UNITED STATES
NUCLEAR REGULATORY COMMISSION
REGION I
2100 RENAISSANCE BLVD.
KING OF PRUSSIA, PA 19406-2713

July 7, 2017

Mr. Peter P. Sena, III
President and Chief Nuclear Officer
PSEG Nuclear LLC – N09
P. O. Box 236
Hancocks Bridge, NJ 08038

SUBJECT: HOPE CREEK GENERATING STATION UNIT 1 – DESIGN BASES ASSURANCE (ENVIRONMENTAL QUALIFICATION PROGRAM) INSPECTION REPORT 05000354/2017007

Dear Mr. Sena:

On July 6, 2017, the U.S. Nuclear Regulatory Commission (NRC) completed an inspection at the Hope Creek Generating Station Unit (HCGS). The enclosed inspection report documents the inspection results, which were discussed on July 6, 2017, with Mr. Edward Casulli, Plant Manager, and other members of your staff.

NRC inspectors examined activities conducted under your license as they relate to safety and compliance with the Commission's rules and regulations and with the conditions of your license. In conducting the inspection, the team examined Public Service Enterprise Group Nuclear (PSEG) implementation of the electrical equipment environmental qualification program required by Title 10, *Code of Federal Regulations* (10 CFR) 50.49 for maintaining the qualified status of equipment during the life of the plant. The inspection involved field walkdowns, examination of selected procedures, calculations and records, and interviews with station personnel.

This report documents one NRC-identified finding of very low safety significance (Green). The finding was determined to be a violation of NRC requirements. However, because of the very low safety significance and because it was entered into your corrective action program, the NRC is treating this finding as a non-cited violation (NCV) consistent with Section 2.3.2.a of the NRC's Enforcement Policy. If you contest the NCV in this report, you should provide a response within 30 days of the date of this inspection report, with the basis for your denial, to the U.S. Nuclear Regulatory Commission, ATTN.: Document Control Desk, Washington DC, 20555-0001; with copies to the Regional Administrator, Region I; the Director, Office of Enforcement, U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001; and the NRC Resident Inspector at HCGS. In addition, if you disagree with the cross-cutting aspect assignment you should provide a response within 30 days of the date of this inspection report, with the basis for your disagreement, to the U. S. Nuclear Regulatory Commission, ATTN: Document Control Desk, Washington, DC 20555-0001; with copies to the Regional Administrator, Region I, and the NRC Resident Inspector at HCGS.

In accordance with 10 CFR 2.390 of the NRC's "Rules of Practice," a copy of this letter, its enclosure, and your response (if any) will be available electronically for public inspection in the NRC Public Docket Room or from the Publicly Available Records component of NRC's document system, Agencywide Documents Access and Management System (ADAMS). ADAMS is accessible from the NRC Web site at http://www.nrc.gov/reading-rm/adams.html (the Public Electronic Reading Room).

Sincerely,

/RA/

Glenn Dentel, Chief
Engineering Branch 2
Division of Reactor Safety

Docket No. 50-354
License No. NPF-57

Enclosure:
Inspection Report 05000354/2017007
w/Attachment: Supplemental Information

cc w/encl: Distribution via LisServ

SUBJECT: HOPE CREEK GENERATING STATION UNIT 1 – DESIGN BASES ASSURANCE (ENVIRONMENTAL QUALIFICATION PROGRAM) INSPECTION REPORT 05000354/2017007

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U.S. NUCLEAR REGULATORY COMMISSION

REGION I

Docket No:	50-354
License No:	NPF-57
Report No:	05000354/2017007
Licensee:	PSEG Nuclear LLC
Facility:	Hope Creek Generating Station Unit 1
Location:	P.O. Box 236, Hancocks Bridge, NJ 08038
Inspection Period:	May 8 through May 26, 2017
Inspectors:	K. Mangan, Senior Reactor Inspector, Division of Reactor Safety (DRS), Team Leader J. Brand, Reactor Inspector, DRS M. Orr, Reactor Inspector, DRS
Approved By:	Glenn Dentel, Chief Engineering Branch 2 Division of Reactor Safety

SUMMARY OF FINDINGS

IR 05000354/2017007; 5/8/2017 – 7/6/2017; Hope Creek Generating Station Unit 1; Design Bases Assurance Inspection (Programs).

The report covers the Design Bases Assurance Inspection - Programs conducted by a team of three U.S. Nuclear Regulatory Commission (NRC) inspectors. The inspectors identified one non-cited violation (NCV), which was of very low safety significance (Green). The significance of most findings is indicated by their color (i.e., greater than Green, or Green, White, Yellow, Red) and determined using Inspection Manual Chapter (IMC) 0609, "Significance Determination Process," dated April 29, 2015. Cross-cutting aspects are determined using IMC 0310, "Aspects Within Cross-Cutting Areas," dated December 4, 2014. All violations of NRC requirements are dispositioned in accordance with the NRC's Enforcement Policy, dated November 1, 2016. The NRC's program for overseeing the safe operation of commercial nuclear power reactors is described in NUREG-1649, "Reactor Oversight Process," Revision 6, dated July 2016.

Cornerstone: Barrier Integrity

Green. The team identified a Green, non-cited violation (NCV) of Technical Specification (TS) 3.6.5.1, for failure to maintain secondary containment integrity. Specifically, while Hope Creek station was operating in mode 1, PSEG personnel did not ensure secondary containment door R-4302 was properly latched (dogged) closed in accordance with procedure CC-AA-201, *Plant Barrier Control Program*. The licensee's failure to ensure the door was properly dogged closed was a performance deficiency and resulted in a degraded secondary containment barrier for approximately 44 hours. The team determined that PSEG operated in violation of the TS LCO which requires restoration of secondary containment integrity within 4 hours or be in at least hot shutdown within the next 12 hours and in cold shutdown within the following 24 hours. Following identification of the door condition by the team PSEG personnel properly dogged the door closed restoring secondary containment.

This finding was determined to be of more than minor significance because it is associated with the configuration control attribute of the Barrier Integrity cornerstone and affected the cornerstone objective of providing reasonable assurance that physical design barriers protect the public from radionuclide releases caused by accidents or events. Specifically, in its un-dogged position the door would not have remained closed, as required to maintain secondary containment integrity, during all design basis accidents. Using IMC 0609, Appendix A, "*The Significance Determination Process for Findings At-Power*," Exhibit 3, "Barrier Integrity Screening Questions," the team determined that this finding was of very low safety significance (Green) because the finding did not represent an actual open pathway in the physical integrity of primary reactor containment (valves, airlocks, etc.), containment isolation system (logic and instrumentation), and heat removal components. The finding was determined to be associated with the cross-cutting area of Human Performance - Procedure Adherence (H.8), in that, licensee personnel did not follow process, procedures, and work instructions which required the secondary containment door to be closed and dogged. (Section 4OA2)

REPORT DETAILS

1. REACTOR SAFETY

Cornerstones: Initiating Events, Mitigating Systems, and Barrier Integrity

1R21 Design Bases Assurance Inspection (Programs) (IP 71111.21N – 9 samples)

.1 Inspection Sample Selection Process

The inspection team assessed the implementation of PSEG's Environmental Qualification (EQ) program, established to meet the requirements of Title 10 of the *Code of Federal Regulations* (10 CFR) 50.49, *Environmental Qualification of Electrical Equipment Important to Safety for Nuclear Power Plants*. The inspection team performed an inspection as outlined in NRC Inspection Procedure (IP) 71111.21N, Attachment 1, "*Environmental Qualification under 10 CFR 50.49 Programs, Processes, and Procedures*." The team reviewed components that were either safety-related equipment relied upon to remain functional during and following design basis events, non-safety-related components whose failure could prevent safety-related equipment from performing design functions, and certain post-accident monitoring equipment. The team then determined which component's environment would be adversely affected by postulated post-accident environmental conditions (temperature, pressure, radiation level or flood level) and reviewed information contained in the HCGS Probabilistic Risk Assessment (PRA) and the U.S. NRC's Standardized Plant Analysis Risk (SPAR) model for HCGS to determine risk significant components that were also required to meet EQ requirements. Additionally, the team interviewed plant staff, reviewed design records, and discussed the EQ program with the resident inspectors to assist in the selection of components. Finally, the team ensured that different types of components were selected included pump motors, motor-operated valves, solenoid valves, limit switches, radiation monitors, and flow/level transmitters that were located both inside and outside of primary containment. Based on these reviews, the team selected nine EQ components and associated sub-components (seals, cables, connectors, and lubricants) for inspection.

.2 Results of Detailed Reviews (9 Samples)

a. Inspection Scope

The inspection was conducted as outlined in NRC IP 71111.21N. The team assessed PSEG's implementation of the EQ program required by 10 CFR 50.49. The team reviewed EQ program-related procedures, component EQ files, EQ test records, equipment maintenance and operating history, maintenance and operating procedures, vendor documents, design documents, previously identified deficiencies, and design calculations. The team also interviewed plant staff knowledgeable of the design, maintenance, and operation of the selected components. The review and associated interviews were performed to evaluate whether PSEG's staff properly maintained the equipment qualifications for electrical equipment important to safety through plant life (repair, replacement, modification, and plant life extension); established and maintained required EQ documentation records; and implemented an effective corrective action program to identify and correct EQ-related deficiencies and evaluate EQ-related industry operating experience. The team also performed

walkdowns (where accessible) of selected components to verify equipment was installed as described in HCGS environmental qualification component documentation files, the environmental conditions were consistent with those assumed in the evaluations; whether equipment surrounding EQ component could fail in a manner that would prevent the component's safety function from being performed; and that the components were installed in their tested configuration. The component and associated subcomponents inspected were:

- Residual heat removal injection valve (BC-HV-F017B)
  Actuator, motor, limit switches, cable, and breaker

- High pressure coolant injection inboard steam isolation valve (FD-HV-F002)
  Actuator, motor, limit switches, cable, and breaker

- Reactor building 480V motor control center (PH-10-B-222)
  MCC, breakers, and supply cable

- Residual heat removal pump room unit cooler (1AVH210)
  Fan motor, cable, and temperature instrumentation

- Reactor vessel level instrument (1BBLT-3622B)
  Differential pressure instrument, and cable

- Safety relief valve (PSV F013F)
  Solenoids, acoustic monitor, and cable

- Filter recirculation and ventilation system radiation monitor (SP-1SPXE-4811)
  Radiation monitoring instrument

- Emergency core cooling system pressure transmitter (BB-1BBPT-N094B-B21)
  Differential pressure instrument, and cable

- Safety auxiliary cooling system heat exchanger bypass valve (EG-1EGHS-2457A)
  Temperature control, actuator, solenoid, and switches

In addition to the inspection of the selected components, the team performed general plant walkdowns to determine whether components located in areas susceptible to a high-energy line break were properly evaluated for operation in a harsh environment. The team also reviewed procurement records and inspected a sample of replacement parts stored in the warehouse to verify EQ parts approved for installation in the plant were properly identified and controlled; and that storage time and environmental conditions did not adversely affect the components' qualified life or service life. Finally, the team reviewed a sample of components that had been removed from the EQ program to determine if PSEG had correctly determined that the components no longer were required to meet 10 CFR 50.49. Documents reviewed for this inspection are listed in the Attachment.

b. Findings

No findings were identified.

4. OTHER ACTIVITIES

4OA2 Identification and Resolution of Problems (IP 71152)

a. Inspection Scope

The team reviewed a sample of problems that PSEG had previously identified and entered into the corrective action program. The team reviewed a sample of these issues to verify an appropriate threshold for identifying issues and to evaluate the effectiveness of corrective actions. Additionally, the team evaluated whether deficiencies identified during the inspection were properly documented and evaluated in the corrective action program.

b. Findings

Introduction: The team identified a Green, NCV of TS 3.6.5.1, because PSEG did not maintain secondary containment integrity. Specifically, while HCGS was operating in mode 1, the team identified that secondary containment door R-4302 was not properly latched (dogged) closed in accordance with procedure CC-AA-201, *Plant Barrier Control Program*. Because the door was not dogged, secondary containment was determined to be inoperable.

Description: During a walkdown of the reactor building on May 10, 2017, the team identified that secondary containment door R-4302 was closed but not properly latched (un-dogged). PSEG personnel accompanying the inspectors immediately contacted the control room and were authorized to properly dog the door closed. Operators verified that negative secondary containment pressure was being maintained and that there were no control room alarms associated with the door. An extent of condition walkdown of accessible areas was also performed by operators to verify there were no other similar conditions.

The team reviewed procedure CC-AA-201 plant barrier control program and noted that Section 3.3 of the procedure requires that doors should be placed in their required position and secured properly after use in order to be considered capable of performing their credited barrier functions. A door latch or closure mechanism may be required for the door to meet its design function. For water tight doors to be considered secured, all “dogs” must be engaged unless a different number and configuration were previously evaluated by engineering as meeting the design function.

The team found that the design functions of Door 4302, include:

- Secondary Containment Boundary – to prevent the release of radionuclides following design basis event (DBE) and to ensure that safety-related and non-safety related reactor building exhaust fans can maintain a slightly negative pressure within secondary containment rooms.
- Internal Flooding Barrier - to ensure that design basis pipe failures do not cause flooding in adjacent safety related areas.
- Fire Protection Barrier – to ensure that fire in adjacent areas do not spread.

Following this review the team questioned whether the door in an un-dogged position was operable for each of the credited functions. PSEG performed a prompt technical assessment to address these questions. PSEG determined that pre-event secondary containment ventilation was not impacted based on a review of secondary containment vacuum levels; internal flooding assessment for safety related equipment was not impacted by the door not being secured and the door in the closed position was adequate to address the very low combustible material loading for the area. However, the licensee determined that the door may not remain closed during certain DBE in order to maintain secondary containment integrity. PSEG determined that if the door opened following a seismic event or as result of the pressure transient in secondary containment following a large-break-loss-of-coolant accident, secondary containment would not be maintained at a negative pressure and an open pathway to the environment from secondary containment would exist making secondary containment inoperable. As a result operators would be required to manually close and dog the door to restore secondary containment integrity.

The team reviewed TS LCO 3.6.5.1, *Secondary Containment Integrity*, and determined that it requires that secondary containment integrity be maintained operable while in Mode 1. The LCO requires restoration of secondary containment integrity within 4 hours or be in at least hot shutdown within the next 12 hours and in cold shutdown within the following 24 hours. The team concluded that because the door was un-dogged for 44 hours PSEG operated in violation of the TS LCO. Specifically, because PSEG personnel did not identify or recognize that secondary containment door R-4302 was not properly dogged closed, the TS specified actions were not implemented within the required time of the LCO.

Analysis: The licensee's failure to ensure secondary containment Door 4302 was properly dogged closed in accordance with procedure CC-AA-201, "*Plant Barrier Control Program,*" was a performance deficiency and resulted in an in-operable secondary containment barrier for approximately 44 hours, which is greater than the TS allowed outage time of 4 hours.

This finding was determined to be of more than minor significance because it is associated with the configuration control attribute of the Barrier Integrity cornerstone and affected the cornerstone objective of providing reasonable assurance that physical design barriers protect the public from radionuclide releases caused by accidents or events. Specifically, in its un-dogged position the door would not have remained closed, as required to maintain secondary containment integrity, during all design basis accidents. Using IMC 0609, Appendix A, "The Significance Determination Process for Findings At-Power," Exhibit 3, "Barrier Integrity Screening Questions," the team determined that this finding was of very low safety significance (Green) because the finding did not

represent an actual open pathway in the physical integrity of primary reactor containment (valves, airlocks, etc.), containment isolation system (logic and instrumentation), or heat removal components. The finding was determined to be associated with the cross-cutting area of Human Performance - Procedure Adherence (H.8), in that, licensee personnel did not follow process, procedures, and work instructions which required the secondary containment door to be closed and dogged.

Enforcement: TS 3.6.5.1 requires that secondary containment integrity be maintained while operating in mode 1. The TS requires restoration of secondary containment integrity within 4 hours or be in at least hot shutdown within the next 12 hours and in cold shutdown within the following 24 hours. Contrary to the above, on May 8, 2017, PSEG personnel did not to ensure secondary containment door R-4302 was properly latched (dogged) closed in accordance with procedure CC-AA-201, "*Plant Barrier Control Program*," which resulted in a degraded secondary containment barrier for approximately 44 hours and required TS actions were not taken. The TS LCO was restored when PSEG personnel properly dogged the door closed on May 10, 2017. Because the licensee entered the issue into their corrective action program (notification 20764632) and the finding is of very low safety significance (Green), this violation is being treated as an NCV, consistent with the Section 2.3.2 of the NRC Enforcement Policy **(NCV 05000354/2017007-01, Secondary Containment Integrity Not Maintained Due to Door not Properly Dogged)**.

4OA6 Meetings, including Exit

On May 26, 2017, the team presented the inspection results to Mr. Steve Poorman, Operations Director, and other members of the PSEG staff. The team reviewed proprietary information, which was returned to PSEG at the end of the inspection.

On July 6, 2017, the team conducted a phone exit to discuss the inspection results with Mr. Edward Casulli, Plant Manager, and other members of the PSEG staff. The team verified that no proprietary information was documented in the report.

ATTACHMENT

SUPPLEMENTAL INFORMATION

KEY POINTS OF CONTACT

PSEG Personnel
E. Casulli, Plant Manager
A. Ford, Design Engineer
C. Lukacsy, Operations Supervisor
T. MacEwen, Compliance Engineer
A. Ochoa, Compliance Engineer
M. Richers, Engineering Manager
A. Bhuta, Design Engineer
S. Poorman, Director, Operations
D. Mannai, Director, Regulatory Compliance
F. Powell, Superintendent Inventory & Logistics Nuclear Procurement Operations
V. Cavallaro, Nuclear Equipment Operator
S. Todd, Nuclear Equipment Operator

LIST OF ITEMS OPENED, CLOSED, DISCUSSED, AND UPDATED

Opened/Closed

05000354/2017007-01	NCV	Secondary Containment Integrity Not Maintained Due to Door not Properly Dogged

LIST OF DOCUMENTS REVIEWED

Drawings
400336, Dual 3 Way SOV Manifold Assembly, Rev. 0
A-0201-0, General Plant Floor Plan Level 1, Rev. 14
A-0202-0, General Plant Floor Plan Level 2, Rev. 20
A-0203-0, General Plant Floor Plan Level 3, Rev. 20
A-0204-0, General Plant Floor Plan Level 4, Rev. 18
A-0205-0, General Plant Floor Plan Level 5, Rev. 23
A-0206-0, General Plant Floor Plan Level 6, Rev. 14
E-0228-0, Electrical Schematic Diagram Safety Auxiliaries Cooling SACS HX Bypass Shutoff Valves, Rev. 8
E-0468-0, Sht.1, NSSS Pump Room Unit Coolers, Rev. 10
E-1408-0, Typical Connection for Environmentally Qualified Relief Valves Inside Drywell, Rev. 5
E-2067-0, Sht. 2, Cable Block Diagram Solenoid Pilot Valves “A” for S/R valves lPSV-F013F, H and M, Rev. 4
E-2069-0, Sht. 1, Cable Block Diagram Steam Relief Valves, Reactor Head Vent & Main Steam Lines Drain Temp’s, Rev. 1
E-2076-0, Sht. 2, Cable Block Diagram HPCI Steam Supply Isolation Valve 1-HV-F002, Rev. 5
E-2234-0, Sht. 13, Cable Block Diagram RHR Injection Valve, Rev. 2
E-4468-0, Sht. 1, Cable Block Diagram - NSSS Pump Room Unit Coolers, Rev. 10
E-6067-0, Sht. 4, Electrical Schematic Diagram Solenoid Pilot Valves “A” for S/R Valves PSV-F013 H, F & M, Rev. 9
E-6076-0, Sht. 2, Electrical Schematic Diagram HPCI Steam Supply Isolation Valve 1-HV-F002, Rev. 7

E-6234-0, Sht. 13, Electrical Schematic RHR Injection Valve, Rev. 7
JJ1405-1, Instrumentation Location Drawing, Reactor Building Area 14, Plan at Elevation 145'0", Rev. 4
M-11-1, Sht. 1, Safety Auxiliaries Cooling Reactor Building, Rev. 32
M-26-1, Radiological Monitoring Systems, Rev. 25
M-26-1, Sht.1, Radiological Monitoring System (RMS), Rev. 25
M-42-1, Sht. 1, Nuclear Boiler Vessel Instrumentation, Rev. 28
M-51-1, PID Residual Heat Removal, Rev. 51
M-55-1, Sht. 1, High Pressure Coolant Injection, Rev. 40
M-83-1, Sht. 1, PID Reactor Building Supply Control Diagram, Rev. 35
M-83-1, Sht. 2, PID Reactor Building Supply Control Diagram, Rev. 1

Environmental Qualification Binders
EQH-048, Environmental Qualification Binder for Eaton/Cutler Hammer Model 24S Seismic Motor Control Centers, Rev. 1
EQ-HC-002, Environmental Qualification Binder for Buchanan, Terminal/Fuse Block Model(s) NQB Series Terminal Blocks & NQ0 Series Terminal/Fuse Blocks, Rev. 1
EQ-HC-005A, Environmental Qualification Binder for Rockbestos, 600 Volt Power, Control and Instrumentation Cable, Model(s) Firewall SR 125°C, Rev. 1
EQ-HC-006A, Environmental Qualification Binder for Okonite 600 Volt Power and Control Cable, Models Okonite-FRM Insulation, Okolon Jacket, Rev. 1
EQ-HC-008E, Environmental Qualification Binder for NAMCO Controls, Receptacle and Connector/Cable Assembly Model EC-210 Series, Rev. 1
EQ-HC-008G, Environmental Qualification Binder for NAMCO Controls Quick Disconnect Model EC-290, Rev. 1
EQ-HC-012C, Environmental Qualification Binder for Microswitch Indicating Light Model PTW 5200 Series, Rev. 1
EQ-HC-013, Environmental Qualification Binder for CONAX, Circular Multi-pin Connector, Model 7MP0-14000, Rev. 1
EQ-HC-020A, Environmental Qualification Binder for Weed Instruments, Resistance Temperature Detector (RTD), Thermocouples Models(s) 612D-Series, 611D-Series, NT4B250U Series, TN4B250G Series, Rev. 2
EQ-HC-020B, Environmental Qualification Binder for Weed Instrument Co. Inc. Temperature Elements, Model 611, Rev. 1
EQ-HC-021A, Environmental Qualification Binder for Limitorque, Motor Operated Valves Model SMB Series, Rev. 1
EQ-HC-021C, Environmental Qualification Binder for Limitorque, Valve Actuator Components Model Fibrite Limit and Torque Switch, Exxon Nebula EPO and Mobil 28 Lubrication for Main Gearbox and Limit Switch Gearbox, Rev. 1
EQ-HC-021D, Environmental Qualification Binder for Limitorque, Valve Actuator Component Model(s) Multi-Point Terminal Strips, Rev. 1
EQ-HC-028B, Environmental Qualification Binder for Automatic Switch Company Solenoid Valve Model NP8316 Series, Rev. 1
EQ-HC-031, Environmental Qualification Binder for Valcor Engineering Co. Solenoid Operated Valves Models V526 Series, Rev. 1
EQ-HC-034, Environmental Qualification Binder for Target Rock, Safety Related Valve Elec. Actuator (SOV) Model P/N 400336-1 and 400337-1, Rev. 1
EQ-HC-039, Environmental Qualification Binder for Kurz Instruments, Inc., Sensor and Cable Model(s) D445625003 Sensor/WW2375 Cable, Rev. 1
EQ-HC-050, Environmental Qualification Binder for United Electric Temperature Controllers Model(s) B302-103, B402-120, Rev. 1

EQ-HC-053B, Environmental Qualification Binder for Westinghouse Electric Low Voltage Penetrations, Rev. 1
EQ-HC-055, Environmental Qualification Binder for General Electric Co. Insulated Detector, Model 237X731G001, Rev. 1
EQ-HC-056A, Environmental Qualification Binder for Model E7000 Series Tyco Electronics, Control and Timing Relays, Rev. 2
EQ-HC-063, Environmental Qualification Binder for RELIANCE, Class H, Type RH Insulated Pump Room Cooler Motors, Model(s) 184T, 213T, 254T and 256T, Rev. 1
EQ-HC-065A, Environmental Qualification Binder for Rosemount INC., Pressure Transmitter Model(s) 1153 Series B, Rev. 1
EQ-HC-072A, Environmental Qualification Binder for Cutler - Hammer Inc. (Eaton), Class 1E, 480V MCC, Reactor Area, Model CH-MCC, Rev. 0
EQ-HC-072B, Environmental Qualification Binder for Cutler-Hammer (Eaton) Class 1E, 480 Volt MCC, Reactor Area, Model Indicating Lights 10250T Series, Rev. 0
EQ-HC-072D, Environmental Qualification Binder for Cutler-Hammer (Eaton) Class 1E, 480 Volt MCC, Reactor Area, Model HMCP Breakers, Rev. 0
EQ-HC-072E, Environmental Qualification Binder for Cutler-Hammer (Eaton) Class 1E, 480 Volt MCC, Reactor Area, Model Auxiliary Relays D26MR Series, Rev. 0

Procedures

CC-AA-203, Environmental Qualification Program, Rev. 8
CC-AA-203-1005, Environmental Qualification Program Implementation, Rev. 2
D7.5, Hope Creek Generating Station Environmental Design Criteria, Rev. 22
E118-MCC-001, Equipment Qualification Maintenance and Surveillance, Cutler-Hammer 480 V AC MCC Components, Rev. 8
HC.IC-SC.GP-0066(Q), Process Radiation Monitoring-Division 1 Channel D1-K610A Main Steam Line Radiation Monitor, Rev. 17
HC.IC-SC.GP-0067(Q), Process Radiation Monitoring-Division 2 Channel D11-K610B Main Steam Line Radiation Monitor, Rev. 15
HC.IC-SC.GP-0068(Q), Process Radiation Monitoring-Division 3 Channel D11-K610C Main Steam Line Radiation Monitor, Rev. 16
HC.IC-SC.SP-0067 (Q), Process Radiation Monitoring-Division 2 Channel D11-K610B Main Steam Line Radiation Monitor, Rev. 14
HC.IC-SC.SP-0069 (Q), Process Radiation Monitoring-Division 4 Channel D11-K610D Main Steam Line Radiation Monitoring, Rev. 14
HC.MD-CM.AB-0006(Q), Main Steam Safety/Relief Valve Removal and Installation, Rev. 27
HC.OP-AB.CONT-0004 (Q), Radioactive Gaseous Release, dated 5/29/12
HC.OP-AB.RPV-0008 (Q), Reactor Coolant Activity, dated 3/15/17
HC.OP-GP.ZZ-0002 (Q), Primary Containment Close Out, Rev. 17
HC-MD-PM-PH-0001 480 V MCC Starter Preventive Maintenance, Rev. 28
HC-OP-EO.ZZ-0101(Q)-FC, Reactor/Pressure Vessel (RPV) Control, Rev. 13
MA-AA-716-100, Maintenance Alterations Process, Rev. 12
MA-AA-723-300, Diagnostic Testing and Inspection of Motor Operated Valves, Rev. 11
MA-AA-724-453, Disassembly and Reassembly of Type SMB-0 through 4 and 4T Limitorque Actuators, Rev. 1
NC.DE-PS.ZZ-0002(Q), Environmental Qualification Program Salem and Hope Creek Generating Station, Rev. 2
SM-AA-102-1001, Warehouse Operations, Rev. 12
SM-AA-300, Procurement Engineering Support Activities, Rev. 7
SM-AA-300-1004, In-Storage Maintenance of Nuclear Materials, Rev. 3

SM-AA-300-1005, PSEG Nuclear LCC In-Storage Shelf Life Program, Rev. 5
WC-AA-111, Predefine Process, Rev. 8

Miscellaneous

4H Z-5306, Change the MMIS Classification of the Main Steam Line RMS Detectors (1SPRE-N006A-D) from EQ: EH to EQ: EX, dated 6/9/95
Calculation 11-28 (Q), HCGS Flood Calc. Elev. 102', Rev. 2
Calculation 11-92 (Q), Reactor Building Flooding-EL. 54' and 77', Rev. 5
Clarification of Information Related to the Environmental Qualification of Limitorque Motorized Valve Operators, dated August 1989
DCP 80117905, Exempt Neutron Monitoring System from EQ Program Scope, Rev. 0
DCP 80118902, HPCI Barometric Condenser LSH-4890 EQ Exclusion, Rev. 0
DCR 80088902, Change Classification of H2 Recombiner Control Panel's Components, Rev. 0
DCR 80089003, Change Classification of H2 Recombiner Control Panels and Associated Components to "EX", Rev. 0
DCR 80090905, Eliminate Mechanical Qualification Program for Hope Creek, Rev. 0
DCR 80117908 & HCN 16-019, EQ Exclusion RHR Testable Check Valve Bypasses, Rev. 0
DP-15-3212, Commercial Grade Item Dedication Evaluation for Dow Corning Sealant White RTV-738, dated 10/20/15
DP-16-3308, Commercial Grade Item Dedication Evaluation for Parker O-ring, Size 2-238, EPDM Material (E515-80), Rev. 0
DP-16-3311, Commercial Grade Item Dedication Evaluation for Square D, Liquid Level Switch
EGS-TR-913601-01, Environmental Qualification Report for EGS ¾ Inch Quick Disconnect Electrical Connector (Bayonet Type), dated 3/9/93
EQMSIS-E118-MCC-001, EQ Maintenance Requirements for Cutler-Hammer 480 V AC MCC Components, dated 9/28/07
Equipment Qualification Master List, dated 3/3/17
Hope Creek Generating Station - Updated Final Safety Analysis Report, Rev. 21
IEEE Std. 323-1974, IEEE Standard for Qualifying Class 1E Equipment for Nuclear Power Generating Stations
Main Steam System Health Report Q1-2017
MAP 7400-B, Drywell Radiological Boundary Map Elevation 109'-127', Section 0 to 90 Degrees, dated 10/14/13
NRC Information Notice 88-89, Degradation of Kapton Electrical Insulation, dated 11/21/88
P/N 9038-AG1-S4, dated 10/28/16
PSBP-315626, Nuclear Environmental Qualification Report for EGS ¾ Inch
Regulatory Guide 1.89, Environmental Qualification of Certain Electrical Equipment Important to Safety for Nuclear Power Plants, Rev. 1
Regulatory Guide 1.89, Environmental Qualification of Certain Electric Equipment Important to Safety for Nuclear Power Plants, Rev. 1
Regulatory Guide 1.97, Instrumentation for Light-Water-Cooled Nuclear Power Plants to Assess Plant and Environs Conditions During and Following an Accident, Rev. 2
Safety Evaluation by the Office of Nuclear Reactor Regulation Related to Amendment No. 53, dated 8/17/92
Technical Specifications – Hope Creek Generating Station, through Amendment 204

Notifications

20625612	20764567*	20764726*	20765266*
20719597	20764579*	20764732*	20765511*
20745880	20764632*	20764733*	20765698*
20761139	20764634*	20765185*	20765699*
20763931*	20764636*	20765186*	
20764566*	20764671*	20765187*	

*Written as a result of this inspection

Surveillance and Modifications Acceptance Tests

HC.MD-PM.PH-0001(Q), 480 Volt MCC Starter Preventive Maintenance 60 Month Tech. Spec. Inspection, performed on 4/30/12 and 10/19/16

HC.MD-ST.ZZ-0009(Q), Motor Operated Valve Thermal Overload Protection Surveillance, performed on 4/23/12 and 10/27/16

HC.MD-ST.ZZ-0011(Q), Low Voltage Molded case Circuit Breaker Overcurrent Trip Testing, performed on 10/19/16

HC.OP-ST.BC-0005(Q), LPCI Subsystem B ECCS Time Response Functional Test – 18 Months, performed on 11/4/13

MA-AA-723-301, Periodic Inspection of Limitorque Model SMB/SB/SBD-000 through 5 Motor Operated Valves (1BCHV-F017B), performed on 4/29/15

Vendor Manuals

PJ201Q-0086-01, NAMCO Quick Connector, dated 8/30/90

PJ374Q-0001, Qualification Plan and Test Report for the Kurz Isokinetic Flow Sampling and Control System, Rev. 2

PN1-A41-8010-0010, General Electric Process Radiation Monitoring, Gamma Sensitive Ion Chamber Model 237X731G1 & G11, Rev. 1

PN1-B21-F013-0162, Target Rock Model 7567F Safety Relief Valve, Rev. 9

PP303AQ-0305, Limitorque Type SMB Instruction and Maintenance Manual, Rev. 7

Vendor Test Reports

108025, Qualification Report for Pressure Transmitters Rosemount Model 1153 Series B, Rev. J, dated 2/17/12

108031, Qualification Report for Pressure Transmitters Rosemount Model 1153 Series D, dated 11/11/80

D8300131, Rosemount Pressure Transmitters, Model 1153 Series B and D, Rev. A, dated 12/13/83

NQRN-2, Qualification of Okonite FMR Insulated Cables, Rev. 6

PM719AQ-0007, Reliance Electric Company Type Test Support Analysis, Random Wound Motors, dated 7/1/78

PM780AQ-0199, Qualification Testing of COMSIP, Inc. Customline Division Control Panel Components, Rev. 6

PP301302Q-0245, Limitorque Corporation Qualification Test, Limitorque Valve Actuator, Rev.1

PP303AQ-0060, BWR Qualification Report Containment Chamber Service, Rev. 2

VTD 301157, ASCO Qualification Test Report AQS21678, Rev. 3

VTD 312316-02, ASCO Catalog NP-1 Solenoid Valves, dated 4/14/90

VTD 315551-02, NAMCO EC 210- Series Receptacle and Connector Assemblies, dated 6/10/92

VTD 315758, Qualification of Okonite-FMR Insulated Cables, Rev. 1

VTD 316694, Limitorque Corporation Qualification Type Test Report of Multi-Point Terminal Strips, Rev. 1
VTD 317196, Spectrum Technologies Qualification Test Report for Microswitch and Cutler Hammer Indicating Lights, Rev. 1
VTD 317196-01, Cutler Hammer Indicating Light and Microswitch Indicating Light, dated 3/30/94
VTD 322707, Nuclear Logistics Inc. Qualification Report for Dwyer Pressure Switch Model 1638-1, Rev. 0
VTD 325184, Qualification Report for Agastat Relays, Rev. 1
VTD 430729, Qualification Report for Pressure Transmitters Rosemount Model 1153 Series B, Rosemount Report 108025, Rev. D
VTD 430833, Qualification Test Report for Amerace Corp. Agastat E7000 Series Timing Relays, Rev. 3
VTD 431641, AREVA MMC Compartment Environmental Qualification Report, Rev. 1
VTD 431992, Areva NP Inc., Document Number QR 00-05-03, Environmental Qualification Test Report, D26MR Series Relays, Rev. 000, dated 12/19/01
VTD 900669, Type Test Report for Pressure Transmitters, Rosemount Models 1153 Series B and D, Output Code “R” Rosemount Report 08300131, Rev. A

Work Orders

01015125	40019912	50123116	60087227
30087759	40019969	50149449	60097716
40001016	40023078	50164010	60113625
40001429	40027541	50165109	60131817
40006766	40033930	50167309	70184822
40015081	50096024	51108197	

LIST OF ACRONYMS

ADAMS	Agencywide Documents Access and Management System
CFR	Code of Federal Regulations
DBE	Design Basis Event
DRS	Division of Reactor Safety
EQ	Environmental Qualification
HCGS	Hope Creek Generating Station
IMC	Inspection Manual Chapter
IP	Inspection Procedure
LCO	Limiting Condition of Operation
NCV	Non-cited Violation
NRC	Nuclear Regulatory Commission
PRA	Probabilistic Risk Assessment
PSEG	Public Service Enterprise Group Nuclear
SPAR	Standardized Plant Analysis Report
TS	Technical Specification