

NUCLEAR UNITS INDEX TO SYSTEM/COMPONENT CAUSE CODES

(Unit Codes 200-299)

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NUCLEAR REACTOR

This set of codes contains the following:

- The reactor
- The containment system
- The reactor coolant system including chemical, volume, and pressure control system
- Safety systems, both electrical and mechanical
- Residual heat removal systems
- Closed loop cooling water for reactor systems
- Service water for closed loop cooling and other reactor systems
- Steam generators
- Main steam systems up to the outboard containment isolation valve
- Feedwater systems from the reactor or steam generator up to the outboard containment isolation valve
- Blowdown systems
- Radioactive waste and off-gas systems

Core/Fuel

2010	Fuel failure including high activity in Reactor Coolant System (RCS) or off-gas system
2020	Control rod pattern changes and control rod repatch. (Preconditioning following a pattern change is to be reported using code 2031.)
2021	Power limited by rod pattern. (If rod pattern is limited by fuel limits, use appropriate code below.)
2030	Fuel limits - peaking factors
2031	Fuel preconditioning
2032	Fuel limits - MCPR (Minimum Critical Power Ratio - BWR units only)
2033	Fuel limits - MAPLHGR (Maximum Average Planar Linear Heat Generation Rate - BWR units only)
2034	Core tilt restrictions
2035	Core xenon restrictions
2036	End-of-life scram reactivity/rod worth restrictions
2037	Other fuel limits (use codes 9110 and 9120 for core coastdown, conservation, or stretch)
2040	Core physics tests
2050	Burnable poison problems including poison curtains
2060	Excore nuclear instrumentation
2061	Incore nuclear instrumentation
2062	Other fuel/core related instrumentation problems
2070	Normal refueling
2071	Refueling equipment problems
2072	Fuel storage
2080	Fueling machine and auxiliaries (CANDU)
2082	Fuel transfer problems (CANDU)
2090	Other core/fuel problems

Control Rods and Drives

2110	Control rod drive motors
2111	Control rod magnetic jack drives
2112	Control rod hydraulic drives
2120	Control rod scram mechanisms
2125	Reactivity control units (CANDU)
2130	Control rod assemblies other than drive and scram mechanisms
2140	Control rod drive cooling
2150	Control rod instrumentation
2151	Control rod drive controls
2152	Control rod drive power supplies
2155	Control rod testing
2160	Other control rod drive problems

Reactor Vessel and Internals

2170	Reactor vessel flanges and seals
2171	Reactor vessel nozzles
2172	Feedwater sparges
2173	Jet pumps
2174	Core support
2175	Specimen holders
2176	Control rod guides (not in fuel)
2180	Calandria and Calandria tubes (CANDU)
2185	Coolant assemblies (pressure tubes) (CANDU)
2199	Other reactor vessel problems

Reactor Coolant System**Pumps**

2200	Reactor coolant/recirculating pumps
2210	Reactor coolant/recirculating pump motors
2220	Reactor coolant/recirculating pump MG sets

Piping

2230	Reactor coolant system piping
2240	Reactor coolant system pipe supports
2250	Reactor coolant system filters and strainers
2260	Reactor coolant flanges, fittings, and manways

Pressurizer

2265	Pressurizer (also see codes 2290, 2330, and 2340)
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Valves

- 2270 Power operated relief and safety/relief valves
- 2280 Non-power operated safety valves
- 2290 Pressurizer spray valves
- 2300 Recirculation loop flow control valves
- 2320 Other reactor coolant valves (including RCS boundary valves in connected systems)

Instruments and Controls

- 2330 Pressurizer level instruments and controls
- 2340 Pressurizer pressure instruments and controls
- 2350 BWR feedwater controls
- 2360 BWR pressure controls
- 2370 Reactor trip system including sensors, logic, and actuators (includes spurious trips but not valid trips)
- 2380 Reactor control system/integrated control system problems
- 2390 Other reactor coolant system instruments and controls

Miscellaneous (Reactor Coolant System)

- 2399 Other miscellaneous reactor coolant system problems

Steam Generators and Steam System

- 2400 Steam generator tube leaks
- 2411 Steam generator tube inspections
- 2412 Steam generator tube supports
- 2420 Steam generator moisture separators and dryers
- 2421 Steam generator feedwater nozzles
- 2422 Other steam generator internals problems
- 2430 Steam generator shell
- 2431 Steam generator flanges, manways, and fittings
- 2432 Steam generator supports and snubbers
- 2440 Steam generator chemistry (excluding feedwater chemistry)
- 2441 Steam generator tube lancing
- 2442 Steam generator chemical cleaning
- 2443 Steam generator modifications
- 2450 Blowdown system piping
- 2460 Blowdown system valves
- 2470 Blowdown system instruments and controls
- 2480 Other blowdown
- 2500 Steam piping (up to turbine stop valves and bypass valves)
- 2510 Main steam isolation valves (BWR and PWR)
- 2515 Main steam isolation valve testing
- 2520 Main steam safety/relief valves
- 2521 Main steam safety/relief valve testing
- 2530 Atmospheric or condenser dump valves (not SRVs)
- 2540 Other steam valves
- 2550 Steam generator instruments (including piping and valves) (no RPS or SAS inputs)

Steam Generators and Steam System (Continued)

- 2560 Steam generator controls
- 2599 Other steam generator problems

Core Cooling/Safety Injection (where portions of these systems also serve in the makeup system, report problems as CVCS problems)

- 2600 High pressure safety injection, core injection, or core spray pumps (including RCIC)
- 2601 Motors for high pressure pumps
- 2602 Steam turbine drives for high pressure pumps (including RCIC)
- 2603 High pressure piping
- 2604 High pressure valves
- 2609 Other high pressure injection problems
- 2620 Low pressure safety injection, core spray, or decay heat pumps
- 2621 Motors for low pressure pumps
- 2622 Low pressure piping
- 2623 Low pressure valves
- 2624 Low pressure heat exchangers
- 2625 Accumulators (up to and including check valves)
- 2628 Residual heat removal/decay heat removal system
- 2629 Other low pressure problems
- 2630 Safeguard actuation system (including sensors, logic, activators, and sequencers)
- 2649 Other emergency core cooling/residual heat removal system problems

Electrical Safety Systems

- 2650 Emergency diesel generators (including actuating systems)
- 2651 Emergency diesel generator output breakers
- 2660 Safeguard buses and associated equipment (transformers, breakers, etc.)
- 2670 DC safety system power supplies
- 2680 120V AC safety system power supplies (including inverter)
- 2699 Other electrical safety system power supplies (use codes 3600 to 3659 for nonsafety electrical systems)

Containment System

- 2700 Containment structure
- 2701 Containment liner
- 2702 Containment hatches
- 2703 Containment penetrations
- 2720 Containment isolation valves and dampers
- 2730 Containment isolation actuation
- 2740 Containment penetration pressurization system
- 2750 Containment hydrogen control system (vents, recombiners, etc.)
- 2760 Containment spray system (including actuation)
- 2770 Containment cooling system - normal
- 2771 Containment cooling and gas cleanup - post accident
- 2780 Containment testing
- 2799 Other containment system problems

Chemical and Volume Control/Reactor Water Cleanup

2805	Moderator systems (CANDU)
2806	Moderator purification (CANDU)
2807	Moderator poison injection (CANDU)
2810	Makeup pumps
2811	Boric acid transfer pumps
2812	Tanks
2813	Demineralizers
2814	Filters
2815	Heat exchangers
2816	Valves and piping
2817	Instruments and controls
2819	Other CVCS and RWC problems

Nuclear Cooling Water Systems

2820	Nuclear closed cooling water pumps
2821	Nuclear closed cooling water piping
2822	Nuclear closed cooling water valves
2823	Nuclear closed cooling heat exchanger
2825	Turbine building closed cooling water system
2829	Other closed cooling water system problems
2830	Nuclear service water pumps
2831	Nuclear service water piping
2832	Nuclear service water valves
2833	Nuclear service water heat exchangers
2839	Other service water problems

Auxiliary Systems (see codes 3110 to 3999 for other auxiliary systems)

2840	Auxiliary feedwater pumps
2841	Auxiliary feedwater pump motors
2842	Auxiliary feedwater pump steam turbines (including steam control valves)
2843	Auxiliary feedwater piping
2844	Auxiliary feedwater valves
2849	Other auxiliary feedwater problems
2870	Radioactive liquid waste system problems
2880	Radioactive gas and waste system problems
2890	Condenser off-gas system problems

Miscellaneous (Reactor)

2900	Reactor overhaul (use for non-specific overhaul only; see page B-1)
2990	Plant radiation levels
2991	Radioactivity discharge levels to the environment
2995	Reactor performance testing (use code 9999 for total unit performance testing)
2999	Other miscellaneous nuclear reactor problems

BALANCE OF PLANT

Condensing System

Condenser Tubes

- 3110 Condenser tube leaks
- 3111 Condenser tube fouling shell side
- 3112 Condenser tube fouling tube side
- 3113 Condenser tube and water box cleaning (including circulating water flow reversal)
- 3114 Air-cooled condenser tubes
- 3115 Air-cooled condenser pumps
- 3116 Air-cooled condenser fans
- 3117 Air-cooled condenser fan motors
- 3118 Other Air-cooled condenser problems
- 3119 Other condenser tube casing or shell and internal problems

Condenser Casing or Shell and Internals

- 3120 Tube sheets
- 3121 Expansion joint
- 3122 Gaskets and seals
- 3123 Hot well
- 3124 Tube sheet fouling
- 3129 Other condenser casing or shell and internal problems

Vacuum Equipment

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

Condenser Controls

- 3150 Hot well level controls
- 3151 Vacuum pump and air ejector controls
- 3152 Air-cooled condenser controls
- 3159 Other condensing system controls and instruments

Miscellaneous (Condensing System)

- 3170 Condenser inspection (use code 3110 to report looking for tube leaks)
- 3171 Air-cooled condenser inspections
- 3180 Major condenser overhaul
- 3185 Water side cathodic protection
- 3190 Air leakage (for losses not attributable to previously noted equipment related codes)
- 3199 Other miscellaneous condensing system problems

Circulating Water Systems

- 3210 Circulating water pumps
- 3211 Circulating water pump motors
- 3220 Circulating water piping
- 3221 Circulating water piping fouling
- 3230 Circulating water valves
- 3233 Circulating water priming system
- 3235 Cooling tower booster pump
- 3236 Cooling tower booster motor
- 3238 Cooling tower fan motors
- 3239 Cooling tower fan motors - variable speed
- 3240 Cooling tower fans
- 3241 Cooling tower efficiency below design
- 3242 Cooling tower fill damage
- 3243 Cooling tower icing
- 3244 Cooling tower fires
- 3245 Other cooling tower problems
- 3246 Cooling tower fouling
- 3247 Cooling tower instrumentation
- 3250 Circulating water system instruments and controls
- 3260 Traveling screens
- 3261 Traveling screen fouling
- 3269 Circulating water biological conditions (ie, zebra mussels)
- 3270 Intake system problems other than traveling screens
- 3271 Intake grating fouling
- 3272 Circulating water screenwash system
- 3273 Debris in circulating water from outside sources (leaves, mud, etc.)
- 3274 Ice blockages at intake structures including frazil ice, sheets, blocks of ice, etc.
- 3280 High circulating water temperature (not due to season, tower efficiency below design, or other listed equipment problem)
- 3281 Circulating water tempering system
- 3282 Circulating water cooling ponds
- 3285 Circulating water chemistry

Waste Water (zero discharge) Systems

- 3290 Waste water (zero discharge) tanks, pumps and motors
- 3291 Waste water (zero discharge) system fouling
- 3292 Waste water (zero discharge) piping
- 3293 Waste water (zero discharge) valves
- 3294 Waste water (zero discharge) controls and instrumentation
- 3295 Other waste water (zero discharge) problems
- 3299 Other circulating water system problems

Condensate System**Pumps, Piping, and Valves**

- 3300 Condensate water pre-treatment
- 3310 Condensate/hotwell pumps
- 3311 Condensate/hotwell pump motor
- 3312 Condensate booster pump
- 3313 Condensate booster pump motor
- 3314 Condensate booster pump motor - variable speed
- 3315 Condensate booster pump drive (other than 3313 and 3314)
- 3320 Condensate piping
- 3330 Condensate valves

Low/Intermediate Pressure Heater and Deaerators

- 3339 LP heater head leaks
- 3340 LP heater tube leaks
- 3341 Other LP heater – general
- 3342 IP heater tube leaks
- 3343 Other IP heater – general
- 3344 Deaerator (including level control)
- 3345 IP heater head leaks

Polishers/Chemical Addition

- 3350 Condensate polishing and filtering systems
- 3351 Chemical addition systems
- 3352 Feedwater chemistry (not specific to condenser, polishers, or chemical addition)

Miscellaneous (Condensate System)

- 3360 Condensate makeup and return (including storage tanks)
- 3370 Condensate system controls and instrumentation (not hotwell level, heater level, or deaerator level controls: see codes 3150-3159, 3344, 3502).
- 3380 Condensate coolers
- 3399 Other miscellaneous condensate system problems

Feedwater System (excluding extraction or drain systems)

3401	Startup feedwater pump
3402	Startup feedwater pump drives - all types
3407	Feedwater pump suction screens
3408	Feedwater pump drive – local controls
3409	Feedwater pump drive motor - variable speed
3410	Feedwater pump
3411	Feedwater pump drive - motor
3412	Feedwater pump drive - steam turbine
3413	Feedwater pump coupling and drive shaft
3414	Feedwater pump local controls
3415	Feedwater pump/drive lube oil system
3416	Other feedwater pump problems
3417	Feedwater pump drive - main shaft
3418	Feedwater pump drive - other
3419	Feedwater pump drive - gear
3420	Feedwater piping and supports
3430	Feedwater regulating (boiler level control) valve
3431	Other feedwater valves
3439	HP heater head leaks
3440	High pressure heater tube leaks
3441	Other high pressure heater problems (see condensate system for LP and IP heater codes)
3451	Feedwater booster pump suction screens
3452	Feedwater booster pump drive - local controls
3453	Feedwater booster pump drive motor - variable speed
3454	Feedwater booster pump
3455	Feedwater booster pump drive - motor
3456	Feedwater booster pump drive - steam turbine
3457	Feedwater booster pump coupling and drive shaft
3458	Feedwater booster pump local controls
3459	Feedwater booster pump/drive lube oil system
3460	Other feedwater booster pump problems
3461	Feedwater booster pump drive - main shaft
3462	Feedwater booster pump drive - other
3463	Feedwater booster pump drive - gear
3499	Other feedwater system problems

Heater Drain Systems

3501	Heater drain pumps
3502	Heater level control
3503	Heater drain piping
3504	Heater drain valves
3505	Heater drain pump drive
3509	Other heater drain system problems

Extraction Steam

3520	HP Extraction steam piping
3521	HP Extraction steam valves
3522	HP Extraction steam instruments and controls
3529	Other HP extraction steam system problems
3530	IP Extraction steam piping
3531	IP Extraction steam valves
3532	IP Extraction steam instruments and controls
3539	Other IP extraction steam system problems
3540	LP Extraction steam piping
3541	LP Extraction steam valves
3542	LP Extraction steam instruments and controls
3549	Other LP extraction steam system problems

Electrical (excluding nuclear safety (Class 1E) systems)

3600	Switchyard transformers and associated cooling systems – external (OMC)
3601	Switchyard transformers and associated cooling systems – external (not OMC)
3610	Switchyard circuit breakers – external (not OMC)
3611	Switchyard circuit breakers – external (OMC)
3612	Switchyard system protection devices – external (OMC)
3613	Switchyard system protection devices – external (not OMC)
3618	Other switchyard equipment – external (not OMC)
3619	Other switchyard equipment – external (OMC)
3620	Main transformer
3621	Unit auxiliaries transformer
3622	Station service startup transformer
3623	Auxiliary generators
3624	Auxiliary generator voltage supply system
3629	Other switchyard or high voltage system problems - external
3630	400-700-volt transformers
3631	400-700-volt circuit breakers
3632	400-700-volt conductors and buses
3633	400-700-volt insulators
3634	400-700-volt protection devices
3639	Other 400-700-volt problems
3640	AC instrument power transformers
3641	AC Circuit breakers
3642	AC Conductors and buses
3643	AC Inverters
3644	AC Protection devices
3649	Other AC instrument power problems
3650	DC instrument power battery chargers
3651	DC circuit breakers
3652	DC conductors and buses
3653	DC protection devices
3659	Other DC power problems

Electrical (excluding nuclear safety (Class 1E) systems) (Continued)

3660	4000-7000-volt transformers
3661	4000-7000-volt circuit breakers
3662	4000-7000-volt conductors and buses
3663	4000-7000-volt insulators
3664	4000-7000-volt protection devices
3669	Other 4000-7000-volt problems
3670	12-15kV transformers
3671	12-15kV circuit breakers
3672	12-15kV conductors and buses
3673	12-15kV insulators
3674	12-15kV protection devices
3679	Other 12-15kV problems
3680	other voltage transformers
3681	other voltage circuit breakers
3682	other voltage conductors and buses
3683	other voltage insulators
3684	other voltage protection devices
3689	Other voltage problems
3690	Station Service Power Distribution System, General

Power Station Switchyard

3700	Powerhouse switchyard (non generating unit equipment)
3710	Transmission line (connected to powerhouse switchyard to 1st Substation)
3720	Transmission equipment at the 1st substation (see code 9300 if applicable)
3730	Transmission equipment beyond the 1st substation (see code 9300 if applicable)

Auxiliary Systems**Open Cooling Water System**

3800	Open cooling water pumps and motors
3801	Open cooling water piping
3802	Open cooling water valves
3803	Open cooling water heat exchangers
3804	Open cooling water system fouling
3805	Open cooling water system instrumentation
3806	Open cooling water strainer
3809	Other open cooling water problems

Service Water (Open System)

3810	Service water pumps and motors
3811	Service water piping
3812	Service water valves
3813	Service water heat exchangers
3814	Service water system fouling
3815	Service water strainer
3819	Other service water problems

Closed Cooling Water Systems

- 3820 Closed cooling water pumps
- 3821 Closed cooling water piping
- 3822 Closed cooling water valves
- 3823 Closed cooling water heat exchangers
- 3824 Closed cooling water system fouling
- 3825 Closed cooling water instrumentation
- 3826 Closed cooling water strainer
- 3829 Other closed cooling water system problems

Auxiliary Steam

- 3830 Auxiliary boiler
- 3831 Auxiliary steam piping
- 3832 Auxiliary steam valves
- 3833 Auxiliary steam controls and instruments
- 3834 Auxiliary boiler tube leaks
- 3835 Auxiliary boiler burner management system
- 3836 Steam transfer to other unit
- 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)

Service Air

- 3840 Service air compressors
- 3841 Service air piping
- 3842 Service air valves
- 3843 Service air dryers
- 3849 Other service air problems

Instrument Air

- 3850 Instrument air compressors
- 3851 Instrument air piping
- 3852 Instrument air valves
- 3853 Instrument air dryers
- 3854 N₂ backup to instrument air
- 3859 Other instrument air problems

Fire Protection System

- 3860 Fire protection system pumps
- 3861 Fire protection system piping
- 3862 Fire protection system valves
- 3863 Fire protection system fouling
- 3864 Fire protection system instrumentation and controls
- 3869 Other fire protection system problems

Seal Air System

- 3880 Seal air fan
- 3881 Seal air fan drive - motor
- 3882 Seal air control dampers and drives
- 3883 Seal air filters
- 3889 Other seal air fan system problems

Miscellaneous (Auxiliary Systems)

- 3898 Miscellaneous plant auxiliary process and services instrumentation and controls
- 3899 Other miscellaneous auxiliary system problems

Miscellaneous (Balance of Plant)

- 3950 Process computer
- 3960 Thermal derating (thermal efficiency losses in balance of plant when specific cause(s) unknown)
- 3970 Distributive Control System (DCS) – process computer
- 3971 DCS – data highway
- 3972 DCS – hardware problems (including card failure)
- 3973 DCS – internal and termination wiring
- 3974 DCS – logic problems
- 3975 DCS – upgrades
- 3979 Other DCS problems
- 3980 Programmable Logic Controller (PLC)
- 3981 PLC – data highway
- 3982 PLC – hardware problems (including card failure)
- 3983 PLC – internal and termination wiring
- 3984 PLC – logic problems
- 3985 PLC – upgrades
- 3989 Other PLC problems
- 3995 Powerhouse heating and ventilating systems
- 3996 Air conditioning systems – rooms and areas
- 3999 Other miscellaneous balance of plant problems

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.

High Pressure Turbine

4000	Outer casing
4001	Inner casing
4009	Nozzle bolting
4010	Nozzles and nozzle blocks
4011	Diaphragms
4012	Buckets or blades
4013	Diaphragms unit and shroud type
4014	Bucket or blade fouling
4015	Wheels or spindles
4020	Shaft seals
4021	Dummy rings
4022	Gland rings
4030	Rotor shaft
4040	Bearings
4041	Thrust bearings
4099	Other high pressure turbine problems

Intermediate Pressure Turbine

4100	Outer casing
4101	Inner casing
4109	Nozzle bolting
4110	Nozzles and nozzle blocks
4111	Diaphragms
4112	Buckets or blades
4113	Bucket or blade fouling
4115	Wheels or spindles
4120	Shaft seals
4121	Dummy rings
4122	Gland rings
4130	Rotor shaft
4140	Bearings
4141	Thrust bearings
4199	Other intermediate pressure turbine problems

Low Pressure Turbine

4200	Outer casing
4201	Inner casing
4209	Nozzle bolting

Low Pressure Turbine (Continued)

4210	Nozzles and nozzle blocks
4211	Diaphragms
4212	Buckets or blades
4213	Bucket or blade fouling
4215	Wheels or spindles
4220	Shaft seals
4221	Dummy rings
4222	Gland rings
4230	Rotor shaft
4240	Bearings
4241	Thrust bearings
4250	Other low pressure turbine problems

Valves

4260	Main stop valves
4261	Control valves
4262	Intercept valves
4263	Reheat stop valves
4264	Combined intercept valves
4265	Miscellaneous drain and vent valves
4266	Main stop valve testing
4267	Control valve testing
4268	Reheat/intercept valve testing
4269	Other turbine valves

Piping

4270	Crossover or under piping
4279	Miscellaneous turbine piping

Lube Oil (do not include bearing failures due to lube oil)

4280	Lube oil pumps
4281	Lube oil coolers
4282	Lube oil conditioners
4283	Lube oil system valves and piping
4284	Lube oil pump drive
4289	Other lube oil system problems

Controls

4290	Hydraulic system pumps
4291	Hydraulic system coolers
4292	Hydraulic system filters
4293	Hydraulic system pipes and valves
4299	Other hydraulic system problems
4300	Turbine supervisory system (use codes 4290 to 4299 for hydraulic oil)

Controls (Continued)

- 4301 Turbine governing system
- 4302 Turbine trip devices (including instruments)
- 4303 Exhaust hood and spray controls
- 4304 Automatic turbine control systems - mechanical
- 4305 Automatic turbine control systems - mechanical - hydraulic
- 4306 Automatic turbine control systems - electro-hydraulic - analog
- 4307 Automatic turbine control systems - electro-hydraulic - digital
- 4308 Automatic turbine control systems - digital control and monitoring
- 4309 Other turbine instrument and control problems
- 4310 Steam Turbine Control System - data highway
- 4311 Steam Turbine Control System - hardware problems (including card failure)
- 4312 Steam Turbine Control System - internal and termination wiring
- 4313 Steam Turbine Control System - logic problems
- 4314 Steam Turbine Control System - upgrades

Miscellaneous (Steam Turbine)

- 4400 Major turbine overhaul (720 hours or longer) (use for non-specific overhaul only; see page B-1)
- 4401 Inspection
- 4402 Minor turbine overhaul (less than 720 hours) (use for non-specific overhaul only; see page B-1)
- 4410 Turning gear and motor
- 4411 Steam turbine gear box (single shaft configuration)
- 4412 Steam turbine clutch (single shaft configuration)
- 4415 Shaft coupling mechanism
- 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)
- 4430 Gland seal system
- 4440 Moisture separator/reheater (nuclear including MSR drains, controls, etc.)
- 4445 Steam reheater
- 4450 Water induction
- 4460 Turbine overspeed trip test
- 4470 Differential expansion
- 4490 Turbine performance testing (use code 9999 for total unit performance testing)
- 4499 Other miscellaneous steam turbine problems

GENERATOR

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

Generator

4500	Rotor windings
4510	Rotor collector rings
4511	Rotor, General
4520	Stator windings, bushings, and terminals
4530	Stator core iron
4535	Stator, General
4540	Brushes and brush rigging
4550	Generator bearings and lube oil system
4551	Generator bearings
4552	Generator lube oil system
4555	Bearing cooling system
4560	Generator vibration (excluding vibration due to failed bearing and other components)
4570	Generator casing
4580	Generator end bells and bolting

Exciter

4600	Exciter drive - motor
4601	Exciter field rheostat
4602	Exciter commutator and brushes
4603	Solid state exciter element
4604	Exciter drive - shaft
4605	Exciter transformer
4609	Other exciter problems

Cooling System (report failures caused by water leaks into generator as codes 4500, 4510, etc.)

4610	Hydrogen cooling system piping and valves
4611	Hydrogen coolers
4612	Hydrogen storage system
4613	Hydrogen seals
4619	Other hydrogen system problems
4620	Air cooling system
4630	Liquid cooling system
4640	Seal oil system and seals
4650	Other cooling system problems

Controls

- 4700 Generator voltage control
- 4710 Generator metering devices
- 4720 Generator synchronization equipment
- 4730 Generator current and potential transformers
- 4740 Emergency generator trip devices
- 4750 Other generator controls and metering problems

Miscellaneous (Generator)

- 4800 Generator main leads
- 4805 Generator Bus Duct Cooling System
- 4810 Generator output breaker
- 4830 Major generator overhaul (720 hours or longer) (use for non-specific overhaul only; see page B-1)
- 4831 Minor generator overhaul (less than 720 hours) (use for non-specific overhaul only; see page B-1)
- 4840 Inspection
- 4841 Generator dole testing
- 4842 Reactive and capability testing
- 4850 Core monitor alarm
- 4860 Generator neutral grounding equipment
- 4899 Other miscellaneous generator problems

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.

Catastrophe

9000	Flood
9010	Fire, not related to a specific component
9020	Lightning
9025	Geomagnetic disturbance
9030	Earthquake
9035	Hurricane
9036	Storms (ice, snow, etc)
9040	Other catastrophe

Economic

0000	Reserve shutdown
9110	Core coastdown (nuclear)
9120	Core conservation (nuclear)
9130	Lack of fuel (water from rivers or lakes, coal mines, gas lines, etc) where the operator is not in control of contracts, supply lines, or delivery of fuels
9131	Lack of fuel (interruptible supply of fuel part of fuel contract)
9134	Fuel conservation
9137	Ground water or other water supply problems
9150	Labor strikes company-wide problems or strikes outside the company's jurisdiction such as manufacturers (delaying repairs) or transportation (fuel supply) problems.
9151	Labor strikes direct plant management grievances that result in a walkout or strike are under plant management control.
9160	Other economic problems
9180	Economic (for internal use at plants only)
9181	Economic (for internal use at plants only)
9182	Economic (for internal use at plants only)
9183	Economic (for internal use at plants only)
9184	Economic (for internal use at plants only)
9185	Economic (for internal use at plants only)
9186	Economic (for internal use at plants only)
9187	Economic (for internal use at plants only)
9188	Economic (for internal use at plants only)
9189	Economic (for internal use at plants only)
9190	Economic (for internal use at plants only)
9191	Economic (for internal use at plants only)
9192	Economic (for internal use at plants only)
9193	Economic (for internal use at plants only)
9194	Economic (for internal use at plants only)
9195	Economic (for internal use at plants only)
9196	Economic (for internal use at plants only)
9197	Economic (for internal use at plants only)

Economic (Continued)

- 9198 Economic (for internal use at plants only)
- 9199 Economic (for internal use at plants only)

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)
- 9310 Operator training
- 9320 Other miscellaneous external problems
- 9340 Synchronous Condenser Operation

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.

Regulatory

- 9500 Regulatory (nuclear) proceedings and hearings - regulatory agency initiated
- 9502 Regulatory (nuclear) proceedings and hearings - intervener initiated
- 9504 Regulatory (environmental) proceedings and hearings - regulatory agency initiated
- 9506 Regulatory (environmental) proceedings and hearings - intervener initiated
- 9510 Plant modifications strictly for compliance with new or changed regulatory requirements (scrubbers, cooling towers, etc.)
- 9520 Oil spill in Gulf of Mexico (OMC)
- 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)

Other Operating Environmental Limitations

- 9660 Thermal discharge limits – fossil and nuclear
- 9670 Noise limits (not for personnel safety)
- 9680 Fish kill – fossil and nuclear
- 9690 Other miscellaneous operational environmental limits – fossil and nuclear

Safety

- 9700 OSHA-related retrofit or inspection
- 9710 Investigation of possible nuclear safety problems
- 9720 Other safety problems

PERSONNEL OR PROCEDURE ERRORS

- 9900 Operator error
- 9910 Maintenance personnel error
- 9920 Contractor error
- 9930 Operating procedure error
- 9940 Maintenance procedure error
- 9950 Contractor procedure error
- 9960 Staff shortage

INACTIVE STATES

- 0002 Inactive Reserve Shutdown
- 9990 Retired unit
- 9991 Mothballed unit

PERFORMANCE

- 9997 NERC Reliability Standard Requirement
- 9998 Black start testing
- 9999 Total unit performance testing (use appropriate codes for individual component testing)