

## Appendix B12: Index To Miscellaneous Unit Cause Codes

### MISCELLANEOUS UNITS

INDEX TO SYSTEM/COMPONENT/SUB-COMPONENT CAUSE CODE TABLES			
TABLE	SYSTEM	COMPONENT	SUB-COMPONENT
<a href="#">B12-1</a>	Balance of Plant	Auxiliary Systems	Auxiliary Steam
<a href="#">B12-2</a>	Balance of Plant	Auxiliary Systems	Closed Cooling Water Systems
<a href="#">B12-3</a>	Balance of Plant	Auxiliary Systems	Fire Protection System
<a href="#">B12-4</a>	Balance of Plant	Auxiliary Systems	Instrument Air
<a href="#">B12-5</a>	Balance of Plant	Auxiliary Systems	Low-pressure Gas Compression System
<a href="#">B12-6</a>	Balance of Plant	Auxiliary Systems	Miscellaneous (Auxiliary Systems)
<a href="#">B12-7</a>	Balance of Plant	Auxiliary Systems	Open Cooling Water System
<a href="#">B12-8</a>	Balance of Plant	Auxiliary Systems	Seal Air Fans
<a href="#">B12-9</a>	Balance of Plant	Auxiliary Systems	Service Air
<a href="#">B12-10</a>	Balance of Plant	Auxiliary Systems	Service Water (Open System)
<a href="#">B12-11</a>	Balance of Plant	Circulating Water Systems	
<a href="#">B12-12</a>	Balance of Plant	Condensate System	Low/Intermediate Pressure Heater and Deaerators
<a href="#">B12-13</a>	Balance of Plant	Condensate System	Miscellaneous (Condensate System)
<a href="#">B12-14</a>	Balance of Plant	Condensate System	Polishers/Chemical Addition
<a href="#">B12-15</a>	Balance of Plant	Condensate System	Pumps, Piping, and Valves
<a href="#">B12-16</a>	Balance of Plant	Condensing System	Condenser Casing or Shell and Internals
<a href="#">B12-17</a>	Balance of Plant	Condensing System	Condenser Controls
<a href="#">B12-18</a>	Balance of Plant	Condensing System	Condenser Tubes and Support Equipment
<a href="#">B12-19</a>	Balance of Plant	Condensing System	Miscellaneous (Condensing System)
<a href="#">B12-20</a>	Balance of Plant	Condensing System	Vacuum Equipment
<a href="#">B12-21</a>	Balance of Plant	Electrical	
<a href="#">B12-22</a>	Balance of Plant	Extraction Steam	
<a href="#">B12-23</a>	Balance of Plant	Feedwater System	
<a href="#">B12-24</a>	Balance of Plant	Heater Drain Systems	
<a href="#">B12-25</a>	Balance of Plant	Miscellaneous (Balance of Plant)	
<a href="#">B12-26</a>	Balance of Plant	Power Station Switchyard	
<a href="#">B12-27</a>	Balance of Plant	Waste Water (zero discharge) Systems	
<a href="#">B12-28</a>	Boiler	Bed Material Preparation System (FBC only)	
<a href="#">B12-29</a>	Boiler	Bed Material Removal System	
<a href="#">B12-30</a>	Boiler	Bed Solids Recirculation	
<a href="#">B12-31</a>	Boiler	Boiler Air and Gas Systems	Air Supply
<a href="#">B12-32</a>	Boiler	Boiler Air and Gas Systems	Flue Gas
<a href="#">B12-33</a>	Boiler	Boiler Air and Gas Systems	Flue Gas Recirculation
<a href="#">B12-34</a>	Boiler	Boiler Air and Gas Systems	Miscellaneous (Boiler Air and Gas Systems)
<a href="#">B12-35</a>	Boiler	Boiler Control Systems	
<a href="#">B12-36</a>	Boiler	Boiler Design Limitations	

**Appendix B12: Index To Miscellaneous Unit Cause Codes**

<b>INDEX TO SYSTEM/COMPONENT/SUB-COMPONENT CAUSE CODE TABLES</b>			
<b>TABLE</b>	<b>SYSTEM</b>	<b>COMPONENT</b>	<b>SUB-COMPONENT</b>
<a href="#">B12-37</a>	Boiler	Boiler Fuel Supply from Bunkers to Boiler	Burners
<a href="#">B12-38</a>	Boiler	Boiler Fuel Supply from Bunkers to Boiler	Cyclone
<a href="#">B12-39</a>	Boiler	Boiler Fuel Supply from Bunkers to Boiler	Oil and Gas Systems (except light off)
<a href="#">B12-40</a>	Boiler	Boiler Fuel Supply from Bunkers to Boiler	Pulverizers, Primary Air Fans, and Associated Ducts
<a href="#">B12-41</a>	Boiler	Boiler Fuel Supply to Bunker	Coal Handling Equipment up Through Bunkers
<a href="#">B12-42</a>	Boiler	Boiler Fuel Supply to Bunker	Solid Fuel Feed Equipment from Bunkers to Boiler (FBC only)
<a href="#">B12-43</a>	Boiler	Boiler Internals and Structures	
<a href="#">B12-44</a>	Boiler	Boiler Overhaul and Inspections	
<a href="#">B12-45</a>	Boiler	Boiler Piping System	Boiler Recirculation
<a href="#">B12-46</a>	Boiler	Boiler Piping System	Cold and Hot Reheat Steam
<a href="#">B12-47</a>	Boiler	Boiler Piping System	Desuperheaters/Attemperators
<a href="#">B12-48</a>	Boiler	Boiler Piping System	Feedwater and Blowdown
<a href="#">B12-49</a>	Boiler	Boiler Piping System	Main Steam
<a href="#">B12-50</a>	Boiler	Boiler Piping System	Miscellaneous (Piping)
<a href="#">B12-51</a>	Boiler	Boiler Piping System	Startup Bypass
<a href="#">B12-52</a>	Boiler	Boiler Tube Fireside Slagging or Fouling	
<a href="#">B12-53</a>	Boiler	Boiler Tube Leaks	
<a href="#">B12-54</a>	Boiler	Boiler Water Condition	
<a href="#">B12-55</a>	Boiler	External Fluidized Bed Heat Exchanger	
<a href="#">B12-56</a>	Boiler	Miscellaneous (Boiler)	
<a href="#">B12-57</a>	Boiler	Miscellaneous Boiler Tube Problems	
<a href="#">B12-58</a>	Boiler	Slag and Ash Removal	
<a href="#">B12-59</a>	Boiler	Sorbent Supply (FBC only)	Sorbent Feed Equipment from Bunkers to Boiler (FBC only)
<a href="#">B12-60</a>	Boiler	Sorbent Supply (FBC only)	Sorbent Handling System up Through Bunkers (FBC only)
<a href="#">B12-61</a>	Expander Turbine	Expander Turbine	
<a href="#">B12-62</a>	External	Catastrophe	
<a href="#">B12-63</a>	External	Economic	
<a href="#">B12-64</a>	External	Fuel Quality	
<a href="#">B12-65</a>	External	Miscellaneous (External)	
<a href="#">B12-66</a>	Gas Turbine	Auxiliary Systems	
<a href="#">B12-67</a>	Gas Turbine	Exhaust Systems	
<a href="#">B12-68</a>	Gas Turbine	Fuel, Ignition, and Combustion Systems	
<a href="#">B12-69</a>	Gas Turbine	Inlet Air System and Compressors	Compressors
<a href="#">B12-70</a>	Gas Turbine	Inlet Air System and Compressors	Ducts and Filters
<a href="#">B12-71</a>	Gas Turbine	Miscellaneous (Gas Turbine)	
<a href="#">B12-72</a>	Gas Turbine	Turbine	
<a href="#">B12-73</a>	Generator	Controls	
<a href="#">B12-74</a>	Generator	Cooling System	
<a href="#">B12-75</a>	Generator	Exciter	
<a href="#">B12-76</a>	Generator	Generator	
<a href="#">B12-77</a>	Generator	Miscellaneous (Generator)	

**Appendix B12: Index To Miscellaneous Unit Cause Codes**

<b>INDEX TO SYSTEM/COMPONENT/SUB-COMPONENT CAUSE CODE TABLES</b>			
<b>TABLE</b>	<b>SYSTEM</b>	<b>COMPONENT</b>	<b>SUB-COMPONENT</b>
<a href="#">B12-78</a>	Heat Recovery Steam Generator (HRSG)	HRSG Boiler Internals and Structures	
<a href="#">B12-79</a>	Heat Recovery Steam Generator (HRSG)	HRSG Boiler Piping System	HRSG Desuperheaters/Attemperators
<a href="#">B12-80</a>	Heat Recovery Steam Generator (HRSG)	HRSG Boiler Piping System	HRSG Main Steam
<a href="#">B12-81</a>	Heat Recovery Steam Generator (HRSG)	HRSG Boiler Piping System	HRSG Startup Bypass
<a href="#">B12-82</a>	Heat Recovery Steam Generator (HRSG)	HRSG Boiler Tube Leaks	
<a href="#">B12-83</a>	Heat Recovery Steam Generator (HRSG)	Miscellaneous (HRSG Boiler)	
<a href="#">B12-84</a>	Hydro Turbine/Pump	Miscellaneous (Hydro Turbine/Pump)	
<a href="#">B12-85</a>	Hydro Turbine/Pump	Turbine	
<a href="#">B12-86</a>	Hydro Turbine/Pump	Water Supply/Discharge	
<a href="#">B12-87</a>	Inactive States	Inactive States	
<a href="#">B12-88</a>	Internal Combustion/Reciprocating Engines	Engine	
<a href="#">B12-89</a>	Internal Combustion/Reciprocating Engines	Engine Auxiliaries	
<a href="#">B12-90</a>	Internal Combustion/Reciprocating Engines	Engine Controls	
<a href="#">B12-91</a>	Internal Combustion/Reciprocating Engines	Miscellaneous (Internal Combustion/Reciprocating Engines)	
<a href="#">B12-92</a>	Jet Engine	Auxiliary Systems	
<a href="#">B12-93</a>	Jet Engine	Exhaust Systems	
<a href="#">B12-94</a>	Jet Engine	Fuel, Ignition, and Combustion Systems	
<a href="#">B12-95</a>	Jet Engine	Inlet Air System and Compressors	Compressors
<a href="#">B12-96</a>	Jet Engine	Inlet Air System and Compressors	Ducts and Filters
<a href="#">B12-97</a>	Jet Engine	Miscellaneous (Jet Engine)	
<a href="#">B12-98</a>	Jet Engine	Turbine	
<a href="#">B12-99</a>	Miscellaneous	Instruments and Controls	
<a href="#">B12-100</a>	Miscellaneous	Plant and Auxiliaries	
<a href="#">B12-101</a>	Performance	Performance	
<a href="#">B12-102</a>	Personnel or Procedural Errors	Personnel or Procedural Errors	
<a href="#">B12-103</a>	Pollution Control Equipment	CO Reduction	
<a href="#">B12-104</a>	Pollution Control Equipment	Continuous Emissions Monitoring Systems (CEMS)	
<a href="#">B12-105</a>	Pollution Control Equipment	Dry Scrubbers	Dry Scrubber
<a href="#">B12-106</a>	Pollution Control Equipment	Dry Scrubbers	Miscellaneous (Dry Scrubber)
<a href="#">B12-107</a>	Pollution Control Equipment	Dry Scrubbers	Piping, Ducting, and Dampers
<a href="#">B12-108</a>	Pollution Control Equipment	Dry Scrubbers	Reagent/Slurry Supply
<a href="#">B12-109</a>	Pollution Control Equipment	Dry Scrubbers	Waste Disposal and Recovery
<a href="#">B12-110</a>	Pollution Control Equipment	Miscellaneous (Pollution Control Equipment)	
<a href="#">B12-111</a>	Pollution Control Equipment	NOx Reduction Systems	Catalytic Air Heaters
<a href="#">B12-112</a>	Pollution Control Equipment	NOx Reduction Systems	Selective Catalytic Reduction Systems
<a href="#">B12-113</a>	Pollution Control Equipment	NOx Reduction Systems	Selective Non-Catalytic Reduction Systems
<a href="#">B12-114</a>	Pollution Control Equipment	Precipitators	
<a href="#">B12-115</a>	Pollution Control Equipment	Wet Scrubbers	Chemical Supply
<a href="#">B12-116</a>	Pollution Control Equipment	Wet Scrubbers	Miscellaneous (Wet Scrubber)
<a href="#">B12-117</a>	Pollution Control Equipment	Wet Scrubbers	Piping, Ducting, Dampers, and Fans
<a href="#">B12-118</a>	Pollution Control Equipment	Wet Scrubbers	Waste Disposal and Recovery

INDEX TO SYSTEM/COMPONENT/SUB-COMPONENT CAUSE CODE TABLES			
TABLE	SYSTEM	COMPONENT	SUB-COMPONENT
<a href="#">B12-119</a>	Pollution Control Equipment	Wet Scrubbers	Wet Scrubber
<a href="#">B12-120</a>	Regulatory, Safety, Environmental	Other Operating Environmental Limitations	
<a href="#">B12-121</a>	Regulatory, Safety, Environmental	Regulatory	
<a href="#">B12-122</a>	Regulatory, Safety, Environmental	Safety	
<a href="#">B12-123</a>	Regulatory, Safety, Environmental	Stack Emission	
<a href="#">B12-124</a>	Steam Turbine	Controls	
<a href="#">B12-125</a>	Steam Turbine	High Pressure Turbine	
<a href="#">B12-126</a>	Steam Turbine	Intermediate Pressure Turbine	
<a href="#">B12-127</a>	Steam Turbine	Low Pressure Turbine	
<a href="#">B12-128</a>	Steam Turbine	Lube Oil	
<a href="#">B12-129</a>	Steam Turbine	Miscellaneous (Steam Turbine)	
<a href="#">B12-130</a>	Steam Turbine	Piping	
<a href="#">B12-131</a>	Steam Turbine	Valves	

## BALANCE OF PLANT

TABLE B12-1 Balance of Plant: Auxiliary Systems - Auxiliary Steam					
UNIT TYPE	SYSTEM	COMPONENT	SUB-COMPONENT	CAUSE CODE	DESCRIPTION
Miscellaneous	Balance of Plant	Auxiliary Systems	Auxiliary Steam	3830	Auxiliary boiler
Miscellaneous	Balance of Plant	Auxiliary Systems	Auxiliary Steam	3831	Auxiliary steam piping
Miscellaneous	Balance of Plant	Auxiliary Systems	Auxiliary Steam	3832	Auxiliary steam valves
Miscellaneous	Balance of Plant	Auxiliary Systems	Auxiliary Steam	3833	Auxiliary steam controls and instruments
Miscellaneous	Balance of Plant	Auxiliary Systems	Auxiliary Steam	3834	Auxiliary boiler tube leaks
Miscellaneous	Balance of Plant	Auxiliary Systems	Auxiliary Steam	3835	Auxiliary boiler burner management system
Miscellaneous	Balance of Plant	Auxiliary Systems	Auxiliary Steam	3836	Steam transfer to other unit
Miscellaneous	Balance of Plant	Auxiliary Systems	Auxiliary Steam	3839	Other auxiliary steam problems (also see extraction steam codes 3520 to 3529; startup bypass codes 0630 to 0660; and soot blower steam code 0870)

**Notes: 1) For use with Unit Codes 800–899.**

TABLE B12-2 Balance of Plant: Auxiliary Systems - Closed Cooling Water Systems					
UNIT TYPE	SYSTEM	COMPONENT	SUB-COMPONENT	CAUSE CODE	DESCRIPTION
Miscellaneous	Balance of Plant	Auxiliary Systems	Closed Cooling Water Systems	3820	Closed cooling water pumps and motors
Miscellaneous	Balance of Plant	Auxiliary Systems	Closed Cooling Water Systems	3821	Closed cooling water piping
Miscellaneous	Balance of Plant	Auxiliary Systems	Closed Cooling Water Systems	3822	Closed cooling water valves
Miscellaneous	Balance of Plant	Auxiliary Systems	Closed Cooling Water Systems	3823	Closed cooling water heat exchangers
Miscellaneous	Balance of Plant	Auxiliary Systems	Closed Cooling Water Systems	3824	Closed cooling water system fouling
Miscellaneous	Balance of Plant	Auxiliary Systems	Closed Cooling Water Systems	3825	Closed cooling water instrumentation

**Appendix B12: Index To Miscellaneous Unit Cause Codes**

Miscellaneous	Balance of Plant	Auxiliary Systems	Closed Cooling Water Systems	3826	Closed cooling water strainer
Miscellaneous	Balance of Plant	Auxiliary Systems	Closed Cooling Water Systems	3829	Other closed cooling water system problems

**Notes: 1) For use with Unit Codes 800–899.**

**TABLE B12-3 Balance of Plant: Auxiliary Systems - Fire Protection System**

UNIT TYPE	SYSTEM	COMPONENT	SUB-COMPONENT	CAUSE CODE	DESCRIPTION
Miscellaneous	Balance of Plant	Auxiliary Systems	Fire Protection System	3860	Fire protection system pumps
Miscellaneous	Balance of Plant	Auxiliary Systems	Fire Protection System	3861	Fire protection system piping
Miscellaneous	Balance of Plant	Auxiliary Systems	Fire Protection System	3862	Fire protection system valves
Miscellaneous	Balance of Plant	Auxiliary Systems	Fire Protection System	3863	Fire protection system fouling
Miscellaneous	Balance of Plant	Auxiliary Systems	Fire Protection System	3864	Fire protection system instrumentation and controls
Miscellaneous	Balance of Plant	Auxiliary Systems	Fire Protection System	3869	Other fire protection system problems

**Notes: 1) For use with Unit Codes 800–899.**

**TABLE B12-4 Balance of Plant: Auxiliary Systems - Instrument Air**

UNIT TYPE	SYSTEM	COMPONENT	SUB-COMPONENT	CAUSE CODE	DESCRIPTION
Miscellaneous	Balance of Plant	Auxiliary Systems	Instrument Air	3850	Instrument air compressors
Miscellaneous	Balance of Plant	Auxiliary Systems	Instrument Air	3851	Instrument air piping
Miscellaneous	Balance of Plant	Auxiliary Systems	Instrument Air	3852	Instrument air valves
Miscellaneous	Balance of Plant	Auxiliary Systems	Instrument Air	3853	Instrument air dryers
Miscellaneous	Balance of Plant	Auxiliary Systems	Instrument Air	3854	N2 backup to instrument air
Miscellaneous	Balance of Plant	Auxiliary Systems	Instrument Air	3859	Other instrument air problems

**Notes: 1) For use with Unit Codes 800–899.**

**TABLE B12-5 Balance of Plant: Auxiliary Systems - Low-pressure Gas Compression System**

UNIT TYPE	SYSTEM	COMPONENT	SUB-COMPONENT	CAUSE CODE	DESCRIPTION
Miscellaneous	Balance of Plant	Auxiliary Systems	Low-pressure Gas Compression System	3870	Fuel Gas Compressor and Motors
Miscellaneous	Balance of Plant	Auxiliary Systems	Low-pressure Gas Compression System	3871	Fuel Gas Compressor Piping

**Notes: 1) For use with Unit Codes 800–899.**

**TABLE B12-6 Balance of Plant: Auxiliary Systems - Miscellaneous (Auxiliary Systems)**

UNIT TYPE	SYSTEM	COMPONENT	SUB-COMPONENT	CAUSE CODE	DESCRIPTION
Miscellaneous	Balance of Plant	Auxiliary Systems	Miscellaneous (Auxiliary Systems)	3898	Miscellaneous plant auxiliary process and services instrumentation and controls
Miscellaneous	Balance of Plant	Auxiliary Systems	Miscellaneous (Auxiliary Systems)	3899	Other miscellaneous auxiliary system problems
Miscellaneous	Balance of Plant	Auxiliary Systems	Miscellaneous (Auxiliary Systems)	6299	Other combined cycle block problems (Use other gas turbine problem codes, other

**Appendix B12: Index To Miscellaneous Unit Cause Codes**

					steam turbine codes, etc., whenever appropriate.)
Miscellaneous	Balance of Plant	Auxiliary Systems	Miscellaneous (Auxiliary Systems)	6399	Other coal gasification equipment problems
<b>Notes: 1) For use with Unit Codes 800–899.</b>					

<b>TABLE B12-7 Balance of Plant: Auxiliary Systems - Open Cooling Water System</b>					
<b>UNIT TYPE</b>	<b>SYSTEM</b>	<b>COMPONENT</b>	<b>SUB-COMPONENT</b>	<b>CAUSE CODE</b>	<b>DESCRIPTION</b>
Miscellaneous	Balance of Plant	Auxiliary Systems	Open Cooling Water System	3800	Open cooling water pumps and motors
Miscellaneous	Balance of Plant	Auxiliary Systems	Open Cooling Water System	3801	Open cooling water piping
Miscellaneous	Balance of Plant	Auxiliary Systems	Open Cooling Water System	3802	Open cooling water valves
Miscellaneous	Balance of Plant	Auxiliary Systems	Open Cooling Water System	3803	Open cooling water heat exchangers
Miscellaneous	Balance of Plant	Auxiliary Systems	Open Cooling Water System	3804	Open cooling water system fouling
Miscellaneous	Balance of Plant	Auxiliary Systems	Open Cooling Water System	3805	Open cooling water system instrumentation
Miscellaneous	Balance of Plant	Auxiliary Systems	Open Cooling Water System	3806	Open cooling water strainer
Miscellaneous	Balance of Plant	Auxiliary Systems	Open Cooling Water System	3809	Other open cooling water problems
<b>Notes: 1) For use with Unit Codes 800–899.</b>					

<b>TABLE B12-8 Balance of Plant: Auxiliary Systems - Seal Air Fans</b>					
<b>UNIT TYPE</b>	<b>SYSTEM</b>	<b>COMPONENT</b>	<b>SUB-COMPONENT</b>	<b>CAUSE CODE</b>	<b>DESCRIPTION</b>
Miscellaneous	Balance of Plant	Auxiliary Systems	Seal Air Fans	3880	Seal air fan
Miscellaneous	Balance of Plant	Auxiliary Systems	Seal Air Fans	3881	Seal air fan drive - motor
Miscellaneous	Balance of Plant	Auxiliary Systems	Seal Air Fans	3882	Seal air control dampers and drives
Miscellaneous	Balance of Plant	Auxiliary Systems	Seal Air Fans	3883	Seal air filters
Miscellaneous	Balance of Plant	Auxiliary Systems	Seal Air Fans	3889	Other seal air fan problems
<b>Notes: 1) For use with Unit Codes 800–899.</b>					

<b>TABLE B12-9 Balance of Plant: Auxiliary Systems - Service Air</b>					
<b>UNIT TYPE</b>	<b>SYSTEM</b>	<b>COMPONENT</b>	<b>SUB-COMPONENT</b>	<b>CAUSE CODE</b>	<b>DESCRIPTION</b>
Miscellaneous	Balance of Plant	Auxiliary Systems	Service Air	3840	Service air compressors
Miscellaneous	Balance of Plant	Auxiliary Systems	Service Air	3841	Service air piping
Miscellaneous	Balance of Plant	Auxiliary Systems	Service Air	3842	Service air valves
Miscellaneous	Balance of Plant	Auxiliary Systems	Service Air	3843	Service air dryers
Miscellaneous	Balance of Plant	Auxiliary Systems	Service Air	3844	Soot blowing air compressor and system
Miscellaneous	Balance of Plant	Auxiliary Systems	Service Air	3849	Other service air problems
<b>Notes: 1) For use with Unit Codes 800–899.</b>					

<b>TABLE B12-10 Balance of Plant: Auxiliary Systems - Service Water (Open System)</b>					
<b>UNIT TYPE</b>	<b>SYSTEM</b>	<b>COMPONENT</b>	<b>SUB-COMPONENT</b>	<b>CAUSE CODE</b>	<b>DESCRIPTION</b>

**Appendix B12: Index To Miscellaneous Unit Cause Codes**

Miscellaneous	Balance of Plant	Auxiliary Systems	Service Water (Open System)	3810	Service water pumps and motors
Miscellaneous	Balance of Plant	Auxiliary Systems	Service Water (Open System)	3811	Service water piping
Miscellaneous	Balance of Plant	Auxiliary Systems	Service Water (Open System)	3812	Service water valves
Miscellaneous	Balance of Plant	Auxiliary Systems	Service Water (Open System)	3813	Service water heat exchangers
Miscellaneous	Balance of Plant	Auxiliary Systems	Service Water (Open System)	3814	Service water system fouling
Miscellaneous	Balance of Plant	Auxiliary Systems	Service Water (Open System)	3815	Service water strainer
Miscellaneous	Balance of Plant	Auxiliary Systems	Service Water (Open System)	3819	Other service water problems

**Notes: 1) For use with Unit Codes 800–899.**

**TABLE B12-11 Balance of Plant: Circulating Water Systems**

UNIT TYPE	SYSTEM	COMPONENT	SUB-COMPONENT	CAUSE CODE	DESCRIPTION
Miscellaneous	Balance of Plant	Circulating Water Systems		3210	Circulating water pumps
Miscellaneous	Balance of Plant	Circulating Water Systems		3211	Circulating water pump motors
Miscellaneous	Balance of Plant	Circulating Water Systems		3220	Circulating water piping
Miscellaneous	Balance of Plant	Circulating Water Systems		3221	Circulating water piping fouling
Miscellaneous	Balance of Plant	Circulating Water Systems		3230	Circulating water valves
Miscellaneous	Balance of Plant	Circulating Water Systems		3231	Waterbox
Miscellaneous	Balance of Plant	Circulating Water Systems		3232	Condenser tube cleaning system including debris filter
Miscellaneous	Balance of Plant	Circulating Water Systems		3233	Circulating water priming system
Miscellaneous	Balance of Plant	Circulating Water Systems		3235	Cooling tower booster pump
Miscellaneous	Balance of Plant	Circulating Water Systems		3236	Cooling tower booster motor
Miscellaneous	Balance of Plant	Circulating Water Systems		3238	Cooling tower fan motors
Miscellaneous	Balance of Plant	Circulating Water Systems		3239	Cooling tower fan motors - variable speed
Miscellaneous	Balance of Plant	Circulating Water Systems		3240	Cooling tower fans
Miscellaneous	Balance of Plant	Circulating Water Systems		3241	Cooling tower efficiency below design
Miscellaneous	Balance of Plant	Circulating Water Systems		3242	Cooling tower fill damage
Miscellaneous	Balance of Plant	Circulating Water Systems		3243	Cooling tower icing
Miscellaneous	Balance of Plant	Circulating Water Systems		3244	Cooling tower fires
Miscellaneous	Balance of Plant	Circulating Water Systems		3245	Other cooling tower problems
Miscellaneous	Balance of Plant	Circulating Water Systems		3246	Cooling tower fouling
Miscellaneous	Balance of Plant	Circulating Water Systems		3247	Cooling tower instrumentation
Miscellaneous	Balance of Plant	Circulating Water Systems		3248	Cooling Tower Overhaul
Miscellaneous	Balance of Plant	Circulating Water Systems		3250	Circulating water system instruments and controls
Miscellaneous	Balance of Plant	Circulating Water Systems		3260	Traveling screens
Miscellaneous	Balance of Plant	Circulating Water Systems		3261	Traveling screen fouling
Miscellaneous	Balance of Plant	Circulating Water Systems		3269	Circulating water biological conditions (ie, zebra mussels)
Miscellaneous	Balance of Plant	Circulating Water Systems		3270	Intake system problems other than traveling screens
Miscellaneous	Balance of Plant	Circulating Water Systems		3271	Intake grating fouling
Miscellaneous	Balance of Plant	Circulating Water Systems		3272	Circulating water screenwash system

**Appendix B12: Index To Miscellaneous Unit Cause Codes**

Miscellaneous	Balance of Plant	Circulating Water Systems		3273	Debris in circulating water from outside sources (leaves, mud, etc.)
Miscellaneous	Balance of Plant	Circulating Water Systems		3280	High circulating water temperature (not due to season, tower efficiency below design, or other listed equipment problem)
Miscellaneous	Balance of Plant	Circulating Water Systems		3281	Circulating water tempering system
Miscellaneous	Balance of Plant	Circulating Water Systems		3282	Circulating water cooling ponds
Miscellaneous	Balance of Plant	Circulating Water Systems		3285	Circulating water chemistry
Miscellaneous	Balance of Plant	Circulating Water Systems		3299	Other circulating water system problems

**Notes: 1) For use with Unit Codes 800–899.**

**TABLE B12-12 Balance of Plant: Condensate System - Low/Intermediate Pressure Heater and Deaerators**

UNIT TYPE	SYSTEM	COMPONENT	SUB-COMPONENT	CAUSE CODE	DESCRIPTION
Miscellaneous	Balance of Plant	Condensate System	Low/Intermediate Pressure Heater and Deaerators	3339	LP heater head leaks
Miscellaneous	Balance of Plant	Condensate System	Low/Intermediate Pressure Heater and Deaerators	3340	LP heater tube leaks
Miscellaneous	Balance of Plant	Condensate System	Low/Intermediate Pressure Heater and Deaerators	3341	Other LP heater - general
Miscellaneous	Balance of Plant	Condensate System	Low/Intermediate Pressure Heater and Deaerators	3342	IP heater tube leaks
Miscellaneous	Balance of Plant	Condensate System	Low/Intermediate Pressure Heater and Deaerators	3343	Other IP heater - general
Miscellaneous	Balance of Plant	Condensate System	Low/Intermediate Pressure Heater and Deaerators	3344	Deaerator (including level control)
Miscellaneous	Balance of Plant	Condensate System	Low/Intermediate Pressure Heater and Deaerators	3345	IP heater head leaks

**Notes: 1) For use with Unit Codes 800–899.**

**TABLE B12-13 Balance of Plant: Condensate System - Miscellaneous (Condensate System)**

UNIT TYPE	SYSTEM	COMPONENT	SUB-COMPONENT	CAUSE CODE	DESCRIPTION
Miscellaneous	Balance of Plant	Condensate System	Miscellaneous (Condensate System)	3360	Condensate makeup and return (including storage tanks)
Miscellaneous	Balance of Plant	Condensate System	Miscellaneous (Condensate System)	3370	Condensate system controls and instrumentation (not hotwell level, heater level, or deaerator level controls; see codes 3150-3159, 3344, 3502).
Miscellaneous	Balance of Plant	Condensate System	Miscellaneous (Condensate System)	3380	Condensate coolers
Miscellaneous	Balance of Plant	Condensate System	Miscellaneous (Condensate System)	3399	Other miscellaneous condensate system problems

**Notes: 1) For use with Unit Codes 800–899.**

**TABLE B12-14 Balance of Plant: Condensate System - Polishers/Chemical Addition**



**Appendix B12: Index To Miscellaneous Unit Cause Codes**

UNIT TYPE	SYSTEM	COMPONENT	SUB-COMPONENT	CAUSE CODE	DESCRIPTION
Miscellaneous	Balance of Plant	Condensate System	Polishers/Chemical Addition	3350	Condensate polishing and filtering systems
Miscellaneous	Balance of Plant	Condensate System	Polishers/Chemical Addition	3351	Chemical addition systems
Miscellaneous	Balance of Plant	Condensate System	Polishers/Chemical Addition	3352	Feedwater chemistry (not specific to condenser, polishers, or chemical addition)

**Notes: 1) For use with Unit Codes 800–899.**

**TABLE B12-15 Balance of Plant: Condensate System - Pumps, Piping, and Valves**

UNIT TYPE	SYSTEM	COMPONENT	SUB-COMPONENT	CAUSE CODE	DESCRIPTION
Miscellaneous	Balance of Plant	Condensate System	Pumps, Piping, and Valves	3300	Condensate water pre-treatment
Miscellaneous	Balance of Plant	Condensate System	Pumps, Piping, and Valves	3310	Condensate/hotwell pumps
Miscellaneous	Balance of Plant	Condensate System	Pumps, Piping, and Valves	3311	Condensate/hotwell pump motor
Miscellaneous	Balance of Plant	Condensate System	Pumps, Piping, and Valves	3312	Condensate booster pump
Miscellaneous	Balance of Plant	Condensate System	Pumps, Piping, and Valves	3313	Condensate booster pump motor
Miscellaneous	Balance of Plant	Condensate System	Pumps, Piping, and Valves	3314	Condensate booster pump motor - variable speed
Miscellaneous	Balance of Plant	Condensate System	Pumps, Piping, and Valves	3315	Condensate booster pump drive (other than 3313 and 3314)
Miscellaneous	Balance of Plant	Condensate System	Pumps, Piping, and Valves	3320	Condensate piping
Miscellaneous	Balance of Plant	Condensate System	Pumps, Piping, and Valves	3330	Condensate valves

**Notes: 1) For use with Unit Codes 800–899.**

**TABLE B12-16 Balance of Plant: Condensing System - Condenser Casing or Shell and Internals**

UNIT TYPE	SYSTEM	COMPONENT	SUB-COMPONENT	CAUSE CODE	DESCRIPTION
Miscellaneous	Balance of Plant	Condensing System	Condenser Casing or Shell and Internals	3120	Tube sheets
Miscellaneous	Balance of Plant	Condensing System	Condenser Casing or Shell and Internals	3121	Expansion joint
Miscellaneous	Balance of Plant	Condensing System	Condenser Casing or Shell and Internals	3122	Gaskets and seals
Miscellaneous	Balance of Plant	Condensing System	Condenser Casing or Shell and Internals	3123	Hot well
Miscellaneous	Balance of Plant	Condensing System	Condenser Casing or Shell and Internals	3124	Tube sheet fouling
Miscellaneous	Balance of Plant	Condensing System	Condenser Casing or Shell and Internals	3129	Other condenser casing or shell and internal problems

**Notes: 1) For use with Unit Codes 800–899.**

**TABLE B12-17 Balance of Plant: Condensing System - Condenser Controls**

UNIT TYPE	SYSTEM	COMPONENT	SUB-COMPONENT	CAUSE CODE	DESCRIPTION
Miscellaneous	Balance of Plant	Condensing System	Condenser Controls	3150	Hot well level controls
Miscellaneous	Balance of Plant	Condensing System	Condenser Controls	3151	Vacuum pump and air ejector controls
Miscellaneous	Balance of Plant	Condensing System	Condenser Controls	3152	Air-cooled condenser controls
Miscellaneous	Balance of Plant	Condensing System	Condenser Controls	3159	Other condensing system controls and instruments

Appendix B12: Index To Miscellaneous Unit Cause Codes

**Notes: 1) For use with Unit Codes 800–899.**

**TABLE B12-18 Balance of Plant: Condensing System - Condenser Tubes and Support Equipment**

UNIT TYPE	SYSTEM	COMPONENT	SUB-COMPONENT	CAUSE CODE	DESCRIPTION
Miscellaneous	Balance of Plant	Condensing System	Condenser Tubes and Support Equipment	3110	Condenser tube leaks
Miscellaneous	Balance of Plant	Condensing System	Condenser Tubes and Support Equipment	3111	Condenser tube fouling shell side
Miscellaneous	Balance of Plant	Condensing System	Condenser Tubes and Support Equipment	3112	Condenser tube fouling tube side
Miscellaneous	Balance of Plant	Condensing System	Condenser Tubes and Support Equipment	3113	Condenser tube and water box cleaning (including circulating water flow reversal)
Miscellaneous	Balance of Plant	Condensing System	Condenser Tubes and Support Equipment	3114	Air-cooled condenser tubes
Miscellaneous	Balance of Plant	Condensing System	Condenser Tubes and Support Equipment	3115	Air-cooled condenser pumps
Miscellaneous	Balance of Plant	Condensing System	Condenser Tubes and Support Equipment	3116	Air-cooled condenser fans
Miscellaneous	Balance of Plant	Condensing System	Condenser Tubes and Support Equipment	3117	Air-cooled condenser fan motors
Miscellaneous	Balance of Plant	Condensing System	Condenser Tubes and Support Equipment	3118	Other Air-cooled condenser problems
Miscellaneous	Balance of Plant	Condensing System	Condenser Tubes and Support Equipment	3119	Other condenser tube casing or shell and internal problems

**Notes: 1) For use with Unit Codes 800–899.**

**TABLE B12-19 Balance of Plant: Condensing System - Miscellaneous (Condensing System)**

UNIT TYPE	SYSTEM	COMPONENT	SUB-COMPONENT	CAUSE CODE	DESCRIPTION
Miscellaneous	Balance of Plant	Condensing System	Miscellaneous (Condensing System)	3170	Condenser inspection (use code 3110 to report looking for tube leaks)
Miscellaneous	Balance of Plant	Condensing System	Miscellaneous (Condensing System)	3171	Air-cooled condenser inspections
Miscellaneous	Balance of Plant	Condensing System	Miscellaneous (Condensing System)	3180	Major condenser overhaul
Miscellaneous	Balance of Plant	Condensing System	Miscellaneous (Condensing System)	3185	Water side cathodic protection
Miscellaneous	Balance of Plant	Condensing System	Miscellaneous (Condensing System)	3186	Auxiliary condenser and associated equipment
Miscellaneous	Balance of Plant	Condensing System	Miscellaneous (Condensing System)	3190	Air leakage (for losses not attributable to previously noted equipment related codes)
Miscellaneous	Balance of Plant	Condensing System	Miscellaneous (Condensing System)	3199	Other miscellaneous condensing system problems

**Notes: 1) For use with Unit Codes 800–899.**

**TABLE B12-20 Balance of Plant: Condensing System - Vacuum Equipment**

UNIT TYPE	SYSTEM	COMPONENT	SUB-COMPONENT	CAUSE CODE	DESCRIPTION
-----------	--------	-----------	---------------	------------	-------------

**Appendix B12: Index To Miscellaneous Unit Cause Codes**

Miscellaneous	Balance of Plant	Condensing System	Vacuum Equipment	3130	Air ejectors
Miscellaneous	Balance of Plant	Condensing System	Vacuum Equipment	3131	Air ejector piping and valves
Miscellaneous	Balance of Plant	Condensing System	Vacuum Equipment	3132	Inter and after condensers
Miscellaneous	Balance of Plant	Condensing System	Vacuum Equipment	3133	Vacuum pumps
Miscellaneous	Balance of Plant	Condensing System	Vacuum Equipment	3134	Vacuum pump piping and valves
Miscellaneous	Balance of Plant	Condensing System	Vacuum Equipment	3135	Vacuum pump motor and auxiliaries
Miscellaneous	Balance of Plant	Condensing System	Vacuum Equipment	3139	Other air extraction system problems - general
Miscellaneous	Balance of Plant	Condensing System	Vacuum Equipment	3149	Loss of vacuum not attributable to a particular component such as air ejectors or valves, or high back pressure not attributable to high circulating water temperature, or vacuum losses from a known cause.

**Notes: 1) For use with Unit Codes 800–899.**

**TABLE B12-21 Balance of Plant: Electrical**

UNIT TYPE	SYSTEM	COMPONENT	SUB-COMPONENT	CAUSE CODE	DESCRIPTION
Miscellaneous	Balance of Plant	Electrical		3600	Switchyard transformers and associated cooling systems - external (OMC)
Miscellaneous	Balance of Plant	Electrical		3601	Switchyard transformers and associated cooling systems - external (not OMC)
Miscellaneous	Balance of Plant	Electrical		3610	Switchyard circuit breakers – external (not OMC)
Miscellaneous	Balance of Plant	Electrical		3611	Switchyard circuit breakers - external (OMC)
Miscellaneous	Balance of Plant	Electrical		3612	Switchyard system protection devices - external (OMC)
Miscellaneous	Balance of Plant	Electrical		3613	Switchyard system protection devices – external (not OMC)
Miscellaneous	Balance of Plant	Electrical		3618	Other switchyard equipment - external (not OMC)
Miscellaneous	Balance of Plant	Electrical		3619	Other switchyard equipment - external (OMC)
Miscellaneous	Balance of Plant	Electrical		3620	Main transformer
Miscellaneous	Balance of Plant	Electrical		3621	Unit auxiliaries transformer
Miscellaneous	Balance of Plant	Electrical		3622	Station service startup transformer
Miscellaneous	Balance of Plant	Electrical		3623	Auxiliary generators
Miscellaneous	Balance of Plant	Electrical		3624	Auxiliary generator voltage supply system
Miscellaneous	Balance of Plant	Electrical		3629	Other switchyard or high voltage system problems - external
Miscellaneous	Balance of Plant	Electrical		3630	400-700 volt transformers
Miscellaneous	Balance of Plant	Electrical		3631	400-700 volt circuit breakers
Miscellaneous	Balance of Plant	Electrical		3632	400-700 volt conductors and buses
Miscellaneous	Balance of Plant	Electrical		3633	400-700 volt insulators
Miscellaneous	Balance of Plant	Electrical		3634	400-700 volt protection devices

**Appendix B12: Index To Miscellaneous Unit Cause Codes**

Miscellaneous	Balance of Plant	Electrical		3639	Other 400-700 volt problems
Miscellaneous	Balance of Plant	Electrical		3640	AC instrument power transformers
Miscellaneous	Balance of Plant	Electrical		3641	AC Circuit breakers
Miscellaneous	Balance of Plant	Electrical		3642	AC Conductors and buses
Miscellaneous	Balance of Plant	Electrical		3643	AC Inverters
Miscellaneous	Balance of Plant	Electrical		3644	AC Protection devices
Miscellaneous	Balance of Plant	Electrical		3649	Other AC instrument power problems
Miscellaneous	Balance of Plant	Electrical		3650	DC instrument power battery chargers
Miscellaneous	Balance of Plant	Electrical		3651	DC circuit breakers
Miscellaneous	Balance of Plant	Electrical		3652	DC conductors and buses
Miscellaneous	Balance of Plant	Electrical		3653	DC protection devices
Miscellaneous	Balance of Plant	Electrical		3659	Other DC power problems
Miscellaneous	Balance of Plant	Electrical		3660	4000-7000 volt transformers
Miscellaneous	Balance of Plant	Electrical		3661	4000-7000 volt circuit breakers
Miscellaneous	Balance of Plant	Electrical		3662	4000-7000 volt conductors and buses
Miscellaneous	Balance of Plant	Electrical		3663	4000-7000 volt insulators
Miscellaneous	Balance of Plant	Electrical		3664	4000-7000 volt protection devices
Miscellaneous	Balance of Plant	Electrical		3669	Other 4000-7000 volt problems
Miscellaneous	Balance of Plant	Electrical		3670	12-15kV transformers
Miscellaneous	Balance of Plant	Electrical		3671	12-15kV circuit breakers
Miscellaneous	Balance of Plant	Electrical		3672	12-15kV conductors and buses
Miscellaneous	Balance of Plant	Electrical		3673	12-15kV insulators
Miscellaneous	Balance of Plant	Electrical		3674	12-15kV protection devices
Miscellaneous	Balance of Plant	Electrical		3679	Other 12-15kV problems
Miscellaneous	Balance of Plant	Electrical		3680	Other voltage transformers
Miscellaneous	Balance of Plant	Electrical		3681	Other voltage circuit breakers
Miscellaneous	Balance of Plant	Electrical		3682	Other voltage conductors and buses
Miscellaneous	Balance of Plant	Electrical		3683	Other voltage insulators
Miscellaneous	Balance of Plant	Electrical		3684	Other voltage protection devices
Miscellaneous	Balance of Plant	Electrical		3689	Other voltage problems
Miscellaneous	Balance of Plant	Electrical		3690	Station Service Power Distribution System, General

**Notes: 1) For use with Unit Codes 800–899.**

**TABLE B12-22 Balance of Plant: Extraction Steam**

UNIT TYPE	SYSTEM	COMPONENT	SUB-COMPONENT	CAUSE CODE	DESCRIPTION
Miscellaneous	Balance of Plant	Extraction Steam		3520	HP Extraction steam piping
Miscellaneous	Balance of Plant	Extraction Steam		3521	HP Extraction steam valves
Miscellaneous	Balance of Plant	Extraction Steam		3522	HP Extraction steam instruments and controls
Miscellaneous	Balance of Plant	Extraction Steam		3529	Other HP extraction steam system problems
Miscellaneous	Balance of Plant	Extraction Steam		3530	IP Extraction steam piping

**Appendix B12: Index To Miscellaneous Unit Cause Codes**

Miscellaneous	Balance of Plant	Extraction Steam		3531	IP Extraction steam valves
Miscellaneous	Balance of Plant	Extraction Steam		3532	IP Extraction steam instruments and controls
Miscellaneous	Balance of Plant	Extraction Steam		3539	Other IP extraction steam system problems
Miscellaneous	Balance of Plant	Extraction Steam		3540	LP Extraction steam piping
Miscellaneous	Balance of Plant	Extraction Steam		3541	LP Extraction steam valves
Miscellaneous	Balance of Plant	Extraction Steam		3542	LP Extraction steam instruments and controls
Miscellaneous	Balance of Plant	Extraction Steam		3549	Other LP extraction steam system problems

**Notes: 1) For use with Unit Codes 800–899.**

**TABLE B12-23 Balance of Plant: Feedwater System**

UNIT TYPE	SYSTEM	COMPONENT	SUB-COMPONENT	CAUSE CODE	DESCRIPTION
Miscellaneous	Balance of Plant	Feedwater System		3401	Startup feedwater pump
Miscellaneous	Balance of Plant	Feedwater System		3402	Startup feedwater pump drives - all types
Miscellaneous	Balance of Plant	Feedwater System		3407	Feedwater pump suction screens
Miscellaneous	Balance of Plant	Feedwater System		3408	Feedwater pump drive - local controls
Miscellaneous	Balance of Plant	Feedwater System		3409	Feedwater pump drive motor - variable speed
Miscellaneous	Balance of Plant	Feedwater System		3410	Feedwater pump
Miscellaneous	Balance of Plant	Feedwater System		3411	Feedwater pump drive - motor
Miscellaneous	Balance of Plant	Feedwater System		3412	Feedwater pump drive - steam turbine
Miscellaneous	Balance of Plant	Feedwater System		3413	Feedwater pump coupling and drive shaft
Miscellaneous	Balance of Plant	Feedwater System		3414	Feedwater pump local controls
Miscellaneous	Balance of Plant	Feedwater System		3415	Feedwater pump/drive lube oil system
Miscellaneous	Balance of Plant	Feedwater System		3416	Other feedwater pump problems
Miscellaneous	Balance of Plant	Feedwater System		3417	Feedwater pump drive - main shaft
Miscellaneous	Balance of Plant	Feedwater System		3418	Feedwater pump drive - other
Miscellaneous	Balance of Plant	Feedwater System		3419	Feedwater pump drive - gear
Miscellaneous	Balance of Plant	Feedwater System		3420	Feedwater piping and supports
Miscellaneous	Balance of Plant	Feedwater System		3430	Feedwater regulating (boiler level control) valve
Miscellaneous	Balance of Plant	Feedwater System		3431	Other feedwater valves
Miscellaneous	Balance of Plant	Feedwater System		3439	HP heater head leaks
Miscellaneous	Balance of Plant	Feedwater System		3440	High pressure heater tube leaks
Miscellaneous	Balance of Plant	Feedwater System		3441	Other high pressure heater problems (see condensate system for LP and IP heater codes)
Miscellaneous	Balance of Plant	Feedwater System		3451	Feedwater booster pump suction screens
Miscellaneous	Balance of Plant	Feedwater System		3452	Feedwater booster pump drive - local controls
Miscellaneous	Balance of Plant	Feedwater System		3453	Feedwater booster pump drive motor - variable speed
Miscellaneous	Balance of Plant	Feedwater System		3454	Feedwater booster pump
Miscellaneous	Balance of Plant	Feedwater System		3455	Feedwater booster pump drive - motor

**Appendix B12: Index To Miscellaneous Unit Cause Codes**

Miscellaneous	Balance of Plant	Feedwater System		3456	Feedwater booster pump drive - steam turbine
Miscellaneous	Balance of Plant	Feedwater System		3457	Feedwater booster pump coupling and drive shaft
Miscellaneous	Balance of Plant	Feedwater System		3458	Feedwater booster pump local controls
Miscellaneous	Balance of Plant	Feedwater System		3459	Feedwater booster pump/drive lube oil system
Miscellaneous	Balance of Plant	Feedwater System		3460	Other feedwater booster pump problems
Miscellaneous	Balance of Plant	Feedwater System		3461	Feedwater booster pump drive - main shaft
Miscellaneous	Balance of Plant	Feedwater System		3462	Feedwater booster pump drive - other
Miscellaneous	Balance of Plant	Feedwater System		3463	Feedwater booster pump drive - gear
Miscellaneous	Balance of Plant	Feedwater System		3499	Other feedwater system problems

**Notes: 1) For use with Unit Codes 800–899.**

**TABLE B12-24 Balance of Plant: Heater Drain Systems**

UNIT TYPE	SYSTEM	COMPONENT	SUB-COMPONENT	CAUSE CODE	DESCRIPTION
Miscellaneous	Balance of Plant	Heater Drain Systems		3501	Heater drain pumps
Miscellaneous	Balance of Plant	Heater Drain Systems		3502	Heater level control
Miscellaneous	Balance of Plant	Heater Drain Systems		3503	Heater drain piping
Miscellaneous	Balance of Plant	Heater Drain Systems		3504	Heater drain valves
Miscellaneous	Balance of Plant	Heater Drain Systems		3505	Heater drain pump drive
Miscellaneous	Balance of Plant	Heater Drain Systems		3509	Other heater drain system problems

**Notes: 1) For use with Unit Codes 800–899. 2) Excluding extraction or drain systems.**

**TABLE B12-25 Balance of Plant: Miscellaneous (Balance of Plant)**

UNIT TYPE	SYSTEM	COMPONENT	SUB-COMPONENT	CAUSE CODE	DESCRIPTION
Miscellaneous	Balance of Plant	Miscellaneous (Balance of Plant)		3950	Process computer
Miscellaneous	Balance of Plant	Miscellaneous (Balance of Plant)		3960	Thermal derating (thermal efficiency losses in balance of plant when specific cause(s) unknown)
Miscellaneous	Balance of Plant	Miscellaneous (Balance of Plant)		3970	Distributive Control System (DCS) - process computer
Miscellaneous	Balance of Plant	Miscellaneous (Balance of Plant)		3971	DCS - data highway
Miscellaneous	Balance of Plant	Miscellaneous (Balance of Plant)		3972	DCS - hardware problems (including card failure)
Miscellaneous	Balance of Plant	Miscellaneous (Balance of Plant)		3973	DCS - internal and termination wiring
Miscellaneous	Balance of Plant	Miscellaneous (Balance of Plant)		3974	DCS - logic problems
Miscellaneous	Balance of Plant	Miscellaneous (Balance of Plant)		3975	DCS - upgrades
Miscellaneous	Balance of Plant	Miscellaneous (Balance of Plant)		3979	Other DCS problems
Miscellaneous	Balance of Plant	Miscellaneous (Balance of Plant)		3980	Programmable Logic Controller (PLC)
Miscellaneous	Balance of Plant	Miscellaneous (Balance of Plant)		3981	PLC - data highway
Miscellaneous	Balance of Plant	Miscellaneous (Balance of Plant)		3982	PLC - hardware problems (including card failure)

**Appendix B12: Index To Miscellaneous Unit Cause Codes**

Miscellaneous	Balance of Plant	Miscellaneous (Balance of Plant)		3983	PLC - internal and termination wiring
Miscellaneous	Balance of Plant	Miscellaneous (Balance of Plant)		3984	PLC - logic problems
Miscellaneous	Balance of Plant	Miscellaneous (Balance of Plant)		3985	PLC - upgrades
Miscellaneous	Balance of Plant	Miscellaneous (Balance of Plant)		3989	Other PLC problems
Miscellaneous	Balance of Plant	Miscellaneous (Balance of Plant)		3995	Powerhouse heating and ventilating systems
Miscellaneous	Balance of Plant	Miscellaneous (Balance of Plant)		3996	Air conditioning systems - rooms and areas
Miscellaneous	Balance of Plant	Miscellaneous (Balance of Plant)		3998	Balance of plant overhaul/outage
Miscellaneous	Balance of Plant	Miscellaneous (Balance of Plant)		3999	Other miscellaneous balance of plant problems

**Notes: 1) For use with Unit Codes 800–899.**

**TABLE B12-26 Balance of Plant: Power Station Switchyard**

UNIT TYPE	SYSTEM	COMPONENT	SUB-COMPONENT	CAUSE CODE	DESCRIPTION
Miscellaneous	Balance of Plant	Power Station Switchyard		3700	Power Station switchyard (non generating unit equipment)
Miscellaneous	Balance of Plant	Power Station Switchyard		3710	Transmission line (connected to powerhouse switchyard to 1st Substation)
Miscellaneous	Balance of Plant	Power Station Switchyard		3720	Transmission equipment at the 1st substation (see code 9300 if applicable)
Miscellaneous	Balance of Plant	Power Station Switchyard		3730	Transmission equipment beyond the 1st substation (see code 9300 if applicable)

**Notes: 1) For use with Unit Codes 800–899.**

**TABLE B12-27 Balance of Plant: Waste Water (zero discharge) Systems**

UNIT TYPE	SYSTEM	COMPONENT	SUB-COMPONENT	CAUSE CODE	DESCRIPTION
Miscellaneous	Balance of Plant	Waste Water (zero discharge) Systems		3290	Waste water (zero discharge) tanks, pumps, and motors
Miscellaneous	Balance of Plant	Waste Water (zero discharge) Systems		3291	Waste water (zero discharge) system fouling
Miscellaneous	Balance of Plant	Waste Water (zero discharge) Systems		3292	Waste water (zero discharge) piping
Miscellaneous	Balance of Plant	Waste Water (zero discharge) Systems		3293	Waste water (zero discharge) valves
Miscellaneous	Balance of Plant	Waste Water (zero discharge) Systems		3294	Waste water (zero discharge) controls and instrumentation
Miscellaneous	Balance of Plant	Waste Water (zero discharge) Systems		3295	Other waste water (zero discharge) problems

**Notes: 1) For use with Unit Codes 800–899.**

## BOILER

This set of codes contains the following:

- Boiler
- Boiler internals (tubes, refractory, supports, etc.)
- All the fuel handling, storage, preparation, and burning equipment.
- The forced/induced draft air system.
- Slag and ash removal except for particulate and gas cleanup. These latter items are covered under pollution control equipment.
- The main steam and reheat steam systems up to but not including the turbine stop or isolation valves.
- The feedwater system downstream of the final valve prior to entry into the economizer or boiler.
- Boiler blowdown systems.
- The startup bypass system including drains up to the heaters or condenser.
- Boiler water chemistry problems not due to problems in the condensate/feedwater system, the chemical addition system, or the demineralizer/polisher system.
- The instruments and controls associated with the above equipment.

TABLE B12-28 Boiler: Bed Material Preparation System (FBC only)					
UNIT TYPE	SYSTEM	COMPONENT	SUB-COMPONENT	CAUSE CODE	DESCRIPTION
Miscellaneous	Boiler	Bed Material Preparation System (FBC only)		160	Bed material tanks/hoppers
Miscellaneous	Boiler	Bed Material Preparation System (FBC only)		162	Bed material conveyors
Miscellaneous	Boiler	Bed Material Preparation System (FBC only)		163	Bed material feeders
Miscellaneous	Boiler	Bed Material Preparation System (FBC only)		164	Bed material feeder motors
Miscellaneous	Boiler	Bed Material Preparation System (FBC only)		165	Bed material crushers
Miscellaneous	Boiler	Bed Material Preparation System (FBC only)		166	Bed material crusher motors
Miscellaneous	Boiler	Bed Material Preparation System (FBC only)		167	Bed material screens
Miscellaneous	Boiler	Bed Material Preparation System (FBC only)		168	Bed material blowers/fans
Miscellaneous	Boiler	Bed Material Preparation System (FBC only)		169	Bed material blower/fan motors
Miscellaneous	Boiler	Bed Material Preparation System (FBC only)		170	Bed material cyclone
Miscellaneous	Boiler	Bed Material Preparation System (FBC only)		171	Bed material baghouse
Miscellaneous	Boiler	Bed Material Preparation System (FBC only)		172	Bed material drying equipment
Miscellaneous	Boiler	Bed Material Preparation System (FBC only)		173	Bed material pneumatic transport system including piping and valves
Miscellaneous	Boiler	Bed Material Preparation System (FBC only)		174	Other bed material handling equipment

**Notes: 1) For use with Unit Codes 800–899.**

TABLE B12-29 Boiler: Bed Material Removal System					
UNIT TYPE	SYSTEM	COMPONENT	SUB-COMPONENT	CAUSE CODE	DESCRIPTION



**Appendix B12: Index To Miscellaneous Unit Cause Codes**

Miscellaneous	Boiler	Bed Material Removal System		930	Bed material coolers
Miscellaneous	Boiler	Bed Material Removal System		931	Bed material transport piping/valves
Miscellaneous	Boiler	Bed Material Removal System		932	Bed material transport tanks/hoppers
Miscellaneous	Boiler	Bed Material Removal System		933	Bed material fans/blowers
Miscellaneous	Boiler	Bed Material Removal System		934	Bed material fan/blower motors
Miscellaneous	Boiler	Bed Material Removal System		935	Bed material disposal conditioner
Miscellaneous	Boiler	Bed Material Removal System		936	Bed material conveyors
Miscellaneous	Boiler	Bed Material Removal System		937	Bed material mechanical separators and baghouse
Miscellaneous	Boiler	Bed Material Removal System		950	Other bed material system problems

**Notes: 1) For use with Unit Codes 800–899.**

**TABLE B12-30 Boiler: Bed Solids Recirculation**

UNIT TYPE	SYSTEM	COMPONENT	SUB-COMPONENT	CAUSE CODE	DESCRIPTION
Miscellaneous	Boiler	Bed Solids Recirculation		951	Char reinjection feeders
Miscellaneous	Boiler	Bed Solids Recirculation		952	Char reinjection piping/valves
Miscellaneous	Boiler	Bed Solids Recirculation		953	Char reinjection controls
Miscellaneous	Boiler	Bed Solids Recirculation		959	Other char reinjection equipment problems
Miscellaneous	Boiler	Bed Solids Recirculation		960	Char transport piping and valves
Miscellaneous	Boiler	Bed Solids Recirculation		961	Char transfer tanks/hoppers
Miscellaneous	Boiler	Bed Solids Recirculation		962	Char conditioner
Miscellaneous	Boiler	Bed Solids Recirculation		969	Other char equipment problems
Miscellaneous	Boiler	Bed Solids Recirculation		970	Flue gas-solids separator
Miscellaneous	Boiler	Bed Solids Recirculation		971	Flue gas-solids separator piping and valves
Miscellaneous	Boiler	Bed Solids Recirculation		972	Flue gas-solids separator controls
Miscellaneous	Boiler	Bed Solids Recirculation		973	Flue gas-solids separator refractory
Miscellaneous	Boiler	Bed Solids Recirculation		980	High pressure loop seal recirculation fans/blowers
Miscellaneous	Boiler	Bed Solids Recirculation		981	High pressure loop seal recirculation fan/blower motors
Miscellaneous	Boiler	Bed Solids Recirculation		982	High pressure loop seal recirculation fan/blower controls
Miscellaneous	Boiler	Bed Solids Recirculation		989	Other bed solids recirculation problems

**Notes: 1) For use with Unit Codes 800–899.**

**TABLE B12-31 Boiler: Boiler Air and Gas Systems - Air Supply**

UNIT TYPE	SYSTEM	COMPONENT	SUB-COMPONENT	CAUSE CODE	DESCRIPTION
Miscellaneous	Boiler	Boiler Air and Gas Systems	Air Supply	1400	Forced draft fans
Miscellaneous	Boiler	Boiler Air and Gas Systems	Air Supply	1401	Forced draft fan dampers
Miscellaneous	Boiler	Boiler Air and Gas Systems	Air Supply	1407	Forced draft fan lubrication system
Miscellaneous	Boiler	Boiler Air and Gas Systems	Air Supply	1410	Forced draft fan motors
Miscellaneous	Boiler	Boiler Air and Gas Systems	Air Supply	1411	Forced draft fan motors - variable speed

**Appendix B12: Index To Miscellaneous Unit Cause Codes**

Miscellaneous	Boiler	Boiler Air and Gas Systems	Air Supply	1412	Forced draft fan drives (other than motor)
Miscellaneous	Boiler	Boiler Air and Gas Systems	Air Supply	1413	Forced draft fan couplings
Miscellaneous	Boiler	Boiler Air and Gas Systems	Air Supply	1415	Forced draft fan controls
Miscellaneous	Boiler	Boiler Air and Gas Systems	Air Supply	1420	Other forced draft fan problems
Miscellaneous	Boiler	Boiler Air and Gas Systems	Air Supply	1421	Secondary air fans/blowers
Miscellaneous	Boiler	Boiler Air and Gas Systems	Air Supply	1422	Secondary air fan/blower motors - single speed
Miscellaneous	Boiler	Boiler Air and Gas Systems	Air Supply	1423	Secondary air fan/blower motors - variable speed
Miscellaneous	Boiler	Boiler Air and Gas Systems	Air Supply	1424	Secondary air fan/blower controls
Miscellaneous	Boiler	Boiler Air and Gas Systems	Air Supply	1430	Air supply ducts from FD fan
Miscellaneous	Boiler	Boiler Air and Gas Systems	Air Supply	1432	Air supply duct expansion joints
Miscellaneous	Boiler	Boiler Air and Gas Systems	Air Supply	1440	Air supply dampers
Miscellaneous	Boiler	Boiler Air and Gas Systems	Air Supply	1450	Other air supply problems
Miscellaneous	Boiler	Boiler Air and Gas Systems	Air Supply	1451	Fluidized Air Fan (FBC Only)

**Notes: 1) For use with Unit Codes 800–899. 2) Excluding burner pipes, wind boxes, primary air, or pulverizer exhausters.**

**TABLE B12-32 Boiler: Boiler Air and Gas Systems - Flue Gas**

UNIT TYPE	SYSTEM	COMPONENT	SUB-COMPONENT	CAUSE CODE	DESCRIPTION
Miscellaneous	Boiler	Boiler Air and Gas Systems	Flue Gas	1455	Induced draft fans
Miscellaneous	Boiler	Boiler Air and Gas Systems	Flue Gas	1456	Induced draft fan dampers
Miscellaneous	Boiler	Boiler Air and Gas Systems	Flue Gas	1457	Induced draft fan lubrication systems
Miscellaneous	Boiler	Boiler Air and Gas Systems	Flue Gas	1460	Induced draft fan fouling
Miscellaneous	Boiler	Boiler Air and Gas Systems	Flue Gas	1470	Induced draft fan motors and drives
Miscellaneous	Boiler	Boiler Air and Gas Systems	Flue Gas	1471	Induced draft fan motors - variable speed
Miscellaneous	Boiler	Boiler Air and Gas Systems	Flue Gas	1472	Inducted draft fan coupling
Miscellaneous	Boiler	Boiler Air and Gas Systems	Flue Gas	1475	Induced draft fan controls
Miscellaneous	Boiler	Boiler Air and Gas Systems	Flue Gas	1476	Induced draft fan speed changer
Miscellaneous	Boiler	Boiler Air and Gas Systems	Flue Gas	1480	Other induced draft fan problems
Miscellaneous	Boiler	Boiler Air and Gas Systems	Flue Gas	1487	Air heater (tubular)
Miscellaneous	Boiler	Boiler Air and Gas Systems	Flue Gas	1488	Air heater (regenerative)
Miscellaneous	Boiler	Boiler Air and Gas Systems	Flue Gas	1489	Air heater (heat pipe, plate-type)
Miscellaneous	Boiler	Boiler Air and Gas Systems	Flue Gas	1492	Air heater fouling (tubular)
Miscellaneous	Boiler	Boiler Air and Gas Systems	Flue Gas	1493	Air heater fouling (regenerative)
Miscellaneous	Boiler	Boiler Air and Gas Systems	Flue Gas	1495	Other air heater fouling (heat pipe, plate-type)
Miscellaneous	Boiler	Boiler Air and Gas Systems	Flue Gas	1500	Air heater soot blowers
Miscellaneous	Boiler	Boiler Air and Gas Systems	Flue Gas	1510	Flue gas ducts (except recirculation)
Miscellaneous	Boiler	Boiler Air and Gas Systems	Flue Gas	1512	Flue gas expansion joints
Miscellaneous	Boiler	Boiler Air and Gas Systems	Flue Gas	1520	Flue gas dampers (except recirculation)
Miscellaneous	Boiler	Boiler Air and Gas Systems	Flue Gas	1530	Other flue gas problems

**Notes: 1) For use with Unit Codes 800–899. 2) Excluding burner pipes, wind boxes, primary air, or pulverizer exhausters.**

TABLE B12-33 Boiler: Boiler Air and Gas Systems - Flue Gas Recirculation					
UNIT TYPE	SYSTEM	COMPONENT	SUB-COMPONENT	CAUSE CODE	DESCRIPTION
Miscellaneous	Boiler	Boiler Air and Gas Systems	Flue Gas Recirculation	1535	Flue gas recirculating fan
Miscellaneous	Boiler	Boiler Air and Gas Systems	Flue Gas Recirculation	1536	Flue gas recirculating fan dampers
Miscellaneous	Boiler	Boiler Air and Gas Systems	Flue Gas Recirculation	1537	Flue gas recirculating fan lubrication systems
Miscellaneous	Boiler	Boiler Air and Gas Systems	Flue Gas Recirculation	1540	Flue gas recirculation fan fouling
Miscellaneous	Boiler	Boiler Air and Gas Systems	Flue Gas Recirculation	1550	Flue gas recirculation fan motors
Miscellaneous	Boiler	Boiler Air and Gas Systems	Flue Gas Recirculation	1555	Flue gas recirculation fan controls
Miscellaneous	Boiler	Boiler Air and Gas Systems	Flue Gas Recirculation	1560	Other flue gas recirculation fan problems
Miscellaneous	Boiler	Boiler Air and Gas Systems	Flue Gas Recirculation	1570	Flue gas recirculation ducts
Miscellaneous	Boiler	Boiler Air and Gas Systems	Flue Gas Recirculation	1572	Flue gas recirculation duct expansion joints
Miscellaneous	Boiler	Boiler Air and Gas Systems	Flue Gas Recirculation	1580	Flue gas recirculation dampers

**Notes: 1) For use with Unit Codes 800–899. 2) Excluding burner pipes, wind boxes, primary air, or pulverizer exhausters.**

TABLE B12-34 Boiler: Boiler Air and Gas Systems - Miscellaneous (Boiler Air and Gas Systems)					
UNIT TYPE	SYSTEM	COMPONENT	SUB-COMPONENT	CAUSE CODE	DESCRIPTION
Miscellaneous	Boiler	Boiler Air and Gas Systems	Miscellaneous (Boiler Air and Gas Systems)	1590	Stacks (use code 8430 for stack problems due to pollution control equipment)
Miscellaneous	Boiler	Boiler Air and Gas Systems	Miscellaneous (Boiler Air and Gas Systems)	1591	Stack damper and linkage
Miscellaneous	Boiler	Boiler Air and Gas Systems	Miscellaneous (Boiler Air and Gas Systems)	1592	Stack damper linkage motors
Miscellaneous	Boiler	Boiler Air and Gas Systems	Miscellaneous (Boiler Air and Gas Systems)	1599	Other miscellaneous boiler air and gas system problems

**Notes: 1) For use with Unit Codes 800–899. 2) Excluding burner pipes, wind boxes, primary air, or pulverizer exhausters.**

TABLE B12-35 Boiler: Boiler Control Systems					
UNIT TYPE	SYSTEM	COMPONENT	SUB-COMPONENT	CAUSE CODE	DESCRIPTION
Miscellaneous	Boiler	Boiler Control Systems		1700	Feedwater controls (report local controls - feedwater pump, feedwater regulator valve, etc., - with component or system)
Miscellaneous	Boiler	Boiler Control Systems		1710	Combustion/steam condition controls (report local controls - burners, pulverizers, etc., - with component or system)
Miscellaneous	Boiler	Boiler Control Systems		1720	Desuperheater/attenuator controls
Miscellaneous	Boiler	Boiler Control Systems		1730	Boiler explosion or implosion
Miscellaneous	Boiler	Boiler Control Systems		1740	Boiler drum gage glasses / level indicator
Miscellaneous	Boiler	Boiler Control Systems		1741	Furnace and water gauge television auxiliary system
Miscellaneous	Boiler	Boiler Control Systems		1750	Burner management system
Miscellaneous	Boiler	Boiler Control Systems		1760	Feedwater instrumentation (not local controls)

**Appendix B12: Index To Miscellaneous Unit Cause Codes**

Miscellaneous	Boiler	Boiler Control Systems		1761	Combustion/Steam condition instrumentation (not local controls)
Miscellaneous	Boiler	Boiler Control Systems		1762	Desuperheater/atemperator instrumentation (not local controls)
Miscellaneous	Boiler	Boiler Control Systems		1799	Other boiler instrumentation and control problems

**Notes: 1) For use with Unit Codes 800–899.**

**TABLE B12-36 Boiler: Boiler Design Limitations**

UNIT TYPE	SYSTEM	COMPONENT	SUB-COMPONENT	CAUSE CODE	DESCRIPTION
Miscellaneous	Boiler	Boiler Design Limitations		1900	Improper balance between tube sections not due to fouling or plugging
Miscellaneous	Boiler	Boiler Design Limitations		1910	Inadequate air not due to equipment problems

**Notes: 1) For use with Unit Codes 800–899. 2) Including instruments which input to the controls.**

**TABLE B12-37 Boiler: Boiler Fuel Supply from Bunkers to Boiler - Burners**

UNIT TYPE	SYSTEM	COMPONENT	SUB-COMPONENT	CAUSE CODE	DESCRIPTION
Miscellaneous	Boiler	Boiler Fuel Supply from Bunkers to Boiler	Burners	358	Oil burner piping and valves
Miscellaneous	Boiler	Boiler Fuel Supply from Bunkers to Boiler	Burners	359	Gas burner piping and valves
Miscellaneous	Boiler	Boiler Fuel Supply from Bunkers to Boiler	Burners	360	Burners
Miscellaneous	Boiler	Boiler Fuel Supply from Bunkers to Boiler	Burners	361	Burner orifices
Miscellaneous	Boiler	Boiler Fuel Supply from Bunkers to Boiler	Burners	365	Bed warmup burners (FBC only)
Miscellaneous	Boiler	Boiler Fuel Supply from Bunkers to Boiler	Burners	366	Duct burners (FBC only)
Miscellaneous	Boiler	Boiler Fuel Supply from Bunkers to Boiler	Burners	370	Burner instruments and controls (except light off)
Miscellaneous	Boiler	Boiler Fuel Supply from Bunkers to Boiler	Burners	375	Burner instruments and controls (FBC light-off system)
Miscellaneous	Boiler	Boiler Fuel Supply from Bunkers to Boiler	Burners	380	Light off (igniter) systems (including fuel supply)
Miscellaneous	Boiler	Boiler Fuel Supply from Bunkers to Boiler	Burners	385	Igniters
Miscellaneous	Boiler	Boiler Fuel Supply from Bunkers to Boiler	Burners	390	Burner wind boxes and dampers
Miscellaneous	Boiler	Boiler Fuel Supply from Bunkers to Boiler	Burners	400	Burner wind box fires
Miscellaneous	Boiler	Boiler Fuel Supply from Bunkers to Boiler	Burners	410	Other burner problems

**Notes: 1) For use with Unit Codes 800–899.**

**TABLE B12-38 Boiler: Boiler Fuel Supply from Bunkers to Boiler - Cyclone**

UNIT TYPE	SYSTEM	COMPONENT	SUB-COMPONENT	CAUSE CODE	DESCRIPTION
Miscellaneous	Boiler	Boiler Fuel Supply from Bunkers to Boiler	Cyclone	415	Cyclone feeders
Miscellaneous	Boiler	Boiler Fuel Supply from Bunkers to Boiler	Cyclone	420	Cyclone crusher
Miscellaneous	Boiler	Boiler Fuel Supply from Bunkers to Boiler	Cyclone	425	Cyclone dampers
Miscellaneous	Boiler	Boiler Fuel Supply from Bunkers to Boiler	Cyclone	426	Cyclone air ducts

**Appendix B12: Index To Miscellaneous Unit Cause Codes**

Miscellaneous	Boiler	Boiler Fuel Supply from Bunkers to Boiler	Cyclone	430	Cyclone furnace
Miscellaneous	Boiler	Boiler Fuel Supply from Bunkers to Boiler	Cyclone	435	Other cyclone problems

**Notes: 1) For use with Unit Codes 800–899.**

**TABLE B12-39 Boiler: Boiler Fuel Supply from Bunkers to Boiler - Oil and Gas Systems (except light off)**

UNIT TYPE	SYSTEM	COMPONENT	SUB-COMPONENT	CAUSE CODE	DESCRIPTION
Miscellaneous	Boiler	Boiler Fuel Supply from Bunkers to Boiler	Oil and Gas Systems (except light off)	440	Fuel oil pumps (general)
Miscellaneous	Boiler	Boiler Fuel Supply from Bunkers to Boiler	Oil and Gas Systems (except light off)	441	Fuel oil pumps (burner supply)
Miscellaneous	Boiler	Boiler Fuel Supply from Bunkers to Boiler	Oil and Gas Systems (except light off)	442	Fuel oil pumps (forwarding/transfer)
Miscellaneous	Boiler	Boiler Fuel Supply from Bunkers to Boiler	Oil and Gas Systems (except light off)	443	Fuel oil (burner supply) pump drives
Miscellaneous	Boiler	Boiler Fuel Supply from Bunkers to Boiler	Oil and Gas Systems (except light off)	444	Fuel oil (forwarding/transfer) pump drives
Miscellaneous	Boiler	Boiler Fuel Supply from Bunkers to Boiler	Oil and Gas Systems (except light off)	450	Fuel oil heaters
Miscellaneous	Boiler	Boiler Fuel Supply from Bunkers to Boiler	Oil and Gas Systems (except light off)	460	Fuel oil atomizers
Miscellaneous	Boiler	Boiler Fuel Supply from Bunkers to Boiler	Oil and Gas Systems (except light off)	470	Oil and gas fires
Miscellaneous	Boiler	Boiler Fuel Supply from Bunkers to Boiler	Oil and Gas Systems (except light off)	475	Fuel lance (FBC only)
Miscellaneous	Boiler	Boiler Fuel Supply from Bunkers to Boiler	Oil and Gas Systems (except light off)	480	Other oil and gas fuel supply problems (see codes 0360-0410 for burner problems)

**Notes: 1) For use with Unit Codes 800–899.**

**TABLE B12-40 Boiler: Boiler Fuel Supply from Bunkers to Boiler - Pulverizers, Primary Air Fans, and Associated Ducts**

UNIT TYPE	SYSTEM	COMPONENT	SUB-COMPONENT	CAUSE CODE	DESCRIPTION
Miscellaneous	Boiler	Boiler Fuel Supply from Bunkers to Boiler	Pulverizers, Primary Air Fans, and Associated Ducts	200	Pulverizer exhauster fan (for indirect firing)
Miscellaneous	Boiler	Boiler Fuel Supply from Bunkers to Boiler	Pulverizers, Primary Air Fans, and Associated Ducts	205	Pulverizer exhauster fan drive
Miscellaneous	Boiler	Boiler Fuel Supply from Bunkers to Boiler	Pulverizers, Primary Air Fans, and Associated Ducts	210	Pulverizer heater (for indirect firing)
Miscellaneous	Boiler	Boiler Fuel Supply from Bunkers to Boiler	Pulverizers, Primary Air Fans, and Associated Ducts	220	Pulverizer system cyclone separator
Miscellaneous	Boiler	Boiler Fuel Supply from Bunkers to Boiler	Pulverizers, Primary Air Fans, and Associated Ducts	230	Pulverizer bag filter
Miscellaneous	Boiler	Boiler Fuel Supply from Bunkers to Boiler	Pulverizers, Primary Air Fans, and Associated Ducts	240	Pulverized coal bin
Miscellaneous	Boiler	Boiler Fuel Supply from Bunkers to Boiler	Pulverizers, Primary Air Fans, and Associated Ducts	250	Pulverizer feeders
Miscellaneous	Boiler	Boiler Fuel Supply from Bunkers to Boiler	Pulverizers, Primary Air Fans, and Associated Ducts	253	Pulverizer feeder motor
Miscellaneous	Boiler	Boiler Fuel Supply from Bunkers to Boiler	Pulverizers, Primary Air Fans, and Associated Ducts	255	Pulverizer feeder coal scales
Miscellaneous	Boiler	Boiler Fuel Supply from Bunkers to Boiler	Pulverizers, Primary Air Fans, and Associated Ducts	256	Seal air system (air to pulverizers)
Miscellaneous	Boiler	Boiler Fuel Supply from Bunkers to Boiler	Pulverizers, Primary Air Fans, and Associated Ducts	260	Primary air fan
Miscellaneous	Boiler	Boiler Fuel Supply from Bunkers to Boiler	Pulverizers, Primary Air Fans, and Associated Ducts	262	Primary air fan lube oil system

**Appendix B12: Index To Miscellaneous Unit Cause Codes**

Miscellaneous	Boiler	Boiler Fuel Supply from Bunkers to Boiler	Pulverizers, Primary Air Fans, and Associated Ducts	263	Primary air fan drives
Miscellaneous	Boiler	Boiler Fuel Supply from Bunkers to Boiler	Pulverizers, Primary Air Fans, and Associated Ducts	264	Other primary air fan problems
Miscellaneous	Boiler	Boiler Fuel Supply from Bunkers to Boiler	Pulverizers, Primary Air Fans, and Associated Ducts	265	Primary air heater
Miscellaneous	Boiler	Boiler Fuel Supply from Bunkers to Boiler	Pulverizers, Primary Air Fans, and Associated Ducts	266	Primary air heater fouling
Miscellaneous	Boiler	Boiler Fuel Supply from Bunkers to Boiler	Pulverizers, Primary Air Fans, and Associated Ducts	267	Primary air flow instrumentation
Miscellaneous	Boiler	Boiler Fuel Supply from Bunkers to Boiler	Pulverizers, Primary Air Fans, and Associated Ducts	270	Primary air duct and dampers
Miscellaneous	Boiler	Boiler Fuel Supply from Bunkers to Boiler	Pulverizers, Primary Air Fans, and Associated Ducts	280	Pulverizer fires
Miscellaneous	Boiler	Boiler Fuel Supply from Bunkers to Boiler	Pulverizers, Primary Air Fans, and Associated Ducts	290	Pulverizer reduced capacity due to wear
Miscellaneous	Boiler	Boiler Fuel Supply from Bunkers to Boiler	Pulverizers, Primary Air Fans, and Associated Ducts	300	Pulverizer motors and drives
Miscellaneous	Boiler	Boiler Fuel Supply from Bunkers to Boiler	Pulverizers, Primary Air Fans, and Associated Ducts	310	Pulverizer mills
Miscellaneous	Boiler	Boiler Fuel Supply from Bunkers to Boiler	Pulverizers, Primary Air Fans, and Associated Ducts	312	Pulverizer mill classifiers
Miscellaneous	Boiler	Boiler Fuel Supply from Bunkers to Boiler	Pulverizers, Primary Air Fans, and Associated Ducts	313	Pulverizer mill trunnion seals
Miscellaneous	Boiler	Boiler Fuel Supply from Bunkers to Boiler	Pulverizers, Primary Air Fans, and Associated Ducts	314	Pulverizer mill ball charger hopper (ball mills only)
Miscellaneous	Boiler	Boiler Fuel Supply from Bunkers to Boiler	Pulverizers, Primary Air Fans, and Associated Ducts	315	Pulverizer mill coal level controls
Miscellaneous	Boiler	Boiler Fuel Supply from Bunkers to Boiler	Pulverizers, Primary Air Fans, and Associated Ducts	320	Foreign object in Pulverizers mill
Miscellaneous	Boiler	Boiler Fuel Supply from Bunkers to Boiler	Pulverizers, Primary Air Fans, and Associated Ducts	325	Pulverizer skidding
Miscellaneous	Boiler	Boiler Fuel Supply from Bunkers to Boiler	Pulverizers, Primary Air Fans, and Associated Ducts	330	Pulverizer coal leak (pulverizers only)
Miscellaneous	Boiler	Boiler Fuel Supply from Bunkers to Boiler	Pulverizers, Primary Air Fans, and Associated Ducts	331	Pulverizer system coal leaks (other than pulverizers, see code 0330)
Miscellaneous	Boiler	Boiler Fuel Supply from Bunkers to Boiler	Pulverizers, Primary Air Fans, and Associated Ducts	335	Pulverizer lube oil system
Miscellaneous	Boiler	Boiler Fuel Supply from Bunkers to Boiler	Pulverizers, Primary Air Fans, and Associated Ducts	338	Pulverizer control systems (temperature and pressure)
Miscellaneous	Boiler	Boiler Fuel Supply from Bunkers to Boiler	Pulverizers, Primary Air Fans, and Associated Ducts	340	Other pulverizer problems
Miscellaneous	Boiler	Boiler Fuel Supply from Bunkers to Boiler	Pulverizers, Primary Air Fans, and Associated Ducts	341	Pulverizer deluge system
Miscellaneous	Boiler	Boiler Fuel Supply from Bunkers to Boiler	Pulverizers, Primary Air Fans, and Associated Ducts	342	Pulverizer inert system
Miscellaneous	Boiler	Boiler Fuel Supply from Bunkers to Boiler	Pulverizers, Primary Air Fans, and Associated Ducts	344	Pulverizer inspection
Miscellaneous	Boiler	Boiler Fuel Supply from Bunkers to Boiler	Pulverizers, Primary Air Fans, and Associated Ducts	345	Pulverizer overhaul

**Appendix B12: Index To Miscellaneous Unit Cause Codes**

Miscellaneous	Boiler	Boiler Fuel Supply from Bunkers to Boiler	Pulverizers, Primary Air Fans, and Associated Ducts	346	Pulverizer pyrite removal system
Miscellaneous	Boiler	Boiler Fuel Supply from Bunkers to Boiler	Pulverizers, Primary Air Fans, and Associated Ducts	350	Pulverized fuel and air piping (from pulverizer to wind box) (see code 0898 for pulverizer reject system problems)

**Notes: 1) For use with Unit Codes 800–899.**

**TABLE B12-41 Boiler: Boiler Fuel Supply to Bunker - Coal Handling Equipment up Through Bunkers**

UNIT TYPE	SYSTEM	COMPONENT	SUB-COMPONENT	CAUSE CODE	DESCRIPTION
Miscellaneous	Boiler	Boiler Fuel Supply to Bunker	Coal Handling Equipment up Through Bunkers	10	Thaw shed failure or fire
Miscellaneous	Boiler	Boiler Fuel Supply to Bunker	Coal Handling Equipment up Through Bunkers	20	Coal car dumpers, shakers, and unloaders
Miscellaneous	Boiler	Boiler Fuel Supply to Bunker	Coal Handling Equipment up Through Bunkers	22	Unloading/receiving hopper (train/truck)
Miscellaneous	Boiler	Boiler Fuel Supply to Bunker	Coal Handling Equipment up Through Bunkers	24	Rotary plow
Miscellaneous	Boiler	Boiler Fuel Supply to Bunker	Coal Handling Equipment up Through Bunkers	26	Dust suppression system
Miscellaneous	Boiler	Boiler Fuel Supply to Bunker	Coal Handling Equipment up Through Bunkers	28	Dust collection system
Miscellaneous	Boiler	Boiler Fuel Supply to Bunker	Coal Handling Equipment up Through Bunkers	30	Coal conveyors and feeders
Miscellaneous	Boiler	Boiler Fuel Supply to Bunker	Coal Handling Equipment up Through Bunkers	35	Metal detector/collector (including magnetic separator)
Miscellaneous	Boiler	Boiler Fuel Supply to Bunker	Coal Handling Equipment up Through Bunkers	40	Coal elevators
Miscellaneous	Boiler	Boiler Fuel Supply to Bunker	Coal Handling Equipment up Through Bunkers	50	Coal storage fires
Miscellaneous	Boiler	Boiler Fuel Supply to Bunker	Coal Handling Equipment up Through Bunkers	60	Coal crushers including motors
Miscellaneous	Boiler	Boiler Fuel Supply to Bunker	Coal Handling Equipment up Through Bunkers	70	Coal samplers
Miscellaneous	Boiler	Boiler Fuel Supply to Bunker	Coal Handling Equipment up Through Bunkers	75	Storage silos/hoppers
Miscellaneous	Boiler	Boiler Fuel Supply to Bunker	Coal Handling Equipment up Through Bunkers	80	Stackers/reclaimers
Miscellaneous	Boiler	Boiler Fuel Supply to Bunker	Coal Handling Equipment up Through Bunkers	84	Coal conveyor scales storage coal pile
Miscellaneous	Boiler	Boiler Fuel Supply to Bunker	Coal Handling Equipment up Through Bunkers	85	Bunker feeder coal scales
Miscellaneous	Boiler	Boiler Fuel Supply to Bunker	Coal Handling Equipment up Through Bunkers	90	Bunker fires
Miscellaneous	Boiler	Boiler Fuel Supply to Bunker	Coal Handling Equipment up Through Bunkers	95	Bunker flow problems
Miscellaneous	Boiler	Boiler Fuel Supply to Bunker	Coal Handling Equipment up Through Bunkers	100	Bunker gates
Miscellaneous	Boiler	Boiler Fuel Supply to Bunker	Coal Handling Equipment up Through Bunkers	105	Bunker structures

**Appendix B12: Index To Miscellaneous Unit Cause Codes**

Miscellaneous	Boiler	Boiler Fuel Supply to Bunker	Coal Handling Equipment up Through Bunkers	106	Coal drying system (see additional codes 0125-0127)
Miscellaneous	Boiler	Boiler Fuel Supply to Bunker	Coal Handling Equipment up Through Bunkers	107	Screen (prior to bunkers)
Miscellaneous	Boiler	Boiler Fuel Supply to Bunker	Coal Handling Equipment up Through Bunkers	110	Other coal fuel supply problems up through bunkers
Miscellaneous	Boiler	Boiler Fuel Supply to Bunker	Coal Handling Equipment up Through Bunkers	125	Coal crusher dryer hammers (see code 0106)
Miscellaneous	Boiler	Boiler Fuel Supply to Bunker	Coal Handling Equipment up Through Bunkers	126	Coal crusher lube oil system (see code 0106)
Miscellaneous	Boiler	Boiler Fuel Supply to Bunker	Coal Handling Equipment up Through Bunkers	127	Other coal crusher dryer problems (see code 0106)

**Notes: 1) For use with Unit Codes 800–899.**

**TABLE B12-42 Boiler: Boiler Fuel Supply to Bunker - Solid Fuel Feed Equipment from Bunkers to Boiler (FBC only)**

UNIT TYPE	SYSTEM	COMPONENT	SUB-COMPONENT	CAUSE CODE	DESCRIPTION
Miscellaneous	Boiler	Boiler Fuel Supply to Bunker	Solid Fuel Feed Equipment from Bunkers to Boiler (FBC only)	111	Solid fuel feeder conveyors
Miscellaneous	Boiler	Boiler Fuel Supply to Bunker	Solid Fuel Feed Equipment from Bunkers to Boiler (FBC only)	112	Solid fuel feed tanks/hoppers
Miscellaneous	Boiler	Boiler Fuel Supply to Bunker	Solid Fuel Feed Equipment from Bunkers to Boiler (FBC only)	113	Solid fuel tank/hopper fires
Miscellaneous	Boiler	Boiler Fuel Supply to Bunker	Solid Fuel Feed Equipment from Bunkers to Boiler (FBC only)	114	Solid fuel volumetric feeder
Miscellaneous	Boiler	Boiler Fuel Supply to Bunker	Solid Fuel Feed Equipment from Bunkers to Boiler (FBC only)	115	Solid fuel gravimetric feeder
Miscellaneous	Boiler	Boiler Fuel Supply to Bunker	Solid Fuel Feed Equipment from Bunkers to Boiler (FBC only)	116	Solid fuel feeder motors
Miscellaneous	Boiler	Boiler Fuel Supply to Bunker	Solid Fuel Feed Equipment from Bunkers to Boiler (FBC only)	117	Solid fuel pneumatic transport system including piping and valves
Miscellaneous	Boiler	Boiler Fuel Supply to Bunker	Solid Fuel Feed Equipment from Bunkers to Boiler (FBC only)	118	Solid fuel drying system including screens
Miscellaneous	Boiler	Boiler Fuel Supply to Bunker	Solid Fuel Feed Equipment from Bunkers to Boiler (FBC only)	119	Solid fuel crushers
Miscellaneous	Boiler	Boiler Fuel Supply to Bunker	Solid Fuel Feed Equipment from Bunkers to Boiler (FBC only)	120	Solid fuel crusher motors
Miscellaneous	Boiler	Boiler Fuel Supply to Bunker	Solid Fuel Feed Equipment from Bunkers to Boiler (FBC only)	121	Other solid fuel feed problems

**Notes: 1) For use with Unit Codes 800–899.**

**TABLE B12-43 Boiler: Boiler Internals and Structures**

UNIT TYPE	SYSTEM	COMPONENT	SUB-COMPONENT	CAUSE CODE	DESCRIPTION
Miscellaneous	Boiler	Boiler Internals and Structures		800	Drums and drum internals (single drum only)



**Appendix B12: Index To Miscellaneous Unit Cause Codes**

Miscellaneous	Boiler	Boiler Internals and Structures		810	Boiler supports and structures (use code 1320 for tube supports)
Miscellaneous	Boiler	Boiler Internals and Structures		811	Convection pass enclosure (FBC only)
Miscellaneous	Boiler	Boiler Internals and Structures		812	Distribution plate (FBC only)
Miscellaneous	Boiler	Boiler Internals and Structures		813	Lower furnace (in-bed) tube supports (FBC only)
Miscellaneous	Boiler	Boiler Internals and Structures		814	In-bed bubble caps (FBC only)
Miscellaneous	Boiler	Boiler Internals and Structures		820	Casing
Miscellaneous	Boiler	Boiler Internals and Structures		830	Doors
Miscellaneous	Boiler	Boiler Internals and Structures		840	Refractory and insulation
Miscellaneous	Boiler	Boiler Internals and Structures		845	Windbox expansion joints
Miscellaneous	Boiler	Boiler Internals and Structures		846	Convection pass expansion joints (FBC only)
Miscellaneous	Boiler	Boiler Internals and Structures		847	Other expansion joints
Miscellaneous	Boiler	Boiler Internals and Structures		850	Other internal or structural problems
Miscellaneous	Boiler	Boiler Internals and Structures		855	Drum relief/safety valves (single drum only)
Miscellaneous	Boiler	Boiler Internals and Structures		859	Tube external fins/membranes

**Notes: 1) For use with Unit Codes 800–899.**

**TABLE B12-44 Boiler: Boiler Overhaul and Inspections**

UNIT TYPE	SYSTEM	COMPONENT	SUB-COMPONENT	CAUSE CODE	DESCRIPTION
Miscellaneous	Boiler	Boiler Overhaul and Inspections		1800	Major boiler overhaul (720 hours or longer) (use for non-specific overhaul only; see page B-CCGT-2)
Miscellaneous	Boiler	Boiler Overhaul and Inspections		1801	Minor boiler overhaul (less than 720 hours) (use for non-specific overhaul only; see page B-CCGT-2)
Miscellaneous	Boiler	Boiler Overhaul and Inspections		1810	Other boiler inspections
Miscellaneous	Boiler	Boiler Overhaul and Inspections		1811	Boiler Inspections - problem identification / investigation
Miscellaneous	Boiler	Boiler Overhaul and Inspections		1812	Boiler Inspections - scheduled or routine
Miscellaneous	Boiler	Boiler Overhaul and Inspections		1820	Chemical cleaning/steam blows

**Notes: 1) For use with Unit Codes 800–899.**

**TABLE B12-45 Boiler: Boiler Piping System - Boiler Recirculation**

UNIT TYPE	SYSTEM	COMPONENT	SUB-COMPONENT	CAUSE CODE	DESCRIPTION
Miscellaneous	Boiler	Boiler Piping System	Boiler Recirculation	740	Boiler recirculation pumps
Miscellaneous	Boiler	Boiler Piping System	Boiler Recirculation	741	Boiler recirculation pumps - motors
Miscellaneous	Boiler	Boiler Piping System	Boiler Recirculation	742	Boiler recirculation pumps - motors - cooling system
Miscellaneous	Boiler	Boiler Piping System	Boiler Recirculation	750	Boiler recirculation piping including downcomers
Miscellaneous	Boiler	Boiler Piping System	Boiler Recirculation	760	Boiler recirculation valves
Miscellaneous	Boiler	Boiler Piping System	Boiler Recirculation	770	Other boiler recirculation problems

Appendix B12: Index To Miscellaneous Unit Cause Codes

**Notes: 1) For use with Unit Codes 800–899.**

**TABLE B12-46 Boiler: Boiler Piping System - Cold and Hot Reheat Steam**

UNIT TYPE	SYSTEM	COMPONENT	SUB-COMPONENT	CAUSE CODE	DESCRIPTION
Miscellaneous	Boiler	Boiler Piping System	Cold and Hot Reheat Steam	540	Hot reheat steam piping up to turbine stop valves
Miscellaneous	Boiler	Boiler Piping System	Cold and Hot Reheat Steam	541	Cold reheat steam piping up to boiler
Miscellaneous	Boiler	Boiler Piping System	Cold and Hot Reheat Steam	550	Reheat steam relief/safety valves
Miscellaneous	Boiler	Boiler Piping System	Cold and Hot Reheat Steam	560	Other hot reheat steam valves (not including turbine stop or intercept valves)
Miscellaneous	Boiler	Boiler Piping System	Cold and Hot Reheat Steam	561	Other cold reheat steam valves (not including turbine stop or intercept valves)
Miscellaneous	Boiler	Boiler Piping System	Cold and Hot Reheat Steam	570	Other reheat steam problems

**Notes: 1) For use with Unit Codes 800–899.**

**TABLE B12-47 Boiler: Boiler Piping System - Desuperheaters/Attemperators**

UNIT TYPE	SYSTEM	COMPONENT	SUB-COMPONENT	CAUSE CODE	DESCRIPTION
Miscellaneous	Boiler	Boiler Piping System	Desuperheaters/Attemperators	580	Desuperheater/attemperator piping
Miscellaneous	Boiler	Boiler Piping System	Desuperheaters/Attemperators	590	Desuperheater/attemperator valves
Miscellaneous	Boiler	Boiler Piping System	Desuperheaters/Attemperators	600	Desuperheater/attemperator spray nozzles
Miscellaneous	Boiler	Boiler Piping System	Desuperheaters/Attemperators	610	Desuperheater/attemperator drums
Miscellaneous	Boiler	Boiler Piping System	Desuperheaters/Attemperators	620	Other desuperheater/attemperator problems

**Notes: 1) For use with Unit Codes 800–899.**

**TABLE B12-48 Boiler: Boiler Piping System - Feedwater and Blowdown**

UNIT TYPE	SYSTEM	COMPONENT	SUB-COMPONENT	CAUSE CODE	DESCRIPTION
Miscellaneous	Boiler	Boiler Piping System	Feedwater and Blowdown	670	Feedwater piping downstream of feedwater regulating valve
Miscellaneous	Boiler	Boiler Piping System	Feedwater and Blowdown	680	Feedwater valves (not feedwater regulating valve)
Miscellaneous	Boiler	Boiler Piping System	Feedwater and Blowdown	690	Other feedwater problems downstream of feedwater regulating valve (use codes 3401 to 3499 for remainder of feedwater system)
Miscellaneous	Boiler	Boiler Piping System	Feedwater and Blowdown	700	Blowdown system valves
Miscellaneous	Boiler	Boiler Piping System	Feedwater and Blowdown	710	Blowdown system piping
Miscellaneous	Boiler	Boiler Piping System	Feedwater and Blowdown	720	Blowdown system controls / instrumentation
Miscellaneous	Boiler	Boiler Piping System	Feedwater and Blowdown	730	Other blowdown system problems

**Notes: 1) For use with Unit Codes 800–899.**

**TABLE B12-49 Boiler: Boiler Piping System - Main Steam**

**Appendix B12: Index To Miscellaneous Unit Cause Codes**

UNIT TYPE	SYSTEM	COMPONENT	SUB-COMPONENT	CAUSE CODE	DESCRIPTION
Miscellaneous	Boiler	Boiler Piping System	Main Steam	500	Main steam piping up to turbine stop valves
Miscellaneous	Boiler	Boiler Piping System	Main Steam	510	Main steam relief/safety valves off superheater
Miscellaneous	Boiler	Boiler Piping System	Main Steam	520	Other main steam valves (including vent and drain valves but not including the turbine stop valves)
Miscellaneous	Boiler	Boiler Piping System	Main Steam	530	Other main steam system problems

**Notes: 1) For use with Unit Codes 800–899.**

**TABLE B12-50 Boiler: Boiler Piping System - Miscellaneous (Piping)**

UNIT TYPE	SYSTEM	COMPONENT	SUB-COMPONENT	CAUSE CODE	DESCRIPTION
Miscellaneous	Boiler	Boiler Piping System	Miscellaneous (Piping)	775	Economizer piping
Miscellaneous	Boiler	Boiler Piping System	Miscellaneous (Piping)	780	Headers between tube bundles
Miscellaneous	Boiler	Boiler Piping System	Miscellaneous (Piping)	782	Headers and caps
Miscellaneous	Boiler	Boiler Piping System	Miscellaneous (Piping)	790	Pipe hangers, brackets, supports (general)
Miscellaneous	Boiler	Boiler Piping System	Miscellaneous (Piping)	799	Other miscellaneous piping system problems

**Notes: 1) For use with Unit Codes 800–899.**

**TABLE B12-51 Boiler: Boiler Piping System - Startup Bypass**

UNIT TYPE	SYSTEM	COMPONENT	SUB-COMPONENT	CAUSE CODE	DESCRIPTION
Miscellaneous	Boiler	Boiler Piping System	Startup Bypass	630	Startup bypass system piping (including drain lines up to heaters or condenser)
Miscellaneous	Boiler	Boiler Piping System	Startup Bypass	640	Startup bypass system valves
Miscellaneous	Boiler	Boiler Piping System	Startup Bypass	650	Startup bypass tanks or flash tanks
Miscellaneous	Boiler	Boiler Piping System	Startup Bypass	655	Steam by-pass system instrumentation and controls
Miscellaneous	Boiler	Boiler Piping System	Startup Bypass	660	Other startup bypass system problems

**Notes: 1) For use with Unit Codes 800–899.**

**TABLE B12-52 Boiler: Boiler Tube Fireside Slagging or Fouling**

UNIT TYPE	SYSTEM	COMPONENT	SUB-COMPONENT	CAUSE CODE	DESCRIPTION
Miscellaneous	Boiler	Boiler Tube Fireside Slagging or Fouling		1100	Waterwall (Furnace wall)
Miscellaneous	Boiler	Boiler Tube Fireside Slagging or Fouling		1103	Steam generating tubes between steam drum and mud drum
Miscellaneous	Boiler	Boiler Tube Fireside Slagging or Fouling		1105	Generating tubes
Miscellaneous	Boiler	Boiler Tube Fireside Slagging or Fouling		1110	Cyclone Furnace (in cyclone area only)
Miscellaneous	Boiler	Boiler Tube Fireside Slagging or Fouling		1120	Convection Pass Wall
Miscellaneous	Boiler	Boiler Tube Fireside Slagging or Fouling		1130	Boiler screen, wing wall, or slag screen (water tubes only)
Miscellaneous	Boiler	Boiler Tube Fireside Slagging or Fouling		1140	First superheater

**Appendix B12: Index To Miscellaneous Unit Cause Codes**

Miscellaneous	Boiler	Boiler Tube Fireside Slagging or Fouling		1150	Second superheater
Miscellaneous	Boiler	Boiler Tube Fireside Slagging or Fouling		1160	First reheater
Miscellaneous	Boiler	Boiler Tube Fireside Slagging or Fouling		1170	Second reheater
Miscellaneous	Boiler	Boiler Tube Fireside Slagging or Fouling		1180	Economizer
Miscellaneous	Boiler	Boiler Tube Fireside Slagging or Fouling		1190	Other tube slagging or fouling
Miscellaneous	Boiler	Boiler Tube Fireside Slagging or Fouling		1191	Bed agglomeration (FBC only)
Miscellaneous	Boiler	Boiler Tube Fireside Slagging or Fouling		1200	Operation at reduced power to avoid slagging or fouling (use codes 1100 to 1190 to report power reductions for slag accumulation or slag removal)

**Notes: 1) For use with Unit Codes 800–899.**

**TABLE B12-53 Boiler: Boiler Tube Leaks**

UNIT TYPE	SYSTEM	COMPONENT	SUB-COMPONENT	CAUSE CODE	DESCRIPTION
Miscellaneous	Boiler	Boiler Tube Leaks		1000	Waterwall (Furnace wall)
Miscellaneous	Boiler	Boiler Tube Leaks		1003	Steam generating tubes between steam drum and mud drum
Miscellaneous	Boiler	Boiler Tube Leaks		1005	Generating tubes
Miscellaneous	Boiler	Boiler Tube Leaks		1006	In-bed reheat tubes (FBC only - includes external heat exchangers)
Miscellaneous	Boiler	Boiler Tube Leaks		1010	Cyclone furnace (in cyclone area only)
Miscellaneous	Boiler	Boiler Tube Leaks		1020	Convection pass wall (water tubes only)
Miscellaneous	Boiler	Boiler Tube Leaks		1030	Boiler screen, wing wall, or slag screen (water tubes only)
Miscellaneous	Boiler	Boiler Tube Leaks		1035	Platen superheater
Miscellaneous	Boiler	Boiler Tube Leaks		1040	First superheater
Miscellaneous	Boiler	Boiler Tube Leaks		1045	In-bed superheater tubes (FBC only - includes external heat exchangers)
Miscellaneous	Boiler	Boiler Tube Leaks		1050	Second superheater
Miscellaneous	Boiler	Boiler Tube Leaks		1055	External superheater link tubing
Miscellaneous	Boiler	Boiler Tube Leaks		1060	First reheater
Miscellaneous	Boiler	Boiler Tube Leaks		1070	Second reheater
Miscellaneous	Boiler	Boiler Tube Leaks		1075	External reheater link tubing
Miscellaneous	Boiler	Boiler Tube Leaks		1080	Economizer
Miscellaneous	Boiler	Boiler Tube Leaks		1085	In-bed evaporative tubes (FBC only - includes external heat exchangers)
Miscellaneous	Boiler	Boiler Tube Leaks		1090	Other boiler tube leaks

**Notes: 1) For use with Unit Codes 800–899. 2) Use codes 860 and 870 for fouling or slagging due to unavailability of soot blowers or their air or steam supply.**

**TABLE B12-54 Boiler: Boiler Water Condition**

UNIT TYPE	SYSTEM	COMPONENT	SUB-COMPONENT	CAUSE CODE	DESCRIPTION
-----------	--------	-----------	---------------	------------	-------------

**Appendix B12: Index To Miscellaneous Unit Cause Codes**

Miscellaneous	Boiler	Boiler Water Condition		1850	Boiler water condition (not feedwater water quality)
---------------	--------	------------------------	--	------	--

**Notes: 1) For use with Unit Codes 800–899. 2) Use code 859 for tube/membrane failures.**

**TABLE B12-55 Boiler: External Fluidized Bed Heat Exchanger**

UNIT TYPE	SYSTEM	COMPONENT	SUB-COMPONENT	CAUSE CODE	DESCRIPTION
Miscellaneous	Boiler	External Fluidized Bed Heat Exchanger		990	Refractory
Miscellaneous	Boiler	External Fluidized Bed Heat Exchanger		991	Tube leaks
Miscellaneous	Boiler	External Fluidized Bed Heat Exchanger		992	Tube supports
Miscellaneous	Boiler	External Fluidized Bed Heat Exchanger		999	Other heat exchanger problems

**Notes: 1) For use with Unit Codes 800–899.**

**TABLE B12-56 Boiler: Miscellaneous (Boiler)**

UNIT TYPE	SYSTEM	COMPONENT	SUB-COMPONENT	CAUSE CODE	DESCRIPTION
Miscellaneous	Boiler	Miscellaneous (Boiler)		1980	Boiler safety valve test
Miscellaneous	Boiler	Miscellaneous (Boiler)		1990	Boiler performance testing (use code 9999 for total unit performance testing)
Miscellaneous	Boiler	Miscellaneous (Boiler)		1999	Boiler, miscellaneous

**Notes: 1) For use with Unit Codes 800–899.**

**TABLE B12-57 Boiler: Miscellaneous Boiler Tube Problems**

UNIT TYPE	SYSTEM	COMPONENT	SUB-COMPONENT	CAUSE CODE	DESCRIPTION
Miscellaneous	Boiler	Miscellaneous Boiler Tube Problems		1300	Water side fouling
Miscellaneous	Boiler	Miscellaneous Boiler Tube Problems		1305	Fireside cleaning (which requires a full outage) Use code 1200 for cleanings that cause deratings.
Miscellaneous	Boiler	Miscellaneous Boiler Tube Problems		1310	Water side cleaning (acid cleaning)
Miscellaneous	Boiler	Miscellaneous Boiler Tube Problems		1320	Tube supports/attachments
Miscellaneous	Boiler	Miscellaneous Boiler Tube Problems		1330	Slag fall damage
Miscellaneous	Boiler	Miscellaneous Boiler Tube Problems		1340	Tube modifications (including addition and removal of tubes)
Miscellaneous	Boiler	Miscellaneous Boiler Tube Problems		1350	Other miscellaneous boiler tube problems
Miscellaneous	Boiler	Miscellaneous Boiler Tube Problems		1360	Boiler drains system

**Notes: 1) For use with Unit Codes 800–899. 2) Use more specific codes - other slagging and fouling problems, other control problems, etc. - whenever possible. Describe miscellaneous problems in the verbal description.**

**TABLE B12-58 Boiler: Slag and Ash Removal**

UNIT TYPE	SYSTEM	COMPONENT	SUB-COMPONENT	CAUSE CODE	DESCRIPTION
Miscellaneous	Boiler	Slag and Ash Removal		860	Soot blowers - air (see code 3844 for air delivery system)
Miscellaneous	Boiler	Slag and Ash Removal		870	Soot blowers - steam

**Appendix B12: Index To Miscellaneous Unit Cause Codes**

Miscellaneous	Boiler	Slag and Ash Removal		871	Soot blowers - sonic
Miscellaneous	Boiler	Slag and Ash Removal		872	Soot blowers - water
Miscellaneous	Boiler	Slag and Ash Removal		873	Soot blower drives
Miscellaneous	Boiler	Slag and Ash Removal		876	Soot blower controls
Miscellaneous	Boiler	Slag and Ash Removal		880	Fly Ash Removal System (not precipitators, scrubbers, mechanical collectors, or baghouses)
Miscellaneous	Boiler	Slag and Ash Removal		885	Fly ash Removal System - wet transport
Miscellaneous	Boiler	Slag and Ash Removal		890	Bottom ash systems (wet or dry)
Miscellaneous	Boiler	Slag and Ash Removal		891	Bottom ash hoppers (including gates)
Miscellaneous	Boiler	Slag and Ash Removal		892	Bottom ash clinker grinders
Miscellaneous	Boiler	Slag and Ash Removal		893	Bottom ash water pumps and motors
Miscellaneous	Boiler	Slag and Ash Removal		894	Bottom ash piping and valves
Miscellaneous	Boiler	Slag and Ash Removal		895	Ashpit trouble
Miscellaneous	Boiler	Slag and Ash Removal		896	Bottom ash dewatering bin system, instruments and controls
Miscellaneous	Boiler	Slag and Ash Removal		897	Bottom ash rotary (drag chain type) conveyor and motor
Miscellaneous	Boiler	Slag and Ash Removal		898	Bottom ash pyrite hopper (pulverizer reject) system
Miscellaneous	Boiler	Slag and Ash Removal		899	Bottom ash controls and instrumentation
Miscellaneous	Boiler	Slag and Ash Removal		900	Slag tap (cyclone furnace)
Miscellaneous	Boiler	Slag and Ash Removal		910	Slag tap (other than cyclone furnace)
Miscellaneous	Boiler	Slag and Ash Removal		920	Other slag and ash removal problems

**Notes: 1) For use with Unit Codes 800–899.**

**TABLE B12-59 Boiler: Sorbent Supply (FBC only) - Sorbent Feed Equipment from Bunkers to Boiler (FBC only)**

UNIT TYPE	SYSTEM	COMPONENT	SUB-COMPONENT	CAUSE CODE	DESCRIPTION
Miscellaneous	Boiler	Sorbent Supply (FBC only)	Sorbent Feed Equipment from Bunkers to Boiler (FBC only)	150	Sorbent feed conveyors
Miscellaneous	Boiler	Sorbent Supply (FBC only)	Sorbent Feed Equipment from Bunkers to Boiler (FBC only)	151	Sorbent feed tanks/hoppers
Miscellaneous	Boiler	Sorbent Supply (FBC only)	Sorbent Feed Equipment from Bunkers to Boiler (FBC only)	152	Sorbent feed volumetric feeder
Miscellaneous	Boiler	Sorbent Supply (FBC only)	Sorbent Feed Equipment from Bunkers to Boiler (FBC only)	153	Sorbent feed gravimetric feeder
Miscellaneous	Boiler	Sorbent Supply (FBC only)	Sorbent Feed Equipment from Bunkers to Boiler (FBC only)	154	Sorbent feed feeder motors
Miscellaneous	Boiler	Sorbent Supply (FBC only)	Sorbent Feed Equipment from Bunkers to Boiler (FBC only)	155	Sorbent feed pneumatic transport system including piping and valves
Miscellaneous	Boiler	Sorbent Supply (FBC only)	Sorbent Feed Equipment from Bunkers to Boiler (FBC only)	156	Other sorbent feed problems

**Notes: 1) For use with Unit Codes 800–899.**

TABLE B12-60 Boiler: Sorbent Supply (FBC only) - Sorbent Handling System up Through Bunkers (FBC only)					
UNIT TYPE	SYSTEM	COMPONENT	SUB-COMPONENT	CAUSE CODE	DESCRIPTION
Miscellaneous	Boiler	Sorbent Supply (FBC only)	Sorbent Handling System up Through Bunkers (FBC only)	130	Sorbent handling tanks/hoppers
Miscellaneous	Boiler	Sorbent Supply (FBC only)	Sorbent Handling System up Through Bunkers (FBC only)	131	Sorbent handling conveyors
Miscellaneous	Boiler	Sorbent Supply (FBC only)	Sorbent Handling System up Through Bunkers (FBC only)	132	Sorbent handling feeders
Miscellaneous	Boiler	Sorbent Supply (FBC only)	Sorbent Handling System up Through Bunkers (FBC only)	133	Sorbent handling feeder motors
Miscellaneous	Boiler	Sorbent Supply (FBC only)	Sorbent Handling System up Through Bunkers (FBC only)	134	Sorbent handling crushers
Miscellaneous	Boiler	Sorbent Supply (FBC only)	Sorbent Handling System up Through Bunkers (FBC only)	135	Sorbent handling crusher motors
Miscellaneous	Boiler	Sorbent Supply (FBC only)	Sorbent Handling System up Through Bunkers (FBC only)	136	Sorbent handling blowers/fans
Miscellaneous	Boiler	Sorbent Supply (FBC only)	Sorbent Handling System up Through Bunkers (FBC only)	137	Sorbent handling blower/fan motors
Miscellaneous	Boiler	Sorbent Supply (FBC only)	Sorbent Handling System up Through Bunkers (FBC only)	138	Sorbent handling baghouse
Miscellaneous	Boiler	Sorbent Supply (FBC only)	Sorbent Handling System up Through Bunkers (FBC only)	139	Sorbent handling drying equipment
Miscellaneous	Boiler	Sorbent Supply (FBC only)	Sorbent Handling System up Through Bunkers (FBC only)	140	Sorbent handling screens
Miscellaneous	Boiler	Sorbent Supply (FBC only)	Sorbent Handling System up Through Bunkers (FBC only)	141	Other sorbent handling equipment problems

**Notes: 1) For use with Unit Codes 800–899.**

## EXPANDER TURBINE

TABLE B12-61 Expander Turbine: Expander Turbine					
UNIT TYPE	SYSTEM	COMPONENT	SUB-COMPONENT	CAUSE CODE	DESCRIPTION
Miscellaneous	Expander Turbine	Expander Turbine		7800	Couplings
Miscellaneous	Expander Turbine	Expander Turbine		7810	Shaft
Miscellaneous	Expander Turbine	Expander Turbine		7820	Bearings
Miscellaneous	Expander Turbine	Expander Turbine		7830	Blades
Miscellaneous	Expander Turbine	Expander Turbine		7840	Discs
Miscellaneous	Expander Turbine	Expander Turbine		7850	Spacers
Miscellaneous	Expander Turbine	Expander Turbine		7860	Nozzles/vanes
Miscellaneous	Expander Turbine	Expander Turbine		7870	Heat shields

**Appendix B12: Index To Miscellaneous Unit Cause Codes**

Miscellaneous	Expander Turbine	Expander Turbine		7880	Exhaust diffusers
Miscellaneous	Expander Turbine	Expander Turbine		7890	Seal oil system and seals
Miscellaneous	Expander Turbine	Expander Turbine		7900	Inner casing
Miscellaneous	Expander Turbine	Expander Turbine		7910	Outer exhaust casing
Miscellaneous	Expander Turbine	Expander Turbine		7920	Lube oil system
Miscellaneous	Expander Turbine	Expander Turbine		7930	Controls and instrumentation
Miscellaneous	Expander Turbine	Expander Turbine		7940	Evactor
Miscellaneous	Expander Turbine	Expander Turbine		7950	Major overhaul
Miscellaneous	Expander Turbine	Expander Turbine		7960	Other expander turbine problems

**Notes: 1) For use with Unit Codes 800–899.**

## EXTERNAL

Use this set of codes to report events caused by external factors (flood, lightning, etc.); economic factors (lack of fuel, labor strikes, etc.); operator training; and transmission system problems external to the plant.

**TABLE B12-62 External: Catastrophe**

UNIT TYPE	SYSTEM	COMPONENT	SUB-COMPONENT	CAUSE CODE	DESCRIPTION
Miscellaneous	External	Catastrophe		9000	Flood
Miscellaneous	External	Catastrophe		9001	Drought
Miscellaneous	External	Catastrophe		9010	Fire including wildfires, not related to a specific component
Miscellaneous	External	Catastrophe		9020	Lightning
Miscellaneous	External	Catastrophe		9025	Geomagnetic disturbance
Miscellaneous	External	Catastrophe		9030	Earthquake
Miscellaneous	External	Catastrophe		9031	Tornado
Miscellaneous	External	Catastrophe		9035	Hurricane
Miscellaneous	External	Catastrophe		9036	Storms (ice, snow, etc)
Miscellaneous	External	Catastrophe		9040	Other catastrophe

**Notes: 1) For use with Unit Codes 800–899.**

**TABLE B12-63 External: Economic**

UNIT TYPE	SYSTEM	COMPONENT	SUB-COMPONENT	CAUSE CODE	DESCRIPTION
Miscellaneous	External	Economic		0	Reserve shutdown
Miscellaneous	External	Economic		9130	Failure of fuel supplier to fulfill contractual obligations or a pre-arranged deal due to physical fuel disruptions or operational impairments (e.g. force majeure on a pipeline or compressor down; making the pipeline incapable of making its firm deliveries.)
Miscellaneous	External	Economic		9131	Lack of fuel – due to contractual or tariff provisions that allow for service interruption or



**Appendix B12: Index To Miscellaneous Unit Cause Codes**

					price fluctuations during peak demand periods.
Miscellaneous	External	Economic		9132	Wet Fuel - Biomass
Miscellaneous	External	Economic		9134	Fuel conservation
Miscellaneous	External	Economic		9135	Lack of water
Miscellaneous	External	Economic		9136	Problems with Primary Fuel for Units with Secondary Fuel Operation
Miscellaneous	External	Economic		9137	Ground water or other water supply problems
Miscellaneous	External	Economic		9138	High Water Level in Tailrace (too much water)
Miscellaneous	External	Economic		9140	Plant modifications to burn different fuel that are not regulatory mandated
Miscellaneous	External	Economic		9150	Labor strikes company-wide problems or strikes outside the company's jurisdiction such as manufacturers (delaying repairs) or transportation (fuel supply) problems.
Miscellaneous	External	Economic		9151	Labor strikes direct plant management grievances that result in a walkout or strike are under plant management control.
Miscellaneous	External	Economic		9160	Other economic problems
Miscellaneous	External	Economic		9180	Economic (for internal use at plants only)
Miscellaneous	External	Economic		9181	Economic (for internal use at plants only)
Miscellaneous	External	Economic		9182	Economic (for internal use at plants only)
Miscellaneous	External	Economic		9183	Economic (for internal use at plants only)
Miscellaneous	External	Economic		9184	Economic (for internal use at plants only)
Miscellaneous	External	Economic		9185	Economic (for internal use at plants only)
Miscellaneous	External	Economic		9186	Economic (for internal use at plants only)
Miscellaneous	External	Economic		9187	Economic (for internal use at plants only)
Miscellaneous	External	Economic		9188	Economic (for internal use at plants only)
Miscellaneous	External	Economic		9189	Economic (for internal use at plants only)
Miscellaneous	External	Economic		9190	Economic (for internal use at plants only)
Miscellaneous	External	Economic		9191	Economic (for internal use at plants only)
Miscellaneous	External	Economic		9192	Economic (for internal use at plants only)
Miscellaneous	External	Economic		9193	Economic (for internal use at plants only)
Miscellaneous	External	Economic		9194	Economic (for internal use at plants only)
Miscellaneous	External	Economic		9195	Economic (for internal use at plants only)
Miscellaneous	External	Economic		9196	Economic (for internal use at plants only)
Miscellaneous	External	Economic		9197	Economic (for internal use at plants only)
Miscellaneous	External	Economic		9198	Economic (for internal use at plants only)
Miscellaneous	External	Economic		9199	Economic (for internal use at plants only)

**Notes: 1) For use with Unit Codes 800–899.**

**TABLE B12-64 External: Fuel Quality**

**Appendix B12: Index To Miscellaneous Unit Cause Codes**

UNIT TYPE	SYSTEM	COMPONENT	SUB-COMPONENT	CAUSE CODE	DESCRIPTION
Miscellaneous	External	Fuel Quality		9200	High ash content (OMC)
Miscellaneous	External	Fuel Quality		9205	Poor quality natural gas fuel, low heat content
Miscellaneous	External	Fuel Quality		9210	Low grindability (OMC)
Miscellaneous	External	Fuel Quality		9220	High sulfur content (OMC)
Miscellaneous	External	Fuel Quality		9230	High vanadium content (OMC)
Miscellaneous	External	Fuel Quality		9240	High sodium content (OMC)
Miscellaneous	External	Fuel Quality		9250	Low BTU coal (OMC)
Miscellaneous	External	Fuel Quality		9251	Low BTU coal (not OMC)
Miscellaneous	External	Fuel Quality		9260	Low BTU oil (OMC)
Miscellaneous	External	Fuel Quality		9270	Wet coal (OMC)
Miscellaneous	External	Fuel Quality		9271	Wet coal (not OMC)
Miscellaneous	External	Fuel Quality		9280	Frozen coal (OMC)
Miscellaneous	External	Fuel Quality		9281	Frozen coal (not OMC)
Miscellaneous	External	Fuel Quality		9290	Other fuel quality problems (OMC)
Miscellaneous	External	Fuel Quality		9291	Other fuel quality problems (not OMC)

**Notes: 1) For use with Unit Codes 800–899. 2) Use code 9600 to 9650 if the fuel quality results in excess stack emissions through no fault in the pollution control equipment. Use the appropriate equipment code to report fouling and slagging.**

**TABLE B12-65 External: Miscellaneous (External)**

UNIT TYPE	SYSTEM	COMPONENT	SUB-COMPONENT	CAUSE CODE	DESCRIPTION
Miscellaneous	External	Miscellaneous (External)		9300	Transmission system problems other than catastrophes (do not include switchyard problems in this category; see codes 3600 to 3629, 3720 to 3730)
Miscellaneous	External	Miscellaneous (External)		9305	Ash disposal problem
Miscellaneous	External	Miscellaneous (External)		9310	Operator training
Miscellaneous	External	Miscellaneous (External)		9320	Other miscellaneous external problems
Miscellaneous	External	Miscellaneous (External)		9340	Synchronous Condenser Operation

**Notes: 1) For use with Unit Codes 800–899.**

## GAS TURBINE

**TABLE B12-66 Gas Turbine: Auxiliary Systems**

UNIT TYPE	SYSTEM	COMPONENT	SUB-COMPONENT	CAUSE CODE	DESCRIPTION
Miscellaneous	Gas Turbine	Auxiliary Systems		5110	Lube oil system - general
Miscellaneous	Gas Turbine	Auxiliary Systems		5111	Lube oil pumps
Miscellaneous	Gas Turbine	Auxiliary Systems		5112	Lube oil coolers
Miscellaneous	Gas Turbine	Auxiliary Systems		5113	Lube oil valves/piping

**Appendix B12: Index To Miscellaneous Unit Cause Codes**

Miscellaneous	Gas Turbine	Auxiliary Systems		5114	Lube oil filters
Miscellaneous	Gas Turbine	Auxiliary Systems		5115	Oil vapor extractor
Miscellaneous	Gas Turbine	Auxiliary Systems		5119	Power augmentation controls
Miscellaneous	Gas Turbine	Auxiliary Systems		5120	Hydraulic oil system
Miscellaneous	Gas Turbine	Auxiliary Systems		5130	Starting system (including motor)
Miscellaneous	Gas Turbine	Auxiliary Systems		5140	Battery and charger system
Miscellaneous	Gas Turbine	Auxiliary Systems		5150	Turning gear and motor
Miscellaneous	Gas Turbine	Auxiliary Systems		5160	Cooling and seal air system
Miscellaneous	Gas Turbine	Auxiliary Systems		5170	Cooling water system
Miscellaneous	Gas Turbine	Auxiliary Systems		5180	Anti-icing system
Miscellaneous	Gas Turbine	Auxiliary Systems		5190	Other auxiliary system problems

**Notes: 1) For use with Unit Codes 800–899.**

**TABLE B12-67 Gas Turbine: Exhaust Systems**

UNIT TYPE	SYSTEM	COMPONENT	SUB-COMPONENT	CAUSE CODE	DESCRIPTION
Miscellaneous	Gas Turbine	Exhaust Systems		5100	Chamber
Miscellaneous	Gas Turbine	Exhaust Systems		5101	Hoods
Miscellaneous	Gas Turbine	Exhaust Systems		5102	Vanes/nozzles
Miscellaneous	Gas Turbine	Exhaust Systems		5103	Silencer
Miscellaneous	Gas Turbine	Exhaust Systems		5104	Cones
Miscellaneous	Gas Turbine	Exhaust Systems		5108	High engine exhaust temperature
Miscellaneous	Gas Turbine	Exhaust Systems		5109	Other exhaust problems (including high exhaust system temperature not attributable to a specific problem)

**Notes: 1) For use with Unit Codes 800–899.**

**TABLE B12-68 Gas Turbine: Fuel, Ignition, and Combustion Systems**

UNIT TYPE	SYSTEM	COMPONENT	SUB-COMPONENT	CAUSE CODE	DESCRIPTION
Miscellaneous	Gas Turbine	Fuel, Ignition, and Combustion Systems		5040	Fuel tanks
Miscellaneous	Gas Turbine	Fuel, Ignition, and Combustion Systems		5041	Fuel piping and valves
Miscellaneous	Gas Turbine	Fuel, Ignition, and Combustion Systems		5042	Fuel nozzles/vanes
Miscellaneous	Gas Turbine	Fuel, Ignition, and Combustion Systems		5043	Fuel filters
Miscellaneous	Gas Turbine	Fuel, Ignition, and Combustion Systems		5044	Liquid fuel oil pump
Miscellaneous	Gas Turbine	Fuel, Ignition, and Combustion Systems		5046	Liquid fuel oil transfer/forwarding pump
Miscellaneous	Gas Turbine	Fuel, Ignition, and Combustion Systems		5047	Liquid fuel purge system
Miscellaneous	Gas Turbine	Fuel, Ignition, and Combustion Systems		5048	Gas fuel system including controls and instrumentation
Miscellaneous	Gas Turbine	Fuel, Ignition, and Combustion Systems		5049	Other fuel system problems
Miscellaneous	Gas Turbine	Fuel, Ignition, and Combustion Systems		5050	Ignition system
Miscellaneous	Gas Turbine	Fuel, Ignition, and Combustion Systems		5051	Pilot fuel piping and valves
Miscellaneous	Gas Turbine	Fuel, Ignition, and Combustion Systems		5052	Pilot fuel nozzles/vanes
Miscellaneous	Gas Turbine	Fuel, Ignition, and Combustion Systems		5053	Pilot fuel filters
Miscellaneous	Gas Turbine	Fuel, Ignition, and Combustion Systems		5054	Water injection system

**Appendix B12: Index To Miscellaneous Unit Cause Codes**

Miscellaneous	Gas Turbine	Fuel, Ignition, and Combustion Systems		5060	Atomizing air system
Miscellaneous	Gas Turbine	Fuel, Ignition, and Combustion Systems		5070	Combustor casing
Miscellaneous	Gas Turbine	Fuel, Ignition, and Combustion Systems		5071	Combustor liner
Miscellaneous	Gas Turbine	Fuel, Ignition, and Combustion Systems		5072	Combustor caps
Miscellaneous	Gas Turbine	Fuel, Ignition, and Combustion Systems		5073	Flame scanners
Miscellaneous	Gas Turbine	Fuel, Ignition, and Combustion Systems		5074	Flashback including instrumentation
Miscellaneous	Gas Turbine	Fuel, Ignition, and Combustion Systems		5079	Other combustor problems

**Notes: 1) For use with Unit Codes 800–899.**

**TABLE B12-69 Gas Turbine: Inlet Air System and Compressors - Compressors**

UNIT TYPE	SYSTEM	COMPONENT	SUB-COMPONENT	CAUSE CODE	DESCRIPTION
Miscellaneous	Gas Turbine	Inlet Air System and Compressors	Compressors	5010	High pressure shaft
Miscellaneous	Gas Turbine	Inlet Air System and Compressors	Compressors	5011	High pressure bearings
Miscellaneous	Gas Turbine	Inlet Air System and Compressors	Compressors	5012	High pressure blades/buckets
Miscellaneous	Gas Turbine	Inlet Air System and Compressors	Compressors	5013	Compressor casing and bolts
Miscellaneous	Gas Turbine	Inlet Air System and Compressors	Compressors	5014	Compressor diaphragms
Miscellaneous	Gas Turbine	Inlet Air System and Compressors	Compressors	5015	Compressor seals
Miscellaneous	Gas Turbine	Inlet Air System and Compressors	Compressors	5016	High pressure compressor bleed valves
Miscellaneous	Gas Turbine	Inlet Air System and Compressors	Compressors	5017	Low pressure compressor bleed valves
Miscellaneous	Gas Turbine	Inlet Air System and Compressors	Compressors	5019	Other high pressure problems
Miscellaneous	Gas Turbine	Inlet Air System and Compressors	Compressors	5020	Low pressure shaft
Miscellaneous	Gas Turbine	Inlet Air System and Compressors	Compressors	5021	Low pressure bearings
Miscellaneous	Gas Turbine	Inlet Air System and Compressors	Compressors	5022	Low pressure blades/buckets
Miscellaneous	Gas Turbine	Inlet Air System and Compressors	Compressors	5029	Other low pressure problems
Miscellaneous	Gas Turbine	Inlet Air System and Compressors	Compressors	5030	Supercharging fans
Miscellaneous	Gas Turbine	Inlet Air System and Compressors	Compressors	5035	Compressor washing
Miscellaneous	Gas Turbine	Inlet Air System and Compressors	Compressors	5037	Inlet bleed heat valve

**Notes: 1) For use with Unit Codes 800–899. 2) Use HP compressor if only one.**

**TABLE B12-70 Gas Turbine: Inlet Air System and Compressors - Ducts and Filters**

UNIT TYPE	SYSTEM	COMPONENT	SUB-COMPONENT	CAUSE CODE	DESCRIPTION
Miscellaneous	Gas Turbine	Inlet Air System and Compressors	Ducts and Filters	5000	Inlet air ducts
Miscellaneous	Gas Turbine	Inlet Air System and Compressors	Ducts and Filters	5001	Inlet air vanes/nozzles
Miscellaneous	Gas Turbine	Inlet Air System and Compressors	Ducts and Filters	5002	Inlet air filters
Miscellaneous	Gas Turbine	Inlet Air System and Compressors	Ducts and Filters	5003	Inlet cone
Miscellaneous	Gas Turbine	Inlet Air System and Compressors	Ducts and Filters	5009	Other inlet air problems

**Notes: 1) For use with Unit Codes 800–899. 2) Use HP compressor if only one.**

**TABLE B12-71 Gas Turbine: Miscellaneous (Gas Turbine)**

UNIT TYPE	SYSTEM	COMPONENT	SUB-COMPONENT	CAUSE CODE	DESCRIPTION
-----------	--------	-----------	---------------	------------	-------------

**Appendix B12: Index To Miscellaneous Unit Cause Codes**

Miscellaneous	Gas Turbine	Miscellaneous (Gas Turbine)		5200	Reduction gear
Miscellaneous	Gas Turbine	Miscellaneous (Gas Turbine)		5201	Load shaft and bearings
Miscellaneous	Gas Turbine	Miscellaneous (Gas Turbine)		5205	Main coupling between the turbine and generator
Miscellaneous	Gas Turbine	Miscellaneous (Gas Turbine)		5206	Clutch
Miscellaneous	Gas Turbine	Miscellaneous (Gas Turbine)		5210	Intercoolers
Miscellaneous	Gas Turbine	Miscellaneous (Gas Turbine)		5220	Regenerators
Miscellaneous	Gas Turbine	Miscellaneous (Gas Turbine)		5230	Heat shields
Miscellaneous	Gas Turbine	Miscellaneous (Gas Turbine)		5240	Fire detection and extinguishing system (including hazardous gas detection system)
Miscellaneous	Gas Turbine	Miscellaneous (Gas Turbine)		5241	Fire in unit
Miscellaneous	Gas Turbine	Miscellaneous (Gas Turbine)		5245	Gas Turbine Control System - data highway
Miscellaneous	Gas Turbine	Miscellaneous (Gas Turbine)		5246	Gas Turbine Control System - hardware problems (including card failure)
Miscellaneous	Gas Turbine	Miscellaneous (Gas Turbine)		5247	Gas Turbine Control System - internal and termination wiring
Miscellaneous	Gas Turbine	Miscellaneous (Gas Turbine)		5248	Gas Turbine Control System - logic problems
Miscellaneous	Gas Turbine	Miscellaneous (Gas Turbine)		5249	Gas Turbine Control System - upgrades
Miscellaneous	Gas Turbine	Miscellaneous (Gas Turbine)		5250	Other controls and instrumentation problems
Miscellaneous	Gas Turbine	Miscellaneous (Gas Turbine)		5255	Computer
Miscellaneous	Gas Turbine	Miscellaneous (Gas Turbine)		5260	Major overhaul (use for non-specific overhaul only; see page B-CCGT-2)
Miscellaneous	Gas Turbine	Miscellaneous (Gas Turbine)		5261	Gas turbine/compressor washing
Miscellaneous	Gas Turbine	Miscellaneous (Gas Turbine)		5262	Gas turbine exchange
Miscellaneous	Gas Turbine	Miscellaneous (Gas Turbine)		5270	Hot end inspection
Miscellaneous	Gas Turbine	Miscellaneous (Gas Turbine)		5272	Boroscope inspection
Miscellaneous	Gas Turbine	Miscellaneous (Gas Turbine)		5274	General unit inspection
Miscellaneous	Gas Turbine	Miscellaneous (Gas Turbine)		5280	Vibration (not engine) in unit not attributable to bearings or other components
Miscellaneous	Gas Turbine	Miscellaneous (Gas Turbine)		5285	Gas turbine vibration
Miscellaneous	Gas Turbine	Miscellaneous (Gas Turbine)		5286	Gas turbine lockout
Miscellaneous	Gas Turbine	Miscellaneous (Gas Turbine)		5290	Gas turbine performance testing - individual engines (use code 9999 for total unit performance testing)
Miscellaneous	Gas Turbine	Miscellaneous (Gas Turbine)		5292	Turbine Overspeed Trip Test - Gas Turbine
Miscellaneous	Gas Turbine	Miscellaneous (Gas Turbine)		5295	Synchronous condenser equipment
Miscellaneous	Gas Turbine	Miscellaneous (Gas Turbine)		5298	Main gas filter
Miscellaneous	Gas Turbine	Miscellaneous (Gas Turbine)		5299	Other miscellaneous gas turbine problems
<b>Notes: 1) For use with Unit Codes 800–899.</b>					

<b>TABLE B12-72 Gas Turbine: Turbine</b>					
<b>UNIT TYPE</b>	<b>SYSTEM</b>	<b>COMPONENT</b>	<b>SUB-COMPONENT</b>	<b>CAUSE CODE</b>	<b>DESCRIPTION</b>
Miscellaneous	Gas Turbine	Turbine		5080	High pressure shaft

**Appendix B12: Index To Miscellaneous Unit Cause Codes**

Miscellaneous	Gas Turbine	Turbine		5081	High pressure bearings
Miscellaneous	Gas Turbine	Turbine		5082	High pressure blades/buckets
Miscellaneous	Gas Turbine	Turbine		5083	High pressure nozzles/vanes
Miscellaneous	Gas Turbine	Turbine		5084	High pressure casing/expansion joints
Miscellaneous	Gas Turbine	Turbine		5085	Interstage gas passages - HP
Miscellaneous	Gas Turbine	Turbine		5086	High pressure shaft seals
Miscellaneous	Gas Turbine	Turbine		5087	Thrust bearing
Miscellaneous	Gas Turbine	Turbine		5089	Other high pressure problems
Miscellaneous	Gas Turbine	Turbine		5090	Low pressure shaft
Miscellaneous	Gas Turbine	Turbine		5091	Low pressure bearings
Miscellaneous	Gas Turbine	Turbine		5092	Low pressure blades/buckets
Miscellaneous	Gas Turbine	Turbine		5093	Low pressure nozzles/vanes
Miscellaneous	Gas Turbine	Turbine		5094	Low pressure casing/expansion joints
Miscellaneous	Gas Turbine	Turbine		5095	Interstage gas passages - LP
Miscellaneous	Gas Turbine	Turbine		5096	Low pressure shaft seals
Miscellaneous	Gas Turbine	Turbine		5097	Other low pressure problems
Miscellaneous	Gas Turbine	Turbine		5098	Expansion joints
Miscellaneous	Gas Turbine	Turbine		5099	HP to LP coupling

**Notes: 1) For use with Unit Codes 800–899. 2) Use HP if only one.**

## GENERATOR

This set of codes contains the generator, exciter, generator cooling systems, and generator controls. Note the main leads up to and includes the generator output breaker in this set of codes.

<b>TABLE B12-73 Generator: Controls</b>					
UNIT TYPE	SYSTEM	COMPONENT	SUB-COMPONENT	CAUSE CODE	DESCRIPTION
Miscellaneous	Generator	Controls		4700	Generator voltage control
Miscellaneous	Generator	Controls		4710	Generator metering devices
Miscellaneous	Generator	Controls		4720	Generator synchronization equipment
Miscellaneous	Generator	Controls		4730	Generator current and potential transformers
Miscellaneous	Generator	Controls		4740	Emergency generator trip devices
Miscellaneous	Generator	Controls		4750	Other generator controls and metering problems

**Notes: 1) For use with Unit Codes 800–899.**

<b>TABLE B12-74 Generator: Cooling System</b>					
UNIT TYPE	SYSTEM	COMPONENT	SUB-COMPONENT	CAUSE CODE	DESCRIPTION
Miscellaneous	Generator	Cooling System		4610	Hydrogen cooling system piping and valves
Miscellaneous	Generator	Cooling System		4611	Hydrogen coolers
Miscellaneous	Generator	Cooling System		4612	Hydrogen storage system

**Appendix B12: Index To Miscellaneous Unit Cause Codes**

Miscellaneous	Generator	Cooling System		4613	Hydrogen seals
Miscellaneous	Generator	Cooling System		4619	Other hydrogen system problems
Miscellaneous	Generator	Cooling System		4620	Air cooling system
Miscellaneous	Generator	Cooling System		4630	Liquid cooling system
Miscellaneous	Generator	Cooling System		4640	Seal oil system and seals
Miscellaneous	Generator	Cooling System		4650	Other cooling system problems

**Notes: 1) For use with Unit Codes 800–899. 2) Report failures caused by water leaks into generator as codes 4500, 4510, etc.**

**TABLE B12-75 Generator: Exciter**

UNIT TYPE	SYSTEM	COMPONENT	SUB-COMPONENT	CAUSE CODE	DESCRIPTION
Miscellaneous	Generator	Exciter		4600	Exciter drive - motor
Miscellaneous	Generator	Exciter		4601	Exciter field rheostat
Miscellaneous	Generator	Exciter		4602	Exciter commutator and brushes
Miscellaneous	Generator	Exciter		4603	Solid state exciter element
Miscellaneous	Generator	Exciter		4604	Exciter drive - shaft
Miscellaneous	Generator	Exciter		4605	Exciter transformer
Miscellaneous	Generator	Exciter		4609	Other exciter problems

**Notes: 1) For use with Unit Codes 800–899.**

**TABLE B12-76 Generator: Generator**

UNIT TYPE	SYSTEM	COMPONENT	SUB-COMPONENT	CAUSE CODE	DESCRIPTION
Miscellaneous	Generator	Generator		4500	Rotor windings (including damper windings and fan blades on hydro units)
Miscellaneous	Generator	Generator		4510	Rotor collector rings
Miscellaneous	Generator	Generator		4511	Rotor, General
Miscellaneous	Generator	Generator		4512	Retaining Rings
Miscellaneous	Generator	Generator		4520	Stator windings, bushings, and terminals
Miscellaneous	Generator	Generator		4530	Stator core iron
Miscellaneous	Generator	Generator		4535	Stator, General
Miscellaneous	Generator	Generator		4536	Generator Heaters
Miscellaneous	Generator	Generator		4540	Brushes and brush rigging
Miscellaneous	Generator	Generator		4550	Generator bearings and lube oil system (including thrust bearings on hydro units)
Miscellaneous	Generator	Generator		4551	Generator bearings
Miscellaneous	Generator	Generator		4552	Generator lube oil system
Miscellaneous	Generator	Generator		4555	Bearing cooling system
Miscellaneous	Generator	Generator		4560	Generator vibration (excluding vibration due to failed bearing and other components)
Miscellaneous	Generator	Generator		4570	Generator casing
Miscellaneous	Generator	Generator		4580	Generator end bells and bolting
Miscellaneous	Generator	Generator		4590	Generator brakes

Notes: 1) For use with Unit Codes 800–899.

**TABLE B12-77 Generator: Miscellaneous (Generator)**

UNIT TYPE	SYSTEM	COMPONENT	SUB-COMPONENT	CAUSE CODE	DESCRIPTION
Miscellaneous	Generator	Miscellaneous (Generator)		4800	Generator main leads
Miscellaneous	Generator	Miscellaneous (Generator)		4805	Generator Bus Duct Cooling System
Miscellaneous	Generator	Miscellaneous (Generator)		4810	Generator output breaker
Miscellaneous	Generator	Miscellaneous (Generator)		4830	Major generator overhaul (720 hours or longer) (use for non-specific overhaul only; see page B-CCGT-2)
Miscellaneous	Generator	Miscellaneous (Generator)		4831	Minor generator overhaul (less than 720 hours) (use for non-specific overhaul only; see page B-CCGT-2)
Miscellaneous	Generator	Miscellaneous (Generator)		4840	Inspection
Miscellaneous	Generator	Miscellaneous (Generator)		4841	Generator dole testing
Miscellaneous	Generator	Miscellaneous (Generator)		4842	Reactive and capability testing
Miscellaneous	Generator	Miscellaneous (Generator)		4850	Core monitor alarm
Miscellaneous	Generator	Miscellaneous (Generator)		4860	Generator neutral grounding equipment
Miscellaneous	Generator	Miscellaneous (Generator)		4899	Other miscellaneous generator problems

Notes: 1) For use with Unit Codes 800–899.

## HEAT RECOVERY STEAM GENERATOR (HRSG)

**TABLE B12-78 Heat Recovery Steam Generator (HRSG): HRSG Boiler Internals and Structures**

UNIT TYPE	SYSTEM	COMPONENT	SUB-COMPONENT	CAUSE CODE	DESCRIPTION
Miscellaneous	Heat Recovery Steam Generator (HRSG)	HRSG Boiler Internals and Structures		801	HP Drum (including drum level trips not attributable to other causes)
Miscellaneous	Heat Recovery Steam Generator (HRSG)	HRSG Boiler Internals and Structures		802	IP Drum (including drum level trips not attributable to other causes)
Miscellaneous	Heat Recovery Steam Generator (HRSG)	HRSG Boiler Internals and Structures		803	LP Drum (including drum level trips not attributable to other causes)
Miscellaneous	Heat Recovery Steam Generator (HRSG)	HRSG Boiler Internals and Structures		848	Inlet panel
Miscellaneous	Heat Recovery Steam Generator (HRSG)	HRSG Boiler Internals and Structures		856	HP Drum relief/safety valves
Miscellaneous	Heat Recovery Steam Generator (HRSG)	HRSG Boiler Internals and Structures		857	IP Drum relief/safety valves
Miscellaneous	Heat Recovery Steam Generator (HRSG)	HRSG Boiler Internals and Structures		858	LP Drum relief/safety valves

Notes: 1) For use with Unit Codes 800–899.



**Appendix B12: Index To Miscellaneous Unit Cause Codes**

<b>TABLE B12-79 Heat Recovery Steam Generator (HRSG): HRSG Boiler Piping System - HRSG Desuperheaters/Attemperators</b>					
<b>UNIT TYPE</b>	<b>SYSTEM</b>	<b>COMPONENT</b>	<b>SUB-COMPONENT</b>	<b>CAUSE CODE</b>	<b>DESCRIPTION</b>
Miscellaneous	Heat Recovery Steam Generator (HRSG)	HRSG Boiler Piping System	HRSG Desuperheaters/Attemperators	6140	HP Desuperheater/attemperator piping - Greater than 600 PSIG.
Miscellaneous	Heat Recovery Steam Generator (HRSG)	HRSG Boiler Piping System	HRSG Desuperheaters/Attemperators	6141	HP Desuperheater/attemperator valves
Miscellaneous	Heat Recovery Steam Generator (HRSG)	HRSG Boiler Piping System	HRSG Desuperheaters/Attemperators	6142	HP Desuperheater/attemperator spray nozzles
Miscellaneous	Heat Recovery Steam Generator (HRSG)	HRSG Boiler Piping System	HRSG Desuperheaters/Attemperators	6143	HP Desuperheater/attemperator drums
Miscellaneous	Heat Recovery Steam Generator (HRSG)	HRSG Boiler Piping System	HRSG Desuperheaters/Attemperators	6144	Other HP desuperheater/attemperator problems
Miscellaneous	Heat Recovery Steam Generator (HRSG)	HRSG Boiler Piping System	HRSG Desuperheaters/Attemperators	6145	IP Desuperheater/attemperator piping - Between 200-600 PSIG
Miscellaneous	Heat Recovery Steam Generator (HRSG)	HRSG Boiler Piping System	HRSG Desuperheaters/Attemperators	6146	IP Desuperheater/attemperator valves
Miscellaneous	Heat Recovery Steam Generator (HRSG)	HRSG Boiler Piping System	HRSG Desuperheaters/Attemperators	6147	IP Desuperheater/attemperator spray nozzles
Miscellaneous	Heat Recovery Steam Generator (HRSG)	HRSG Boiler Piping System	HRSG Desuperheaters/Attemperators	6148	IP Desuperheater/attemperator drums
Miscellaneous	Heat Recovery Steam Generator (HRSG)	HRSG Boiler Piping System	HRSG Desuperheaters/Attemperators	6149	Other IP desuperheater/attemperator problems
Miscellaneous	Heat Recovery Steam Generator (HRSG)	HRSG Boiler Piping System	HRSG Desuperheaters/Attemperators	6150	LP Desuperheater/attemperator piping - Less than 200 PSIG
Miscellaneous	Heat Recovery Steam Generator (HRSG)	HRSG Boiler Piping System	HRSG Desuperheaters/Attemperators	6151	LP Desuperheater/attemperator valves
Miscellaneous	Heat Recovery Steam Generator (HRSG)	HRSG Boiler Piping System	HRSG Desuperheaters/Attemperators	6152	LP Desuperheater/attemperator spray nozzles
Miscellaneous	Heat Recovery Steam Generator (HRSG)	HRSG Boiler Piping System	HRSG Desuperheaters/Attemperators	6153	LP Desuperheater/attemperator drums
Miscellaneous	Heat Recovery Steam Generator (HRSG)	HRSG Boiler Piping System	HRSG Desuperheaters/Attemperators	6154	Other LP desuperheater/attemperator problems
<b>Notes: 1) For use with Unit Codes 800–899.</b>					

<b>TABLE B12-80 Heat Recovery Steam Generator (HRSG): HRSG Boiler Piping System - HRSG Main Steam</b>					
<b>UNIT TYPE</b>	<b>SYSTEM</b>	<b>COMPONENT</b>	<b>SUB-COMPONENT</b>	<b>CAUSE CODE</b>	<b>DESCRIPTION</b>
Miscellaneous	Heat Recovery Steam Generator (HRSG)	HRSG Boiler Piping System	HRSG Main Steam	6110	HP steam piping up to turbine stop valves - Greater than 600 PSIG (see 0790 for piping supports)
Miscellaneous	Heat Recovery Steam Generator (HRSG)	HRSG Boiler Piping System	HRSG Main Steam	6111	HP steam relief/safety valves
Miscellaneous	Heat Recovery Steam Generator (HRSG)	HRSG Boiler Piping System	HRSG Main Steam	6112	Other HP steam valves (including vent and drain valves but not including the turbine stop valves)
Miscellaneous	Heat Recovery Steam Generator (HRSG)	HRSG Boiler Piping System	HRSG Main Steam	6113	Other HP steam system problems
Miscellaneous	Heat Recovery Steam Generator (HRSG)	HRSG Boiler Piping System	HRSG Main Steam	6114	HP steam isolation/boundary valves
Miscellaneous	Heat Recovery Steam Generator (HRSG)	HRSG Boiler Piping System	HRSG Main Steam	6120	IP steam piping up to turbine stop valves - Between 200 & 600 PSIG (see 0790 for piping supports)
Miscellaneous	Heat Recovery Steam Generator (HRSG)	HRSG Boiler Piping System	HRSG Main Steam	6121	IP steam relief/safety valves

**Appendix B12: Index To Miscellaneous Unit Cause Codes**

Miscellaneous	Heat Recovery Steam Generator (HRSG)	HRSG Boiler Piping System	HRSG Main Steam	6122	Other IP steam valves (including vent and drain valves but not including the turbine stop valves)
Miscellaneous	Heat Recovery Steam Generator (HRSG)	HRSG Boiler Piping System	HRSG Main Steam	6123	Other IP steam system problems
Miscellaneous	Heat Recovery Steam Generator (HRSG)	HRSG Boiler Piping System	HRSG Main Steam	6130	LP steam piping up to turbine stop valves - Less than 200 PSIG (see 0790 for piping supports)
Miscellaneous	Heat Recovery Steam Generator (HRSG)	HRSG Boiler Piping System	HRSG Main Steam	6131	LP steam relief/safety valves
Miscellaneous	Heat Recovery Steam Generator (HRSG)	HRSG Boiler Piping System	HRSG Main Steam	6132	Other LP steam valves (including vent and drain valves but not including the turbine stop valves)
Miscellaneous	Heat Recovery Steam Generator (HRSG)	HRSG Boiler Piping System	HRSG Main Steam	6133	Other LP steam system problems
Miscellaneous	Heat Recovery Steam Generator (HRSG)	HRSG Boiler Piping System	HRSG Main Steam	6134	Other main steam valves (including vent and drain valves but not including the turbine stop valves)
Miscellaneous	Heat Recovery Steam Generator (HRSG)	HRSG Boiler Piping System	HRSG Main Steam	6135	LP steam isolation/boundary valves

**Notes: 1) For use with Unit Codes 800–899.**

**TABLE B12-81 Heat Recovery Steam Generator (HRSG): HRSG Boiler Piping System - HRSG Startup Bypass**

UNIT TYPE	SYSTEM	COMPONENT	SUB-COMPONENT	CAUSE CODE	DESCRIPTION
Miscellaneous	Heat Recovery Steam Generator (HRSG)	HRSG Boiler Piping System	HRSG Startup Bypass	6160	HP Startup bypass system piping (including drain lines up to heaters or condenser) - Greater than 600 PSIG
Miscellaneous	Heat Recovery Steam Generator (HRSG)	HRSG Boiler Piping System	HRSG Startup Bypass	6161	HP Startup bypass system valves
Miscellaneous	Heat Recovery Steam Generator (HRSG)	HRSG Boiler Piping System	HRSG Startup Bypass	6162	HP Startup bypass tanks or flash tanks
Miscellaneous	Heat Recovery Steam Generator (HRSG)	HRSG Boiler Piping System	HRSG Startup Bypass	6163	Other HP startup bypass system problems
Miscellaneous	Heat Recovery Steam Generator (HRSG)	HRSG Boiler Piping System	HRSG Startup Bypass	6164	HP startup bypass instrumentation and controls
Miscellaneous	Heat Recovery Steam Generator (HRSG)	HRSG Boiler Piping System	HRSG Startup Bypass	6170	IP Startup bypass system piping (including drain lines up to heaters or condenser) - Between 200-600 PSIG
Miscellaneous	Heat Recovery Steam Generator (HRSG)	HRSG Boiler Piping System	HRSG Startup Bypass	6171	IP Startup bypass system valves
Miscellaneous	Heat Recovery Steam Generator (HRSG)	HRSG Boiler Piping System	HRSG Startup Bypass	6172	IP Startup bypass tanks or flash tanks
Miscellaneous	Heat Recovery Steam Generator (HRSG)	HRSG Boiler Piping System	HRSG Startup Bypass	6173	Other IP startup bypass system problems
Miscellaneous	Heat Recovery Steam Generator (HRSG)	HRSG Boiler Piping System	HRSG Startup Bypass	6174	IP startup bypass instrumentation and controls
Miscellaneous	Heat Recovery Steam Generator (HRSG)	HRSG Boiler Piping System	HRSG Startup Bypass	6180	LP Startup bypass system piping (including drain lines up to heaters or condenser) - Less than 200 PSIG
Miscellaneous	Heat Recovery Steam Generator (HRSG)	HRSG Boiler Piping System	HRSG Startup Bypass	6181	LP Startup bypass system valves
Miscellaneous	Heat Recovery Steam Generator (HRSG)	HRSG Boiler Piping System	HRSG Startup Bypass	6182	LP Startup bypass tanks or flash tanks
Miscellaneous	Heat Recovery Steam Generator (HRSG)	HRSG Boiler Piping System	HRSG Startup Bypass	6183	Other LP startup bypass system problems

**Appendix B12: Index To Miscellaneous Unit Cause Codes**

Miscellaneous	Heat Recovery Steam Generator (HRSG)	HRSG Boiler Piping System	HRSG Startup Bypass	6184	LP startup bypass instrumentation and controls
---------------	--------------------------------------	---------------------------	---------------------	------	--

**Notes: 1) For use with Unit Codes 800–899.**

**TABLE B12-82 Heat Recovery Steam Generator (HRSG): HRSG Boiler Tube Leaks**

UNIT TYPE	SYSTEM	COMPONENT	SUB-COMPONENT	CAUSE CODE	DESCRIPTION
Miscellaneous	Heat Recovery Steam Generator (HRSG)	HRSG Boiler Tube Leaks		6005	HP Evaporator tubes
Miscellaneous	Heat Recovery Steam Generator (HRSG)	HRSG Boiler Tube Leaks		6006	IP Evaporator tubes
Miscellaneous	Heat Recovery Steam Generator (HRSG)	HRSG Boiler Tube Leaks		6007	LP Evaporator tubes
Miscellaneous	Heat Recovery Steam Generator (HRSG)	HRSG Boiler Tube Leaks		6010	HP superheater
Miscellaneous	Heat Recovery Steam Generator (HRSG)	HRSG Boiler Tube Leaks		6011	HP reheater
Miscellaneous	Heat Recovery Steam Generator (HRSG)	HRSG Boiler Tube Leaks		6012	HP economizer
Miscellaneous	Heat Recovery Steam Generator (HRSG)	HRSG Boiler Tube Leaks		6020	IP superheater
Miscellaneous	Heat Recovery Steam Generator (HRSG)	HRSG Boiler Tube Leaks		6021	IP reheater
Miscellaneous	Heat Recovery Steam Generator (HRSG)	HRSG Boiler Tube Leaks		6022	IP economizer
Miscellaneous	Heat Recovery Steam Generator (HRSG)	HRSG Boiler Tube Leaks		6030	LP reheater
Miscellaneous	Heat Recovery Steam Generator (HRSG)	HRSG Boiler Tube Leaks		6031	LP superheater
Miscellaneous	Heat Recovery Steam Generator (HRSG)	HRSG Boiler Tube Leaks		6032	LP economizer
Miscellaneous	Heat Recovery Steam Generator (HRSG)	HRSG Boiler Tube Leaks		6090	Other HRSG tube problems

**Notes: 1) For use with Unit Codes 800–899.**

**TABLE B12-83 Heat Recovery Steam Generator (HRSG): Miscellaneous (HRSG Boiler)**

UNIT TYPE	SYSTEM	COMPONENT	SUB-COMPONENT	CAUSE CODE	DESCRIPTION
Miscellaneous	Heat Recovery Steam Generator (HRSG)	Miscellaneous (HRSG Boiler)		6000	Heat recovery steam generator to gas turbine connecting equipment. For additional codes, use Fossil Steam Cause Codes 0010 to 1999.
Miscellaneous	Heat Recovery Steam Generator (HRSG)	Miscellaneous (HRSG Boiler)		6100	Steam turbine to gas turbine coupling. For additional codes, use Fossil Steam Cause Codes 4000 to 4499.

**Notes: 1) For use with Unit Codes 800–899.**

## HYDRO TURBINE/PUMP

**TABLE B12-84 Hydro Turbine/Pump: Miscellaneous (Hydro Turbine/Pump)**

UNIT TYPE	SYSTEM	COMPONENT	SUB-COMPONENT	CAUSE CODE	DESCRIPTION
Miscellaneous	Hydro Turbine/Pump	Miscellaneous (Hydro Turbine/Pump)		7200	Major overhaul (use for non-specific overhaul only; see page B-CCGT-2)
Miscellaneous	Hydro Turbine/Pump	Miscellaneous (Hydro Turbine/Pump)		7201	Inspection

**Appendix B12: Index To Miscellaneous Unit Cause Codes**

Miscellaneous	Hydro Turbine/Pump	Miscellaneous (Hydro Turbine/Pump)		7210	Canals (including siphons, radial gates, and spills)
Miscellaneous	Hydro Turbine/Pump	Miscellaneous (Hydro Turbine/Pump)		7220	Unit out of service due to common penstock with unit under repair
Miscellaneous	Hydro Turbine/Pump	Miscellaneous (Hydro Turbine/Pump)		7230	Pony motor (pumped storage units only)
Miscellaneous	Hydro Turbine/Pump	Miscellaneous (Hydro Turbine/Pump)		7240	Powerhouse substructure
Miscellaneous	Hydro Turbine/Pump	Miscellaneous (Hydro Turbine/Pump)		7299	Other miscellaneous hydro turbine/pump problems (use generator codes and balance of plant electrical and auxiliary codes as appropriate)
Miscellaneous	Hydro Turbine/Pump	Miscellaneous (Hydro Turbine/Pump)		7300	Routine Hydro Planned Outage (reoccurring schedule) (Use 4840 or 7201 for specific inspections.)

**Notes: 1) For use with Unit Codes 800–899.**

**TABLE B12-85 Hydro Turbine/Pump: Turbine**

UNIT TYPE	SYSTEM	COMPONENT	SUB-COMPONENT	CAUSE CODE	DESCRIPTION
Miscellaneous	Hydro Turbine/Pump	Turbine		7000	Shaft
Miscellaneous	Hydro Turbine/Pump	Turbine		7001	Shaft packing
Miscellaneous	Hydro Turbine/Pump	Turbine		7003	Lube oil system (use code 7007 to report bearing failures due to lube oil problems)
Miscellaneous	Hydro Turbine/Pump	Turbine		7007	Bearings
Miscellaneous	Hydro Turbine/Pump	Turbine		7008	Bearing cooling system
Miscellaneous	Hydro Turbine/Pump	Turbine		7009	Bearing oil system
Miscellaneous	Hydro Turbine/Pump	Turbine		7010	Runner cavitation damage
Miscellaneous	Hydro Turbine/Pump	Turbine		7011	Other runner problems
Miscellaneous	Hydro Turbine/Pump	Turbine		7012	Casing, wear ring, or liner cavitation damage
Miscellaneous	Hydro Turbine/Pump	Turbine		7014	Blade or bucket cracking
Miscellaneous	Hydro Turbine/Pump	Turbine		7020	Nozzle assembly
Miscellaneous	Hydro Turbine/Pump	Turbine		7030	Vibration (Only for unbalance, report bearing failure, etc., in appropriate category)
Miscellaneous	Hydro Turbine/Pump	Turbine		7040	Turbine overhaul
Miscellaneous	Hydro Turbine/Pump	Turbine		7050	Turbine governor
Miscellaneous	Hydro Turbine/Pump	Turbine		7052	Other turbine control problems (Report specific wicket gate controls, etc., using the code for the appropriate equipment item.)
Miscellaneous	Hydro Turbine/Pump	Turbine		7053	Governor oil system
Miscellaneous	Hydro Turbine/Pump	Turbine		7070	Speed Increaser
Miscellaneous	Hydro Turbine/Pump	Turbine		7099	Other turbine problems

**Notes: 1) For use with Unit Codes 800–899.**

**TABLE B12-86 Hydro Turbine/Pump: Water Supply/Discharge**

UNIT TYPE	SYSTEM	COMPONENT	SUB-COMPONENT	CAUSE CODE	DESCRIPTION
Miscellaneous	Hydro Turbine/Pump	Water Supply/Discharge		7100	Upper reservoir dams and dikes

**Appendix B12: Index To Miscellaneous Unit Cause Codes**

Miscellaneous	Hydro Turbine/Pump	Water Supply/Discharge		7101	Lower reservoir dams and dikes
Miscellaneous	Hydro Turbine/Pump	Water Supply/Discharge		7102	Auxiliary reservoir dams and dikes
Miscellaneous	Hydro Turbine/Pump	Water Supply/Discharge		7110	Intake channel or flume (including trash racks)
Miscellaneous	Hydro Turbine/Pump	Water Supply/Discharge		7111	Intake tunnel
Miscellaneous	Hydro Turbine/Pump	Water Supply/Discharge		7120	Headgates
Miscellaneous	Hydro Turbine/Pump	Water Supply/Discharge		7121	Shutoff valves
Miscellaneous	Hydro Turbine/Pump	Water Supply/Discharge		7123	Shutoff valve bypass line and valve
Miscellaneous	Hydro Turbine/Pump	Water Supply/Discharge		7124	Penstock
Miscellaneous	Hydro Turbine/Pump	Water Supply/Discharge		7130	Spiral case
Miscellaneous	Hydro Turbine/Pump	Water Supply/Discharge		7140	Wicket gate assembly
Miscellaneous	Hydro Turbine/Pump	Water Supply/Discharge		7141	Wicket gate operating mechanism or positioner
Miscellaneous	Hydro Turbine/Pump	Water Supply/Discharge		7142	Wicket gate shear pin
Miscellaneous	Hydro Turbine/Pump	Water Supply/Discharge		7150	Stay vanes
Miscellaneous	Hydro Turbine/Pump	Water Supply/Discharge		7160	Pressure regulating valve
Miscellaneous	Hydro Turbine/Pump	Water Supply/Discharge		7161	Pressure regulating valve operator or positioner
Miscellaneous	Hydro Turbine/Pump	Water Supply/Discharge		7162	Relief valve and vacuum breakers
Miscellaneous	Hydro Turbine/Pump	Water Supply/Discharge		7170	Draft tube
Miscellaneous	Hydro Turbine/Pump	Water Supply/Discharge		7180	Tailrace
Miscellaneous	Hydro Turbine/Pump	Water Supply/Discharge		7181	Tail water depressing equipment
Miscellaneous	Hydro Turbine/Pump	Water Supply/Discharge		7190	Dewatering and rewatering equipment
Miscellaneous	Hydro Turbine/Pump	Water Supply/Discharge		7191	Equalizing line
Miscellaneous	Hydro Turbine/Pump	Water Supply/Discharge		7199	Other water supply/discharge problems (use for equipment related problems; use codes 9135 or 9320 for lack of water or discharge limit related problems)

**Notes: 1) For use with Unit Codes 800–899.**

## INACTIVE STATES

**TABLE B12-87 Inactive States: Inactive States**

UNIT TYPE	SYSTEM	COMPONENT	SUB-COMPONENT	CAUSE CODE	DESCRIPTION
Miscellaneous	Inactive States	Inactive States		2	Inactive Reserve Shutdown
Miscellaneous	Inactive States	Inactive States		9990	Retired unit
Miscellaneous	Inactive States	Inactive States		9991	Mothballed unit

**Notes: 1) For use with Unit Codes 800–899.**

## INTERNAL COMBUSTION/RECIPROCATING ENGINE

**TABLE B12-88 Internal Combustion/Reciprocating Engines: Engine**

UNIT TYPE	SYSTEM	COMPONENT	SUB-COMPONENT	CAUSE CODE	DESCRIPTION
-----------	--------	-----------	---------------	------------	-------------

**Appendix B12: Index To Miscellaneous Unit Cause Codes**

Miscellaneous	Internal Combustion/Reciprocating Engines	Engine		5700	Drive shaft and bearings
Miscellaneous	Internal Combustion/Reciprocating Engines	Engine		5710	Cylinders
Miscellaneous	Internal Combustion/Reciprocating Engines	Engine		5711	Cylinder heads
Miscellaneous	Internal Combustion/Reciprocating Engines	Engine		5712	Hydraulic lock (water in cylinders)
Miscellaneous	Internal Combustion/Reciprocating Engines	Engine		5720	Pistons
Miscellaneous	Internal Combustion/Reciprocating Engines	Engine		5730	Intake valves
Miscellaneous	Internal Combustion/Reciprocating Engines	Engine		5731	Exhaust valves
Miscellaneous	Internal Combustion/Reciprocating Engines	Engine		5740	Turbo charger
Miscellaneous	Internal Combustion/Reciprocating Engines	Engine		5790	Vibration
Miscellaneous	Internal Combustion/Reciprocating Engines	Engine		5799	Other engine problems

**Notes: 1) For use with Unit Codes 800–899.**

**TABLE B12-89 Internal Combustion/Reciprocating Engines: Engine Auxiliaries**

UNIT TYPE	SYSTEM	COMPONENT	SUB-COMPONENT	CAUSE CODE	DESCRIPTION
Miscellaneous	Internal Combustion/Reciprocating Engines	Engine Auxiliaries		5800	Lube oil system
Miscellaneous	Internal Combustion/Reciprocating Engines	Engine Auxiliaries		5805	Cooling system
Miscellaneous	Internal Combustion/Reciprocating Engines	Engine Auxiliaries		5810	Heater elements
Miscellaneous	Internal Combustion/Reciprocating Engines	Engine Auxiliaries		5815	Fuel system
Miscellaneous	Internal Combustion/Reciprocating Engines	Engine Auxiliaries		5820	Start system
Miscellaneous	Internal Combustion/Reciprocating Engines	Engine Auxiliaries		5825	Battery and battery charger system
Miscellaneous	Internal Combustion/Reciprocating Engines	Engine Auxiliaries		5830	Air filter system
Miscellaneous	Internal Combustion/Reciprocating Engines	Engine Auxiliaries		5849	Other engine auxiliaries problems

**Notes: 1) For use with Unit Codes 800–899.**

**TABLE B12-90 Internal Combustion/Reciprocating Engines: Engine Controls**

UNIT TYPE	SYSTEM	COMPONENT	SUB-COMPONENT	CAUSE CODE	DESCRIPTION
Miscellaneous	Internal Combustion/Reciprocating Engines	Engine Controls		5850	Governor
Miscellaneous	Internal Combustion/Reciprocating Engines	Engine Controls		5855	Engine control system
Miscellaneous	Internal Combustion/Reciprocating Engines	Engine Controls		5860	Control power transformer
Miscellaneous	Internal Combustion/Reciprocating Engines	Engine Controls		5865	Synchronization system
Miscellaneous	Internal Combustion/Reciprocating Engines	Engine Controls		5870	Other engine control problems
Miscellaneous	Internal Combustion/Reciprocating Engines	Engine Controls		5880	Internal Combustion/Reciprocating Engines unit overhaul

**Notes: 1) For use with Unit Codes 800–899.**

**TABLE B12-91 Internal Combustion/Reciprocating Engines: Miscellaneous (Internal Combustion/Reciprocating Engines)**

UNIT TYPE	SYSTEM	COMPONENT	SUB-COMPONENT	CAUSE CODE	DESCRIPTION
-----------	--------	-----------	---------------	------------	-------------

**Appendix B12: Index To Miscellaneous Unit Cause Codes**

Miscellaneous	Internal Combustion/Reciprocating Engines	Miscellaneous (Internal Combustion/Reciprocating Engines)		5890	Major overhaul (use for non-specific overhaul only; see Page B-CCGT-2)
Miscellaneous	Internal Combustion/Reciprocating Engines	Miscellaneous (Internal Combustion/Reciprocating Engines)		5895	Inspection
Miscellaneous	Internal Combustion/Reciprocating Engines	Miscellaneous (Internal Combustion/Reciprocating Engines)		5990	Engine performance testing - individual engines (use code 9999 for total unit performance testing)
Miscellaneous	Internal Combustion/Reciprocating Engines	Miscellaneous (Internal Combustion/Reciprocating Engines)		5999	Other miscellaneous Internal Combustion/Reciprocating Engines problems

**Notes: 1) For use with Unit Codes 800–899.**

## JET ENGINE

**TABLE B12-92 Jet Engine: Auxiliary Systems**

UNIT TYPE	SYSTEM	COMPONENT	SUB-COMPONENT	CAUSE CODE	DESCRIPTION
Miscellaneous	Jet Engine	Auxiliary Systems		5510	Lube oil system
Miscellaneous	Jet Engine	Auxiliary Systems		5520	Hydraulic oil system
Miscellaneous	Jet Engine	Auxiliary Systems		5530	Starting system (including motor)
Miscellaneous	Jet Engine	Auxiliary Systems		5540	Battery and charger system
Miscellaneous	Jet Engine	Auxiliary Systems		5550	Turning gear and motor
Miscellaneous	Jet Engine	Auxiliary Systems		5560	Cooling and seal air system
Miscellaneous	Jet Engine	Auxiliary Systems		5570	Cooling water system
Miscellaneous	Jet Engine	Auxiliary Systems		5580	Anti-icing system
Miscellaneous	Jet Engine	Auxiliary Systems		5590	Other auxiliary system problems

**Notes: 1) For use with Unit Codes 800–899.**

**TABLE B12-93 Jet Engine: Exhaust Systems**

UNIT TYPE	SYSTEM	COMPONENT	SUB-COMPONENT	CAUSE CODE	DESCRIPTION
Miscellaneous	Jet Engine	Exhaust Systems		5500	Chamber
Miscellaneous	Jet Engine	Exhaust Systems		5501	Hoods
Miscellaneous	Jet Engine	Exhaust Systems		5502	Vanes/nozzles
Miscellaneous	Jet Engine	Exhaust Systems		5503	Silencer
Miscellaneous	Jet Engine	Exhaust Systems		5504	Cones
Miscellaneous	Jet Engine	Exhaust Systems		5508	High engine exhaust temperature
Miscellaneous	Jet Engine	Exhaust Systems		5509	Other exhaust problems (including high exhaust temperature not attributable to a specific problem)

**Notes: 1) For use with Unit Codes 800–899.**

Appendix B12: Index To Miscellaneous Unit Cause Codes

TABLE B12-94 Jet Engine: Fuel, Ignition, and Combustion Systems					
UNIT TYPE	SYSTEM	COMPONENT	SUB-COMPONENT	CAUSE CODE	DESCRIPTION
Miscellaneous	Jet Engine	Fuel, Ignition, and Combustion Systems		5440	Fuel tanks
Miscellaneous	Jet Engine	Fuel, Ignition, and Combustion Systems		5441	Fuel piping and valves
Miscellaneous	Jet Engine	Fuel, Ignition, and Combustion Systems		5442	Fuel nozzles/vanes
Miscellaneous	Jet Engine	Fuel, Ignition, and Combustion Systems		5443	Fuel filters
Miscellaneous	Jet Engine	Fuel, Ignition, and Combustion Systems		5449	Other fuel system problems
Miscellaneous	Jet Engine	Fuel, Ignition, and Combustion Systems		5450	Ignition system
Miscellaneous	Jet Engine	Fuel, Ignition, and Combustion Systems		5455	Fuel nozzle/vane cooling air system
Miscellaneous	Jet Engine	Fuel, Ignition, and Combustion Systems		5460	Atomizing air system
Miscellaneous	Jet Engine	Fuel, Ignition, and Combustion Systems		5470	Combustor casing
Miscellaneous	Jet Engine	Fuel, Ignition, and Combustion Systems		5471	Combustor liner
Miscellaneous	Jet Engine	Fuel, Ignition, and Combustion Systems		5472	Combustor caps
Miscellaneous	Jet Engine	Fuel, Ignition, and Combustion Systems		5479	Other combustor problems

**Notes: 1) For use with Unit Codes 800–899.**

TABLE B12-95 Jet Engine: Inlet Air System and Compressors - Compressors					
UNIT TYPE	SYSTEM	COMPONENT	SUB-COMPONENT	CAUSE CODE	DESCRIPTION
Miscellaneous	Jet Engine	Inlet Air System and Compressors	Compressors	5410	High pressure shaft
Miscellaneous	Jet Engine	Inlet Air System and Compressors	Compressors	5411	High pressure bearings
Miscellaneous	Jet Engine	Inlet Air System and Compressors	Compressors	5412	High pressure blades/buckets
Miscellaneous	Jet Engine	Inlet Air System and Compressors	Compressors	5413	Other high pressure problems
Miscellaneous	Jet Engine	Inlet Air System and Compressors	Compressors	5420	Low pressure shaft
Miscellaneous	Jet Engine	Inlet Air System and Compressors	Compressors	5421	Low pressure bearings
Miscellaneous	Jet Engine	Inlet Air System and Compressors	Compressors	5422	Low pressure blades/buckets
Miscellaneous	Jet Engine	Inlet Air System and Compressors	Compressors	5429	Other low pressure problems
Miscellaneous	Jet Engine	Inlet Air System and Compressors	Compressors	5430	Supercharging fans

**Notes: 1) For use with Unit Codes 800–899.**

TABLE B12-96 Jet Engine: Inlet Air System and Compressors - Ducts and Filters					
UNIT TYPE	SYSTEM	COMPONENT	SUB-COMPONENT	CAUSE CODE	DESCRIPTION
Miscellaneous	Jet Engine	Inlet Air System and Compressors	Ducts and Filters	5400	Inlet air ducts
Miscellaneous	Jet Engine	Inlet Air System and Compressors	Ducts and Filters	5401	Inlet air vanes/nozzles
Miscellaneous	Jet Engine	Inlet Air System and Compressors	Ducts and Filters	5402	Inlet air filters
Miscellaneous	Jet Engine	Inlet Air System and Compressors	Ducts and Filters	5403	Inlet and exhaust cones
Miscellaneous	Jet Engine	Inlet Air System and Compressors	Ducts and Filters	5409	Other inlet air problems

**Notes: 1) For use with Unit Codes 800–899.**

TABLE B12-97 Jet Engine: Miscellaneous (Jet Engine)					
---	--	--	--	--	--



**Appendix B12: Index To Miscellaneous Unit Cause Codes**

UNIT TYPE	SYSTEM	COMPONENT	SUB-COMPONENT	CAUSE CODE	DESCRIPTION
Miscellaneous	Jet Engine	Miscellaneous (Jet Engine)		5600	Reduction gear
Miscellaneous	Jet Engine	Miscellaneous (Jet Engine)		5601	Load shaft and bearings
Miscellaneous	Jet Engine	Miscellaneous (Jet Engine)		5605	Main coupling between the turbine and generator
Miscellaneous	Jet Engine	Miscellaneous (Jet Engine)		5606	Clutch
Miscellaneous	Jet Engine	Miscellaneous (Jet Engine)		5610	Intercoolers
Miscellaneous	Jet Engine	Miscellaneous (Jet Engine)		5620	Regenerators
Miscellaneous	Jet Engine	Miscellaneous (Jet Engine)		5630	Heat shields
Miscellaneous	Jet Engine	Miscellaneous (Jet Engine)		5640	Fire detection and extinguishing system
Miscellaneous	Jet Engine	Miscellaneous (Jet Engine)		5641	Fire in unit
Miscellaneous	Jet Engine	Miscellaneous (Jet Engine)		5645	Jet Engine Control System - data highway
Miscellaneous	Jet Engine	Miscellaneous (Jet Engine)		5646	Jet Engine Control System - hardware problems (including card failure)
Miscellaneous	Jet Engine	Miscellaneous (Jet Engine)		5647	Jet Engine Control System - internal and termination wiring
Miscellaneous	Jet Engine	Miscellaneous (Jet Engine)		5648	Jet Engine Control System - logic problems
Miscellaneous	Jet Engine	Miscellaneous (Jet Engine)		5649	Jet Engine Control System - upgrades
Miscellaneous	Jet Engine	Miscellaneous (Jet Engine)		5650	Other controls and instrumentation problems
Miscellaneous	Jet Engine	Miscellaneous (Jet Engine)		5660	Major overhaul (use for non-specific overhaul only; see page B-CCGT-2)
Miscellaneous	Jet Engine	Miscellaneous (Jet Engine)		5661	Engine/compressor washing
Miscellaneous	Jet Engine	Miscellaneous (Jet Engine)		5662	Engine exchange
Miscellaneous	Jet Engine	Miscellaneous (Jet Engine)		5665	Engine shafts and bearings
Miscellaneous	Jet Engine	Miscellaneous (Jet Engine)		5670	Hot end inspection
Miscellaneous	Jet Engine	Miscellaneous (Jet Engine)		5672	Boroscope inspection
Miscellaneous	Jet Engine	Miscellaneous (Jet Engine)		5674	General unit inspection
Miscellaneous	Jet Engine	Miscellaneous (Jet Engine)		5680	Vibration (not engine) in unit not attributable to bearings or other components
Miscellaneous	Jet Engine	Miscellaneous (Jet Engine)		5685	Engine vibration
Miscellaneous	Jet Engine	Miscellaneous (Jet Engine)		5686	Jet engine lockout
Miscellaneous	Jet Engine	Miscellaneous (Jet Engine)		5690	Engine performance testing - individual engines (use code 9999 for total unit performance testing)
Miscellaneous	Jet Engine	Miscellaneous (Jet Engine)		5692	Turbine Overspeed Trip Test - Jet Engine
Miscellaneous	Jet Engine	Miscellaneous (Jet Engine)		5695	Synchronous condenser equipment
Miscellaneous	Jet Engine	Miscellaneous (Jet Engine)		5699	Other miscellaneous jet engine problems
<b>Notes: 1) For use with Unit Codes 800–899.</b>					

<b>TABLE B12-98 Jet Engine: Turbine</b>					
UNIT TYPE	SYSTEM	COMPONENT	SUB-COMPONENT	CAUSE CODE	DESCRIPTION
Miscellaneous	Jet Engine	Turbine		5480	High pressure shaft

**Appendix B12: Index To Miscellaneous Unit Cause Codes**

Miscellaneous	Jet Engine	Turbine		5481	High pressure bearings
Miscellaneous	Jet Engine	Turbine		5482	High pressure blades/buckets
Miscellaneous	Jet Engine	Turbine		5483	High pressure nozzles/vanes
Miscellaneous	Jet Engine	Turbine		5484	High pressure casing/expansion joint
Miscellaneous	Jet Engine	Turbine		5485	Interstage gas passages
Miscellaneous	Jet Engine	Turbine		5486	High pressure shaft seals
Miscellaneous	Jet Engine	Turbine		5487	Thrust bearing
Miscellaneous	Jet Engine	Turbine		5489	Other high pressure problems
Miscellaneous	Jet Engine	Turbine		5490	Low pressure shaft
Miscellaneous	Jet Engine	Turbine		5491	Low pressure bearings
Miscellaneous	Jet Engine	Turbine		5492	Low pressure blades/buckets
Miscellaneous	Jet Engine	Turbine		5493	Low pressure nozzles/vanes
Miscellaneous	Jet Engine	Turbine		5494	Low pressure casing/expansion joints
Miscellaneous	Jet Engine	Turbine		5497	Other low pressure problems
Miscellaneous	Jet Engine	Turbine		5498	Expansion joints
Miscellaneous	Jet Engine	Turbine		5499	Shaft seals
<b>Notes: 1) For use with Unit Codes 800–899.</b>					

## MISCELLANEOUS

<b>TABLE B12-99 Miscellaneous: Instruments and Controls</b>					
<b>UNIT TYPE</b>	<b>SYSTEM</b>	<b>COMPONENT</b>	<b>SUB-COMPONENT</b>	<b>CAUSE CODE</b>	<b>DESCRIPTION</b>
Miscellaneous	Miscellaneous	Instruments and Controls		6200	Combined cycle instruments and controls. (Report instruments and controls specific to the gas turbine, steam turbine, boiler, generator, or balance of plant using the codes for the appropriate piece of equipment.)
<b>Notes: 1) For use with Unit Codes 800–899.</b>					

<b>TABLE B12-100 Miscellaneous: Plant and Auxiliaries</b>					
<b>UNIT TYPE</b>	<b>SYSTEM</b>	<b>COMPONENT</b>	<b>SUB-COMPONENT</b>	<b>CAUSE CODE</b>	<b>DESCRIPTION</b>
Miscellaneous	Miscellaneous	Plant and Auxiliaries		6410	Steam wells/steam field piping problems
Miscellaneous	Miscellaneous	Plant and Auxiliaries		6415	Low steam pressure
Miscellaneous	Miscellaneous	Plant and Auxiliaries		6420	Condensate reinjection system
Miscellaneous	Miscellaneous	Plant and Auxiliaries		6430	Unit H2S emission limitations - regulatory
Miscellaneous	Miscellaneous	Plant and Auxiliaries		6435	Steam field H2S emission limitations - regulatory
Miscellaneous	Miscellaneous	Plant and Auxiliaries		6440	H2S abatement system problems - general
Miscellaneous	Miscellaneous	Plant and Auxiliaries		6450	Heat exchanger problems due to H2S abatement system
Miscellaneous	Miscellaneous	Plant and Auxiliaries		6460	Condenser problems due to H2S abatement system

**Appendix B12: Index To Miscellaneous Unit Cause Codes**

Miscellaneous	Miscellaneous	Plant and Auxiliaries		6470	Cooling tower problems due to H2S abatement system
Miscellaneous	Miscellaneous	Plant and Auxiliaries		6480	Steam strainer plugging - mineral deposits
Miscellaneous	Miscellaneous	Plant and Auxiliaries		6490	Turbine plugging - mineral deposits
Miscellaneous	Miscellaneous	Plant and Auxiliaries		6499	Geothermal

**Notes: 1) For use with Unit Codes 800–899.**

## PERFORMANCE

**TABLE B12-101 Performance: Performance**

UNIT TYPE	SYSTEM	COMPONENT	SUB-COMPONENT	CAUSE CODE	DESCRIPTION
Miscellaneous	Performance	Performance		9998	Black start testing
Miscellaneous	Performance	Performance		9999	Total unit performance testing (use appropriate codes for individual component testing)

**Notes: 1) For use with Unit Codes 800–899.**

## PERSONNEL OR PROCEDURAL ERRORS

**TABLE B12-102 Personnel or Procedural Errors: Personnel or Procedural Errors**

UNIT TYPE	SYSTEM	COMPONENT	SUB-COMPONENT	CAUSE CODE	DESCRIPTION
Miscellaneous	Personnel or Procedural Errors	Personnel or Procedural Errors		9900	Operator error
Miscellaneous	Personnel or Procedural Errors	Personnel or Procedural Errors		9910	Maintenance personnel error
Miscellaneous	Personnel or Procedural Errors	Personnel or Procedural Errors		9920	Contractor error
Miscellaneous	Personnel or Procedural Errors	Personnel or Procedural Errors		9930	Operating procedure error
Miscellaneous	Personnel or Procedural Errors	Personnel or Procedural Errors		9940	Maintenance procedure error
Miscellaneous	Personnel or Procedural Errors	Personnel or Procedural Errors		9950	Contractor procedure error
Miscellaneous	Personnel or Procedural Errors	Personnel or Procedural Errors		9960	Staff shortage

**Notes: 1) For use with Unit Codes 800–899.**

## POLLUTION CONTROL EQUIPMENT

Use this set of codes to report problems with flue gas desulphurization equipment and stack gas particulate removal equipment. If outages or deratings occur due to reasons other than equipment problems, use the set of codes for Regulatory, Safety, Environmental stack emission limits.

TABLE B12-103 Pollution Control Equipment: CO Reduction					
UNIT TYPE	SYSTEM	COMPONENT	SUB-COMPONENT	CAUSE CODE	DESCRIPTION
Miscellaneous	Pollution Control Equipment	CO Reduction		8840	CO Active catalyst
Miscellaneous	Pollution Control Equipment	CO Reduction		8841	CO Support materials
Miscellaneous	Pollution Control Equipment	CO Reduction		8842	CO Plugging
Miscellaneous	Pollution Control Equipment	CO Reduction		8845	Other CO reduction problems

**Notes: 1) For use with Unit Codes 800–899.**

TABLE B12-104 Pollution Control Equipment: Continuous Emissions Monitoring Systems (CEMS)					
UNIT TYPE	SYSTEM	COMPONENT	SUB-COMPONENT	CAUSE CODE	DESCRIPTION
Miscellaneous	Pollution Control Equipment	Continuous Emissions Monitoring Systems (CEMS)		8700	CEMS Certification and Recertification
Miscellaneous	Pollution Control Equipment	Continuous Emissions Monitoring Systems (CEMS)		8710	SO <sub>2</sub> analyzer problems
Miscellaneous	Pollution Control Equipment	Continuous Emissions Monitoring Systems (CEMS)		8720	NO <sub>x</sub> analyzer problems
Miscellaneous	Pollution Control Equipment	Continuous Emissions Monitoring Systems (CEMS)		8730	CO analyzer problems
Miscellaneous	Pollution Control Equipment	Continuous Emissions Monitoring Systems (CEMS)		8740	CO <sub>2</sub> analyzer problems
Miscellaneous	Pollution Control Equipment	Continuous Emissions Monitoring Systems (CEMS)		8750	O <sub>2</sub> analyzer problems
Miscellaneous	Pollution Control Equipment	Continuous Emissions Monitoring Systems (CEMS)		8760	Opacity monitor problems
Miscellaneous	Pollution Control Equipment	Continuous Emissions Monitoring Systems (CEMS)		8770	Flow monitor problems
Miscellaneous	Pollution Control Equipment	Continuous Emissions Monitoring Systems (CEMS)		8780	Data acquisition system problems

Appendix B12: Index To Miscellaneous Unit Cause Codes

Miscellaneous	Pollution Control Equipment	Continuous Emissions Monitoring Systems (CEMS)		8790	Miscellaneous CEMS problems
---------------	-----------------------------	--	--	------	-----------------------------

**Notes: 1) For use with Unit Codes 800–899.**

**TABLE B12-105 Pollution Control Equipment: Dry Scrubbers - Dry Scrubber**

UNIT TYPE	SYSTEM	COMPONENT	SUB-COMPONENT	CAUSE CODE	DESCRIPTION
Miscellaneous	Pollution Control Equipment	Dry Scrubbers	Dry Scrubber	8528	Dry scrubber instruments and controls
Miscellaneous	Pollution Control Equipment	Dry Scrubbers	Dry Scrubber	8529	Gas dispersers
Miscellaneous	Pollution Control Equipment	Dry Scrubbers	Dry Scrubber	8530	Spray towers
Miscellaneous	Pollution Control Equipment	Dry Scrubbers	Dry Scrubber	8531	Spray machine/atomizer
Miscellaneous	Pollution Control Equipment	Dry Scrubbers	Dry Scrubber	8532	Spray machine/atomizer motors
Miscellaneous	Pollution Control Equipment	Dry Scrubbers	Dry Scrubber	8533	Spray machine/atomizer lubrication systems
Miscellaneous	Pollution Control Equipment	Dry Scrubbers	Dry Scrubber	8534	Spray machine/atomizer vibration problems

**Notes: 1) For use with Unit Codes 800–899.**

**TABLE B12-106 Pollution Control Equipment: Dry Scrubbers - Miscellaneous (Dry Scrubber)**

UNIT TYPE	SYSTEM	COMPONENT	SUB-COMPONENT	CAUSE CODE	DESCRIPTION
Miscellaneous	Pollution Control Equipment	Dry Scrubbers	Miscellaneous (Dry Scrubber)	8544	Mechanical failures
Miscellaneous	Pollution Control Equipment	Dry Scrubbers	Miscellaneous (Dry Scrubber)	8545	Electrical failures
Miscellaneous	Pollution Control Equipment	Dry Scrubbers	Miscellaneous (Dry Scrubber)	8546	Major overhaul
Miscellaneous	Pollution Control Equipment	Dry Scrubbers	Miscellaneous (Dry Scrubber)	8547	Inspection
Miscellaneous	Pollution Control Equipment	Dry Scrubbers	Miscellaneous (Dry Scrubber)	8548	Testing
Miscellaneous	Pollution Control Equipment	Dry Scrubbers	Miscellaneous (Dry Scrubber)	8549	Other dry scrubber problems

**Notes: 1) For use with Unit Codes 800–899.**

TABLE B12-107 Pollution Control Equipment: Dry Scrubbers - Piping, Ducting, and Dampers					
UNIT TYPE	SYSTEM	COMPONENT	SUB-COMPONENT	CAUSE CODE	DESCRIPTION
Miscellaneous	Pollution Control Equipment	Dry Scrubbers	Piping, Ducting, and Dampers	8522	Piping
Miscellaneous	Pollution Control Equipment	Dry Scrubbers	Piping, Ducting, and Dampers	8523	Valves
Miscellaneous	Pollution Control Equipment	Dry Scrubbers	Piping, Ducting, and Dampers	8524	Strainers or filters
Miscellaneous	Pollution Control Equipment	Dry Scrubbers	Piping, Ducting, and Dampers	8525	Ducting
Miscellaneous	Pollution Control Equipment	Dry Scrubbers	Piping, Ducting, and Dampers	8526	Dampers
Miscellaneous	Pollution Control Equipment	Dry Scrubbers	Piping, Ducting, and Dampers	8527	Other piping, ducting, and damper problems
<b>Notes: 1) For use with Unit Codes 800–899.</b>					

TABLE B12-108 Pollution Control Equipment: Dry Scrubbers - Reagent\Slurry Supply					
UNIT TYPE	SYSTEM	COMPONENT	SUB-COMPONENT	CAUSE CODE	DESCRIPTION
Miscellaneous	Pollution Control Equipment	Dry Scrubbers	Reagent\Slurry Supply	8500	Slurry storage and feed tanks
Miscellaneous	Pollution Control Equipment	Dry Scrubbers	Reagent\Slurry Supply	8501	Reagent storage, feed bins, and conveyors
Miscellaneous	Pollution Control Equipment	Dry Scrubbers	Reagent\Slurry Supply	8502	Weigh feeders
Miscellaneous	Pollution Control Equipment	Dry Scrubbers	Reagent\Slurry Supply	8503	Screw conveyors
Miscellaneous	Pollution Control Equipment	Dry Scrubbers	Reagent\Slurry Supply	8504	Mills/slakers
Miscellaneous	Pollution Control Equipment	Dry Scrubbers	Reagent\Slurry Supply	8505	Scalping screens
Miscellaneous	Pollution Control Equipment	Dry Scrubbers	Reagent\Slurry Supply	8506	Slurry pipelines
Miscellaneous	Pollution Control Equipment	Dry Scrubbers	Reagent\Slurry Supply	8507	Reagent uploading and transfer systems
Miscellaneous	Pollution Control Equipment	Dry Scrubbers	Reagent\Slurry Supply	8508	Reagent unavailability

**Appendix B12: Index To Miscellaneous Unit Cause Codes**

Miscellaneous	Pollution Control Equipment	Dry Scrubbers	Reagent\Slurry Supply	8510	Slurry mixers and agitators
Miscellaneous	Pollution Control Equipment	Dry Scrubbers	Reagent\Slurry Supply	8520	Slurry transfer pumps and motors
Miscellaneous	Pollution Control Equipment	Dry Scrubbers	Reagent\Slurry Supply	8521	Reagent/slurry problems

**Notes: 1) For use with Unit Codes 800–899.**

**TABLE B12-109 Pollution Control Equipment: Dry Scrubbers - Waste Disposal and Recovery**

UNIT TYPE	SYSTEM	COMPONENT	SUB-COMPONENT	CAUSE CODE	DESCRIPTION
Miscellaneous	Pollution Control Equipment	Dry Scrubbers	Waste Disposal and Recovery	8535	Fly ash conveyors
Miscellaneous	Pollution Control Equipment	Dry Scrubbers	Waste Disposal and Recovery	8536	Bucket elevators
Miscellaneous	Pollution Control Equipment	Dry Scrubbers	Waste Disposal and Recovery	8537	Weigh hoppers
Miscellaneous	Pollution Control Equipment	Dry Scrubbers	Waste Disposal and Recovery	8538	Recycle storage and feed tanks including agitators
Miscellaneous	Pollution Control Equipment	Dry Scrubbers	Waste Disposal and Recovery	8539	Recycle slurry transfer pumps
Miscellaneous	Pollution Control Equipment	Dry Scrubbers	Waste Disposal and Recovery	8540	Waste disposal
Miscellaneous	Pollution Control Equipment	Dry Scrubbers	Waste Disposal and Recovery	8541	Recycle feed bins
Miscellaneous	Pollution Control Equipment	Dry Scrubbers	Waste Disposal and Recovery	8542	Recycle feed bins aeration systems
Miscellaneous	Pollution Control Equipment	Dry Scrubbers	Waste Disposal and Recovery	8543	Powder coolers

**Notes: 1) For use with Unit Codes 800–899.**

**TABLE B12-110 Pollution Control Equipment: Miscellaneous (Pollution Control Equipment)**

UNIT TYPE	SYSTEM	COMPONENT	SUB-COMPONENT	CAUSE CODE	DESCRIPTION
Miscellaneous	Pollution Control Equipment	Miscellaneous (Pollution Control Equipment)		8565	Electrostatic Precipitator rebuild/overhaul
Miscellaneous	Pollution Control Equipment	Miscellaneous (Pollution Control Equipment)		8600	Flue gas additives (furnace injection)

**Appendix B12: Index To Miscellaneous Unit Cause Codes**

Miscellaneous	Pollution Control Equipment	Miscellaneous (Pollution Control Equipment)		8601	SO3 mitigation
Miscellaneous	Pollution Control Equipment	Miscellaneous (Pollution Control Equipment)		8620	Mercury Abatement Equipment
Miscellaneous	Pollution Control Equipment	Miscellaneous (Pollution Control Equipment)		8650	Baghouse systems, general
Miscellaneous	Pollution Control Equipment	Miscellaneous (Pollution Control Equipment)		8651	Bag failures and rebagging
Miscellaneous	Pollution Control Equipment	Miscellaneous (Pollution Control Equipment)		8652	Shakers and rappers
Miscellaneous	Pollution Control Equipment	Miscellaneous (Pollution Control Equipment)		8653	Inflation and deflation fans and motors
Miscellaneous	Pollution Control Equipment	Miscellaneous (Pollution Control Equipment)		8654	Baghouse booster fans and motors
Miscellaneous	Pollution Control Equipment	Miscellaneous (Pollution Control Equipment)		8655	Structural duct work and dampers
Miscellaneous	Pollution Control Equipment	Miscellaneous (Pollution Control Equipment)		8656	Controls and instrumentation
Miscellaneous	Pollution Control Equipment	Miscellaneous (Pollution Control Equipment)		8657	Ash handling system and hoppers
Miscellaneous	Pollution Control Equipment	Miscellaneous (Pollution Control Equipment)		8658	Slurry system from precipitators
Miscellaneous	Pollution Control Equipment	Miscellaneous (Pollution Control Equipment)		8670	Emission monitors (other than CEMS)
Miscellaneous	Pollution Control Equipment	Miscellaneous (Pollution Control Equipment)		8699	Other miscellaneous pollution control equipment problems

**Notes: 1) For use with Unit Codes 800–899.**

<b>TABLE B12-111 Pollution Control Equipment: NOx Reduction Systems - Catalytic Air Heaters</b>					
<b>UNIT TYPE</b>	<b>SYSTEM</b>	<b>COMPONENT</b>	<b>SUB-COMPONENT</b>	<b>CAUSE CODE</b>	<b>DESCRIPTION</b>
Miscellaneous	Pollution Control Equipment	NOx Reduction Systems	Catalytic Air Heaters	8830	CAH NOx Active catalyst
Miscellaneous	Pollution Control Equipment	NOx Reduction Systems	Catalytic Air Heaters	8831	CAH NOx Support materials
Miscellaneous	Pollution Control Equipment	NOx Reduction Systems	Catalytic Air Heaters	8832	CAH NOx Plugging
Miscellaneous	Pollution Control Equipment	NOx Reduction Systems	Catalytic Air Heaters	8835	Other CAH problems



Notes: 1) For use with Unit Codes 800–899. 2) Use code 360 for Low NOx Burners.

**TABLE B12-112 Pollution Control Equipment: NOx Reduction Systems - Selective Catalytic Reduction Systems**

UNIT TYPE	SYSTEM	COMPONENT	SUB-COMPONENT	CAUSE CODE	DESCRIPTION
Miscellaneous	Pollution Control Equipment	NOx Reduction Systems	Selective Catalytic Reduction Systems	8810	SCR NOx Reactor
Miscellaneous	Pollution Control Equipment	NOx Reduction Systems	Selective Catalytic Reduction Systems	8811	SCR NOx Reagent
Miscellaneous	Pollution Control Equipment	NOx Reduction Systems	Selective Catalytic Reduction Systems	8812	SCR NOx Catalyst
Miscellaneous	Pollution Control Equipment	NOx Reduction Systems	Selective Catalytic Reduction Systems	8813	SCR NOx Injection grid piping/valves
Miscellaneous	Pollution Control Equipment	NOx Reduction Systems	Selective Catalytic Reduction Systems	8814	SCR NOx Catalyst support material
Miscellaneous	Pollution Control Equipment	NOx Reduction Systems	Selective Catalytic Reduction Systems	8815	SCR NOx Soot blowers
Miscellaneous	Pollution Control Equipment	NOx Reduction Systems	Selective Catalytic Reduction Systems	8816	SCR NOx Plugging
Miscellaneous	Pollution Control Equipment	NOx Reduction Systems	Selective Catalytic Reduction Systems	8817	SCR NOx Control system
Miscellaneous	Pollution Control Equipment	NOx Reduction Systems	Selective Catalytic Reduction Systems	8820	SCR NOx Ammonia injection grid piping/valves
Miscellaneous	Pollution Control Equipment	NOx Reduction Systems	Selective Catalytic Reduction Systems	8821	SCR NOx Ammonia tanks, piping and valves (not injection)
Miscellaneous	Pollution Control Equipment	NOx Reduction Systems	Selective Catalytic Reduction Systems	8822	SCR NOx Ammonia air blowers
Miscellaneous	Pollution Control Equipment	NOx Reduction Systems	Selective Catalytic Reduction Systems	8823	SCR NOx Other ammonia system problems
Miscellaneous	Pollution Control Equipment	NOx Reduction Systems	Selective Catalytic Reduction Systems	8825	Other SCR NOx problems

Notes: 1) For use with Unit Codes 800–899. 2) Use code 360 for Low NOx Burners.

**TABLE B12-113 Pollution Control Equipment: NOx Reduction Systems - Selective Non-Catalytic Reduction Systems**

UNIT TYPE	SYSTEM	COMPONENT	SUB-COMPONENT	CAUSE CODE	DESCRIPTION
Miscellaneous	Pollution Control Equipment	NOx Reduction Systems	Selective Non-Catalytic Reduction Systems	8800	SNCR NOx Reagent

**Appendix B12: Index To Miscellaneous Unit Cause Codes**

Miscellaneous	Pollution Control Equipment	NOx Reduction Systems	Selective Non-Catalytic Reduction Systems	8801	SNCR NOx Carrier gas
Miscellaneous	Pollution Control Equipment	NOx Reduction Systems	Selective Non-Catalytic Reduction Systems	8802	SNCR NOx Control system
Miscellaneous	Pollution Control Equipment	NOx Reduction Systems	Selective Non-Catalytic Reduction Systems	8803	SNCR Performance Testing
Miscellaneous	Pollution Control Equipment	NOx Reduction Systems	Selective Non-Catalytic Reduction Systems	8809	Other SNCR NOx problems

**Notes: 1) For use with Unit Codes 800–899. 2) Use code 360 for Low NOx Burners.**

**TABLE B12-114 Pollution Control Equipment: Precipitators**

UNIT TYPE	SYSTEM	COMPONENT	SUB-COMPONENT	CAUSE CODE	DESCRIPTION
Miscellaneous	Pollution Control Equipment	Precipitators		8550	Electrostatic precipitator fouling
Miscellaneous	Pollution Control Equipment	Precipitators		8551	Electrostatic precipitator field out of service
Miscellaneous	Pollution Control Equipment	Precipitators		8560	Electrostatic precipitator problems
Miscellaneous	Pollution Control Equipment	Precipitators		8570	Mechanical precipitator fouling
Miscellaneous	Pollution Control Equipment	Precipitators		8580	Mechanical precipitator problems
Miscellaneous	Pollution Control Equipment	Precipitators		8590	Other precipitator problems

**Notes: 1) For use with Unit Codes 800–899.**

**TABLE B12-115 Pollution Control Equipment: Wet Scrubbers - Chemical Supply**

UNIT TYPE	SYSTEM	COMPONENT	SUB-COMPONENT	CAUSE CODE	DESCRIPTION
Miscellaneous	Pollution Control Equipment	Wet Scrubbers	Chemical Supply	8000	Chemical feed storage, mill feeders, and conveyors
Miscellaneous	Pollution Control Equipment	Wet Scrubbers	Chemical Supply	8002	Screw conveyors
Miscellaneous	Pollution Control Equipment	Wet Scrubbers	Chemical Supply	8003	Bucket elevators
Miscellaneous	Pollution Control Equipment	Wet Scrubbers	Chemical Supply	8006	Weigh feeders

**Appendix B12: Index To Miscellaneous Unit Cause Codes**

Miscellaneous	Pollution Control Equipment	Wet Scrubbers	Chemical Supply	8010	Crushers/mills
Miscellaneous	Pollution Control Equipment	Wet Scrubbers	Chemical Supply	8020	Mill slurry tanks supply problems
Miscellaneous	Pollution Control Equipment	Wet Scrubbers	Chemical Supply	8030	Classifiers
Miscellaneous	Pollution Control Equipment	Wet Scrubbers	Chemical Supply	8040	Slurry transfer pumps and motors
Miscellaneous	Pollution Control Equipment	Wet Scrubbers	Chemical Supply	8050	Chemical unavailability
Miscellaneous	Pollution Control Equipment	Wet Scrubbers	Chemical Supply	8099	Other chemical supply problems

**Notes: 1) For use with Unit Codes 800–899.**

**TABLE B12-116 Pollution Control Equipment: Wet Scrubbers - Miscellaneous (Wet Scrubber)**

UNIT TYPE	SYSTEM	COMPONENT	SUB-COMPONENT	CAUSE CODE	DESCRIPTION
Miscellaneous	Pollution Control Equipment	Wet Scrubbers	Miscellaneous (Wet Scrubber)	8400	Scrubber gas discharge reheaters - general
Miscellaneous	Pollution Control Equipment	Wet Scrubbers	Miscellaneous (Wet Scrubber)	8402	Scrubber gas discharge reheaters - vibration
Miscellaneous	Pollution Control Equipment	Wet Scrubbers	Miscellaneous (Wet Scrubber)	8404	Scrubber gas discharge reheaters - tube leaks
Miscellaneous	Pollution Control Equipment	Wet Scrubbers	Miscellaneous (Wet Scrubber)	8406	Scrubber gas discharge reheaters - ducts
Miscellaneous	Pollution Control Equipment	Wet Scrubbers	Miscellaneous (Wet Scrubber)	8410	Scrubber instruments and controls
Miscellaneous	Pollution Control Equipment	Wet Scrubbers	Miscellaneous (Wet Scrubber)	8415	Liquid level controls
Miscellaneous	Pollution Control Equipment	Wet Scrubbers	Miscellaneous (Wet Scrubber)	8420	Heat tracer
Miscellaneous	Pollution Control Equipment	Wet Scrubbers	Miscellaneous (Wet Scrubber)	8425	Miscellaneous mechanical failures
Miscellaneous	Pollution Control Equipment	Wet Scrubbers	Miscellaneous (Wet Scrubber)	8426	Miscellaneous electrical failures
Miscellaneous	Pollution Control Equipment	Wet Scrubbers	Miscellaneous (Wet Scrubber)	8430	Stack damage related to scrubber system
Miscellaneous	Pollution Control Equipment	Wet Scrubbers	Miscellaneous (Wet Scrubber)	8440	Major overhaul

**Appendix B12: Index To Miscellaneous Unit Cause Codes**

Miscellaneous	Pollution Control Equipment	Wet Scrubbers	Miscellaneous (Wet Scrubber)	8450	Inspection
Miscellaneous	Pollution Control Equipment	Wet Scrubbers	Miscellaneous (Wet Scrubber)	8460	Testing
Miscellaneous	Pollution Control Equipment	Wet Scrubbers	Miscellaneous (Wet Scrubber)	8470	SO2 monitor
Miscellaneous	Pollution Control Equipment	Wet Scrubbers	Miscellaneous (Wet Scrubber)	8499	Other miscellaneous wet scrubber problems

**Notes: 1) For use with Unit Codes 800–899.**

**TABLE B12-117 Pollution Control Equipment: Wet Scrubbers - Piping, Ducting, Dampers, and Fans**

UNIT TYPE	SYSTEM	COMPONENT	SUB-COMPONENT	CAUSE CODE	DESCRIPTION
Miscellaneous	Pollution Control Equipment	Wet Scrubbers	Piping, Ducting, Dampers, and Fans	8200	Piping
Miscellaneous	Pollution Control Equipment	Wet Scrubbers	Piping, Ducting, Dampers, and Fans	8210	Valves
Miscellaneous	Pollution Control Equipment	Wet Scrubbers	Piping, Ducting, Dampers, and Fans	8220	Strainers or filters
Miscellaneous	Pollution Control Equipment	Wet Scrubbers	Piping, Ducting, Dampers, and Fans	8225	Drain pots
Miscellaneous	Pollution Control Equipment	Wet Scrubbers	Piping, Ducting, Dampers, and Fans	8230	Ducting
Miscellaneous	Pollution Control Equipment	Wet Scrubbers	Piping, Ducting, Dampers, and Fans	8235	Demister
Miscellaneous	Pollution Control Equipment	Wet Scrubbers	Piping, Ducting, Dampers, and Fans	8240	Bypass dampers
Miscellaneous	Pollution Control Equipment	Wet Scrubbers	Piping, Ducting, Dampers, and Fans	8250	Dampers other than bypass
Miscellaneous	Pollution Control Equipment	Wet Scrubbers	Piping, Ducting, Dampers, and Fans	8260	Scrubber booster I.D. fan (fan specific to the scrubber)
Miscellaneous	Pollution Control Equipment	Wet Scrubbers	Piping, Ducting, Dampers, and Fans	8261	Scrubber booster I.D. fan drive
Miscellaneous	Pollution Control Equipment	Wet Scrubbers	Piping, Ducting, Dampers, and Fans	8262	Scrubber booster I.D. fan vibration (fan specific to the scrubber)
Miscellaneous	Pollution Control Equipment	Wet Scrubbers	Piping, Ducting, Dampers, and Fans	8264	Scrubber booster I.D. fan blades (fan specific to the scrubber)
Miscellaneous	Pollution Control Equipment	Wet Scrubbers	Piping, Ducting, Dampers, and Fans	8265	Scrubber booster I.D. fan dampers

**Appendix B12: Index To Miscellaneous Unit Cause Codes**

Miscellaneous	Pollution Control Equipment	Wet Scrubbers	Piping, Ducting, Dampers, and Fans	8270	Scrubber booster F.D. fan (fan specific to the scrubber)
Miscellaneous	Pollution Control Equipment	Wet Scrubbers	Piping, Ducting, Dampers, and Fans	8271	Scrubber booster F.D. fan drive
Miscellaneous	Pollution Control Equipment	Wet Scrubbers	Piping, Ducting, Dampers, and Fans	8272	Scrubber booster F.D. fan vibration (fan specific to the scrubber)
Miscellaneous	Pollution Control Equipment	Wet Scrubbers	Piping, Ducting, Dampers, and Fans	8274	Scrubber booster F.D. fan blades (fan specific to the scrubber)
Miscellaneous	Pollution Control Equipment	Wet Scrubbers	Piping, Ducting, Dampers, and Fans	8275	Scrubber booster F.D. fan dampers
Miscellaneous	Pollution Control Equipment	Wet Scrubbers	Piping, Ducting, Dampers, and Fans	8280	Reagent feed piping
Miscellaneous	Pollution Control Equipment	Wet Scrubbers	Piping, Ducting, Dampers, and Fans	8290	Demister wash piping assembly
Miscellaneous	Pollution Control Equipment	Wet Scrubbers	Piping, Ducting, Dampers, and Fans	8299	Other piping, ducting, damper, and fan problems

**Notes: 1) For use with Unit Codes 800–899. 2) Use code 9510 for outages or deratings required to install pollution control equipment. Use codes 9600 to 9650 only when the pollution control equipment problems are not responsible for exceeding emission limits.**

<b>TABLE B12-118 Pollution Control Equipment: Wet Scrubbers - Waste Disposal and Recovery</b>					
<b>UNIT TYPE</b>	<b>SYSTEM</b>	<b>COMPONENT</b>	<b>SUB-COMPONENT</b>	<b>CAUSE CODE</b>	<b>DESCRIPTION</b>
Miscellaneous	Pollution Control Equipment	Wet Scrubbers	Waste Disposal and Recovery	8300	Waste disposal/recovery tanks
Miscellaneous	Pollution Control Equipment	Wet Scrubbers	Waste Disposal and Recovery	8310	Waste disposal/recovery pumps
Miscellaneous	Pollution Control Equipment	Wet Scrubbers	Waste Disposal and Recovery	8320	Waste disposal ponds
Miscellaneous	Pollution Control Equipment	Wet Scrubbers	Waste Disposal and Recovery	8325	Ash disposal problems
Miscellaneous	Pollution Control Equipment	Wet Scrubbers	Waste Disposal and Recovery	8330	Dewatering equipment (thickener, centrifuge, etc.)
Miscellaneous	Pollution Control Equipment	Wet Scrubbers	Waste Disposal and Recovery	8335	Dryers
Miscellaneous	Pollution Control Equipment	Wet Scrubbers	Waste Disposal and Recovery	8340	Centrifuge/vacuum filter
Miscellaneous	Pollution Control Equipment	Wet Scrubbers	Waste Disposal and Recovery	8345	Calciners

**Appendix B12: Index To Miscellaneous Unit Cause Codes**

Miscellaneous	Pollution Control Equipment	Wet Scrubbers	Waste Disposal and Recovery	8349	Other waste disposal and recovery problems
Miscellaneous	Pollution Control Equipment	Wet Scrubbers	Waste Disposal and Recovery	8399	Solids conveying and mixing system problems

**Notes: 1) For use with Unit Codes 800–899.**

**TABLE B12-119 Pollution Control Equipment: Wet Scrubbers - Wet Scrubber**

UNIT TYPE	SYSTEM	COMPONENT	SUB-COMPONENT	CAUSE CODE	DESCRIPTION
Miscellaneous	Pollution Control Equipment	Wet Scrubbers	Wet Scrubber	8100	Scrubber/absorber tower or module
Miscellaneous	Pollution Control Equipment	Wet Scrubbers	Wet Scrubber	8110	Spray nozzles
Miscellaneous	Pollution Control Equipment	Wet Scrubbers	Wet Scrubber	8115	Disc scrubber throats
Miscellaneous	Pollution Control Equipment	Wet Scrubbers	Wet Scrubber	8120	Spray pumps and motors
Miscellaneous	Pollution Control Equipment	Wet Scrubbers	Wet Scrubber	8125	Scrubber recycle (liquid) pumps
Miscellaneous	Pollution Control Equipment	Wet Scrubbers	Wet Scrubber	8127	Scrubber recycle (liquid) pump motors
Miscellaneous	Pollution Control Equipment	Wet Scrubbers	Wet Scrubber	8130	Recirculation tanks including agitators
Miscellaneous	Pollution Control Equipment	Wet Scrubbers	Wet Scrubber	8140	Reaction tanks including agitators
Miscellaneous	Pollution Control Equipment	Wet Scrubbers	Wet Scrubber	8150	Tubes
Miscellaneous	Pollution Control Equipment	Wet Scrubbers	Wet Scrubber	8160	Mist eliminators/demisters and washdown
Miscellaneous	Pollution Control Equipment	Wet Scrubbers	Wet Scrubber	8199	Other scrubber problems

**Notes: 1) For use with Unit Codes 800–899.**

## **REGULATORY, SAFETY, ENVIRONMENTAL**

Use these codes only for events not directly attributable to equipment failures. Inspections or testing of certain equipment due to regulation are reported using the appropriate equipment cause codes, and the fact that it was a regulatory requirement noted in the verbal description section.

**TABLE B12-120 Regulatory, Safety, Environmental: Other Operating Environmental Limitations**

**Appendix B12: Index To Miscellaneous Unit Cause Codes**

<b>UNIT TYPE</b>	<b>SYSTEM</b>	<b>COMPONENT</b>	<b>SUB-COMPONENT</b>	<b>CAUSE CODE</b>	<b>DESCRIPTION</b>
Miscellaneous	Regulatory, Safety, Environmental	Other Operating Environmental Limitations		9660	Thermal discharge limits - fossil and nuclear
Miscellaneous	Regulatory, Safety, Environmental	Other Operating Environmental Limitations		9663	Thermal discharge limits - gas turbines
Miscellaneous	Regulatory, Safety, Environmental	Other Operating Environmental Limitations		9664	Thermal discharge limits - jet engines
Miscellaneous	Regulatory, Safety, Environmental	Other Operating Environmental Limitations		9665	Thermal discharge limits (Internal Combustion/Reciprocating Engines)
Miscellaneous	Regulatory, Safety, Environmental	Other Operating Environmental Limitations		9670	Noise limits (not for personnel safety) - fossil and nuclear
Miscellaneous	Regulatory, Safety, Environmental	Other Operating Environmental Limitations		9673	Noise limits (not for personnel safety) - gas turbines
Miscellaneous	Regulatory, Safety, Environmental	Other Operating Environmental Limitations		9674	Noise limits (not for personnel safety) - jet engines
Miscellaneous	Regulatory, Safety, Environmental	Other Operating Environmental Limitations		9675	Noise limits (not for personnel safety) (Internal Combustion/Reciprocating Engines)
Miscellaneous	Regulatory, Safety, Environmental	Other Operating Environmental Limitations		9676	Noise limits (not for personnel safety) - hydro and pumped storage
Miscellaneous	Regulatory, Safety, Environmental	Other Operating Environmental Limitations		9677	Noise limits testing - fossil
Miscellaneous	Regulatory, Safety, Environmental	Other Operating Environmental Limitations		9678	Noise limits testing - gas turbines
Miscellaneous	Regulatory, Safety, Environmental	Other Operating Environmental Limitations		9679	Noise limits testing - jet engines
Miscellaneous	Regulatory, Safety, Environmental	Other Operating Environmental Limitations		9680	Fish kill - fossil and nuclear
Miscellaneous	Regulatory, Safety, Environmental	Other Operating Environmental Limitations		9683	Fish kill - gas turbines
Miscellaneous	Regulatory, Safety, Environmental	Other Operating Environmental Limitations		9684	Fish kill - jet engines
Miscellaneous	Regulatory, Safety, Environmental	Other Operating Environmental Limitations		9685	Fish kill (Internal Combustion/Reciprocating Engines)
Miscellaneous	Regulatory, Safety, Environmental	Other Operating Environmental Limitations		9686	Fish kill - hydro and pumped storage
Miscellaneous	Regulatory, Safety, Environmental	Other Operating Environmental Limitations		9690	Other miscellaneous operational environmental limits - fossil and nuclear

**Appendix B12: Index To Miscellaneous Unit Cause Codes**

Miscellaneous	Regulatory, Safety, Environmental	Other Operating Environmental Limitations		9693	Other miscellaneous operational environmental limits - gas turbines
Miscellaneous	Regulatory, Safety, Environmental	Other Operating Environmental Limitations		9694	Other miscellaneous operational environmental limits - jet engines
Miscellaneous	Regulatory, Safety, Environmental	Other Operating Environmental Limitations		9695	Other miscellaneous operational environmental limits (Internal Combustion/Reciprocating Engines)
Miscellaneous	Regulatory, Safety, Environmental	Other Operating Environmental Limitations		9696	Other miscellaneous operational environmental limits - hydro and pumped storage

**Notes: 1) For use with Unit Codes 800–899.**

**TABLE B12-121 Regulatory, Safety, Environmental: Regulatory**

UNIT TYPE	SYSTEM	COMPONENT	SUB-COMPONENT	CAUSE CODE	DESCRIPTION
Miscellaneous	Regulatory, Safety, Environmental	Regulatory		9504	Regulatory (environmental) proceedings and hearings - regulatory agency initiated
Miscellaneous	Regulatory, Safety, Environmental	Regulatory		9506	Regulatory (environmental) proceedings and hearings - intervenor initiated
Miscellaneous	Regulatory, Safety, Environmental	Regulatory		9510	Plant modifications strictly for compliance with new or changed regulatory requirements (scrubbers, cooling towers, etc.)
Miscellaneous	Regulatory, Safety, Environmental	Regulatory		9520	Oil spill in Gulf of Mexico (OMC)
Miscellaneous	Regulatory, Safety, Environmental	Regulatory		9590	Miscellaneous regulatory (this code is primarily intended for use with event contribution code 2 to indicate that a regulatory-related factor contributed to the primary cause of the event)

**Notes: 1) For use with Unit Codes 800–899.**

**TABLE B12-122 Regulatory, Safety, Environmental: Safety**

UNIT TYPE	SYSTEM	COMPONENT	SUB-COMPONENT	CAUSE CODE	DESCRIPTION
Miscellaneous	Regulatory, Safety, Environmental	Safety		9700	OSHA-related retrofit or inspection
Miscellaneous	Regulatory, Safety, Environmental	Safety		9720	Other safety problems



Notes: 1) For use with Unit Codes 800–899.

TABLE B12-123 Regulatory, Safety, Environmental: Stack Emission					
UNIT TYPE	SYSTEM	COMPONENT	SUB-COMPONENT	CAUSE CODE	DESCRIPTION
Miscellaneous	Regulatory, Safety, Environmental	Stack Emission		9600	SO2 stack emissions - fossil
Miscellaneous	Regulatory, Safety, Environmental	Stack Emission		9603	SO2 stack emissions - gas turbines
Miscellaneous	Regulatory, Safety, Environmental	Stack Emission		9604	SO2 stack emissions - jet engines
Miscellaneous	Regulatory, Safety, Environmental	Stack Emission		9605	SO2 stack emissions (Internal Combustion/Reciprocating Engines)
Miscellaneous	Regulatory, Safety, Environmental	Stack Emission		9610	NOx stack emissions - fossil
Miscellaneous	Regulatory, Safety, Environmental	Stack Emission		9613	NOx stack emissions - gas turbines
Miscellaneous	Regulatory, Safety, Environmental	Stack Emission		9614	NOx stack emissions - jet engines
Miscellaneous	Regulatory, Safety, Environmental	Stack Emission		9615	NOx stack emissions (Internal Combustion/Reciprocating Engines)
Miscellaneous	Regulatory, Safety, Environmental	Stack Emission		9616	CO stack emissions - fossil
Miscellaneous	Regulatory, Safety, Environmental	Stack Emission		9620	Particulate stack emissions - fossil
Miscellaneous	Regulatory, Safety, Environmental	Stack Emission		9623	Particulate stack emissions - gas turbines
Miscellaneous	Regulatory, Safety, Environmental	Stack Emission		9624	Particulate stack emissions - jet engines
Miscellaneous	Regulatory, Safety, Environmental	Stack Emission		9625	Particulate stack emissions (Internal Combustion/Reciprocating Engines)
Miscellaneous	Regulatory, Safety, Environmental	Stack Emission		9630	Opacity - fossil
Miscellaneous	Regulatory, Safety, Environmental	Stack Emission		9633	Opacity - gas turbines
Miscellaneous	Regulatory, Safety, Environmental	Stack Emission		9634	Opacity - jet engines
Miscellaneous	Regulatory, Safety, Environmental	Stack Emission		9635	Opacity (Internal Combustion/Reciprocating Engines)

**Appendix B12: Index To Miscellaneous Unit Cause Codes**

Miscellaneous	Regulatory, Safety, Environmental	Stack Emission		9650	Other stack/exhaust emissions - fossil (use codes 9200 to 9290 if fuel quality causes pollution control equipment problems that result in excess stack emissions)
Miscellaneous	Regulatory, Safety, Environmental	Stack Emission		9653	Other stack or exhaust emissions - gas turbines (use codes 9200 to 9290 if fuel quality causes pollution control equipment problems that result in excess stack emissions)
Miscellaneous	Regulatory, Safety, Environmental	Stack Emission		9654	Other stack or exhaust emissions - jet engines (use codes 9200 to 9290 if fuel quality causes pollution control equipment problems that result in excess stack emissions)
Miscellaneous	Regulatory, Safety, Environmental	Stack Emission		9655	Other stack or exhaust emissions (Internal Combustion/Reciprocating Engines)
Miscellaneous	Regulatory, Safety, Environmental	Stack Emission		9656	Other stack or exhaust emissions testing - fossil
Miscellaneous	Regulatory, Safety, Environmental	Stack Emission		9657	Other stack or exhaust emissions testing - gas turbines
Miscellaneous	Regulatory, Safety, Environmental	Stack Emission		9658	Other stack or exhaust emissions testing - jet engines

**Notes: 1) For use with Unit Codes 800–899. 2) Include exhaust emissions.**

## STEAM TURBINE

Besides the turbine, this set includes the steam stop/control valves, turbine control system, and the turbine auxiliaries. The extraction steam codes are contained in the Balance of Plant set.

<b>TABLE B12-124 Steam Turbine: Controls</b>					
UNIT TYPE	SYSTEM	COMPONENT	SUB-COMPONENT	CAUSE CODE	DESCRIPTION
Miscellaneous	Steam Turbine	Controls		4290	Hydraulic system pumps
Miscellaneous	Steam Turbine	Controls		4291	Hydraulic system coolers
Miscellaneous	Steam Turbine	Controls		4292	Hydraulic system filters
Miscellaneous	Steam Turbine	Controls		4293	Hydraulic system pipes and valves
Miscellaneous	Steam Turbine	Controls		4299	Other hydraulic system problems
Miscellaneous	Steam Turbine	Controls		4300	Turbine supervisory system (use codes 4290 to 4299 for hydraulic oil)
Miscellaneous	Steam Turbine	Controls		4301	Turbine governing system

**Appendix B12: Index To Miscellaneous Unit Cause Codes**

Miscellaneous	Steam Turbine	Controls		4302	Turbine trip devices (including instruments)
Miscellaneous	Steam Turbine	Controls		4303	Exhaust hood and spray controls
Miscellaneous	Steam Turbine	Controls		4304	Automatic turbine control systems - mechanical
Miscellaneous	Steam Turbine	Controls		4305	Automatic turbine control systems - mechanical - hydraulic
Miscellaneous	Steam Turbine	Controls		4306	Automatic turbine control systems - electro-hydraulic - analog
Miscellaneous	Steam Turbine	Controls		4307	Automatic turbine control systems - electro-hydraulic - digital
Miscellaneous	Steam Turbine	Controls		4308	Automatic turbine control systems - digital control and monitoring
Miscellaneous	Steam Turbine	Controls		4309	Other turbine instrument and control problems
Miscellaneous	Steam Turbine	Controls		4310	Steam Turbine Control System - data highway
Miscellaneous	Steam Turbine	Controls		4311	Steam Turbine Control System - hardware problems (including card failure)
Miscellaneous	Steam Turbine	Controls		4312	Steam Turbine Control System - internal and termination wiring
Miscellaneous	Steam Turbine	Controls		4313	Steam Turbine Control System - logic problems
Miscellaneous	Steam Turbine	Controls		4314	Steam Turbine Control System - upgrades

**Notes: 1) For use with Unit Codes 800–899.**

<b>TABLE B12-125 Steam Turbine: High Pressure Turbine</b>					
<b>UNIT TYPE</b>	<b>SYSTEM</b>	<b>COMPONENT</b>	<b>SUB-COMPONENT</b>	<b>CAUSE CODE</b>	<b>DESCRIPTION</b>
Miscellaneous	Steam Turbine	High Pressure Turbine		4000	Outer casing
Miscellaneous	Steam Turbine	High Pressure Turbine		4001	Inner casing
Miscellaneous	Steam Turbine	High Pressure Turbine		4009	Nozzle bolting
Miscellaneous	Steam Turbine	High Pressure Turbine		4010	Nozzles and nozzle blocks
Miscellaneous	Steam Turbine	High Pressure Turbine		4011	Diaphragms
Miscellaneous	Steam Turbine	High Pressure Turbine		4012	Buckets or blades
Miscellaneous	Steam Turbine	High Pressure Turbine		4013	Diaphragms unit and shroud type
Miscellaneous	Steam Turbine	High Pressure Turbine		4014	Bucket or blade fouling

**Appendix B12: Index To Miscellaneous Unit Cause Codes**

Miscellaneous	Steam Turbine	High Pressure Turbine		4015	Wheels or spindles
Miscellaneous	Steam Turbine	High Pressure Turbine		4020	Shaft seals
Miscellaneous	Steam Turbine	High Pressure Turbine		4021	Dummy rings
Miscellaneous	Steam Turbine	High Pressure Turbine		4022	Gland rings
Miscellaneous	Steam Turbine	High Pressure Turbine		4030	Rotor shaft
Miscellaneous	Steam Turbine	High Pressure Turbine		4040	Bearings
Miscellaneous	Steam Turbine	High Pressure Turbine		4041	Thrust bearings
Miscellaneous	Steam Turbine	High Pressure Turbine		4099	Other high pressure turbine problems

**Notes: 1) For use with Unit Codes 800–899.**

**TABLE B12-126 Steam Turbine: Intermediate Pressure Turbine**

UNIT TYPE	SYSTEM	COMPONENT	SUB-COMPONENT	CAUSE CODE	DESCRIPTION
Miscellaneous	Steam Turbine	Intermediate Pressure Turbine		4100	Outer casing
Miscellaneous	Steam Turbine	Intermediate Pressure Turbine		4101	Inner casing
Miscellaneous	Steam Turbine	Intermediate Pressure Turbine		4109	Nozzle bolting
Miscellaneous	Steam Turbine	Intermediate Pressure Turbine		4110	Nozzles and nozzle blocks
Miscellaneous	Steam Turbine	Intermediate Pressure Turbine		4111	Diaphragms
Miscellaneous	Steam Turbine	Intermediate Pressure Turbine		4112	Buckets or blades
Miscellaneous	Steam Turbine	Intermediate Pressure Turbine		4113	Bucket or blade fouling
Miscellaneous	Steam Turbine	Intermediate Pressure Turbine		4115	Wheels or spindles
Miscellaneous	Steam Turbine	Intermediate Pressure Turbine		4120	Shaft seals
Miscellaneous	Steam Turbine	Intermediate Pressure Turbine		4121	Dummy rings
Miscellaneous	Steam Turbine	Intermediate Pressure Turbine		4122	Gland rings
Miscellaneous	Steam Turbine	Intermediate Pressure Turbine		4130	Rotor shaft
Miscellaneous	Steam Turbine	Intermediate Pressure Turbine		4140	Bearings
Miscellaneous	Steam Turbine	Intermediate Pressure Turbine		4141	Thrust bearings
Miscellaneous	Steam Turbine	Intermediate Pressure Turbine		4199	Other intermediate pressure turbine problems

**Notes: 1) For use with Unit Codes 800–899.**

**TABLE B12-127 Steam Turbine: Low Pressure Turbine**

UNIT TYPE	SYSTEM	COMPONENT	SUB-COMPONENT	CAUSE CODE	DESCRIPTION
Miscellaneous	Steam Turbine	Low Pressure Turbine		4200	Outer casing
Miscellaneous	Steam Turbine	Low Pressure Turbine		4201	Inner casing
Miscellaneous	Steam Turbine	Low Pressure Turbine		4209	Nozzle bolting
Miscellaneous	Steam Turbine	Low Pressure Turbine		4210	Nozzles and nozzle blocks

**Appendix B12: Index To Miscellaneous Unit Cause Codes**

Miscellaneous	Steam Turbine	Low Pressure Turbine		4211	Diaphragms
Miscellaneous	Steam Turbine	Low Pressure Turbine		4212	Buckets or blades
Miscellaneous	Steam Turbine	Low Pressure Turbine		4213	Bucket or blade fouling
Miscellaneous	Steam Turbine	Low Pressure Turbine		4215	Wheels or spindles
Miscellaneous	Steam Turbine	Low Pressure Turbine		4220	Shaft seals
Miscellaneous	Steam Turbine	Low Pressure Turbine		4221	Dummy rings
Miscellaneous	Steam Turbine	Low Pressure Turbine		4222	Gland rings
Miscellaneous	Steam Turbine	Low Pressure Turbine		4230	Rotor shaft
Miscellaneous	Steam Turbine	Low Pressure Turbine		4240	Bearings
Miscellaneous	Steam Turbine	Low Pressure Turbine		4241	Thrust bearings
Miscellaneous	Steam Turbine	Low Pressure Turbine		4250	Other low pressure turbine problems

**Notes: 1) For use with Unit Codes 800–899.**

**TABLE B12-128 Steam Turbine: Lube Oil**

UNIT TYPE	SYSTEM	COMPONENT	SUB-COMPONENT	CAUSE CODE	DESCRIPTION
Miscellaneous	Steam Turbine	Lube Oil		4280	Lube oil pumps
Miscellaneous	Steam Turbine	Lube Oil		4281	Lube oil coolers
Miscellaneous	Steam Turbine	Lube Oil		4282	Lube oil conditioners
Miscellaneous	Steam Turbine	Lube Oil		4283	Lube oil system valves and piping
Miscellaneous	Steam Turbine	Lube Oil		4284	Lube oil pump drive
Miscellaneous	Steam Turbine	Lube Oil		4289	Other lube oil system problems

**Notes: 1) For use with Unit Codes 800–899. 2) Do not include bearing failures due to lube oil.**

**TABLE B12-129 Steam Turbine: Miscellaneous (Steam Turbine)**

UNIT TYPE	SYSTEM	COMPONENT	SUB-COMPONENT	CAUSE CODE	DESCRIPTION
Miscellaneous	Steam Turbine	Miscellaneous (Steam Turbine)		4400	Major turbine overhaul (720 hours or longer) (use for non-specific overhaul only; see page B-CCGT-2)
Miscellaneous	Steam Turbine	Miscellaneous (Steam Turbine)		4401	Inspection
Miscellaneous	Steam Turbine	Miscellaneous (Steam Turbine)		4402	Minor turbine overhaul (less than 720 hours) (use for non-specific overhaul only; see page B-CCGT-2)
Miscellaneous	Steam Turbine	Miscellaneous (Steam Turbine)		4410	Turning gear and motor
Miscellaneous	Steam Turbine	Miscellaneous (Steam Turbine)		4411	Steam turbine gear box (single shaft configuration)

**Appendix B12: Index To Miscellaneous Unit Cause Codes**

Miscellaneous	Steam Turbine	Miscellaneous (Steam Turbine)		4412	Steam turbine clutch (single shaft configuration)
Miscellaneous	Steam Turbine	Miscellaneous (Steam Turbine)		4415	Shaft coupling mechanism
Miscellaneous	Steam Turbine	Miscellaneous (Steam Turbine)		4420	Vibration of the turbine generator unit that cannot be attributed to a specific cause such as bearings or blades (use this code for balance moves)
Miscellaneous	Steam Turbine	Miscellaneous (Steam Turbine)		4430	Gland seal system
Miscellaneous	Steam Turbine	Miscellaneous (Steam Turbine)		4440	Moisture separator/reheater (nuclear including MSR drains, controls, etc.)
Miscellaneous	Steam Turbine	Miscellaneous (Steam Turbine)		4445	Steam reheater
Miscellaneous	Steam Turbine	Miscellaneous (Steam Turbine)		4450	Water induction
Miscellaneous	Steam Turbine	Miscellaneous (Steam Turbine)		4460	Turbine overspeed trip test
Miscellaneous	Steam Turbine	Miscellaneous (Steam Turbine)		4470	Differential expansion
Miscellaneous	Steam Turbine	Miscellaneous (Steam Turbine)		4490	Turbine performance testing (use code 9999 for total unit performance testing)
Miscellaneous	Steam Turbine	Miscellaneous (Steam Turbine)		4499	Other miscellaneous steam turbine problems

**Notes: 1) For use with Unit Codes 800–899.**

**TABLE B12-130 Steam Turbine: Piping**

UNIT TYPE	SYSTEM	COMPONENT	SUB-COMPONENT	CAUSE CODE	DESCRIPTION
Miscellaneous	Steam Turbine	Piping		4270	Crossover or under piping
Miscellaneous	Steam Turbine	Piping		4279	Miscellaneous turbine piping

**Notes: 1) For use with Unit Codes 800–899.**

**TABLE B12-131 Steam Turbine: Valves**

UNIT TYPE	SYSTEM	COMPONENT	SUB-COMPONENT	CAUSE CODE	DESCRIPTION
Miscellaneous	Steam Turbine	Valves		4260	Main stop valves
Miscellaneous	Steam Turbine	Valves		4261	Control valves
Miscellaneous	Steam Turbine	Valves		4262	Intercept valves
Miscellaneous	Steam Turbine	Valves		4263	Reheat stop valves
Miscellaneous	Steam Turbine	Valves		4264	Combined intercept valves
Miscellaneous	Steam Turbine	Valves		4265	Miscellaneous drain and vent valves
Miscellaneous	Steam Turbine	Valves		4266	Main stop valve testing
Miscellaneous	Steam Turbine	Valves		4267	Control valve testing

Appendix B12: Index To Miscellaneous Unit Cause Codes

Miscellaneous	Steam Turbine	Valves		4268	Reheat/intercept valve testing
Miscellaneous	Steam Turbine	Valves		4269	Other turbine valves (including LP steam admission valves)
<b>Notes: 1) For use with Unit Codes 800–899.</b>					