2.74

JEC Corrected Net Generation

728.82

TEST UNIT NET HEAT RATE

Coal Flow klb/hr	947.98
Coal HHV btu/lb	8384
Heat Input	7947843
Plant Net MW	734.00
Transformer Losses	2.00
External Aux Power	2.85
Actual Net MW	729.15
Heat Rate btu/kwh	10900

Capacity Test Corrections

Date: June 20, 2005
Unit: JEC Unit 2 13:00-14:00

Report Date 11/09/2007

Test Conditions

Tw=ambient wet bulb temp.	74.72	Deg. F
T _{ci} =circ. water inlet temp	92.99	Deg. F
T _w =mean coincident wet bulb temp.	75.40	Deg. F
T _{co} =circ. water outlet temp.	118.52	Deg. F
P _c =condenser backpressure	3.97	In. Hg.
Run Macro SATTEMP to get sat temp	1.95	Psi
T _{sat} =saturation temp. of condenser (from macro)	125.15	Deg. F
Gross generation	803.00	MW
Station power	56.00	MW
Uncorrected net load	747.00	MW

Correction Calculations

Condenser Circulating Water Inlet Temperature Correction

T'_{ci}= corrected circ. water inlet temp.

$$T'_{ci} = T_{ci} + .6(T_w - T_w) = 93.40 \text{ Deg. F}$$

Condenser Pressure Correction

X=condenser heat transfer coefficient

$$X = \ln((T_{sat} - T_{ci}) / (T_{sat} - T_{co})) = 1.58$$

$$C = \text{inlet water temp. correction factor test @ } T_{ci} = 1.083$$

$$C' = \text{inlet water tempo. correction factor expected @ } T'_{ci} = 1.084$$

(FROM HEI TABLES INLET WATER TEMP. CORRECTION) $1 - e^{-X}$

X'=rating heat transfer exponent

$$X' = X(C'/C) = 1.58$$

T'_{sat}=rating steam saturation temperature

$$T'_{sat} = T'_{ci} + \frac{T_{co} - T_{ci}}{1 - e^{-X'}} = 125.55 \text{ Deg. F}$$

$$\text{Backpressure at Saturation Temperature } T'_{sat} = 1.97 \text{ Psia}$$

$$\text{Backpressure at Saturation Temperature } T'_{sat} = 4.01 \text{ In Hg. A}$$

Corrected Gross Generation (P'_g)

Backpressure Correction to Heat Rate is calculated below

$$\text{Slope of backpressure correction to heat rate curve} = 1.25 \text{ \% per 1 in. backpressure change}$$

$$\text{Correction factor} = 0.9995$$

$$P'_g = \text{Gross Load} * (\text{Correction Factor}) = 802.57$$

Corrected Net Generation

746.57

-Transformer Losses	2.00
-Outside Station Power	2.85

JEC Corrected Net Generation

741.72

TEST UNIT NET HEAT RATE

Coal Flow klb/hr	964.87
Coal HHV btu/lb	8384
Heat Input	8089471
Plant Net MW	747.00
Transformer Losses	2.00
External Aux Power	2.85
Actual Net MW	742.15
Heat Rate btu/kwh	10900

Capacity Test Corrections

Date: June 20, 2005
Unit: JEC Unit 2 14:00-15:00

Report Date 11/09/2007

Test Conditions

Tw=ambient wet bulb temp.	74.26	Deg. F
Tcwi=circ. water inlet temp	92.95	Deg. F
T'w=mean coincident wet bulb temp.	75.40	Deg. F
Tcwo=circ. water outlet temp.	118.80	Deg. F
Pc=condenser backpressure	3.98	In. Hg.
Run Macro SATTEMP to get sat temp	1.95	Psi
Tsat=saturation temp. of condenser (from macro)	125.25	Deg. F
Gross generation	805.00	MW
Station power	54.00	MW
Uncorrected net load	751.00	MW

Correction Calculations

Condenser Circulating Water Inlet Temperature Correction

T'cwi= corrected circ. water inlet temp.

$$T'cwi = Tcwi + .6(T'w - Tw) = 93.63 \text{ Deg. F}$$

Condenser Pressure Correction

X=condenser heat transfer coefficient

$$X = \ln((Tsat - Tcwi) / (Tsat - Tcwo)) = 1.61$$

$$C = \text{inlet water temp. correction factor test @ } Tcwi = 1.083$$

$$C' = \text{inlet water tempo. correction factor expected @ } T'cwi = 1.085$$

(FROM HEI TABLES INLET WATER TEMP. CORRECTION) $1 - e^{-x'}$

X'=rating heat transfer exponent

$$X' = X(C'/C) = 1.61$$

T'sat=rating steam saturation temperature

$$T'sat = T'cwi + \frac{Tcwo - Tcwi}{1 - e^{-x'}} = 125.91 \text{ Deg. F}$$

Backpressure at Saturation Temperature T'sat 1.99 Psia

Backpressure at Saturation Temperature T'sat 4.05 In Hg. A

Corrected Gross Generation (P'g)

Backpressure Correction to Heat Rate is calculated below

Slope of backpressure correction to heat rate curve 1.25 % per 1 in. backpressure change

Correction factor 0.9991

$$P'g = \text{Gross Load} * (\text{Correction Factor}) = 804.27$$

Corrected Net Generation

750.27

-Transformer Losses 2.00

-Outside Station Power 2.85

JEC Corrected Net Generation

745.42

TEST UNIT NET HEAT RATE

Coal Flow klb/hr	954.40
Coal HHV btu/lb	8384
Heat Input	8001727
Plant Net MW	751.00
Transformer Losses	2.00
External Aux Power	2.85
Actual Net MW	746.15
Heat Rate btu/kwh	10724

Capacity Test Corrections

Date: July 30, 2006
Unit: JEC Unit 3 10:00-11:00

Report Date 11/09/2007

Test Conditions

Tw=ambient wet bulb temp.	77.53 Deg. F
Tcwi=circ. water inlet temp	94.34 Deg. F
T'w=mean coincident wet bulb temp.	75.40 Deg. F
Tcwo=circ. water outlet temp.	119.41 Deg. F
Pc=condenser backpressure	4.22 In. Hg.
Run Macro SATTEMP to get sat temp	2.07 Psi
Tsat=saturation temp. of condenser (from macro)	127.41 Deg. F
Gross generation	783.00 MW
Station power	56.00 MW
Uncorrected net load	727.00 MW

Correction Calculations

Condenser Circulating Water Inlet Temperature Correction

T'cwi= corrected circ. water inlet temp.

$$T'cwi = Tcwi + .6(T'w - Tw) = 93.06 \text{ Deg. F}$$

Condenser Pressure Correction

X=condenser heat transfer coefficient

$$X = \ln((Tsat - Tcwi) / (Tsat - Tcwo)) = 1.42$$

$$C = \text{inlet water temp. correction factor test @ } Tcwi = 1.087$$

$$C' = \text{inlet water temp. correction factor expected @ } T'cwi = 1.083$$

(FROM HEI TABLES INLET WATER TEMP. CORRECTION) $1 - e^{-X}$

X'=rating heat transfer exponent

$$X' = X(C'/C) = 1.41$$

T'sat=rating steam saturation temperature

$$T'sat = T'cwi + \frac{Tcwo - Tcwi}{1 - e^{-X'}} = 126.18 \text{ Deg. F}$$

Backpressure at Saturation Temperature T'sat 2.00 Psia

Backpressure at Saturation Temperature T'sat 4.08 In Hg. A

Corrected Gross Generation (P'g)

Backpressure Correction to Heat Rate is calculated below

Slope of backpressure correction to heat rate curve

Correction factor 1.25 % per 1 in. backpressure change

$$1.0017$$

$$P'g = \text{Gross Load} * (\text{Correction Factor}) = 784.35$$

Corrected Net Generation

728.35

-Transformer Losses 2.00

-Outside Station Power 1.50

JEC Corrected Net Generation

724.85

TEST UNIT NET HEAT RATE

Coal Flow klb/hr	907.54
Coal HHV btu/lb	8541
Heat Input	7751275
Plant Net MW	727.00
Transformer Losses	2.00
External Aux Power	1.50
Actual Net MW	723.50
Heat Rate btu/kwh	10714

Capacity Test Corrections

Date: July 30, 2006
Unit: JEC Unit 3 11:00-12:00

Report Date 11/09/2007

Test Conditions

Tw=ambient wet bulb temp.	77.54	Deg. F
Tcwi=circ. water inlet temp	94.75	Deg. F
T'w=mean coincident wet bulb temp.	75.40	Deg. F
Tcwo=circ. water outlet temp.	119.53	Deg. F
Pc=condenser backpressure	4.25	In. Hg.
Run Macro SATTEMP to get sat temp	2.09	Psi
Tsat=saturation temp. of condenser (from macro)	127.67	Deg. F
Gross generation	782.00	MW
Station power	53.00	MW
Uncorrected net load	729.00	MW

Correction Calculations

Condenser Circulating Water Inlet Temperature Correction

T'cwi= corrected circ. water inlet temp.

$$T'cwi = Tcwi + .6(T'w - Tw) = 93.47 \text{ Deg. F}$$

Condenser Pressure Correction

X=condenser heat transfer coefficient

$$X = \ln((Tsat - Tcwi)/(Tsat - Tcwo)) = 1.40$$

$$C = \text{inlet water temp. correction factor test @ } Tcwi = 1.088$$

$$C' = \text{inlet water tempo. correction factor expected @ } T'cwi = 1.084$$

(FROM HEI TABLES INLET WATER TEMP. CORRECTION) $1 - e^{-X'}$

X'=rating heat transfer exponent

$$X' = X(C'/C) = 1.39$$

T'sat=rating steam saturation temperature

$$T'sat = T'cwi + \frac{Tcwo - Tcwi}{1 - e^{-X'}} = 126.43 \text{ Deg. F}$$

$$\text{Backpressure at Saturation Temperature } T'sat = 2.02 \text{ Psia}$$

$$\text{Backpressure at Saturation Temperature } T'sat = 4.11 \text{ In Hg. A}$$

Corrected Gross Generation (P'g)

Backpressure Correction to Heat Rate is calculated below

Slope of backpressure correction to heat rate curve

$$\text{Correction factor} = 1.25 \text{ \% per 1 in. backpressure change}$$

$$P'g = \text{Gross Load} * (\text{Correction Factor}) = 783.36$$

Corrected Net Generation

730.36

-Transformer Losses	2.00
-Outside Station Power	1.51

JEC Corrected Net Generation

726.85

TEST UNIT NET HEAT RATE

Coal Flow klb/hr	908.60
Coal HHV btu/lb	8541
Heat Input	7760363
Plant Net MW	729.00
Transformer Losses	2.00
External Aux Power	1.51
Actual Net MW	725.49
Heat Rate btu/kwh	10697

Capacity Test Corrections

Date: July 30, 2006
Unit: JEC Unit 3 12:00-13:00

Report Date 11/09/2007

Test Conditions

Tw=ambient wet bulb temp.	77.49	Deg. F
T _{ci} =circ. water inlet temp	94.78	Deg. F
T _w =mean coincident wet bulb temp.	75.40	Deg. F
T _{co} =circ. water outlet temp.	119.66	Deg. F
P _c =condenser backpressure	4.28	In. Hg.
Run Macro SATTEMP to get sat temp	2.10	Psi
T _{sat} =saturation temp. of condenser (from macro)	127.93	Deg. F
Gross generation	784.00	MW
Station power	54.00	MW
Uncorrected net load	730.00	MW

Correction Calculations

Condenser Circulating Water Inlet Temperature Correction

T_{ci}'= corrected circ. water inlet temp.

$$T_{ci}' = T_{ci} + .6(T_w - T_{ci}) = 93.53 \text{ Deg. F}$$

Condenser Pressure Correction

X=condenser heat transfer coefficient

$$X = \ln((T_{sat} - T_{ci}') / (T_{sat} - T_{co})) = 1.39$$

$$C = \text{inlet water temp. correction factor test @ } T_{ci}' = 1.088$$

$$C' = \text{inlet water temp. correction factor expected @ } T_{ci}' = 1.084$$

(FROM HEI TABLES INLET WATER TEMP. CORRECTION) $1 - e^{-X'}$

X'=rating heat transfer exponent

$$X' = X(C'/C) = 1.38$$

T_{sat}'=rating steam saturation temperature

$$T_{sat}' = T_{ci}' + \frac{T_{co} - T_{ci}'}{1 - e^{-X'}} = 126.72 \text{ Deg. F}$$

$$\text{Backpressure at Saturation Temperature } T_{sat}' = 2.03 \text{ Psia}$$

$$\text{Backpressure at Saturation Temperature } T_{sat}' = 4.14 \text{ In Hg. A}$$

Corrected Gross Generation (P'g)

Backpressure Correction to Heat Rate is calculated below

Slope of backpressure correction to heat rate curve 1.25 % per 1 in. backpressure change

$$\text{Correction factor} = 1.0017$$

$$P'g = \text{Gross Load} * (\text{Correction Factor}) = 785.34$$

Corrected Net Generation

731.34

-Transformer Losses	2.00
-Outside Station Power	1.51

JEC Corrected Net Generation

727.83

TEST UNIT NET HEAT RATE

Coal Flow klb/hr	915.05
Coal HHV btu/lb	8541
Heat Input	7815474
Plant Net MW	730.00
Transformer Losses	2.00
External Aux Power	1.51
Actual Net MW	726.49
Heat Rate btu/kwh	10758

Capacity Test Corrections

Date: July 30, 2006

Report Date 11/09/2007

Unit: JEC Unit 3 13:00-14:00

Test Conditions

Tw=ambient wet bulb temp.	77.08	Deg. F
Tcwi=circ. water inlet temp	94.79	Deg. F
T'w=mean coincident wet bulb temp.	75.40	Deg. F
Tcwo=circ. water outlet temp.	119.78	Deg. F
Pc=condenser backpressure	4.32	In. Hg.
Run Macro SATTEMP to get sat temp	2.12	Psi
Tsat=saturation temp. of condenser (from macro)	128.28	Deg. F
Gross generation	784.00	MW
Station power	56.00	MW
Uncorrected net load	728.00	MW

Correction Calculations

Condenser Circulating Water Inlet Temperature Correction

T'cwi= corrected circ. water inlet temp.

$$T'cwi = Tcwi + .6(T'w - Tw) = 93.78 \text{ Deg. F}$$

Condenser Pressure Correction

X=condenser heat transfer coefficient

$$X = \ln((Ts_{at} - Tcwi) / (Ts_{at} - Tcwo)) = 1.37$$

$$C = \text{inlet water temp. correction factor test @ } Tcwi = 1.088$$

$$C' = \text{inlet water temp. correction factor expected @ } T'cwi = 1.085$$

(FROM HEI TABLES INLET WATER TEMP. CORRECTION) $1 - e^{-x'}$

X'=rating heat transfer exponent

$$X' = X(C'/C) = 1.37$$

T'sat=rating steam saturation temperature

$$T'sat = T'cwi + \frac{Tcwo - Tcwi}{1 - e^{-x'}} = 127.31 \text{ Deg. F}$$

Backpressure at Saturation Temperature T'sat 2.07 Psia

Backpressure at Saturation Temperature T'sat 4.21 In Hg. A

Corrected Gross Generation (P'g)

Backpressure Correction to Heat Rate is calculated below

Slope of backpressure correction to heat rate curve

Correction factor 1.25 % per 1 in. backpressure change

$$P'g = \text{Gross Load} * (\text{Correction Factor}) = 785.09$$

Corrected Net Generation 729.09

-Transformer Losses 2.00

-Outside Station Power 1.51

JEC Corrected Net Generation 725.58

TEST UNIT NET HEAT RATE

Coal Flow klb/hr	911.89
Coal HHV btu/lb	8541
Heat Input	7788417
Plant Net MW	728.00
Transformer Losses	2.00
External Aux Power	1.51
Actual Net MW	724.49
Heat Rate btu/kwh	10750