

Events Involving Water Usage

<i>Date</i>	<i>Facility</i>		<i>Event Description</i>
20110618	Joseph M. Farley	Unit 2	The operators reduced the reactor power level to 70 percent due to a conductor fault in the breaker for circulating water pump 2A.
20110501	Salem	Unit 1	The operators reduced the reactor power level and manually tripped the generator to prevent marsh grass buildup at the intake structure from causing the circulating water pumps to be lost.
20110424	Salem	Unit 1	The operators manually tripped the generator and maintained the reactor critical to prevent marsh grass from building up at the intake structure and causing the circulating water pumps to be lost.
20110421	Salem	Unit 1	The reactor automatically tripped after marsh grass buildup at the intake structure caused all four circulating water pumps to be lost.
20110115	Palo Verde	Unit 3	The operators rapidly reduced the reactor power level to 40 percent in response to a circulating water system leak into the condenser.
20101129	Diablo Canyon	Unit 2	The operators reduced the reactor power level to 50 percent for circulating water tunnel cleaning.
20101128	Millstone	Unit 2	The reactor automatically tripped due to degrading condenser vacuum. Workers had manually tripped circulating water pump B for a scheduled backwash of a condenser waterbox. When operators closed the waterbox outlet valves, the circulating water pump was still coasting down. Protective interlocks sensed circulating water pump B running with the waterbox valves closed and tripped circulating water pump A by design. With no circulating water pumps running, condenser vacuum degraded to the reactor trip setpoint. Variable frequency drives had recently been installed on the circulating water pump motors, causing their coastdown times to lengthen. Operator training and procedures did not account for the longer coastdown time.
20101115	Turkey Point	Unit 3	The reactor automatically tripped due to packing failure on circulating water pump 3A2.
20101102	Diablo Canyon	Unit 2	The operators reduced the reactor power level to 28 percent due to forecasts of high ocean swells that could cause debris to load on the intake screens.
20101025	Diablo Canyon	Unit 2	The operators reduced the reactor power level to 50 percent for mid-cycle circulating water tunnel cleaning.
20100904	Peach Bottom	Unit 3	The operators reduced the reactor power level after circulating water pump 3A tripped unexpectedly.
20100900	Hope Creek	Unit 1	The operators reduced the reactor power level numerous times during the month due to high condenser backpressure caused by high river water temperature at the intake structure.
20100900	Limerick	Unit 2	The operators reduced the reactor power level numerous times during the month due to high river water temperature at the intake structure.
20100816	Braidwood	Unit 1	The reactor automatically tripped on low condenser vacuum after water intrusion caused a power outage that tripped circulating water pumps.

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20100813	Dresden	Unit 3	The operators reduced the reactor power level from 100 percent to 94 percent due to high condensate demineralizer temperatures. The high condensate system temperatures resulted from prolonged high water temperatures at the intake structure.
20100812	LaSalle County	Unit 1	The operators reduced the reactor power level to 72 percent due to high lake water temperature at the intake structure.
20100812	LaSalle County	Unit 2	The operators reduced the reactor power level to 78 percent due to high lake water temperature at the intake structure.
20100810	Hope Creek	Unit 1	The operators reduced the reactor power level from 95 percent to 88 percent due to high condenser backpressure caused by high river water temperature at the intake structure.
20100809	Hope Creek	Unit 1	The operators reduced the reactor power level to 91 percent due to high condenser backpressure caused by high river water temperature at the intake structure.
20100805	Hope Creek	Unit 1	The operators reduced the reactor power level from 95 percent to 90 percent due to high condenser backpressure caused by high river water temperature at the intake structure.
20100804	Hope Creek	Unit 1	The operators reduced the reactor power level from 94 percent to 89 percent due to high condenser backpressure caused by high river water temperature at the intake structure.
20100803	Hope Creek	Unit 1	The operators reduced the reactor power level to 94 percent due to high condenser backpressure caused by high river water temperature at the intake structure.
20100723	Peach Bottom	Unit 3	The operators reduced the reactor power level to 84 percent after circulating water pump 3A tripped unexpectedly.
20100716	Susquehanna	Unit 1	The operators manually scrammed the reactor after a circulating water system leak caused flooding in the turbine building.
20100711	Surry	Unit 2	The operators shut down the reactor to repair a leak in the circulating water system.
20100700	Edwin I. Hatch	Unit 1	The operators reduced the reactor power on numerous occasion during the month to maintain the condensate water temperature below 130F due to high river water temperature at the intake structure.
20100700	Limerick	Unit 2	The operators reduced the reactor power level numerous times during the month due to high river water temperature at the intake structure.
20100604	Hope Creek	Unit 1	The operators reduced the reactor power level to 32 percent to repair the motor generator set on recirculation pump A. During the power reduction, a circulating water pump tripped unexpectedly.
20100526	Dresden	Unit 2	The operators reduced the reactor power level to 97 percent for about 5 hours due to high intake temperature.
20100525	Dresden	Unit 3	The operators reduced the reactor power level to 92 percent due to high intake water temperature.
20100226	Millstone	Unit 2	The operators manually tripped the reactor when circulating water pump C tripped on high differential pressure across its traveling water screen at the intake structure. Circulating water pump D was already out of service for maintenance.

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20100222	Diablo Canyon	Unit 1	The operators reduced the reactor power level to 50 percent for the scheduled mid-cycle circulating water tunnel cleaning.
20100207	James A. FitzPatrick		The operators reduced the reactor power level to 62.5 percent due to ice buildup at the intake structure.
20100207	R. E. Ginna		The operators reduced the reactor power level to 88 percent due to icing problems at the intake structure.
20100119	Diablo Canyon	Unit 1	The operators reduced the reactor power level to less than 25 percent in anticipation of condenser backpressure problems caused by debris deposited on the intake screens from storm-induced large ocean swells.
20100119	Diablo Canyon	Unit 2	The operators reduced the reactor power level to below 25 percent in anticipation of condenser backpressure caused by debris collection on the intake screens from storm-induced large ocean swells.
20100115	Hope Creek	Unit 1	The operators manually scrammed the reactor at 8:00 pm to enter a planned maintenance outage for repairs to a circulating water discharge valve.
20100103	Salem	Unit 1	The operators reduced the reactor power level to 79 percent due to heavy icing at the intake structure.
20100103	Salem	Unit 2	The operators shut down the reactor due to heavy icing at the intake structure.
20091024	Hope Creek	Unit 1	The operators reduced the reactor power level to 99 percent due to condenser backpressure reaching the turbine design limit. Three of four circulating water pumps operating were unable to lower condenser vacuum.
20091020	Hope Creek	Unit 1	The operators reduced the reactor power level to 50 percent and took circulating water pump A out of service for repairs to its discharge valve. The operators returned the reactor power level to 100 percent late in the day.
20091015	Diablo Canyon	Unit 1	The operators reduced the reactor power level to 54 percent for cleaning of the circulating water system.
20091012	Arkansas Nuclear One	Unit 1	The operators reduced the reactor power level to 91 percent due to fish intrusion at the circulating water intake structure. The operators returned the reactor power level to 100 percent later the same day.
20090518	Prairie Island	Unit 1	The reactor automatically tripped when loss of circulating water pump 12 caused the turbine to trip on low condenser vacuum. Workers replaced the underground power cable to circulating water pump 12.
20090517	R. E. Ginna		The operators reduced the reactor power level to 57 percent after circulating water pump A failed. The power reduction was necessary to comply with state limits on Lake Ontario intake and discharge delta temperature.
20090401	St. Lucie	Unit 2	The operators manually tripped the reactor due to seagrass blocking the traveling screens at the intake structure.
20090310	Arkansas Nuclear One	Unit 2	The operators reduced the reactor power level to 85 percent to remove circulating water pump 2P-3B due to packing gland failure.
20090119	Peach Bottom	Unit 2	The operators returned circulating water pump 2C to service.
20090118	Peach Bottom	Unit 2	The operators reduced the reactor power level to 95 percent after circulating water pump 2C tripped.

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20090103	Susquehanna	Unit 1	The reactor power level automatically dropped from 100 percent to 79 percent due to a recirculation pump flow runback following a circulating water pump trip. The circulating water pump tripped as electrical maintenance workers performed a pre-job walkdown prior to jumper installation.
20081103	Susquehanna	Unit 2	The reactor power level automatically ran back to 72 percent when a circulating water pump tripped as operators attempted to restart circulating water pump C.
20081021	Diablo Canyon	Unit 1	The operators reduced the reactor power level due to a large accumulation of moon jellyfish on the intake structure traveling screens.
20081021	Diablo Canyon	Unit 2	The operators manually tripped the reactor due to a large accumulation of moon jellyfish on the intake structure traveling screens.
20081009	Millstone	Unit 2	The operators reduced the reactor power level to 93 percent for repairs to a circulating water pump education pipe.
20080910	Braidwood	Unit 1	Workers ended the week-plus circulating water pump cleaning activities at the intake structure required due to an infestation of Bryozoa.
20080910	Braidwood	Unit 2	Workers ended the week-plus circulating water pump cleaning activities at the intake structure required due to an infestation of Bryozoa.
20080903	Braidwood	Unit 1	An infestation of Bryozoa forced workers to rotate the out-of-serice circulating water pumps for cleaning operations at the intake structure.
20080903	Braidwood	Unit 2	An infestation of Bryozoa forced workers to rotate the out-of-serice circulating water pumps for cleaning operations at the intake structure.
20080708	Edwin I. Hatch	Unit 1	The operators reduced the reactor power level in response to decreasing condenser vacuum pressure and increasing circulating water differential temperature caused by high ambient temperature and a 12 mile per hour prevailing wind from the south.
20080512	Edwin I. Hatch	Unit 2	The operators suspended power ascension with the reactor operating at 53 percent power due to algae buildup on the cooling tower screens that impaired circulating water flows.
20080509	Salem	Unit 2	The operators manually tripped the reactor due to low water levels in the steam generators. The transient leading to this outcome was initiated when the turbine was shut down due to loss of all circulating water traveling screens at the intake structure.
20080124	Virgil C. Summer		The operators manually tripped the reactor due to decreasing water level in steam generator C. Workers determined that brass material from a check valve in the air supply line to the positioner unit for feedwater flow control valve C caused the flow control valve to fail. A few hours after the reactor trip, the upper motor bearing on circulating water pump B failed. The outage was extended for repairs to the circulating water pump.
20080103	Browns Ferry	Unit 2	The operators reduced the reactor power level from 100 percent to 50 percent in response to an alarm across high differential pressure across the traveling screens at the intake structure and indications of reducing condenser vacuum. Threadfin shad had been pulled into the traveling screens blocking the circulating water flow into the plant.

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20071219	Oyster Creek	The operators manually scrammed the reactor when a feedwater pump tripped on low suction pressure. The operators had reduced the reactor power level for maintenance on the recirculation pump motor-generator sets and to repair condenser tube leaks. A worker's error in the circulating water lineup to the condenser caused low suction pressure for the feedwater pump.
20071216	Millstone Unit 2	The operators reduced the reactor power level to 57 percent when debris blocking the traveling screens at the intake structure reduced the condenser vacuum.
20071117	James A. FitzPatrick	The operators reduced the reactor power level to 62 percent at 4:16 pm when high winds caused an influx of algae on the traveling screens at the intake structure.
20071028	James A. FitzPatrick	The operators manually scrammed the reactor at 12:58 am after high winds caused excessive building of organic material in the intake structure screens.
20071014	James A. FitzPatrick	The operators shut down the reactor with high winds caused an influx of algae that blocked the traveling screens at the intake structure.
20070913	Pilgrim Unit 1	The operators reduced the reactor power level to 46 percent after fish impingement on the intake traveling screens.
20070912	James A. FitzPatrick	Three hours and 59 minutes after the operators manually scrammed the reactor due to a circulating water system problem, an automatic scram signal on low water level in the reactor vessel occurred during the cool down due to sluggish feedwater control valve operation.
20070912	James A. FitzPatrick	The operators manually scrammed the reactor from 100 percent power after high winds caused excessive building of organic material in the intake structure screens.
20070823	Braidwood Unit 2	The operators manually tripped the reactor after high winds caused a momentary false high differential pressure across the intake structure screens, which tripped two circulating water pumps. The operators tripped the reactor due to decreasing condenser vacuum pressure.
20070801	Edwin I. Hatch Unit 2	The operators declared an Unusual Event due to a fire lasting 21 minutes in a pole-mounted transformer within the protected area that was extinguished by the plant's fire brigade. Workers believe a snake caused the transformer to arc and catch the wooden pole on fire. The helper cooling tower fans were lost momentarily. Operators reduced the reactor power level from 100 percent to 91 percent due to increasing circulating water temperature.
20070525	Wolf Creek Unit 1	The operators reduced the reactor power level from 100 percent to 90 percent after the auto transformer failed on the motor for circulating water pump A. The operators returned the reactor power level to 100 percent after the failed transformer was replaced.
20070430	Salem Unit 1	The operators manually tripped the reactor due to fewer than three circulating water pumps in service due to high river grass levels fouling the circulating water system screens.
20070424	Salem Unit 1	The operators manually tripped the reactor due to fewer than three circulating water pumps in service due to high river grass levels fouling the circulating water system screens.
20070422	Salem Unit 1	The operators reduced the reactor power level more than 20 percent when excessive river grass levels tripped circulating water pumps.

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20070416	Vermont Yankee		The operators reduced the reactor power level because river debris blocking the intake structure forced closed cycle operation.
20070402	Diablo Canyon	Unit 2	The operators reduced the reactor power level from 100 percent to 50 percent to clean the circulating water tunnel.
20061214	Diablo Canyon	Unit 2	The unit was connected to the electrical grid. Reactor power level was limited to 54 percent as repairs to the circulating water system continued.
20061212	Diablo Canyon	Unit 2	The reactor automatically tripped from 23 percent power due to an electrical fault on a 12 kV circulating water pump motor termination.
20061212	Diablo Canyon	Unit 2	The operators declared an Unusual Event after an electrical failure in the motor enclosure for circulating water pump 2-1.A caused an explosion. The electrical fault caused an electrical transient on 12 kilovolt bus D which caused the breakers to reactor coolant pumps 2-2 and 2-4 to trip, which in turn triggered an automatic reactor trip. The fire at the intake structure was put out in 34 minutes by the plant's fire brigade.
20061117	Susquehanna	Unit 1	The recirculation pumps automatically ran back to 48 percent speed reducing reactor power level to 74 percent after a cooling tower circulating water pump tripped. Approximately 1 hour and 20 minutes later, operators began increasing power. 100 percent power was attained about 1 hour and 15 minutes later.
20061028	Millstone	Unit 3	The operators reduced the reactor power level at 12:54 pm rapidly from 100 percent to 75 percent due to decreasing condenser vacuum caused by degraded intake conditions associated with severe weather. The operators dropped the reactor power from 75 percent to 61percent at 11:11 pm.
20060707	Calvert Cliffs	Unit 1	The operators rapidly reduced the reactor power level to 41 percent to maintain condenser vacuum after a large intrusion of jellyfish blocked the intake structure screens that required one circulating water pump to be tripped. The operators returned the reactor power level to 100 percent about 4 hours later.
20060303	James A. FitzPatrick		The operators reduced the reactor power level to 32 percent due to frazil ice buildup at the intake structure. The operators returned the reactor power level to 100 percent about 12 hours later.
20060300	Byron	Unit 1	Tritium was found in several of the six vacuum breaker vaults along the circulating water blowdown line.
20060000	Columbia Generating Station		Low levels of radioactive contamination were discovered along the circulating water blowdown line.
20051216	Millstone	Unit 3	The operators reduced the reactor power level to 50 percent power due to degrading conditions in the circulating water and service water intake building caused by a coastal storm.
20051213	Point Beach	Unit 1	The operators manually tripped the reactor due to coupling bolt failure on a circulating water pump.
20051203	Calvert Cliffs	Unit 1	Workers identified tritium in a shallow monitoring well onsite and traced its source to an eroded pipe in a sub-surface drainage system connected to the plant circulating water system, a normal discharge pathway for releases of radioactively contaminated water. The eroded pipe is a 2-inch diameter PVC pipe installed during initial construction of the facility to measure the depth of the water table.

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20051203	Calvert Cliffs	Unit 2	Workers identified tritium in a shallow monitoring well onsite and traced its source to an eroded pipe in a sub-surface drainage system connected to the plant circulating water system, a normal discharge pathway for releases of radioactively contaminated water. The eroded pipe is a 2-inch diameter PVC pipe installed during initial construction of the facility to measure the depth of the water table.
20051111	Waterford	Unit 3	The operators manually tripped the reactor after a relay failure led to the loss of all four circulating water pumps.
20051100	Browns Ferry	Unit 1	Tritium levels greater than baseline values were detected in an underground cable tunnel between the intake structure and the turbine building. Samples taken in January 2006 identified gamma emitters in addition to tritium (beta emitter).
20051100	Browns Ferry	Unit 2	Tritium levels greater than baseline values were detected in an underground cable tunnel between the intake structure and the turbine building. Samples taken in January 2006 identified gamma emitters in addition to tritium (beta emitter).
20051100	Browns Ferry	Unit 3	Tritium levels greater than baseline values were detected in an underground cable tunnel between the intake structure and the turbine building. Samples taken in January 2006 identified gamma emitters in addition to tritium (beta emitter).
20050929	Millstone	Unit 3	The operators manually tripped the reactor after two circulating water pumps tripped during severe weather. Management opted to transition from this forced outage into refueling outage 10 that had been scheduled to start on October 1, 2005.
20050912	Diablo Canyon	Unit 2	The operators reduced the reactor power level from 100 percent to 50 percent to clean the circulating water system.
20050806	Oyster Creek		An Alert was declared due to low level at the intake structure. Debris in the water collected on the trash racks causing a partial collapse of the grating on three trash racks. Operators reduced power to 44 percent power and turned off two of the circulating water pumps.
20050727	R. E. Ginna		The operators reduced the reactor power level and took the generator offline after an operator misaligned the steam generator blowdown system and allowed circulating water to enter the main condenser. Intrusion of lake water into the main condenser caused a water chemistry excursion that prompted the power reduction.
20050604	Diablo Canyon	Unit 1	The operators reduced the reactor power level from 100 percent to 50 percent to clean the circulating water system.
20050207	Diablo Canyon	Unit 1	The operators reduced the reactor power level from 100 percent to 50 percent to clean the circulating water system.
20050105	Diablo Canyon	Unit 1	The operators reduced the reactor power level from 100 percent to 50 percent to clean the circulating water system.
20040820	Diablo Canyon	Unit 2	The operators reduced the reactor power level from 100 percent to 50 percent to clean the condenser and circulating water pump forebay.
20040618	Diablo Canyon	Unit 2	The operators reduced the reactor power level to 50 percent power to clean tunnels in the circulating water system.
20040604	San Onofre	Unit 3	The operators manually tripped the reactor when a heavy influx of sea grass degraded circulating water pump suction.

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20040515	Point Beach	Unit 2	The operators manually tripped the reactor when a diver working at the intake structure in Lake Michigan was drawn in towards the circulating water pumps.
20040511	Palo Verde	Unit 3	The operators reduced the reactor power level to 40 percent to repair a circulating water leak on the C/D loop air vent.
20040216	James A. FitzPatrick		The operators reduced the reactor power level to remove circulating water pumps from service due to ice buildup on the intake bar racks. While at reduced power, the seal on feedwater pump A failed. The operators tripped the generator to remove steam from the system while the seal was replaced. The reactor remained critical.
20030918	Surry	Unit 1	The operators manually tripped the reactor at 5:28 pm after all circulating water pumps were lost.
20030918	Surry	Unit 2	The operators manually tripped the reactor at 5:32 pm after all circulating water pumps were lost. Management opted to transition from this forced outage into refueling outage. The refueling activities included replacement of the reactor vessel head.
20030800	Braidwood	Unit 1	Radioactively contaminated water leaked from vacuum breaker valve CW138 in the circulating water blowdown line.
20030800	Braidwood	Unit 2	Radioactively contaminated water leaked from vacuum breaker valve CW138 in the circulating water blowdown line.
20030627	Diablo Canyon	Unit 1	The operators reduced the reactor power level to 50 percent power to clean tunnels in the circulating water system.
20030426	H. B. Robinson	Unit 2	The operators declared an Unusual Event due to a fire lasting longer than 10 minutes. The fire was on the motor of circulating water pump B at the intake structure. The fire brigade responded and extinguished the fire in 37 minutes.
20030424	Donald C. Cook	Unit 1	An Alert was declared following the manual trip of both operating reactors. An influx of fish on the traveling screens at the intake structure for the circulating water system and the emergency service water system. Following the reactor trips, operators declared all of the emergency diesel generators inoperable due to reduced flows observed in the emergency service water (ESW) system.
20030424	Donald C. Cook	Unit 1	The operators manually tripped the reactor when a large influx of alewives at the intake structure caused a high differential pressure across the traveling screens.
20030424	Donald C. Cook	Unit 2	The operators manually tripped the reactor when a large influx of alewives at the intake structure caused a high differential pressure across the traveling screens. Management opted to transition into refueling outage
20030424	Donald C. Cook	Unit 2	An Alert was declared following the manual trip of both operating reactors. An influx of fish on the traveling screens at the intake structure for the circulating water system and the emergency service water system. Following the reactor trips, operators declared all of the emergency diesel generators inoperable due to reduced flows observed in the emergency service water (ESW) system.
20030113	Indian Point	Unit 3	The operators manually tripped the reactor due to high condenser differential pressure after circulating water pump 35 tripped while circulating water pump 36 was out of service for maintenance.

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20021116	South Texas Project	Unit 1	The operators manually tripped the reactor at 8:42 pm due to an indicated loss of all pressure in the open loop cooling water system. The pump casing on circulating water pump 11 failed due to a pressure spike when the pump discharge valve failed in the closed position.
20021108	Diablo Canyon	Unit 2	The operators manually tripped the reactor after high swells deposited debris on the traveling screens at the intake structure, prompting the operators to shut down the circulating water pumps, trip the turbine, and trip the reactor.
20021009	Seabrook	Unit 1	The operators declared an Unusual Event due to a fire lasting longer than 10 minutes. The fire started in the motor of circulating water pump B. The fire caused an electrical transient causing several radiation monitors to alarm. The fire brigade responded and put out the fire.
20021002	Fermi	Unit 2	The reactor automatically scrammed when the turbine tripped on low condenser vacuum after a circulating water pump failed.
20020728	Dresden	Unit 3	The operators returned the reactor power level to 100 percent following repairs to circulating water pump 3A.
20020727	Donald C. Cook	Unit 2	The operators manually tripped the reactor after the discharge valve on circulating water pump 23 closed.
20020726	Dresden	Unit 3	The operators reduced the reactor power level following failure of circulating water pump 3A.
20020618	Diablo Canyon	Unit 2	The operators reduced the reactor power level from 100 percent to 55 percent to clean circulating water tunnel 2-1 and repair leaking tubes in the main condenser.
20020303	Salem	Unit 1	The operators manually shut down the reactor for maintenance to circulating water pumps and traveling screens.
20020205	R. E. Ginna		The operators manually tripped the reactor at 9:11 am from 100 percent power when a dc field cable failure tripped circulating water pump A.
20011112	Diablo Canyon	Unit 1	The unit was connected to the electrical grid to end a short maintenance outage. The operators increased the reactor power level from 12 percent to 50 percent for continued maintenance on the circulating water system.
20011110	Diablo Canyon	Unit 1	The operators reduced the reactor power level to approximately 12 percent and took the main generator offline for maintenance on the generator and the circulating water system. The reactor power level was sustained at 12 percent power during the maintenance.
20010924	Salem	Unit 1	The operators manually tripped the reactor when loss of station power transformer #2 tripped the circulating water pumps.
20010629	Watts Bar	Unit 1	The operators manually tripped the reactor at 5:28 pm due to decreasing condenser vacuum. Workers discovered that circulating water flow had been reduced by cooling tower fill material breaking loose and blocking the flow path.
20010627	Point Beach	Unit 2	The operators manually tripped the reactor after an influx of alewife caused low water level in the intake pump bay.
20010617	San Onofre	Unit 2	The operators restarted circulating water pump P117 and returned the reactor power level to 100 percent.
20010615	San Onofre	Unit 2	The operators reduced the reactor power level to 84 percent after circulating water pump P117 tripped on overcurrent.

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20010602	Perry	Unit 1	The unit was connected to the electrical grid after a short maintenance outage during which the impellers and motors for all three circulating water pumps were replaced.
20010521	Perry	Unit 1	The operators manually scrammed the reactor when one of two operating circulating water pumps was lost due to a damaged impeller.
20010515	Perry	Unit 1	The unit was connected to the electrical grid to end a short maintenance outage. The reactor restarted with only two operating circulating water pumps, limited reactor power level to 70 percent.
20010507	Millstone	Unit 2	The operators manually tripped the reactor when circulating water pump "B" tripped when circulating water pump "A" was already out of service for maintenance.
20010429	Millstone	Unit 2	The reactor automatically tripped when the main turbine tripped due to high condenser backpressure. The condenser backpressure condition resulted from circulating water pump "C" tripped during restoration of circulating water pump "D" following maintenance.
20010301	South Texas Project	Unit 2	The operators manually tripped the reactor at 08:22 am when all three circulating water pumps tripped when switchyard breaker Y590 was opened in preparation for removing the north switchyard from service for maintenance.
20010100	Browns Ferry	Unit 3	Tritium levels greater than baseline values were detected in an onsite monitoring well west of the Unit 3 condenser circulating water conduit in the radwaste loading area.
20001223	Diablo Canyon	Unit 1	The operators restarted the circulating water pump and returned the reactor power level to 100 percent.
20001223	Diablo Canyon	Unit 2	The operators restarted the circulating water pump and returned the reactor power level to 100 percent.
20001223	San Onofre	Unit 2	The operators reduced the reactor power level to 80 percent after circulating water pump P118 tripped on motor overcurrent. Workers replaced the pump motor with one from Unit 3.
20001223	San Onofre	Unit 3	The operators reduced the reactor power level to 83 percent and removed circulating water pump P116 from service. The pump was removed and placed in service on Unit 2.
20001222	Diablo Canyon	Unit 1	The operators reduced the reactor power level to 50 percent in anticipation of high ocean swells. Wave-propelled debris accumulating at the intake structure caused the operators to trip one of two circulating water pumps and reduced the reactor power level to 25 percent.
20001222	Diablo Canyon	Unit 2	The operators reduced the reactor power level to 50 percent in anticipation of high ocean swells. Wave-propelled debris accumulating at the intake structure caused the operators to trip one of two circulating water pumps and reduced the reactor power level to 23 percent.
20001123	San Onofre	Unit 2	The operators reduced the reactor power level to 75 percent to repair a phase to ground fault on a circulating water pump motor. Workers disconnected the failed coil and jumpered it.
20001100	Braidwood	Unit 1	Radioactively contaminated water leaked from vacuum breaker valve CW557/58 in the circulating water blowdown line.
20001100	Braidwood	Unit 2	Radioactively contaminated water leaked from vacuum breaker valve CW557/58 in the circulating water blowdown line.

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20001027	Point Beach	Unit 1	The operators manually tripped the reactor when they turned off a circulating water pump out of safety concerns for a diver at the intake structure. The diver's handlers lost communications with the diver underwater and the operators tripped the circulating water pump as a safety precaution.
20001021	R. E. Ginna		The operators manually tripped the reactor from 70 percent power in response to circulating water pump B tripping.
20000914	Pilgrim	Unit 1	The operators reduced the reactor power level to 40 percent for condenser waterbox and intake structure cleaning.
20000906	Salem	Unit 1	The operators reduced the reactor power level to 43 percent to repair a traveling screen in the circulating water system.
20000816	St. Lucie	Unit 2	The operators reduced the reactor power level to 87 percent in response to seagrass accumulation on the traveling screens for circulating water pump 2A1. The operators later reduced the reactor power level to 56 percent to maintain condenser backpressure below 4.5 inches mercury.
20000815	St. Lucie	Unit 1	The operators reduced the reactor power level to 89 percent in response to seagrass accumulation on the traveling screens for circulating water pump 1B1.
20000811	Virgil C. Summer		The operators reduced the reactor power level to 99 percent due to high circulating water discharge temperature caused by high lake water temperature.
20000723	Oyster Creek		The operators reduced the reactor power level for 21 hours for repairs to a circulating water system pipe.
20000516	Peach Bottom	Unit 2	The operators increased the reactor power level to 85 percent during repairs to the circulating water system.
20000515	Peach Bottom	Unit 2	The operators reduced the reactor power level to 67 percent for replacement of the inlet screen to circulating water pump 2B.
20000507	Peach Bottom	Unit 2	The operators reduced the reactor power level to 90 percent and removed circulating water pump 2A from service due to a high temperatre alarm on its upper guide bearing.
20000213	Callaway	Unit 1	The reactor automatically tripped on low reactor coolant flow. An electrical grid disturbance caused reactor coolant pump B to trip on motor current imbalance. After the reactor trip, all three remaining reactor coolant pumps and all circulating water pumps automatically tripped on motor current imbalance. With the reactor coolant pumps not running, the pressurizer spray system was unavailable. The loss of the circulating water pumps eliminated use of the condenser as a heat sink. The operators established natural circulation cooling of the reactor core and used the atmospheric steam dump valves to control pressures. Both of the pressurizer power-operated relief valves opened to control primary side pressure.
20000212	R. E. Ginna		The operators reduced the reactor power level to 40 percent due to frazil ice buildup at the intake structure.
20000208	R. E. Ginna		The operators reduced the reactor power level to 40 percent due to frazil ice buildup at the intake structure.
20000130	Diablo Canyon	Unit 1	The operators reduced the reactor power level to 13 percent in anticipation of high ocean swells that could threaten the traveling screens at the intake structure.

<i>Date</i>	<i>Facility</i>		<i>Event Description</i>
20000130	Diablo Canyon	Unit 2	The operators reduced the reactor power level to 13 percent in anticipation of high ocean swells that could threaten the traveling screens at the intake structure.
20000121	Point Beach	Unit 1	The operators manually tripped the reactor due to low water level in the forebay caused by ice buildup at the intake structure.
19990615	Edwin I. Hatch	Unit 1	The operators manually scrammed the reactor from 41 percent power at 9:24 pm in anticipation of receiving an automatic scram signal on turbine trip from loss of condenser vacuum. The scram had complications. When the operators closed the main steam isolation valves to control pressure upon loss of condenser vacuum, the inboard MSIV on line B failed to close due to an ac solenoid valve which stuck in the energized position. In addition, after the suppression pool cooling mode of the residual heat removal system was placed in service to remove the heat load rejected to the suppression pool water from operation of the high pressure coolant injection system in pressure control mode, the control room received alarms of high water level in the reactor building sump. An equipment operator discovered that a 3/4-inch diameter vent line had broken at the weld attaching it to the residual heat removal service water system process piping. Workers determined that air trapped in the condenser waterboxes due to an inadequate continuous vent design coupled with reduced circulating water system flow due to lowering the flume level at the intake structure for chlorination activities caused condenser vacuum to degrade.
19990227	James A. FitzPatrick		Circulating water pump A tripped. The control room received indications of a fire in the pump's motor and dispatched the fire brigade. The operators reduced the reactor power from 100 percent to 65 percent due to loss of the circulating water pump. The fire brigade extinguished the fire in 8 minutes.
19990105	Prairie Island	Unit 1	The operators declared an Unusual Event due to the explosion of station auxiliary transformer 1M and resulting fire. The transformer fault caused an automatic trip of the reactor from 100 percent power. Reserve transformer 1R, adjacent to station auxiliary transformer 1M, was also lost due to its proximity to the explosion. The de-energized transformers caused the loss of non-safeguards buses 11, 12, 13, and 14 resulting in the loss of all condensate pumps, feedwater pumps, circulating water pumps, and reactor coolant pumps.
19981111	Millstone	Unit 3	The operators manually tripped the reactor from 89 percent power at 7:35 am due to high differential pressure between the A and B circulating water system condensers. Workers determined that high levels of debris collecting on the traveling screens due to severe weather caused the high differential pressure.
19981100	Braidwood	Unit 1	Radioactively contaminated water leaked from vacuum breaker valve CW060 in the circulating water blowdown line.
19981100	Braidwood	Unit 2	Radioactively contaminated water leaked from vacuum breaker valve CW060 in the circulating water blowdown line.
19970924	LaSalle County	Unit 1	NRC issues Information Notice 97-74 on inadequate oversight of contractors during sealant injection at the intake structure
19970924	LaSalle County	Unit 2	NRC issues Information Notice 97-74 on inadequate oversight of contractors during sealant injection at the intake structure

<i>Date</i>	<i>Facility</i>		<i>Event Description</i>
19970422	Edwin I. Hatch	Unit 2	The reactor automatically scrammed the reactor from 55 percent power at 7:07 pm on turbine stop and control valve fast closure when the turbine tripped on low condenser vacuum. Workers determined that the condenser vacuum problem was likely caused by condenser waterbox venting that was underway prior to the scram that could have allowed air to enter the system and degrade the performance of the circulating water pumps.
19970124	LaSalle County	Unit 1	NRC issues Notice of Violation and \$650,000 civil penalty for violations involving injection of sealant into the water intake structure during concrete repairs in May and Junr 1996
19970124	LaSalle County	Unit 2	NRC issues Notice of Violation and \$650,000 civil penalty for violations involving injection of sealant into the water intake structure during concrete repairs in May and Junr 1996
19970123	James A. FitzPatrick		The operators reduced the reactor power from 100 percent to 58 percent due to ice fouling on the circulating water intake screens. The operators manually scrammed the reactor from 58 percent when workers determined the screens to be damaged by the ice blockage.
19970118	Waterford	Unit 3	An Alert was declared due to a toxic chemical spill on the Mississippi River about 10 miles north of the plant. A tanker carrying pyrolysis gasoline ran around and began releasing the toxic chemical. Operators placed the control room ventilation system in recirculation mode. The Coast Guard informed the plant that about 100,000 gallons had been released into the river and was flowing towards the plant. Plant personnel estimated the chemical posed no problem to the 1,000,000 gallon per minute intake flow. The reactor remained at 100 percent power during the event.
19960523	Indian Point	Unit 2	The reactor automatically tripped when an incorrectly installed 6.9 kilovolt breaker failed, causing a circulating water pump to trip.
19960130	Wolf Creek	Unit 1	The operators manually tripped the reactor from 80 percent power due to frazile ice buildup at the intake structure.
19960130	Wolf Creek	Unit 1	At approximately 2:00 a.m., operators responded to alarms indicating that the traveling screens for the circulating water (CW) system were becoming blocked. Operators dispatched to the intake structure reported ice buildup against the screens and water levels in the pump bays about 8 feet below normal. The essential service water system (ESWS) was started, but an alignment error reduced the amount of warm water flowing to the ESWS pump bays. At around 3:30 a.m., operators received a service water low pressure alarm and the CW bays were about 12 feet below normal. Operators manually tripped the reactor. Five control rods failed to fully insert during the trip. Trip recovery was further complicated when the turbine drive auxiliary feedwater pump developed a packing leak that forced it to be removed from service. The ESWS "A" pump tripped at 7:47 a.m. due to low discharge pressure. At about 5:45 p.m., operators restarted the ESWS "A" pump after an engineering evaluation supported it being considered operable even with low water level in the pump bay. But operators manually tripped the ESWS "A" pump about 90 minutes later due to pump flow and pressure oscillations. At approximately 8:00 p.m., operators noted that the water level in the ESWS "B" pump bay was 15 feet below normal and decreasing. They placed additional heat loads on ESWS train "B" and the bay levels recovered. Operators restarted the ESWS "A" pump at 10:14 p.m. but secured it at 10:27 p.m. due to decreasing flow and pressure. On January 31, 1996, divers cleared the blocked traveling screens in the ESWS "A" pump bay using heat and air sparging.

<i>Date</i>	<i>Facility</i>		<i>Event Description</i>
19951221	Sequoyah	Unit 2	The reactor automatically tripped on low condenser vacuum after a switchyard fault caused three circulating water pumps to trip.
19951214	Diablo Canyon	Unit 2	The reactor was shut down when heavy Pacific Ocean swells dislodged large quantities of kelp that obstructed the seawater cooling system (intake structure).
19951213	Diablo Canyon	Unit 1	The operators manually tripped the reactor due to heavy kelp loading on the seawater cooling system (intake structure).
19951029	Dresden	Unit 3	The reactor was shut down due to high differential pressure across the circulating water inlet screens due to a large accumulation of debris.
19950923	Diablo Canyon	Unit 2	The reactor was shut down when heavy Pacific Ocean swells dislodged large quantities of kelp that obstructed the seawater cooling system (intake structure).
19950919	Crystal River	Unit 3	The operators reduced the reactor power level for repairs to the rubber lining on circulating water line FL-2D.
19950825	R. E. Ginna		The reactor was shut down after circulating water pump B tripped.
19950816	Callaway	Unit 1	The reactor automatically tripped on loss of condenser vacuum caused when circulating water pump A tripped due to a failed field excitation rheostat.
19950324	Edwin I. Hatch	Unit 2	The operators reduced the reactor power level due to decreasing condenser vacuum. Workers determined that fill material in the cooling tower had collapsed, clogging the screens in the circulating water system.
19941219	Diablo Canyon	Unit 2	The operators manually tripped the reactor due to high differential pressure across the circulating water traveling screens caused by kelp buildup.
19940625	Salem	Unit 2	The reactor was shut down due to feedwater pump problems. The outage was extended due to debris fouling at the circulating water intake structure.
19940624	Salem	Unit 1	The operators manually shut down the reactor for dredging operations around the circulating water intake structure.
19940415	Monticello		The reactor automatically scrambled on low condenser vacuum after high winds caused voltage fluctuations on the offsite power grid that tripped the circulating water pumps and the recirculation pumps.
19940407	Salem	Unit 1	Reactor shut down after marsh grass clogged the circulating water intake and a combination of several operator errors and equipment problems complicated the plant's response

<i>Date</i>	<i>Facility</i>		<i>Event Description</i>
19940407	Salem	Unit 1	Debris in the Delaware River clogged the intake structure and caused some of the circulating water pumps to trip. Operators reduced power from 75 percent power. Power dropped too far - below 10 percent power - so operators began withdrawing control rods to increase power level. When reactor power level reached 25 percent, the reactor protection system (RPS) initiated an automatic reactor trip and safety injection. At least two main steam isolation valves and two feedwater isolation valves failed to close as required. In addition, the main feedwater pumps failed to trip as required. The high head safety injection pumps took the reactor coolant system solid. The power-operated relief valves (PORVs) opened and discharged flow to the pressurizer relief tank. The blowout disc on the pressurizer relief tank blew. About 2 1/2 hours into the event, the licensee declared a discretionary Alert to man the technical support center with additional people.
19940204	Salem	Unit 1	The reactor was shut down due to circulating water pump problems.
19940204	Salem	Unit 2	The reactor was shut down due to circulating water pump problems.
19940120	R. E. Ginna		Operators reduced the reactor power level to 50 percent from 97 percent because of a low water level at the intake structure and the need to take a circulating water pump out of service as a compensatory measure. Frazil ice had built up and partially blocked flow into the intake structure. The water level inside the intake structure dropped nearly 9 feet below normal. Had it dropped another foot, the emergency service water (ESW) and fire water pumps would have lost suction and operators would have declared a Site Area Emergency per procedures.
19931225	Fermi	Unit 2	Reactor shut down when the 8th stage low pressure turbine blades catastrophically failed - reactor had been administratively limited to 93 percent power since early 1993 due to increased turbine vibrations. About 500,000 of water from the fire suppression systems and broken piping flooded six feet of the turbine building basement. Ejected parts of the turbine damaged condenser tubes and allowed circulating water to flood the condenser, which backwashed to the Condensate Storage Tank. High chloride water from the CST found its way to the reactor vessel and damaged in-core nuclear instrumentation.
19930922	St. Lucie	Unit 1	The operators manually tripped the reactor during startup to prevent equipment damage from jellyfish intrusion at the intake structure.
19930918	St. Lucie	Unit 1	The operators manually tripped the reactor to prevent equipment damage from jellyfish intrusion at the intake structure.
19930710	Dresden	Unit 3	The reactor automatically scrammed on low condenser vacuum due to a circulating water system flow reversal with a small margin to condenser vacuum alarms and trips.
19930608	Salem	Unit 1	The reactor automatically tripped from 85 percent power when the turbine tripped on low condenser vacuum due to circulating water problems. The operators had reduced the reactor power level to support diver cleaning of the circulating water system. Debris accumulation on the traveling screens combined with failure to modify the trash rake to close a past corrective action request caused the problem.
19930322	James A. FitzPatrick		During a startup with the reactor power level at 10 percent, floating ice was drawn into the intake structure causing high differential pressure across the traveling screen. The operators stopped one circulating water system pump to reduce the ice buildup.

<i>Date</i>	<i>Facility</i>	<i>Event Description</i>
19930313	James A. FitzPatrick	With the reactor shut down, gale force winds and 15-foot waves in the lake drove ice onto the traveling screens and trash rakes at the intake structure. Operators broke up the ice using a trash rake.
19930225	James A. FitzPatrick	The reactor was manually scrammed after an operator noticed that the water level in the intake structure screenwell was about 10 feet below normal. Ice had partially blocked the intake structure bar racks. The outage was extended for repairs to the seal of recirculation pump B.
19930225	James A. FitzPatrick	To combat 11F air temperatures and 33F lake temperatures, operators had aligned the circulating water discharge path to mix portions with the incoming lake water and had 80 of 88 intake bar rack heaters operating. Despite these measures, frazil ice built up around the bar racks with the result that water level inside the screenhouse forebay dropped about 10 feet below normal. Operators reduced reactor power level to 70 percent and took one circulating water system pump out of service, but it was still necessary to manually scram the reactor.
19930124	Duane Arnold	The operators shut down the reactor for a planned outage to reconnect a circulating water pump.
19921224	Salem Unit 1	The reactor was shut down to clean debris from the circulating water intake structure.
19921213	Seabrook Unit 1	The operators manually tripped the reactor due to unavailability of two circulating water pumps.
19921113	Duane Arnold	The reactor automatically scrammed on low condenser vacuum. A shaft failed on a circulating water pump. The shaft failure allowed flow from the remaining circulating water pump to short cycle back to the pump pit and reduce flow to the condenser.
19921101	Kewaunee	The operators manually tripped the reactor when a buildup of debris on the traveling screens at the intake structure caused low water level in the forebay.
19920918	Three Mile Island Unit 1	The reactor automatically tripped on low condenser vacuum while isolaiton the condenser circulating water inlet waterbox. Three of six circulating water pumps tripped, causing the low condenser vacuum condition.
19920405	Millstone Unit 3	The operators manually tripped the reactor after the condensate pumps tripped on low level. High pressure in the condenser resulted from circulating water pump E tripped which performing a condenser thermal backflush with circulating water pump E offline.
19920221	Nine Mile Point Unit 1	During an outage, workers mistakenly closed all the gates to the service water system inlet bay. With one service water system and two circulating water system pumps still running, they "sucked" the water level in the inlet bay to drop below the minimum level. The plant was essentially isolated from its ultimate heat sink - the lake.
19920121	Salem Unit 1	The reactor was shut down due to loss of power to a circulating water pump.
19911224	Perry Unit 1	The NRC issued confirmatory action letter CAL-RIII-91-016 detailing steps CEI will take prior to and after restarting from the circulating water line rupture outage.

<i>Date</i>	<i>Facility</i>		<i>Event Description</i>
19911222	Perry	Unit 1	An Alert was declared due to a circulating water line break. The 36-inch diameter circulating water piping running from Lake Erie to the main feedwater pump turbine condensers catastrophically failed approximately 20 feet outside of the turbine building heater bay. The water flooded the turbine building and flowed through the floor drain system to also flood portions of the auxiliary building. Operators manually scrammed the reactor from 100 percent power and closed the main steam isolation valves (MSIVs). Operators maintained water level using the feedwater pumps and the reactor core isolation cooling (RCIC) system. Operators maintained reactor pressure between 500 and 600 pounds per square inch using the safety relief valves exhausting to the suppression pool. Operators used the residual heat removal (RHR) suppression pool cooling mode to maintain the suppression pool water temperature below 90F.
19911222	Perry	Unit 1	The operators manually scrammed the reactor from 73 percent power after a 36-inch diameter circulating water line ruptured outside the turbine building.
19911222	Perry	Unit 1	The operators manually scrammed the reactor when a 36-inch diameter circulating water pipe ruptured.
19911030	Pilgrim	Unit 1	The operators shut down the reactor when a severe storm blew seaweed into the intake structure, clogging the circulating water pumps, and causing a loss of condenser vacuum.
19911003	River Bend	Unit 1	The reactor startup was delayed by a leak in circulating water system pump that required the nuclear service water and circulating water systems to be isolated.
19910812	Crystal River	Unit 3	The operators reduced the reactor power level and took the generator offline for 38.2 hours due to grass fouling of the intake structure trash bar racks and traveling screens.
19910709	Millstone	Unit 1	The NRC proposed a \$50,000 fine for the October 4, 1990, storm event in which the shift supervisor violated plant procedures by tripped only two of the four circulating water pumps upon indications of high difference pressure across the traveling screens. The shift supervisor contended he violated procedures because he did not believe the two indications were accurate. The high differential pressure caused three screens to partially collapse allowing seaweed to enter the intake bay and clog a service water strainer.
19910522	Nine Mile Point	Unit 1	The NRC issued a notice of violation and proposed civil penalty of \$200,000 for inadequate maintenance procedures that resulted in a stuck gate at the intake pump screenhouse from disabling the emergency service water system.
19910420	Crystal River	Unit 3	The operators manually tripped the reactor. Circulating water pump 1A had tripped during a storm, causing a loss of secondary service water cooling. The main generator gas temperature increased until the turbine automatically tripped. The emergency feedwater system actuated, at which time the operators manually tripped the reactor.
19901227	Indian Point	Unit 3	The operators manually tripped the reactor when all the circulating water pumps tripped due to a fault of the bus No. 312 transformer.
19901019	James A. FitzPatrick		The reactor was manually scrammed from 45 percent power when lake debris collected on the circulating water traveling screens faster than it could be cleaned by the screen wash system.

<i>Date</i>	<i>Facility</i>	<i>Unit</i>	<i>Event Description</i>
19901004	Millstone	Unit 1	The reactor was manually scrammed from 45 percent power when seaweed driven by storm winds collected on the circulating water traveling screens faster than it could be cleaned by the screen wash system.
19900928	Arkansas Nuclear One	Unit 2	The reactor was shut down when the turbine tripped due to loss of condenser vacuum when the motor-operated discharge valve on a circulating water pump failed to shut. Workers found that a set screw backed out and released the key on the valve's pinion gear.
19900928	Arkansas Nuclear One	Unit 2	The reactor tripped at 9:43 pm after the turbine tripped on low condenser vacuum. The operators had reduced the reactor power level to allow cleaning of the condenser waterboxes. The operators tripped a circulating water pump to perform the condenser waterbox cleaning. When the circulating water pump's discharge valve failed to close after it was tripped, allowing condenser vacuum to be lost.
19900924	Trojan		The reactor was shut down to repair condenser tube failure caused by circulating water contamination. The restart was delayed due to generator output breaker problems.
19900625	Oyster Creek		The reactor automatically scrammed on low condenser vacuum caused by loss of circulating water flow when backwash valve V-3-18 failed to open during condenser backwashing.
19900617	Duane Arnold		The operators reduced the reactor power level to 60 percent after water leaked in through the hatch in the intake structure roof during heavy rain and caused circulating water pump B to trip.
19900510	Millstone	Unit 3	The operators manually tripped the reactor after circulating water pump B tripped.
19900416	Millstone	Unit 3	The operators manually tripped the reactor after circulating water pump B tripped on high differential level at the intake structure.
19900330	Millstone	Unit 3	The operators manually tripped the reactor after circulating water pumps A and B tripped on high differential level at the intake structure.
19890828	Diablo Canyon	Unit 2	The operators manually tripped the reactor from 100 percent power at 10:57 pm in response to an electrical fault on the motor for reactor coolant pump 2-1. The fault caused electrical ground alarms for that pump, circulating water pumps 2-1 and 2-2, and the auxiliary transformer. Fire watch personnel informed the operators that the fire detectors for the vault housing reactor coolant pump 2-1 had alarmed. The operators observed elevated fluctuating motor current on reactor coolant pump 2-1 and manually tripped the reactor. The reactor experienced a higher than normal reactor coolant system cooldown following the reactor trip due to the loss of one reactor coolant pump and inability to relatch the turbine. Relatching the turbine is necessary to isolate a direct path for steam flow from the main steam header to the condenser. A locked-in turbine trip signal from the Anticipated Transient Without Scram Mitigation System Actuation Circuitry (AMSAC). Workers attributed the reactor coolant pump's electrical fault to the failure of the factory-installed bolted 12 kilovolt phase A termination on the stationary bushing. The bolted connection itself was destroyed during the event, but examination of the identical connection on the C phase showed the connection beginning to loosen, which left uncorrected would ultimately lead to electrical fault failure.
19890809	Alvin W. Vogtle	Unit 1	An area operator on rounds noted excessive vibration in circulating water pump P4. The pump was removed from service. Workers found a plastic chemical drum in the impeller which damaged the upper and lower stuffing box bearing, middle shaft bearing, and impeller bearings.

<i>Date</i>	<i>Facility</i>		<i>Event Description</i>
19890717	Turkey Point	Unit 4	The reactor was shut down to repair an intake coolign water valve.
19890716	Diablo Canyon	Unit 2	The operators manually tripped the reactor from 27 percent power in response to a high cation conductivity alarm. The reactor power level had been reduced to 50 percent power to clean condenser tube sheets. When circulating water pump 2-1 was restarted, high conductivity at the discharge of the condensate pumps was alarmed. Workers attributed the high conductivity to failure of a condenser tube plug that allowed intrusion of sea water.
19890610	Salem	Unit 2	The operators manually tripped the reactor from 15 percent power after five of the six circulating water pumps tripped on high differential pressure across their traveling screens at the intake due to accumulating of marsh grass. The transient started with the reactor at 100 percent power. The operators initiated a power runback in response to a "screenwash trouble" alarm on high differential level across the traveling screens. Five minutes later, five of the six circulating water pumps tripped. The operators tripped the turbine at 48 percent power. The turbine bypass valves opened, but the condenser backpressure increased to the point where the steam dump valves closed. The operators then tripped the reactor.
19890610	Salem	Unit 2	The reactor automatically tripped when grass and debris in the river clogged the screens at the intake structure and caused five circulating water pumps to trip.
19890607	St. Lucie	Unit 1	A scuba diver was drawn into an intake pipe and carried about 500 meters in 4 minues. He surfaced in the intake canal where he was spotted by a security guard.
19890506	Millstone	Unit 3	The operators manually tripped the reactor from 90 percent power at 8:10 am in response to the traveling screens at the intake structure fouling by large amounts of seaweed.
19890329	Susquehanna	Unit 1	The operators manually shut down the reactor due to a leaking circulating water expansion joint. The company opted to transition into refueling outage 4.
19890222	St. Lucie	Unit 2	Operator errors caused the spent fuel pool water level to rise high enough to overflow and flood the intake ventilation ducts lining the perimeter of the pool. The flood into the ductwork disabled the safety-related portion of the fuel handling building ventilation system.
19881209	South Texas Project	Unit 2	A contract worker was electrocuted and killed when the truck lift boom he was raising came into contact with a 13.8 kilovolt transmission line. Workers at a site water well about 2 miles southwest of Unit 2 were cleaning the well intake screen.
19881102	Nine Mile Point	Unit 2	Acid was inadvertently introduced to the condenser tubes. The acid interacting with the brass Admiral 70 tubes released copper into the circulating water system and increased the dissolved copper level above acceptable levels. The reactor remained shut down an additional 199 hours as water chemistry was returned to acceptable limits.
19880927	Haddam Neck		The operators reduced the reactor power level to 65 percent after the shaft of a circulating water pump failed.

<i>Date</i>	<i>Facility</i>		<i>Event Description</i>
19880805	Indian Point	Unit 2	The technical specification limit on service water inlet temperature (85F) was violated following hot weather conditions and an inverse tide condition that brought the Unit 3 discharge to the Unit 2 intake. The company submitted a license amendment request to the NRC seeking to delete the service water temperature limit. The NRC denied the request. The company submitted a license amendment request to the NRC seeking to revise the service water temperature limit from 85F to 90F. The NRC approved the amendment.
19880804	Indian Point	Unit 2	The technical specification limit on service water inlet temperature (85F) was violated following hot weather conditions and an inverse tide condition that brought the Unit 3 discharge to the Unit 2 intake.
19880803	Indian Point	Unit 2	The technical specification limit on service water inlet temperature (85F) was violated following hot weather conditions and an inverse tide condition that brought the Unit 3 discharge to the Unit 2 intake.
19880715	Brunswick	Unit 2	The operators reduced the reactor power level to 40 percent after shrimp clogged fine mesh screens at the intake structure.
19880712	Clinton	Unit 1	The operators manually scrammed the reactor from 100 percent power. A false indication of high water level in the condenser pit, caused by a level switch failure, caused all three circulating water pumps to trip. With condenser vacuum rapidly being lost and two unsuccessful attempts to restart a circulating water pump, the operators manually scrammed the reactor.
19880430	Hope Creek	Unit 1	The operators scrammed the reactor due to a loss of circulating water flow caused by a failed multiplexer between the control room and the circulating water building.
19880413	Millstone	Unit 3	The reactor automatically tripped due to loss of condenser vacuum when both circulating water pumps tripped.
19880404	Millstone	Unit 2	The reactor was shut down to enter a planned maintenance outage. Workers repaired a leaking reactor vessel o-ring. The control element drive mechanism cooler intakes were found clogged with boron deposits from an unknown source.
19880304	Quad Cities	Unit 2	The operators reduced the reactor power level due to cavitation of the circulating water pumps at the intake structure. Workers found the traveling screens not functioning due to sheared pins. The screens had become clogged with debris.
19880120	Grand Gulf	Unit 1	The reactor automatically scrammed from 97 percent power when the condensate and condensate booster pumps tripped on low water level in the condenser hotwell. A condenser circulating water manway cover leaked and sprayed water onto the hotwell level switches, causing a false signal of low water level.
19880116	Catawba	Unit 1	The reactor was shut down due to a significant leak of water from circulating water system piping.
19880108	North Anna	Unit 1	The operators tripped the reactor when the circulating water pumps tripped.
19870716	Monticello		The reactor automatically scrammed from 100 percent power on low condenser vacuum. After a substation transformer phase conductor broke free, it caused a phase-to-phase fault that led to an undervoltage condition in the plant's electrical distribution system. The recirculation pumps, circulating water pumps, and a cooling tower pump tripped. The loss of the circulating water pumps caused condenser vacuum to degrade, causing the reactor scram.

<i>Date</i>	<i>Facility</i>		<i>Event Description</i>
19870628	Palo Verde	Unit 1	The reactor was shut down after a condenser circulating water outlet valve failed closed and caused a circulating water pipe to rupture.
19870414	Shearon Harris	Unit 1	The operators manually tripped the reactor from 87 percent power due to loss of feedwater. Workers cleaning the circulating water pump suction screens stirred up debris that clogged flow through the condenser. The condensate water temperature increased to the setpoint that tripped both condensate pumps.
19870211	Nine Mile Point	Unit 1	The operators reduced the reactor power level to 80 percent for reversal of circulating water flow to handle icing in the intake tunnel.
19861002	Oconee	Unit 3	The reactor was shut down to support testing of the Unit 2 low pressure service water system. Air leakage combined with the circulating water structure, piping design, and low lake level, raised concerns about pump cavitation at all three units.
19861001	Oconee	Unit 2	With the unit in a refueling outage, operators conducted a test of the electrical load shed circuits. During the test, the two low pressure service water (LPSW) pumps began to cavitate and were stopped by the operators. The test was repeated with the same result. Subsequent investigation traced the problem to a design problem involving the siphon feed of water from the nearby lake to the pump intake. The same design problem existed on Units 1 and 3, which necessitated their shut down until the design could be corrected.
19860722	Edwin I. Hatch	Unit 2	The operators reduced the reactor power level to control condenser vacuum after circulating water pump 2B tripped due to a bearing failure.
19860627	Diablo Canyon	Unit 2	The reactor automatically tripped after a circulating water pump tripped due to a motor failure.
19860509	Millstone	Unit 3	The operators manually tripped the reactor when high differential pressure across the intake structure screens occurred during screen wash system modifications.
19860400	Byron	Unit 1	The circulating water blowdown line developed leaks on three separate locations. After the third leak, the fiberglass line was replaced with a steel pipe.
19860400	Byron	Unit 2	The circulating water blowdown line developed leaks on three separate locations. After the third leak, the fiberglass line was replaced with a steel pipe.
19860319	Millstone	Unit 3	The reactor automatically tripped on low water level in the steam generators. The day started with the reactor at 50 percent power. High winds forced the operators to reduce the reactor power level to 20 percent while debris was removed from the intake structure screens. Salt buildup on the main transformer insulators forced the operators to reduce the reactor power level to 5 percent. The reactor tripped from 5 percent.
19860317	Peach Bottom	Unit 2	The reactor was shut down when leaves and debris clogged the intake structure screens.
19860316	Peach Bottom	Unit 3	The reactor was shut down because the intake structure traveling screens became clogged.
19860216	San Onofre	Unit 3	The reactor was shut down when a storm deposited debris on the screens at the intake structure and both screen wash pumps failed. During the outage, workers found that the turbine rupture discs failed when the turbine exhaust hood overpressurized.

<i>Date</i>	<i>Facility</i>		<i>Event Description</i>
19860110	Crystal River	Unit 3	During the reactor shut down, two divers were cleaning and inspecting the intake structure. One diver made a final dive to verify completion of all tasks. When that diver failed to reappear, the second diver re-entered the water for a rescue. Supporting workers contacted the control room when the second worker got in trouble. The operators shut down all seawater pumps. Both divers died. The first diver had been drawn into the 48-inch diameter suction line to the emergency nuclear services and decay heat seawater system pumps, both of which were operating at the time. The diver's body was recovered in the auxiliary building.
19851202	Diablo Canyon	Unit 1	The reactor was shut down to clean the circulating water intake structure.
19851007	Wolf Creek	Unit 1	The operators manually tripped the reactor due to low circulating water flow caused by debris clogging the screens at the intake structure.
19850719	James A. FitzPatrick		The reactor automatically scrammed from 100 percent power when an operator error during the in-house transfer of electrical loads de-energized two 4 kilovolt buses. The loss of power tripped a circulating water pump. The loss of condenser vacuum caused the turbine to trip, which in turn caused an automatic reactor scram.
19850531	LaSalle County	Unit 1	With the reactor operating at 85 percent power, circulating water pump 1B tripped. An equipment operator dispatched to the pump house to investigate the cause of the trip discovered water flowing into the intake structure pump house from a rubber expansion joint between circulating water pump 1B and its discharge valve. The pump house flooded to a depth of 15 feet and stopped only when the pump house water level matched the lake level.
19850531	LaSalle County	Unit 2	With the reactor in cold shut down, circulating water pump 1B tripped. An equipment operator dispatched to the pump house to investigate the cause of the trip discovered water flowing into the pump house from a rubber expansion joint between circulating water pump 1B and its discharge valve. The pump house flooded to a depth of 15 feet and stopped only when the pump house water level matched the lake level.
19850300	Turkey Point	Unit 3	The NRC proposed a \$25,000 civil penalty for having operated the reactor for more than five days in August 1984 without the intake cooling water system being fully operational. The company paid the fine.
19850211	Catawba	Unit 1	The reactor was shut down due to a 500 to 1000 gallon per minute leak in a circulating water pipe.
19841120	Calvert Cliffs	Unit 1	The operators manually tripped the reactor from 100 percent power due to an accumulation of dead fish on the circulating water intake screens. The fish had been killed by a large ambient temperature drop. Two minutes after the reactor trip, a steam pipe ruptured causing the main steam isolation valves to close. Subsequent investigation revealed the break to have occurred in the extraction steam line supply to a feedwater heater. A worker about 50 feet away from the break location suffered steam burns to his face and left hands, requiring hospitalization. A 30-inch long rupture in the piping occurred at an elbow where erosion thinned the pipe wall from 0.375 inches to razor thin thickness.

<i>Date</i>	<i>Facility</i>	<i>Event Description</i>
19841011	Trojan	Silt and debris kicked up by a passing cargo ship entered the platin via the intake structure and clogged the strainers on the service water system. The operators observed control room indications showing service water system Train A pressure to be 0 psig at the inlet to the component cooling water heat exchanger and 5 psig for Train B. The Train B pressure returned to normal in about 15 minutes. The operator manually tripped service water system booster pumps A and C about 20 minutes into the event after the C pump appeared to be cavitating. The service water system booster pumps were restarted about ten minutes later. As all this was happening, the cooling tower makeup pump tripped on low level in the discharge and dilution structure. The cooling tower makeup pump was restarted after the service water system was restored to normal.
19840831	St. Lucie Unit 1	The operators manually shut down the reactor due to excessive buildup of jellyfish on the intake structure traveling screens.
19840831	St. Lucie Unit 2	The operators manually shut down the reactor due to excessive buildup of jellyfish on the intake structure traveling screens.
19840828	Calvert Cliffs Unit 1	The reactor was shut down due to extreme fish impingement on the traveling screens at the intake structure.
19840809	Columbia Generating Station	The reactor automatically scrambled from 15 percent power on low water level in the reactor vessel. Preparing to roll the main turbine, an operator started the third circulating water pump. With the generator offline, the plant was being powered from the startup transformer which was heavily loaded. The 3,300 amp starting current for the circulating water pump coupled with the already heavy loading caused the voltage on the secondary side of the startup transformer to drop below the setpoint for second level (degraded) undervoltage protection. When voltage had not recovered within te 8 second delay for the undervoltage relays, load shedding was initiated. Among the loads de-energized was the operating feedwater pump, which tripped.
19840427	Quad Cities Unit 2	The reactor was shut down to repair the discharge valve on circulating water pump 2A.
19840125	St. Lucie Unit 2	The reactor was shut down when a large number of jellyfish clogged the screens at the intake structure.
19831225	Peach Bottom Unit 2	The reactor was shut down due to icing on the intake structure screens.
19830900	Calvert Cliffs Unit 1	The reactor was shut down due to clogged traveling screens at the intake structure.
19830811	Salem Unit 2	The reactor was shut down when grass and debris clogged the screens at the intake structure and reduced the circulating water system flow rate.
19830800	Calvert Cliffs Unit 1	The reactor was shut down due to clogged traveling screens at the intake structure.
19830730	Brunswick Unit 2	The reactor was shut down due to high leakage inside the drywell. Workers found and repaired packing leaks on vent valves in the high pressure coolant injection, reactor core isolation cooling, and core spray systems. The startup was delayed by sea grass clogging the intake structure.
19830628	Millstone Unit 3	A contractor discovered 8 safety-related and 12 non-safety-related electrical cables cut in the control building where a duct bank penetrates into the intake structure.

<i>Date</i>	<i>Facility</i>		<i>Event Description</i>
19830300	San Onofre	Unit 2	Radioactively contaminated water leaked from a hose connection on the recirculation line of a Unit 2 / Unit 3 refueling water storage tank onto the roof of the tank farm building. Roof drains carried the water into the storm drain system and then into the main circulating water outfall.
19830300	San Onofre	Unit 3	Radioactively contaminated water leaked from a hose connection on the recirculation line of a Unit 2 / Unit 3 refueling water storage tank onto the roof of the tank farm building. Roof drains carried the water into the storm drain system and then into the main circulating water outfall.
19830204	Quad Cities	Unit 2	The unit restarted from a circulating water pump outage.
19830128	Quad Cities	Unit 2	The reactor was shut down to repair the casing on circulating water pump 2C.
19820711	Palisades		The operators manually tripped the reactor after a cooling tower pump within the circulating water system had a bearing failure.
19820628	Brunswick	Unit 1	The reactor automatically scrammed as operators attempted to start circulating water pump 1A.
19820416	North Anna	Unit 1	The operators manually tripped the reactor due to loss of the circulating water pumps.
19820404	Millstone	Unit 2	The reactor automatically tripped from 100 percent power due to seaweed clogging the traveling screens at the instake structure and reducing circulating water system flow to the condenser.
19820204	Palisades		The reactor automatically tripped after the cooling tower pump within the circulating water system tripped.
19820111	Salem	Unit 2	The operators manually shut down the reactor due to high condenser back pressure caused by ice build-up on the circulating water traveling screens.
19810821	Pilgrim	Unit 1	The operators manually shut down the reactor due to mussels blocking the screens at the intake station.
19810810	Trojan		The reactor tripped after a circulating water tripped during troubleshooting, causing the turbine to trip on low condenser vacuum.
19810809	Trojan		The reactor tripped after a circulating water tripped on low lube oil pressure, causing the turbine to trip on low condenser vacuum.
19810804	Brunswick	Unit 2	The reactor automatically scrammed when an equipment operator opened the wrong circulating water valve.
19810529	North Anna	Unit 1	The NRC reported that insufficient compaction of foundation and backfill materials contributed to problems with settlement of the service water pumphouse (intake).
19810529	North Anna	Unit 2	The NRC reported that insufficient compaction of foundation and backfill materials contributed to problems with settlement of the service water pumphouse (intake).
19810529	Virgil C. Summer		The NRC reported that insufficient compaction of foundation and backfill materials contributed to problems with settlement of the service water pumphouse (intake).
19810402	North Anna	Unit 2	The operators manually shut down the reactor after de-energization of bus 2G caused loss of circulating water flow to the main condenser.

<i>Date</i>	<i>Facility</i>		<i>Event Description</i>
19810212	Brunswick	Unit 1	The reactor automatically scrambled on low condenser vacuum. Fish clogged the traveling screens at the intake structure, causing a loss of circulating water flow.
19800400	Indian Point	Unit 3	The reactor was shut down for 303 hours for replacement of bearings for the circulating water pumps.
19800307			The NRC issued Information Notice 80-08, "Possible Occupational Health Hazard Associated with Closed Cooling Systems for Operating Power Plants," about workers at Prairie Island detecting Naegleria in the closed cooling water system. The Minnesota Department of Health did not consider the organism to be a public health hazard, but recognized it posed an occupational health hazard. Workers were instructed to wear rubber gloves when coming in contact with the circulating water and to wear respirators when working near the cooling towers. A special test conducted in November 1979 by a scientist from Oak Ridge resulted in raising the chlorine concentrations to 2 milligram/liter to eradicate the organism.
19800307	Prairie Island	Unit 1	The NRC reported that workers had detected Naegleria in the closed cooling water system. The Minnesota Department of Health did not consider the organism to be a public health hazard, but recognized it posed an occupational health hazard. Workers were instructed to wear rubber gloves when coming in contact with the circulating water and to wear respirators when working near the cooling towers. A special test conducted in November 1979 by a scientist from Oak Ridge resulted in raising the chlorine concentrations to 2 milligram/liter to eradicate the organism.
19800307	Prairie Island	Unit 2	The NRC reported that workers had detected Naegleria in the closed cooling water system. The Minnesota Department of Health did not consider the organism to be a public health hazard, but recognized it posed an occupational health hazard. Workers were instructed to wear rubber gloves when coming in contact with the circulating water and to wear respirators when working near the cooling towers. A special test conducted in November 1979 by a scientist from Oak Ridge resulted in raising the chlorine concentrations to 2 milligram/liter to eradicate the organism.
19791025	Calvert Cliffs	Unit 1	The operators manually tripped the reactor following loss of a circulating water pump.
19790810	Calvert Cliffs	Unit 1	The reactor automatically tripped following loss of a circulating water pump.
19790731	Brunswick	Unit 2	The reactor automatically scrambled due to a turbine trip. A circulation water system pipe leak sprayed water onto a relay that tripped a circulating water intake pump. Decreasing condenser vacuum tripped the main turbine which in turn scrambled the reactor.
19790311	Kewaunee		The operators manually tripped the reactor due to ice blocking the circulating water inlet structure.
19790117	Crystal River	Unit 3	The operators manually tripped the reactor after a circulating water valve failing open flooded the basement of the turbine building.
19780716	Joseph M. Farley	Unit 1	The operators manually tripped the reactor after a circulating water pump tripped.
19780126	Joseph M. Farley	Unit 1	The reactor automatically tripped when the river water intake structure flooded.

<i>Date</i>	<i>Facility</i>		<i>Event Description</i>
19780111	Salem	Unit 1	The operators manually tripped the reactor when freezing water on the screens and low tide caused low suction pressure at the circulating water pumps.
19780110	Point Beach	Unit 2	The reactor automatically tripped after the circulating water crib froze due to severe weather.
19780104	Salem	Unit 1	The reactor automatically tripped when four circulating water pumps tripped on high screen differential pressure.
19771225	Dresden	Unit 1	The reactor automatically scrambled on low condenser vacuum when ice blocked the intake structure and reduced circulating water flow rate.
19771211	Palisades		The operators manually tripped the reactor when switchyard bus B de-energized due to a spurious signal from the bus stripping relay, causing the circulating water pumps to trip on loss of voltage. The switchyard problem and generator trip resulted in a loss of offsite power. Both emergency diesel generators automatically started and connected to their safety-related electrical buses.
19771125	Palisades		The operators manually tripped the reactor when switchyard bus B de-energized, causing the circulating water pumps to trip on loss of voltage. The switchyard problem and generator trip resulted in a loss of offsite power. Both emergency diesel generators automatically started and connected to their safety-related electrical buses.
19771009	Salem	Unit 1	Approximately 600 gallons of radioactively contaminated water were inadvertently pumped from a liquid waste tank into a circulating water discharge pipe instead of to a tanker truck.
19770711	Brunswick	Unit 2	The reactor automatically scrambled on low condenser vacuum caused by insufficient circulating water flow.
19770618	Donald C. Cook	Unit 1	The reactor automatically tripped as planned during circulating water pump trip tests.
19770203	Brunswick	Unit 1	The reactor automatically scrambled on low condenser vacuum when instrument and control (I&C) technicians caused a power supply failure that stopped lubricating water flow to the circulating water pumps which caused them to trip.
19770117	Surry	Unit 2	The operators manually shut down the reactor due to ice buildup at the intake structure and decreasing canal level.
19761226	Indian Point	Unit 2	The operators manually shut down the reactor due to a heavy collection of fish on the intake structure screens.
19761113	LaCrosse		The operators manually shut down the reactor to replace a seal on a circulating water pump.
19761102	LaCrosse		The operators manually shut down the reactor to replace a seal on a circulating water pump.
19761027	Millstone	Unit 2	The operators manually shut down the reactor after the circulating water pumps tripped.
19760921	Millstone	Unit 2	The operators manually shut down the reactor after the circulating water pumps tripped.
19760824	Brunswick	Unit 2	The reactor automatically scrambled on low condenser vacuum when workers cleaning duplex strainers on the lube water system for the circulating water system caused a pressure fluctuations that tripped the circulating water pumps.

<i>Date</i>	<i>Facility</i>		<i>Event Description</i>
19760721	Millstone	Unit 2	The reactor automatically tripped when voltage dropped below the 90 percent undervoltage setting for the engineered safeguards actuation signal when a circulating water pump was started. The load shedding logic cooling water flow to the reactor coolant pump seals to be lost for several minutes. Two of three seals on one reactor coolant pump appeared to have been damaged from overheating and were replaced.
19760720	Millstone	Unit 2	The start-up of a main circulating water pump caused a voltage reduction on the in-plant electrical distribution system. Voltage dropped low enough to trigger the automatic protection system that isolated the safety-related electrical buses and started the emergency diesel generators (EDGs). Each time a large electrical load was connected to the bus powered by an EDG, the voltage drooped below the setpoint that caused all loads to be shed from the bus. As a result, at the end of the EDG loading sequence, all of the EDGs were running and connected to the safety-related electrical buses but all of the components supplied by those buses were disconnected.
19760717	Millstone	Unit 2	With the reactor operating at 100 percent power, operators started a 1500 horsepower circulating water pump. The current in-rush for the pump's start dropped voltage on the safety-related electrical buses below the undervoltage trip setpoints implemented after the July 6, 1976, event. The safety-related electrical buses were isolated from the offsite power system, the reactor automatically tripped, the emergency diesel generators automatically started and connected to their safety-related electrical buses. When the service water and reactor building closed cooling water pumps restarted, the in-rush current dropped the bus voltage below the revised undervoltage setpoint for each component and these loads individually tripped off the buses. At the completion of the EDG load sequence, the safety-related electrical buses were energized by the EDGs but their major loads were disconnected due to the load shed signals. Operators manually reconnected the reserve station transformer to the safety-related electrical buses and reset the undervoltage trip setpoints to their original values. The service water and reactor building closed cooling water pumps were manually started about five minutes after their tripping.
19760609	Prairie Island	Unit 1	The reactor automatically tripped when trip of the No. 11 feeder breaker tripped both of the circulating water pumps.
19760504	Millstone	Unit 2	The operators manually tripped the reactor following spurious trip of a circulating water pump.
19760504	Nine Mile Point	Unit 1	Fish (alewives and rainbow smelt) impingement on the intake structure traveling screens exceeded 20,000 fish in 24 hours, exceeding the limits in the environmental technical specifications.
19760429	Nine Mile Point	Unit 1	Fish (alewives and rainbow smelt) impingement on the intake structure traveling screens exceeded 20,000 fish in 24 hours, exceeding the limits in the environmental technical specifications.
19760425	Nine Mile Point	Unit 1	Fish (97 percent alewives) impingement on the intake structure traveling screens was 67,328 fish in 24 hours, exceeding the limits in the environmental technical specifications.
19760424	Nine Mile Point	Unit 1	Fish (96 percent alewives) impingement on the intake structure traveling screens was 80,156 fish in 24 hours, exceeding the limits in the environmental technical specifications.
19760421	Nine Mile Point	Unit 1	Fish (93 percent alewives) impingement on the intake structure traveling screens was 40,614 fish in 24 hours, exceeding the limits in the environmental technical specifications.

<i>Date</i>	<i>Facility</i>		<i>Event Description</i>
19760420	Nine Mile Point	Unit 1	Fish (90 percent alewives) impingement on the intake structure traveling screens was 23,118 fish in 24 hours, exceeding the limits in the environmental technical specifications.
19760114	Kewaunee		The operators manually tripped the reactor when ice clogged the intake screens causing a reduction in the forebay water level.
19760114	Point Beach	Unit 2	The operators manually shut down the reactor when ice formation in the circulating water instake structure threatened loss of circulating water pump suction pressure.
19751128	Zion	Unit 1	The reactor automatically tripped due to feedwater flow oscillations at 8 percent power as operators were manually shutting down the reactor for circulating water pump discharge piping inspections.
19751026	Brunswick	Unit 2	The reactor automatically scrambled after a lighting inverter and all circulating water pumps tripped due to unknown causes.
19751010	R. E. Ginna		The operators manually shut down the reactor to replace power cables for the lake intake heaters.
19750827	Oyster Creek		The reactor automatically scrambled on loss of condenser vacuum caused by operator error in restoring the A condenser to service with low circulating water flow.
19750804	Calvert Cliffs	Unit 1	The operators manually tripped the reactor after small fish clogged the main condenser causing a high differential pressure across the condenser and a high temperature alarm in the generator stator cooling system. Workers replaced five screens at the intake structure.
19750521	San Onofre	Unit 1	The operators manually tripped the reactor when seaweed clogged the intake structure and restricted circulating water flow.
19750419	Oconee	Unit 3	The switches for the condenser discharge valves were mispositioned due to an inadequate procedure. During a component cooling water (CCW) system gravity and recirculation flow test, these discharge valves failed to reposition. Due to interlocks, the emergency valves did not open when the discharge valves failed to close. The emergency condenser cooling water system valves connect the condenser to siphon flow piping which provides an alternate cooling water flow in event the normal circulating water system is not operable. But these common-mode problem disabled that function.
19750301	Duane Arnold		The operators manually shut down the reactor for maintenance to install a repaired circulating water pump.
19750211	Point Beach	Unit 2	The reactor automatically tripped on low condenser vacuum due to improper lineup of the air ejectors to the circulating water discharge.
19750208	Duane Arnold		The operators manually scrambled the reactor for NRC-mandated inspections of core spray system piping. During the outage, a circulating water pump was replaced.
19750110	Duane Arnold		The operators manually shut down the reactor for maintenance of circulating water pump.
19750101	Duane Arnold		The operators manually shut down the reactor for maintenance of circulating water pump.
19741108	Prairie Island	Unit 1	The reactor automatically scrambled on low condenser vacuum after both circulating water pumps were accidentally tripped.

<i>Date</i>	<i>Facility</i>	<i>Event Description</i>
19740525	Dresden Unit 2	The operators manually scrammed the reactor due to circulating water flow reversal.
19740504	Dresden Unit 2	The operators manually scrammed the reactor for maintenance on the circulating water system.
19740119	Haddam Neck	The reactor automatically scrammed during reactor startup when operators shut down two circulating water pumps supplying the same condenser.
19720715	LaCrosse	A fire started when oil dripping onto the insulation of the circulating water pump was ignited by the high casing temperature.
19720610	Quad Cities Unit 1	During an outage, workers were modifying the 10-foot diameter butterfly valves in the circulating water system. An operator vented the actuator on one butterfly valve and inadvertently caused it to close. Three circulating water pumps were operating at the time. The butterfly valve closure caused a waterhammer that ruptured a rubber expansion joint in the recirculation line. The flooding was reported to the control room and operators responded by shutting down the circulating water pumps. In the 6 minutes it took to secure the pumps, the turbine building basement was flooded to a depth of nearly 15 1/2 feet. The flood submerged four emergency service water pumps, the cooling water pumps for the unit diesel (#1) and the swing diesel (#1/2). Flood alarms were installed along with a "very high level" trip of the circulating water pumps.
19700801	Oyster Creek	The operators manually scrammed the reactor due to decreasing condenser vacuum. Buildup of river grass at the intake structure forced the operators to reduce the reactor power level from 83 percent and manually trip the turbine. Following the turbine trip, the operators noticed that condenser vacuum was rapidly being lost.
19700711	Oyster Creek	The reactor automatically scrammed on high reactor pressure after the operators manually tripped the turbine. Buildup of river grass at the intake structure forced the operators to reduce the reactor power level from 83 percent power and manually trip the turbine.
19691000	San Onofre Unit 1	The reactor was shut down for a week to repair the tsunami gate at the intake structure.