

SECTION 18099 - HRSG DATA TO BE SUBMITTED WITH BID

PART 1 - GENERAL

1.01 PERFORMANCE GUARANTEES:

A. The Bidder guarantees the performance of the heat recovery steam generator to be as stated below when the unit is operated using combustion turbine exhaust under the conditions specified in SECTION 2.

- 1. Outlet steam flow, lb/hr _____
- 2. Superheater outlet pressure, psig _____
- 3. Superheater outlet temperature, °F _____
- 4. Steam Purity:
 - a. Maximum total solids in steam entering superheater, ppm _____
 - b. Maximum silica in steam entering superheater, ppm _____
- 5. Duct burner nitrogen oxides production, lbs/MMBtu _____
- 6. Duct burner carbon monoxides production, lbs/MMBtu _____
- 7. Duct burner particulate production, lbs/MMBtu _____
- 8. Duct burner VOC production, lbs/MMBtu _____
- 9. Maximum combustion turbine backpressure, inch WG _____
- 10. Stack exit gas temperature, °F _____
- 11. Feedwater inlet pressure required, psig _____
- 12. Supplemental firing fuel, MMBtu/hr _____
- 13. Fan power usage, kW _____

B. The Bidder guarantees the performance of the heat recovery steam generator to be as stated below when the unit is operated with fresh air firing under the conditions specified in SECTION 2.

- 1. Outlet steam flow, lb/hr _____
- 2. Steam outlet pressure, psig _____
- 3. Superheater outlet temperature, °F _____
- 4. Steam Purity:
 - a. Maximum total solids in steam entering superheater, ppm _____

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- b. Maximum silica in steam entering superheater, ppm _____
- 5. Gas side pressure drop, inch WG _____
- 6. Maximum nitrogen oxides emissions, lbs/MMBtu _____
- 7. Maximum carbon monoxides emissions, lbs/MMBtu _____
- 8. Maximum particulate emissions, ppm _____
- 9. Maximum VOC emissions, lbs/MMBtu _____
- 10. Stack exit gas temperature, °F _____
- 11. Feedwater inlet pressure required, psig _____
- 12. Supplemental firing fuel, MMBtu/hr _____
- 13. Fan power usage, kW _____
- 14. Time to regain full steam load after combustion turbine trip, seconds _____

1.02 EXPECTED PERFORMANCE DATA:

- A. The Bidder shall submit the following expected performance data by filling in the blanks provided:

<u>Operating Mode</u>	<u>CT Exhaust w/o Supp. Fire</u>	<u>CT Exhaust w/Supp. Fire</u>	<u>Fresh Air Max. Load</u>	<u>Fresh Air 80% Load</u>
Steam Flow at Superheater Outlet thousand lbs/hr				
Superheater Outlet Pressure, psig				
1. Quantities				
a. Combustion air flow, lb/hr	_____	_____	_____	_____
b. Supplemental firing fuel, lb/hr	_____	_____	_____	_____
2. Pressure Drops				
a. Drum to superheater outlet, psi	_____	_____	_____	_____

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b.	Economizer inlet to drum, psi	_____	_____	_____	_____
3.	Temperatures, °F				
a.	Superheater outlet steam	_____	_____	_____	_____
b.	Steam after desuperheater	_____	_____	_____	_____
c.	Steam before desuperheater	_____	_____	_____	_____
d.	Drum outlet steam				
e.	Economizer outlet water	_____	_____	_____	_____
f.	Air/Flue Gas	_____	_____	_____	_____
(1)	Entering duct burner	_____	_____	_____	_____
(2)	Leaving duct burner	_____	_____	_____	_____
(3)	Entering superheater	_____	_____	_____	_____
(4)	Entering boiler	_____	_____	_____	_____
(5)	Entering economizer	_____	_____	_____	_____
(6)	Entering ID fan	_____	_____	_____	_____
(7)	Entering stack	_____	_____	_____	_____
4.	Air/Flue Gas Resistance, In WG	_____	_____	_____	_____
a.	Inlet damper	_____	_____	_____	_____
b.	Transition duct	_____	_____	_____	_____
c.	Duct burner	_____	_____	_____	_____
d.	Superheater	_____	_____	_____	_____
e.	Boiler	_____	_____	_____	_____
f.	Economizer	_____	_____	_____	_____
g.	Ductwork, economizer to fan	_____	_____	_____	_____

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h.	Ductwork, fan to stack	_____	_____	_____	_____
i.	Other	_____	_____	_____	_____
j.	Combustion turbine Backpressure	_____	_____	_____	_____
k.	Total or Delta on Fan	_____	_____	_____	_____
5.	Fan Test Block Data	Design Point	Test Block		
a.	Inlet temp, °F	_____	_____		
b.	Inlet flow, lb/hr	_____	_____		
c.	Inlet flow, cfm	_____	_____		
d.	Static pressure, in WG	_____	_____		
e.	Fan speed, rpm	_____	_____		
f.	BHP	_____	_____		

1.03 DESCRIPTION OF EQUIPMENT:

The Bidder shall submit with the Bid the following equipment data:

- A. Model designation: _____
- B. Design Pressures:
 - 1. Superheater, psi _____
 - 2. Drum, psi _____
 - 3. Boiler, psi _____
 - 4. Economizer, psi _____
 - 5. Ductwork and Casing,
In WG (Vacuum/Pressure) _____/_____
- C. Total Effective Heating Surface, Sq. Ft.
 - 1. Superheater _____
 - 2. Boiler _____
 - 3. Economizer _____
- D. Size and Material of Tubes:
 - 1. Superheater _____
 - 2. Boiler _____

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- 3. Economizer _____
- E. Description and Material of Fins:
 - 1. Superheater _____
 - 2. Boiler _____
 - 3. Economizer _____
- F. Casing and Ductwork:
 - 1. Casing material _____
 - 2. Thickness _____
 - 3. Duct material _____
 - 4. Thickness _____
- G. Duct Burner:
 - 1. Manufacturer _____
 - 2. Type or model _____
 - 3. Maximum Capacity, MMBtu/hr _____
- H. Weights, Lbs:
 - 1. Steam generator _____
 - 2. Platforms, stairs, support steel _____
 - 3. Total weight of complete unit _____
 - a. Dry _____
 - b. During normal operation _____
 - c. During hydrostatic test _____
- I. Steam Drum:
 - 1. Length _____
 - 2. Diameter _____
 - 3. Thickness _____
 - 4. Material _____
- J. Connection Sizes:
 - 1. Feedwater inlet, inches _____
 - 2. Steam outlet, inches _____
- K. Safety Valves:
 - 1. Number _____
 - 2. Model _____
 - 3. Size _____

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L. Stack Dimensions:

1. Diameter _____
2. Height _____
3. Material _____
4. Thickness _____

M. In addition to the data requested above, the Bidder shall submit the following:

1. General arrangement drawing showing duct and equipment layout. Also to be included are maximum loads and locations of duct supports, if required.
2. Preliminary foundation outline and loads of all items.
3. List of all instrumentation and boiler trim, including number of items, size, manufacturer, and model number.
4. Preliminary control panel outline drawing and panel front arrangement drawing.
5. Information concerning special requirements for curing of refractory and insulation which impact turbine operation (i.e., temperature limits and times).
6. Description of type of fins (segmented or continuous, etc).
7. List of previously completed projects.

PART 2 - PRODUCTS - NOT APPLICABLE

PART 3 - EXECUTION - NOT APPLICABLE

END OF SECTION 18099