

NERC

NORTH AMERICAN ELECTRIC
RELIABILITY CORPORATION

2024 Section 1600 Requests

Contributing Operating Condition
Design Data

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RELIABILITY | ACCOUNTABILITY

Module 06 - GADS Data Reporting workshops



- Two new requirements for 2024
 - Contributing operating condition
 - Additional design data to describe units in GADS
- Delayed 2024 reporting date requirements
 - February 15, 2024: 2023 reporting concludes
 - Early 2024:
 - Design data collection application training
 - Design data collection using NERC templates
 - August 15, 2024: Q1 and Q2 data both due
- Design data to be added to OATI database before 2024 event and performance record submittal

- Voluntary Problem Alert field becomes **mandatory** Contributing Operating Condition in 2024
 - NERC records indicate the Problem Alert field has only be used once in the history of GADS.
 - No information is being lost by re-purposing this field
 - Field is already on event entry screens
- Text file location for Contributing Operating Condition
 - The 07 event file
 - Record 02 column 45

- Contributing Operating Condition (mandatory) – 2024
 - Provides context for conditions that led to an event.
 - If the event would have happened even if the extreme conditions did not exist, then report no operating condition.
 - Most events will occur during normal operating conditions, and no operating condition will be reported.

15 Contributing Operating Conditions

0 No contributing condition	1 Flood or high water
2 Drought or low water	3 Fire including wildfire
4 Lightning	5 Geomagnetic disturbance
6 Earthquake	7 Tornado
8 Hurricane	9 Cold weather
A Hot weather	B Ice/Hail/Snow
C Turbulent wind	D Avalanche/landslide
E State of emergency/other external disturbance	

Note: Hot and cold weather are relative to your location. Hot and cold in Minnesota are not the same as in Florida

A motor on a boiler feedwater pump located in an enclosed powerhouse fails during a polar vortex event when the ambient temperature is 15 degrees.

- What contributing operating condition would you use?
- Answer: No contributing condition.
 - The failure was in an enclosed powerhouse and was not weather related. It would have happened anyway.

Hurricane Leeth destroys half of your 2X1 combined cycle plant's cooling tower, and it is forced to run in a 1X1 condition while repairs are made.

- What contributing operating condition would you use?
- Answer: Hurricane.
 - The failure is clearly related to the named storm.
 - The cause code would also be hurricane.

A tornado takes down transmission lines 5 miles from the plant, and the plant trips off-line. There is no damage to the plant.

- How should the event be coded, and what contributing operating condition should be used?
- Answer:
 - The outage should be coded as a U1 with T1 amp code.
 - Choose cause code of 9300 for transmission.
 - The contributing operating condition should be tornado. The tornado did not damage the plant but did eliminate transmission.

There has been little rain in your area, and the river that supplies cooling water to a plant is warmer than normal. Because of the river temperature, the plant cannot run at rated load without violating the permitted discharge temperature limit.

- What should be reported? What contributing operating condition should be used?
- Answer:
 - A forced derate. The choice of D1, D2, or D3 would depend on the permit requirements.
 - Choose code 9660 for thermal discharge limits.
 - Choose drought as the contributing operating condition.

A simple cycle gas turbine with interruptible gas is called to run on a 15F day. No gas is available, and the unit is not dual fuel. The unit cannot be started from RS.

- What be reported? What contributing operating condition should be used?
- Answer:
 - Report a U1 without an amp code.
 - Use cause code 9131 for interruptible gas.
 - Choose cold weather as the contributing operating condition.

A unit is on Reserve Shutdown (RS) when Hurricane Steve comes ashore in south Texas, stalls, and dumps 30 inches of rain which floods the unit.

- What should be reported? What contributing operating condition should be used?
- Answer:
 - Report a U1 without an amp code.
 - Use cause code 9035 for hurricane.
 - Choose hurricane as the contributing operating condition.
 - Choosing 9000 flood would be reasonable except there is a named storm and NERC may be trying to capture the resulting outages from Hurricane Steve.

A power plant is derated for oil temperature on a FD fan bearing during a string of 95-100 degree days because the water entering the lube oil cooler is much higher than normal.

- What should be reported? What contributing operating condition should be used?
- Answer:
 - Report a forced derating (probably D1).
 - Use cause code 1407 for FD fan lubrication system.
 - If you are in Minnesota, you may be outside your unit's design specification and choose to report hot weather as the contributing operating condition.
 - If you are in the southeast, Texas, or the desert southwest, this should be a normal operating condition and no condition would be selected.

Type	Number of Items
Fossil steam	85
Fluidized bed	91
Gas turbine/jet engine	48
Combined cycle	66
Hydro	51
Internal Combustion (IC) engines	33

Good news: You probably will not input data for every field.

Required Design Data Module Chart

	Combined Cycle	Gas Turbine	Fossil Steam	Internal Combustion Engine	Hydro / Pump Storage	Fluidized Bed	CoGen - Steam	CoGen GT	Other i.e. WW
General Information	x	x	x	x	x	x	X	X	X
Generator	x	x	x	x	x	x	x	x	x
Electrical BOP	x	x	x	x	x	x	x	x	x
Gas Turbine	x	x						x	
Steam Turbine	x		x			x	x		x
HRSB	x							x	
Boiler			x				x		x
Fluidized Bed Boiler						x			
Auxiliary Systems	x		x			x	x	x	x
NOx Reduction System	x	x	x	x		x		x	
Flue Gas Desulfurization			x			x	x		
Hydro Turbine					x				
Pump Impeller Turbine					x				
Engine				x					

- NERC Compliance Registry (NCR) number
- Utility code
- Unit code
- Block name (combined cycle/cogen)
- State/province
- Energy Information Administration (EIA) number
- Independent System Operator (ISO) region
- Data reporter
 - Name
 - Telephone number
 - Email
- Design data submission date
- Unit in-service date
- Unit loading characteristics at time of unit design

- Generator installation/commissioning date
- Date of last rewind/replacement
- Is generator more than 50% outdoors?
- Generator Nameplate
 - Main
 - Second
 - Third
- Generator
 - Voltage
 - Capability
 - Speed
 - Power factor
- Single or redundant excitation
- Type of main exciter

- Generator synchronizing breaker
 - Interrupting media
 - Nameplate voltage
 - Breaker nameplate current
 - Nameplate interrupt rating
- Main Transformer
 - Year of installation
 - MVA
- Main transformer voltage
 - High side
 - Low side
- Second side of main transformer voltage
 - High side
 - Low side
- Type of main transformer

- Common Fossil/Heat Recovery Steam Generator (HRSG)/Fluidized Bed
 - Year of boiler installation/commissioning
 - Is more than 50% of boiler outdoor?
 - Boiler steam flow rate
 - Design main steam
 - Temperature
 - Pressure
- HRSG only
 - Duct burner primary fuel
 - Duct burner secondary fuel

- Fossil/fluid bed only
 - Type of fuel firing system
 - Primary air heaters
 - Number
 - Type
 - Secondary air heaters
 - Number
 - Type
 - Mechanical precipitator?
 - Electrostatic precipitator?
 - Bag house?
 - Fly ash removal system?
 - Forced Draft (FD) fans: number and type of fan drive
 - Number of Induced Draft (ID) fans
 - Number of gas recirculating fans

- Number of critical path coal conveyor systems
- Pulverizers
 - Number including spares
 - Number to make max continuous output
 - Type
 - N/A to fluid bed
- Locations:
 - Mechanical precipitator
 - Electrostatic precipitator
- Number of baghouse fans
- Baghouse type
- Type of fly ash removal

- Bed material injection system
- Method of feeding solid fuel into boiler
- Method of feeding sorbent into boiler
- Sorbent feed with fuel?
- Method of feeding bed material into boiler
- Primary fuel
- Secondary fuel
- Sorbent material type
- Sorbent screened?
- Solid fuel crushing system?
- Type of solid fuel crushing system
- Char injection system?

- Flue Gas Desulfurization (FGD)
 - Date of operation
 - Part of original design?
- Are FGD modules shared with another unit?
- Type of scrubber used
- FGD fans
 - Number
 - Number for full load
 - Location

- Selective non-catalytic reduction (SNCR)?
- Selective catalytic reduction (SCR)?
- Catalytic air heaters?
- Water injection system for nitrogen oxides (Nox) control?

- Steam turbine
 - Installation date
 - Outdoors?
 - Output

- Year of installation/commissioning
- Gas turbine/jet engine nameplate rating
- Turbine/engine model number
- Type of Fuel used
- Gas turbine cycle type
- Start-up system type
- Time from cold start to full load
- Time from emergency cold start to full load
- Black start capability?

- Fossil/Fluid Bed/Combined Cycle/Cogeneration
 - Type of condenser cooling water
 - Origin of condenser cooling water
 - Total number of condensate pumps (fossil, fluid bed)
 - Minimum number of condensate pumps for maximum continuous output
 - Number of
 - Feedwater pumps
 - Feedwater pumps for maximum continuous output
 - Circulating water pumps
 - Type of cooling tower
- Fossil/Fluid bed only
 - Startup boiler
 - Startup feedwater pump? Capability
 - Number of
 - High pressure heaters per train
 - Intermediate pressure heaters per train
 - Low pressure heaters per train

- Year of installation/commissioning
- Hydro turbine
 - Orientation
 - Configuration
 - Type
- Turbine
 - Rated head
 - Speed
 - Rated output
- Sync/condense capability?
- Automatic generation control (AGC)?

- Pump-turbine
 - Impeller installed?
 - Year of installation/commissioning
 - Impeller type
- Turbine head
- Pump
 - Speed
 - Rated load
- Pump-turbine sync/condense capability?

- Year of installation/commissioning
- Engine nameplate rating
- Engine model number
- Type of fuel(s) used
- Number of cylinders
- Black start capability?

- XML
- Excel



Questions and Answers