Scrams with Reactive Inspections 2007 - Present

PLANT NAME	EVENT DATE	Scram Cause / Description	Public Reports	Brief Summary (See public reports for complete details)
PILGRIM	05/10/11	RX SCRAM DURING STARTUP - HI-HI TRIP FROM INTERMEDIATE RANGE	Special Inspection Team (SIT) - In progress	Ongoing inspections
ROBINSON 2	10/07/10	THE REACTOR TRIPPED WHEN A MOTOR FAULT OCCURRED ON A REACTOR COOLANT PUMP (RCP) CAUSING A SINGLE LOOP LOW FLOW TRIP. THE ROOT CAUSE OF THIS EVENT WAS INADEQUATE END WINDING BRACING ON THE "C" RCP.	SIT - ML103440401 - 2 Green Findings & 1 unresolved item (URI) ML110280299 - 1 Green Finding (URI)	Three Green findings of very low safety significance were identified for: 1) Bypassing the feedwater isolation safety function for three hours and twenty minutes, a condition prohibited by Technical Specifications and procedural requirements. 2) The failure to correct a known equipment deficiency, which adversely affected the operators' ability to respond to reactor trip transients. Specifically, the turbine building lubrication oil area fire protection detectors were known to actuate the turbine building lube oil deluge system during a non-fire event when the feedwater heater relief valves lift after a scram. 3) The failure to perform vendor recommended inspections of the reactor coolant pump motors.
BRAIDWOOD 1 BRAIDWOOD 2	08/16/10	BRAIDWOOD 1 - THE REACTOR TRIPPED FOLLOWING A TURBINE GENERATOR TRIP. THE TURBINE TRIPPED DUE TO LOSS OF CONDENSER VACUUM CAUSED BY THE LOSS OF THE ELECTRICAL BUS SUPPLYING THE CIRC WATER PUMPS. THE BUS WAS LOST WHEN WATER OVERFLOWED FROM THE AFW STANDPIPES. BRAIDWOOD 2 - THE REACTOR TRIPPED FOLLOWING A TRIP OF THE TURBINE GENERATOR. THE TURBINE GENERATOR TRIPPED DUE TO A GENERATOR LOCKOUT RELAY ACTUATION. THE LOCKOUT RELAY ACTUATION WAS CAUSED BY A PHASE-TO-GROUND FAULT IN THE ISOLATED PHASE (ISOPHASE) BUS DUCT.	SIT - ML103190505 - 4 Green Findings	Four Green findings of very low safety significance were identified for: 1) The failure to establish adequate inspect-and-clean controls for the forebay. Specifically, the operability margin of one train of the essential service water system decreased below pre-established limiting conditions due to fouling. 2) The failure to establish measures for the selection and review of equipment suitability. Fuses were replaced with a lower ampere rating than specified. 3) The failure to correct a condition that resulted in water being discharged to the turbine building floor during the reject of condensate from the condenser hotwell. Specifically, water had been observed overflowing to the turbine building floor in multiple instances in the past during hotwell condensate reject. However, the licensee did not implement corrective actions to correct this condition or evaluate its impact on plant equipment as required by the licensee's corrective action program. The water discharged from the condensate hotwell reject caused a reactor trip on the other unit. 4) The inadequate evaluation of operating experience. Specifically, the evaluation of an event at another plant that resulted in dislodged building material and a loss of off-site power was not properly addressed. During the dual unit trip, reactor building flashing was dislodged during a steam release and was found on power lines and in the vicinity of the off-site power supplies.
SURRY 1	06/08/10	THE REACTOR TRIPPED ON STEAM FLOW/FEED FLOW MISMATCH. THE EVENT WAS THE RESULT OF LOSS OF A VITAL 120VAC BUS. THE BUS LOSS WAS CAUSED BY THE FAILURE OF AN UNINTERUPTIBLE POWER SUPPLY (UPS) INVERTER WHICH OCCURRED WHILE THE BUS'S ALTERNATE POWER SOURCE WAS OUT OF SERVICE FOR MAINT.	SIT- ML102560333 - 1 Green Finding	A Green finding of very low safety significance was identified for the failure to identify and correct degraded nuclear Instrument resistance capacitor filters.

PLANT NAME	EVENT DATE	Scram Cause / Description	Public Reports	Brief Summary (See public reports for complete details)
ROBINSON 2	03/28/10	LOSS OF 4KV BUS 5 DUE TO A FIRE RESULTED IN LOSS OF REACTOR COOLANT SYSTEM PUMP B AND A SUBSEQUENT REACTOR AND TURBINE TRIP. THE INITIAL FAULT WAS CAUSED BY THE FAILURE OF A FEEDER CABLE SUPPLYING 4KV BUS 5.	Augmented Inspection Team (AIT) - ML101830101 - 14 URIs ML103160382 - 2 Apparent Violations (AVs) & 3 Green Findings ML102810633 - 1 Green Finding, 2 AV (1 Traditional Enforcement) ML103620095 - 1 AV ML110310469 - 2 White Findings (EA-10-257) ML103410289 - 1 White Finding & Severity Level (SL) III (EA-10-205) ML111090365 - 95001 (Performance Indicator (PI) - Scrams) Supplemental inspections required. Currently in Degraded Cornerstone Column of Action Matrix	On March 28, 2010, an event occurred at H. B. Robinson that involved a reactor trip, an electrical fault, a fire, a partial loss of offsite power, a safety injection actuation, a temporary concurrent loss of seal injection and thermal barrier heat exchanger cooling to reactor coolant pump seals, and operator errors. A 95001 supplemental inspection was performed to follow-up on these risk-significant issues (performance indicator scrams) to provide assurance that the root causes and contributing causes were understood, extent of condition and extent of cause were identified, and that the licensee's corrective actions were sufficient to address the root and contributing causes and prevent recurrence. Three White notice of violations were issued for low to moderate safety significance violations associated with: (1a) The failure to promptly correct a condition adverse to quality involving the failure of an Emergency Diesel Generator output breaker; and (1b) The failure to ensure the Emergency Diesel Generator remained operable as required by Technical Specifications. 2) Multiple and significant failures to adhere to procedures requirements 3) Failures to adequately design and implement operator training based on learning objectives A 95002 supplemental inspection will be performed to follow-up on these risk-significant issues to provide assurance that the root causes and contributing causes were understood, extent of condition and extent of cause were identified, and that the licensee's corrective actions were sufficient to address the root and contributing causes and prevent recurrence. In addition to independently determine if safety culture components caused or significantly contributed to the individual and collective (multiple white inputs) risk-significant performance issues. A Severity Level III traditional enforcement (TE) violation was issued for the submission of materially inaccurate information. Four Green findings of very low safety significance were identified for: 1) The failure to follow the site's corrective action program procedure. Specifically, a degraded control power condition for an electrical breaker was not identified and evaluated appropriately, which led to a fire and a reactor trip. 2) The failure to have adequate work orders to properly configure and post maintenance test the volume control tank level comparator module. This resulted in the failure of the charging pump suction to automatically transfer from the volume control tank to the refueling water storage tank when the auto transfer volume control tank low level setpoint was reached. 3) The failure to appropriately install electrical cables. This eventually led to a fire and a reactor trip. 4) The failure to correctly model the effects associated with a loss of electric power in the simulator (e.g., loss of component cooling water to the reactor coolant pump seals). The simulator is used to train operators and administer operating tests.

PLANT NAME	EVENT DATE	Scram Cause / Description	Public Reports	Brief Summary (See public reports for complete details)
CALVERT CLIFFS 1 CALVERT CLIFFS 2	02/18/10	CALVERT CLIFFS 1 - THE REACTOR TRIPPED DUE TO THE LOSS OF AN RCP FOLLOWING A PARTIAL LOSS OF OFFSITE POWER. THE RCP WAS LOST DUE TO AN ELECTRICAL MALFUNCTION. THE FAULT WAS CAUSED BY A SHORT DUE TO WATER INTRUSION INTO THE RELAY PROTECTION CIRCUITRY CUBICLE. CALVERT CLIFFS 2 - THE REACTOR TRIPPED ON LOW FLOW FOLLOWING A PARTIAL LOSS OF POWER TO THE RCP BUS. THE LOSS OF AN RCP WAS CAUSED BY AN ELECTRICAL MALFUNCTION DUE TO FAILURE OF A GROUND FAULT RELAY.	SIT - ML101650723 - 1 AV & 4 Green Findings ML102150484 - 1 White Finding (EA-10-080) ML111190104 - 95001	A White notice of violation was issued for the failure to develop and implement scheduled preventative maintenance for the Agast time delay relays. Specfically, the relays were not replaced after the 10 year service life as recommended by the vendor nor did the licensee establish a performance monitoring program to monitor the relays for degredation. The failure of the relay resulted in inoperability of the Emergency Diesel Generator and loss of the power to a safeguards bus. A 95001 supplemental inspection was performed to follow-up on this risk-significant issue to provide assurance that the root causes and contributing causes were understood, extent of condition and extent of cause were identified, and that the licensee's corrective actions were sufficient to address the root and contributing causes and prevent recurrence. Four Green findings of very low safety significance were identified for: 1) The failure to implement effective corrective actions to address auxiliary building roof leakage problems occuring over a 7 year period that ultimately resulted in switchgear grounds, a reactor trip, and the loss of several safety related systems. 2) The failure to translate the design calculations of phase overcurrent relays into the actual relay settings. The overcurrent relays protect the unit service transformer against electrical faults and the as-found relay setting could potentially cause the breakers to fail prior to tripping open. 3) The failure to evaluate and correct relay disc sticking or binding issues. This degraded condition can adversely impact the function of the Emergency Diesel Generators and the electrical distribution protection scheme. 4) The failure to establish adequate procedures for restoration of Chemical and Volume Control System letdown flow. Deficient operating instructions prevented timely restoration of letdown flow following the initial transient and led to pressurizer level exceeding the Technical Specification limit for pressurizer level.
CALVERT CLIFFS 1	02/18/10	CALVERT CLIFFS 1 - THE REACTOR TRIPPED DUE TO THE LOSS OF AN RCP FOLLOWING A PARTIAL LOSS OF OFFSITE POWER. THE RCP WAS LOST DUE TO AN ELECTRICAL MALFUNCTION. THE FAULT WAS CAUSED BY A SHORT DUE TO WATER INTRUSION INTO THE RELAY PROTECTION CIRCUITRY CUBICLE.	SIT - ML101650723 - 4 Green Findings	

PLANT NAME	EVENT DATE	Scram Cause / Description	Public Reports	Brief Summary (See public reports for complete details)
WOLF CREEK	08/19/09	THE REACTOR TRIPPED FOLLOWING A TURBINE TRIP AND MOMENTARY LOSS OF OFFSITE POWER. THE CAUSE OF THE TRIP WAS LOSS OF OFFSITE POWER DUE TO A LIGHTNING STRIKE.	SIT - ML100330574 - 7 Green Findings & 2 URIs 05000482/2009007-04 & 05000482/2009007-08 - Open	Seven Green findings of very low safety significance were identified for: 1) The failure to recognize the adverse conditions related to their offsite power system. Specifically, the licensee failed to identify and enter pertinent switchyard operating experience and six occurrences of loss of offsite power into their corrective action program. 2) The failure to monitor and control steam generator water levels, which resulted in an unanticipated turbine trip signal and feedwater isolation. Contributing to the loss of level control was the disabling of a previously established operator selectable alarm for the steam generator level. 3) The failure to perform an operability evaluation for the impact of a pressure transient on the essential service water system. Several through wall leaks were observed due to significant internal corrosion. 4) The failure to properly screen condition reports for the essential service water system adverse conditions of internal corrosion and loss of offsite power induced system pressure transient. 5) The failure to provide adequate guidance to identify and address pitting, corrosion, and surface indications in the essential service water system. Chemistry control procedures did not contain quality standards or acceptance criteria. This resulted in delaying repairs until such degradations (pitting) had become through-wall leaks. 6) The failure to provide adequate guidance to address the impact of a loss of offsite power event on the essential service water system. 7) The failure to establish a fire watch in a timely manner following a fire trouble alarm. The complete loss of offsite power resulted in fire protection trouble alarms which required the establishment of a compensatory fire watch. These watches were not initiated until the following day. The two unresolved items are still being inspected.
OYSTER CREEK	07/12/09	THE REACTOR TRIPPED FOLLOWING A TURBINE TRIP DUE TO LOSS OF OFFSITE POWER CAUSED BY LIGHTNING STRIKES.	SIT - ML092710122, 2 Green Findings & 1 URI ML101200165 - No Findings (URI)	Two Green findings of very low safety significance were identified for: 1) Not identifying and correcting problems with the operation of the Generator Breaker Close relay contacts, which resulted in emergency diesel generator inoperablility. 2) Allowing foreign material to enter the Isolation Condenser level instrumentation piping. This resulted in erratic water level indication and Isolation Condenser unavailability.
COLUMBIA	05/08/09	THE REACTOR WAS MANUALLY TRIPPED DUE TO THE LOSS OF THE MAIN GENERATOR SEAL OIL SYSTEM. THE SEAL OIL FILTER BECAME CLOGGED DURING TESTING AND SEAL OIL PRESSURE COULD NOT BE RESTORED.	SIT - ML093280158 - 2 Green Findings	Two Green findings of very low safety significance were identified for: 1) The failure to correctly implement plant design changes to the digital electro-hydraulic control system and the reactor feedwater pumps. The new digital electrohydraulic control system was installed with an incorrect pressure setpoint due to an erroneous design calculation. This ultimately resulted in exceeding the cooldown safety limit of 100°F per hour. The new reactor feedwater level control system was installed with improper suction pressure setpoints and trip delays resulting in improper feedwater pump control. 2) A failure to include torque verifications of rigid and flexible bus connections and high potential testing. Specifically, the licensee removed torque verification and potential testing from their preventive maintenance program without considering operating experience. This omission most likely contributed to the bus failure.
COOK 1	09/20/08	THE REACTOR WAS MANUALLY TRIPPED AFTER A MALFUNCTION OF THE MAIN TURBINE GENERATOR RESULTED IN HIGH TURBINE VIBRATIONS AND A FIRE IN THE GENERATOR.	SIT - ML090260032 - 1 Green Finding	A Green finding of very low safety significance was identified for the failure to have appropriate procedures for control room operator actions. Specifically, a control room annunciator response procedure for a fire protection alarm panel failed to provide appropriate guidance for diagnosing a fire protection system failure as evidenced by the simultaneous operation of all three fire pumps.

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MONTICELLO	09/11/08	WITH THE 1R TRANSFORMER OUT FOR MAINTENANCE, THE 2R TRANSFORMER EXPERIENCED A LOCKOUT RESULTING IN LOSS OF OFFSITE POWER, WHICH RESULTED IN A REACTOR TRIP.	SIT - ML083510254 - 5 Green Findings	Five Green findings of very low safety significance were identified for: 1) Inadequate procedures to control reactor pressure vessel level. Specifically, the operating instructions for the control rod drive system were inadequate since they did not provide direction to control the addition of water to the reactor pressure vessel following a scram with reactor pressure vessel isolation. 2) A failure to establish an effective monitoring and corrective action plan for the underground cables. Preventive maintenance and testing methodology implemented was not sufficient to establish the condition of the cables (e.g., cable insulation resistance) to ensure functionality. 3) A failure to establish and implement an effective test control program for cables subjected to submersion. 4) A temporary loss of shutdown cooling. Specifically, operators failed to complete the shutdown checklist following the scram and did not close the reference leg fill valve from the control rod drive system. When the control rod drive pump was started, the reference leg experienced a pressure spike and the resulting full reactor protection system actuation resulted in a loss of shutdown cooling. 5) A failure of the high pressure coolant injection (HPCI) system to trip when reactor pressure vessel water level reached the trip setpoint. It was determined that the normally de-energized HPCI trip solenoid valve failed to trip promptly when actuated and was degraded due to improper reassembly of the solenoid valve after refurbishment and degraded elastomers. An engineering evaluation recommended a periodic replacement of the elastomers in this valve. No preventive maintenance activity was created or performed prior to the failure even though the recommended interval had been exceeded since the last overhaul.
PRAIRIE ISLAND 1	07/31/08	THE REACTOR SCRAMMED DURING REACTOR PROTECTION SYSTEM TESTING. ONE OVER TEMPERATURE DELTA T CHANNEL WAS IN TEST WHEN A CONTROLLER IN THE OTHER CHANNEL FAILED.	SIT - ML083120510 - 1 Preliminary Greater than Green ML102500641 - White Finding (EA-08-272) ML092890143 - 95001	A White notice of violation was issued for a low to moderate safety significance violation of Technical Specifications associated with the licensee's failure to adequately control the position of a valve that could isolate the Turbine Driven Auxiliary Fresh Water Pump's (TDAFWP's) discharge pressure switch. Because of the valve being closed, the TDAFWP failed to run as required, subsequent to a reactor trip. The manifold isolation valve was determined to have been shut for 138 days, rendering the TDAFWP inoperable for a time period that significantly exceeded the Technical Specification allowed outage time (72 hours) for the pump. A 95001 supplemental inspection was performed to follow-up on this risk-significant issue to provide assurance that the root causes and contributing causes were understood, extent of condition and extent of cause were identified, and that the licensee's corrective actions were sufficient to address the root and contributing causes and prevent recurrence.
PERRY	11/28/07	THE REACTOR TRIPPED DUE TO A TURBINE CONTROL VALVE FAST CLOSURE SIGNAL. THE CAUSE OF THE TRIP WAS FAILURE OF THE POWER SUPPLIES IN THE DIGITAL FEEDWATER CONTROL SYSTEM.	SIT - ML080280499 - 1 Green Finding, 3 URIs ML081290566 - 4 Green Findings	Five Green findings of very low safety significance were identified for: 1) The improper installation of replacement power supplies in the digital feedwater control system. The installed replacement power supplies were oriented incorrectly to assure proper cooling. 2) The failure of the reactor core isolation cooling (RCIC) to perform its design function during the reactor scram and plant response. The RCIC system started automatically on low reactor water level, began to inject into the reactor pressure vessel, and then tripped on low suction pressure. The RCIC pump flow controller was found to have been incorrectly tuned. 3) Improper testing of the RCIC system. Specifically, the program failed to incorporate the requirements and acceptance limits contained in applicable design documents to assure that RCIC flow controller configuration and performance met design requirements during testing. 4) The failure to perform adequate corrective actions to preclude repetition of a significant condition adverse to quality in response to a similar previously declared RCIC inoperably condition. 5) The failure to identify the RCIC failures as a significant condition adverse to quality within their corrective action program.
NORTH ANNA 2	06/29/07	A SPURIOUS "B" TRAIN Safety Injection (SI) SIGNAL RESULTED IN A TURBINE TRIP AND SUBSEQUENT REACTOR TRIP.	SIT - Report ML072410359, 2 URIs ML083020663 - No Findings (URI)	No findings were identified

Plant Name, Unit Number	NRC Reactor Unit Web Page	Docket Number
Oyster Creek Nuclear Generating Station, Unit 1	Oyster Creek	5000219
Nine Mile Point Nuclear Station, Unit 1	Nine Mile Point 1	5000220
Dresden Nuclear Power Station, Unit 2	Dresden 2	5000237
Ginna Nuclear Power Plant	Ginna	5000244
Indian Point Nuclear Generating, Unit 2	Indian Point 2	5000247
Dresden Nuclear Power Station, Unit 3	Dresden 3	5000249
Turkey Point Nuclear Generating, Unit 3	Turkey Point 3	5000250
Turkey Point Nuclear Generating, Unit 4	Turkey Point 4	5000251
Quad Cities Nuclear Power Station, Unit 1	Quad Cities 1	5000254
Palisades Nuclear Plant	Palisades	5000255
Browns Ferry Nuclear Plant, Unit 1	Browns Ferry 1	5000259
Browns Ferry Nuclear Plant, Unit 2	Browns Ferry 2	5000260
Robinson Steam Electric Plant, Unit 2	Robinson 2	5000261
Monticello Nuclear Generating Plant, Unit 1	Monticello	5000263
Quad Cities Nuclear Power Station, Unit 2	Quad Cities 2	5000265
Point Beach Nuclear Plant, Unit 1	Point Beach 1	5000266
Oconee Nuclear Station, Unit 1	Oconee 1	5000269
Oconee Nuclear Station, Unit 2	Oconee 2	5000270
Vermont Yankee Nuclear Power Plant, Unit 1	Vermont Yankee	5000271
Salem Nuclear Generating Station, Unit 1	Salem 1	5000272
Diablo Canyon Nuclear Power Plant, Unit 1	Diablo Canyon 1	5000275
Peach Bottom Atomic Power Station, Unit 2	Peach Bottom 2	5000277
Peach Bottom Atomic Power Station, Unit 3	Peach Bottom 3	5000278
Surry Nuclear Power Station, Unit 1	Surry 1	5000280
Surry Nuclear Power Station, Unit 2	Surry 2	5000281
Prairie Island Nuclear Generating Plant, Unit 1	Prairie Island 1	5000282
Fort Calhoun Station, Unit 1	Fort Calhoun	5000285
Indian Point Nuclear Generating, Unit 3	Indian Point 3	5000286
Oconee Nuclear Station, Unit 3	Oconee 3	5000287
Three Mile Island Nuclear Station, Unit 1	Three Mile Island 1	5000289
Pilgrim Nuclear Power Station	Pilgrim 1	5000293
Browns Ferry Nuclear Plant, Unit 3	Browns Ferry 3	5000296
Cooper Nuclear Station	Cooper	5000298
Point Beach Nuclear Plant, Unit 2	Point Beach 2	5000301
Crystal River Nuclear Generating Plant, Unit 3	Crystal River 3	5000302
Kewaunee Power Station	Kewaunee	5000305
Prairie Island Nuclear Generating Plant, Unit 2	Prairie Island 2	5000306
Salem Nuclear Generating Station, Unit 2	Salem 2	5000311
Arkansas Nuclear One, Unit 1	Arkansas Nuclear 1	5000313
Donald C. Cook Nuclear Power Plant, Unit 1	D.C. Cook 1	5000315
Donald C. Cook Nuclear Power Plant, Unit 2	D.C. Cook 2	5000316
Calvert Cliffs Nuclear Power Plant, Unit 1	Calvert Cliffs 1	5000317
Calvert Cliffs Nuclear Power Plant, Unit 2	Calvert Cliffs 2	5000318
Hatch Nuclear Plant, Unit 1	Hatch 1	5000321
Diablo Canyon Nuclear Power Plant, Unit 2	Diablo Canyon 2	5000323

Brunswick Steam Electric Plant, Unit 2	Brunswick 2	5000324
Brunswick Steam Electric Plant, Unit 1	Brunswick 1	5000325
Sequoyah Nuclear Plant, Unit 1	Sequoyah 1	5000327
Sequoyah Nuclear Plant, Unit 2	Sequoyah 2	5000328
Duane Arnold Energy Center	Duane Arnold	5000331
FitzPatrick Nuclear Power Plant	FitzPatrick	5000333
Beaver Valley Power Station, Unit 1	Beaver Valley 1	5000334
St. Lucie Plant, Unit 1	Saint Lucie 1	5000335
Millstone Power Station, Unit 2	Millstone 2	5000336
North Anna Power Station, Unit 1	North Anna 1	5000338
North Anna Power Station, Unit 2	North Anna 2	5000339
Fermi, Unit 2	Fermi 2	5000341
Davis-Besse Nuclear Power Station, Unit 1	Davis-Besse	5000346
Farley Nuclear Plant, Unit 1	Farley 1	5000348
Limerick Generating Station, Unit 1	Limerick 1	5000352
Limerick Generating Station, Unit 2	Limerick 2	5000353
Hope Creek Generating Station, Unit 1	Hope Creek 1	5000354
San Onofre Nuclear Generating Station, Unit 2	San Onofre 2	5000361
San Onofre Nuclear Generating Station, Unit 3	San Onofre 3	5000362
Farley Nuclear Plant, Unit 2	Farley 2	5000364
Hatch Nuclear Plant, Unit 2	Hatch 2	5000366
Arkansas Nuclear One, Unit 2	Arkansas Nuclear 2	5000368
McGuire Nuclear Station, Unit 1	McGuire 1	5000369
McGuire Nuclear Station, Unit 2	McGuire 2	5000370
LaSalle County Station, Unit 1	La Salle 1	5000373
LaSalle County Station, Unit 2	La Salle 2	5000374
Waterford Steam Electric Station, Unit 3	Waterford 3	5000382
Susquehanna Steam Electric Station, Unit 2	Susquehanna 1	5000387
Susquehanna Steam Electric Station, Unit 1	Susquehanna 2	5000388
St. Lucie Plant, Unit 2	Saint Lucie 2	5000389
Watts Bar Nuclear Plant, Unit 1	Watts Bar 1	5000390
Virgil C. Summer Nuclear Station, Unit 1	Summer	5000395
Columbia Generating Station, Unit 2	Columbia Generating Station	5000397
Harris Nuclear Power Plant, Unit 1	Shearon Harris 1	5000400
Nine Mile Point Nuclear Station, Unit 2	Nine Mile Point 2	5000410
Beaver Valley Power Station, Unit 2	Beaver Valley 2	5000412
Catawba Nuclear Station, Unit 1	Catawba 1	5000413
Catawba Nuclear Station, Unit 2	Catawba 2	5000414
Grand Gulf Nuclear Station, Unit 1	Grand Gulf 1	5000416
Millstone Power Station, Unit 3	Millstone 3	5000423
Vogtle Electric Generating Plant, Unit 1	Vogtle 1	5000424
Vogtle Electric Generating Plant, Unit 2	Vogtle 2	5000425
Perry Nuclear Power Plant, Unit 1	Perry 1	5000440
Seabrook Station, Unit 1	Seabrook 1	5000443
Comanche Peak Steam Electric Station, Unit 1	Comanche Peak 1	5000445
Comanche Peak Steam Electric Station, Unit 2	Comanche Peak 2	5000446
Byron Station, Unit 1	Byron 1	5000454

Byron Station, Unit 2	Byron 2	5000455
Braidwood Station, Unit 1	Braidwood 1	5000456
Braidwood Station, Unit 2	Braidwood 2	5000457
River Bend Station, Unit 1	River Bend 1	5000458
Clinton Power Station, Unit 1	Clinton	5000461
Wolf Creek Generating Station, Unit 1	Wolf Creek 1	5000482
Callaway Plant	Callaway	5000483
South Texas Project, Unit 1	South Texas 1	5000498
South Texas Project, Unit 2	South Texas 2	5000499
Palo Verde Nuclear Generating Station, Unit 1	Palo Verde 1	5000528
Palo Verde Nuclear Generating Station, Unit 2	Palo Verde 2	5000529
Palo Verde Nuclear Generating Station, Unit 3	Palo Verde 3	5000530

Location	NRC Region	Licensee
Forked River, NJ (9 MI S of Toms River, NJ)	1	Exelon Generation Co., LLC
Scriba, NY (6 MI NE of Oswego, NY)	1	Nine Mile Point Nuclear Station, LLC
Morris, IL (9 MI E of Morris, IL)	3	Exelon Generation Co., LLC
Ontario, NY (20 MI NE of Rochester, NY)	1	R.E. Ginna Nuclear Power Plant, LLC
Buchanan, NY (24 MI N of New York City, NY)	1	Entergy Nuclear Operations, Inc.
Morris, IL (9 MI E of Morris, IL)	3	Exelon Generation Co., LLC
Homestead, FL (20 MI S of Miami, FL)	2	Florida Power & Light Co.
Homestead, FL (20 MI S of Miami, FL)	2	Florida Power & Light Co.
Cordova, IL (20 MI NE of Moline, IL)	3	Exelon Generation Co., LLC
Covert, MI (5 MI S of South Haven, MI)	3	Entergy Nuclear Operations, Inc.
Athens, AL (32 MI W of Huntsville, AL)	2	Tenessee Valley Authority
Athens, AL (32 MI W of Huntsville, AL)	2	Tenessee Valley Authority
Hartsville, SC (26 MI from Florence, SC)	2	Carolina Power & Light Co.,
Monticello, MN (30 MI NW of Minneapolis, MN)	3	Northern States Power Company
Cordova, IL (20 MI NE of Moline, IL)	3	Exelon Generation Co., LLC
Two Rivers, WI (13 MI NNW of Manitowoc, WI)	3	FPL Energy Duane Arnold, LLC
Seneca, SC (30 MI W of Greenville, SC)	2	Duke Energy Carolinas, LLC
Seneca, SC (30 MI W of Greenville, SC)	2	Duke Energy Carolinas, LLC
Vernon, VT (5 MI S of Brattleboro, VT)	1	Entergy Nuclear Operations, Inc.
Hancock Bridge, NJ (18 MI S of Wilmington, DE)	1	PSEG Nuclear, LLC
Avila Beach, CA (12 MI WSW of San Luis Obispo, CA)	4	Pacific Gas & Electric Co.
Delta, PA (17.9 MI S of Lancaster, PA)	1	Exelon Generation Co., LLC
Delta, PA (17.9 MI S of Lancaster, PA)	1	Exelon Generation Co., LLC
Surry, VA (17 MI NW of Newport News, VA)	2	Virginia Electric & Power Co.
Surry, VA (17 MI NW of Newport News, VA)	2	Virginia Electric & Power Co.
Welch, MN (28 MI SE of Minneapolis, MN)	3	Northern States Power Co. Minnesota
Fort Calhoun, NE (19 MI N of Omaha, NE)	4	Omaha Public Power District
Buchanan, NY (24 MI N of New York City, NY)	1	Entergy Nuclear Operations, Inc.
Seneca, SC (30 MI W of Greenville, SC)	2	Duke Energy Carolinas, LLC
Middletown, PA (10 MI SE of Harrisburg, PA)	1	Exelon Generation Co., LLC
Plymouth, MA (4 MI SE of Plymouth, MA)	1	Entergy Nuclear Operations, Inc.
Wheeler Lake, AL (10 MI SW of Athens, AL)	2	Tenessee Valley Authority
Brownville, NE (23 MI S of Nebraska City, NE)	4	Nebraska Public Power District
Two Rivers, WI (13 MI NNW of Manitowoc, WI)	3	FPL Energy Duane Arnold, LLC
Crystal River, FL (80 MI N of Tampa, FL)	2	Florida Power Corp.
Kewaunee, WI (27 MI E of Green Bay, WI)	3	Dominion Energy Kewaunee, Inc.
Welch, MN (28 MI SE of Minneapolis, MN)	3	Northern States Power Co. Minnesota
Hancock Bridge, NJ (18 MI S of Wilmington, DE)	1	PSEG Nuclear, LLC
Russellville, AR (6 MI WNW of Russellville, AR)	4	Entergy Nuclear Operations, Inc.
Stevensville, MI (11 MI S of Benton Harbor, MI)	3	Indiana Michigan Power Co.
Stevensville, MI (11 MI S of Benton Harbor, MI)	3	Indiana Michigan Power Co.
Lusby, MD (40 MI S of Annapolis, MD)	1	Calvert Cliffs Nuclear Power Plant Inc.
Lusby, MD (40 MI S of Annapolis, MD)	1	Calvert Cliffs Nuclear Power Plant Inc.
Baxley , GA (11 MI N of Vidalia, GA)	2	Southern Nuclear Operating Co.
Avila Beach, CA (12 MI WSW of San Luis Obispo, CA)	4	Pacific Gas & Electric Co.

Southport, NC (2 MI N of Southport, NC)	2	Carolina Power & Light Co.
Southport, NC (2 MI N of Southport, NC)	2	Carolina Power & Light Co.
Soddy-Daisy, TN (9.5 MI NE of Chattanooga, TN)	2	Tenessee Valley Authority
Soddy-Daisy, TN (9.5 MI NE of Chattanooga, TN)	2	Tenessee Valley Authority
Palo, IA (8 MI NW of Cedar Rapids, IA)	3	FPL Energy Duane Arnold, LLC
Scriba, NY (6 MI NE of Oswego, NY)	1	Entergy Nuclear Operations, Inc.
Shippingport, PA(17 MI W of McCandless, PA)	1	First Energy Nuclear Operating Co.
Jensen Beach, FL (10 MI SE of Ft. Pierce, FL)	2	Florida Power & Light Co.
Waterford. CT (3.2 MI WSW of New London, CT)	1	Dominion Nuclear Conneticut, Inc.
Louisa, VA (40 MI NW of Richmond, VA)	2	Virginia Electric & Power Co.
Louisa, VA (40 MI NW of Richmond, VA)	2	Virginia Electric & Power Co.
Newport, MI (25 MI NE of Toledo, OH)	3	The Detroit Edison Co.
Oak Harbor, OH (21 MI ESE of Toledo, OH)	3	First Energy Nuclear Operating Co.
Columbia, AL (18 MI S of Dothan, AL)	2	Southern Nuclear Operating Co.
Limerick, PA (21 MI NW of Philadelphia, PA)	1	Exelon Generation Co., LLC
Limerick, PA (21 MI NW of Philadelphia, PA)	1	Exelon Generation Co., LLC
Hancock Bridge, NJ (18 MI SE of Wilmington, DE)	1	PSEG Nuclear, LLC
San Clemente, CA (4 MI SE of San Clemente, CA)	4	Southern California Edison Co.
San Clemente, CA (4 MI SE of San Clemente, CA)	4	Southern California Edison Co.
Columbia, AL (18 MI S of Dothan, AL)	2	Southern Nuclear Operating Co.
Baxley , GA (11 MI N of Vidalia, GA)	2	Southern Nuclear Operating Co.
Russellville, AR (6 MI WNW of Russellville, AR)	4	Entergy Nuclear Operations, Inc.
Huntsville, NC (17 MI N of Charlotte, NC)	2	Duke Energy Carolinas, LLC
Huntsville, NC (17 MI N of Charlotte, NC)	2	Duke Energy Carolinas, LLC
Marseilles, IL (11 MI SE of Ottawa, IL)	3	Exelon Generation Co., LLC
Marseilles, IL (11 MI SE of Ottawa, IL)	3	Exelon Generation Co., LLC
Killona, LA (25 MI W of New Orleans, LA)	4	Entergy Nuclear Operations, Inc.
Berwick, PA (7 MI NE of Berwick, PA)	1	PPL Susquehanna, LLC
Berwick, PA (7 MI NE of Berwick, PA)	1	PPL Susquehanna, LLC
Jensen Beach, FL (10 MI SE of Ft. Pierce, FL)	2	Florida Power & Light Co.
Spring City, TN (60 MI S of Spring City, TN)	2	Tenessee Valley Authority
Jenkinsville, SC (26 MI NW of Columbia, SC)	2	South Carolina Electric & Gas Co.
Richland, WA (12 MI NW of Richland, WA)	4	Energy Northwest
New Hill, NC (20 MI SW of Raleigh, NC)	2	Carolina Power & Light Co.
Scriba, NY (6 MI NE of Oswego, NY)	1	Nine Mile Point Nuclear Station, LLC
Shippingport, PA (17 MI W of McCandless, PA)	1	First Energy Nuclear Operating Co.
York, SC (18 MI S of Charlotte, NC)	2	Duke Energy Carolinas, LLC
York, SC (18 MI S of Charlotte, NC)	2	Duke Energy Carolinas, LLC
Port Gibson, MS (25 MI S of Vicksburg, MS)	4	Entergy Nuclear Operations, Inc.
Waterford. CT (3.2 MI WSW of New London, CT)	1	Dominion Nuclear Conneticut, Inc.
Waynesboro, GA (26 MI SE of Augusta, GA)	2	Southern Nuclear Operating Co.
Waynesboro, GA (26 MI SE of Augusta, GA)	2	Southern Nuclear Operating Co.
Perry, OH (35 MI NE of Cleveland, OH)	3	First Energy Nuclear Operating Co.
Seabrook, NH (13 MI S of Portsmouth, NH)	1	FPL Energy Seabrook, LLC
Glen Rose, TX (4 MI N of Glen Rose, TX)	4	Luminant Generation Co., LLC
Glen Rose, TX (4 MI N of Glen Rose, TX)	4	Luminant Generation Co., LLC
Byron, Il (17 MI SW of Rockford, IL)	3	Exelon Generation Co., LLC

Byron, Il (17 MI SW of Rockford, IL)	3	Exelon Generation Co., LLC
Braceville, IL (20 MI SSW of Joilet, IL)	3	Exelon Generation Co., LLC
Braceville, IL (20 MI SSW of Joilet, IL)	3	Exelon Generation Co., LLC
St. Francisville, LA (24 MI NNW of Baton Rouge, LA)	4	Entergy Nuclear Operations, Inc.
Clinton, IL (6 MI E of Clinton, IL)	3	Exelon Generation Co., LLC
Burlington, KS (3.5 MI NE of Burlington, KS)	4	Wolf Creek Nuclear Operating Corp.
Fulton, MO (25 MI ENE of Jefferson City, MO)	4	Union Electric Co.
Bay City, TX (12 MI SSW of Bay City, TX)	4	STP Nuclear Operating Co.
Bay City, TX (12 MI SSW of Bay City, TX)	4	STP Nuclear Operating Co.
Wintersburg, AZ (50 MI W of Phoenix, AZ)	4	Arizona Public Service Company
Wintersburg, AZ (50 MI W of Phoenix, AZ)	4	Arizona Public Service Company
Wintersburg, AZ (50 MI W of Phoenix, AZ)	4	Arizona Public Service Company