

# Appendix E6: Unit Design Data – Gas Turbine or Jet Engine (Voluntary Reporting)

**Note:** The NERC Board of Trustees approved the *GADS Task Force Report* ([dated July 20, 2011](#))<sup>1</sup>, which states that design data collection outside the required nine fields is solely voluntary. However, the GADS staff encourages that reporters report and update GADS design data frequently. This action can be completed by sending in this form to [gads@nerc.net](mailto:gads@nerc.net). GADS staff encourages using the software for design entry and updating.

## Instructions

Submit the data in this section once during the life of each pumped storage or hydro unit. If a major change is made to a unit which significantly changes its characteristics, then resubmit this section with updated information.

For coded entries, enter a (9) to indicate an alternative other than those specified. Whenever you enter a (9), write the column number and the answer on the reverse side of the form.

When submitting an original copy of the form, make sure that it is legible.

Unit Name

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Location of Unit (State)

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Energy Information Administration (EIA) Number

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Regional Entity

---

Subregion

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Date Reporter

---

Telephone Number

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Date

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## General Data

	Col No.	Column Information
<hr/>	01	Utility Identification Number
<hr/>	04	Unit Identification Number
<hr/>	07	Card code
<hr/>	09	Columns 09 through 12 are blank
<hr/>	13	Year unit first paralleled for load
<hr/>	17	Month unit first paralleled for load
<hr/>	19	Day unit first paralleled for load

<sup>1</sup> [http://www.nerc.com/pa/RAPA/gads/MandatoryGADS/Revised\\_Final\\_Draft\\_GADSTF\\_Recommendation\\_Report.pdf](http://www.nerc.com/pa/RAPA/gads/MandatoryGADS/Revised_Final_Draft_GADSTF_Recommendation_Report.pdf)

<b>Gas Turbine or Jet Engine Data</b>	
<b>Col No.</b>	<b>Column Information</b>
	Engine manufacturer – (1) Pratt & Whitney; (2) General Electric; (3) Westinghouse; (4) ABB Gas Turbine Power Division; (5) Rolls Royce; (6) Cooper Bessemer; (7) Worthington; (8) Allison; (9) Other
21	Engine type – (1) Gas turbine single shaft; (2) Gas turbine split shaft; (3) Jet engine; (9) Other
22	Engines, number per unit
23	Expander turbines, number per unit if applicable
25	Type expander, if applicable – (1) Single flow; (2) Double flow
26	Cycle type – (1) Reheat; (2) Simple; (3) Regenerative; (4) Recuperative; (5) Intercooled; (6) Precooled; (7) Complex; (8) Compound; (9) Other
27	Startup system – (1) Air; (2) Auxiliary motor; (3) Electric motor; (4) Natural gas; (5) Flow turbine; (6) Supercharging fan; (7) Hydraulic; (9) Other
28	Startup type – (1) Automatic, on site; (2) Automatic, remote; (9) Other
29	Type of Fuel(s) that will be used (see table of Fuel Codes, page E-2)
30	Enter (1) if sound attenuators located at inlet
32	Enter (1) if sound attenuators located at outlet
33	Enter (1) if sound attenuators located in building enclosures
34	Time for normal cold start to full load in seconds
35	Time for emergency cold start to full load in seconds
38	Black start capability – (1) Yes; (2) No
41	Columns 42 through 70 are blank
42	Engine Model Number (MS 7001EA, W501AA, FT4A11, etc.)
71	

<b>Pollution Control Equipment Data</b>	
<b>Col No.</b>	<b>Column Information</b>
	Utility Identification Number
	Unit Identification Number
32	Card code
	Columns 09 through 13 are blank

**Selective Non-Catalytic Reduction System (SNCR)**

Col No.	Column Information
22	SNCR reagent – (1) Ammonia; (2) Urea; (9) Other
23	SNCR injector type – (1) Wall nozzle; (2) Lance; (9) Other
24	SNCR injection equipment location – (1) Furnace; (2) Super-heater; (3) Economizer; (9) Other
25	Number of SNCR injectors
28	SNCR carrier gas type – (1) Steam; (2) Air; (9) Other
29	SNCR carrier gas total flow rate (thousands of lbs./hr.) i.e. 6,000,000 lbs./hr. enter 6000
34	SNCR carrier gas pressure at nozzle (psi)
38	SNCR carrier gas nozzle exit velocity (thousands of ft./sec.)

**Selective Catalytic Reduction System (SCR)**

Col No.	Column Information
43	SCR reactor – (1) Separate; (2) In Duct
44	SCR reagent – (1) Ammonia; (2) Urea; (9) Other
45	SCR ammonia injection grid location – (1) Furnace; (2) Super-heater; (3) Economizer; (4) Zoned
46	SCR duct configuration – (1) Flow straighteners; (2) Turning vanes; (3) Dampers
47	SCR Catalyst Element Type (1) Plate; (2) Honeycomb; (9) Other
48	SCR catalyst support material – (1) Stainless steel; (2) Carbon steel; (9) Other
49	SCR catalytic material configuration – (1) Vertical; (2) Horizontal; (9) Other
50	SCR catalyst surface face area (thousands of square feet)
55	SCR catalyst volume (thousands of cubic feet)
60	Number of SCR catalytic layers
62	SCR catalytic layer thickness (1/1000 inches)
65	SCR sootblower type – (1) Air; (2) Steam; (3) Both
66	SCR sootblower manufacturer – (see table of Manufacturers – page E-2)

**Catalytic Air Heaters (CAH)**

Col No.	Column Information
68	CAH element type – (1) Laminar surface; (2) Turbulent surface; (9) Other
69	CAH catalyst material – (1) Titanium oxide; (2) Vanadium pentoxide; (3) Iron (II) oxide; (4) Molybdenum oxide; (9) Other
70	CAH catalyst support material – (1) Stainless steel; (2) Carbon steel; (9) Other
71	CAH catalyst material configuration – (1) Horizontal air shaft; (2) Vertical air shaft
72	CAH catalyst material total face area (thousands of square feet)
75	CAH catalyst material open face area (thousands of square feet)
78	CAH catalyst material layer thickness (1/1000 inches)

**Generator Data**

Col No.	Column Information
01	Utility Identification Number
04	Unit Identification Number
33	07 Card code
	09 Columns 09 through 13 are blank
14	Manufacturer – (See Table of Manufacturers Codes)
16	Type – (1) Three-phase, 60-cycle; (2) Other
17	Nameplate voltage to nearest one-tenth KV
21	Nameplate capability MVA, first shaft
25	Speed in RPM, first shaft
29	Nameplate capability MVA, second shaft if any
33	Speed in RPM, second shaft if any
37	Nameplate capability MVA, third shaft if any
41	Speed in RPM, third shaft if any
45	Nameplate power factor in percent
47	Cooling medium, stator/rotor – (1) Air/air; (2) Hydrogen/ hydrogen; (3) Oil/hydrogen; (4) Water/hydrogen; (9) Other
48	Cooling method, stator/rotor – (1) Intercooled/intercooled; (2) Conventional/conventional; (3) Intercooled/conventional; (9) Other

Generator Data		
	Col No.	Column Information
	49	Hydrogen pressure in PSIG at nameplate MVA, if applicable
	51	Number of exciters required by the unit for normal operation at rated output
	52	Type normal exciters - (1) Rotating DC generator; (2) Rotating alternator rectifier; (3) Static; (9) Other
	53	Type drive for normal exciters, if rotating – (1) Shaft direct; (2) Shaft gear; (3) Motor; (9) Other
	54	Number of spare exciters available to the unit
	55	Enter (1) if more than 50% of generator is outdoors
	56	Name of Unit (Columns 56-80)