July 11, 2005

Mr. Christopher M. Crane
President and CEO
AmerGen Energy Company, LLC
200 Exelon Way, KSA 3-E
Kennett Square, PA 19348

SUBJECT: OYSTER CREEK GENERATING STATION - NRC INSPECTION REPORT 05000219/2005006

Dear Mr. Crane:

On May 27, 2005, the U.S. Nuclear Regulatory Commission (NRC) completed an engineering team inspection at Oyster Creek Generating Station. The enclosed inspection report documents the inspection findings, which were discussed on May 27, 2005, with Mr. J. Randich and other members of your staff.

The inspection 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. The inspectors reviewed selected procedures and records, observed activities, and interviewed personnel.

Based on the results of this inspection, the NRC identified three findings of very low safety significance (Green), two of which were determined to involve violations of NRC requirements. However, because of their very low safety significance and because they have been entered into your corrective action program, the NRC is treating the two violations as non-cited violations (NCVs). If you contest the NCVs 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, D.C. 20555-0001; with copies to the Regional Administrator Region I; the Director, Office of Enforcement, U.S. Nuclear Regulatory Commission, Washington, D.C. 20555-0001; and the NRC Resident Inspector at Oyster Creek.

In accordance with 10 CFR 2.390 of the NRC's "Rules of Practice," a copy of this letter and its enclosure will be available electronically for public inspection in the NRC Public Document

Room or from the Publicly Available Records (PARS) component of NRC's document system (ADAMS). ADAMS is accessible from the NRC Website at http://www.nrc.gov/reading-rm/adams.html (the Public Electronic Reading Room).

Sincerely,

/RA/

Lawrence T. Doerflein, Chief
Engineering Branch 2
Division of Reactor Safety

Docket No. 50-219
License No. DPR-16

Enclosure: Inspection Report 05000219/2005006
w/Attachment: Supplemental Information

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U.S. NUCLEAR REGULATORY COMMISSION

REGION I

Docket No.	50-219
License No.	DPR-16
Report No.	05000219/2005006
Licensee:	AmerGen Energy Company, LLC (AmerGen)
Facility:	Oyster Creek Generating Station
Location:	Forked River, New Jersey
Dates:	May 9, 2005 - May 27, 2005
Inspectors:	Larry Scholl, Senior Reactor Inspector Stephen Pindale, Senior Reactor Inspector Leonard Cheung, Senior Reactor Inspector Brice Bickett, Reactor Inspector Marlone Davis, Reactor Inspector James Krafty, Reactor Inspector Jeffrey Kulp, Reactor Inspector
Approved By:	Lawrence T. Doerflein, Chief Engineering Branch 2 Division of Reactor Safety

Enclosure

SUMMARY OF FINDINGS

IR 05000219/2005006; 05/09/05 - 05/27/05; Oyster Creek Generating Station; Safety System Design and Performance Capability.

The inspection was conducted by seven regional inspectors. The inspection identified three findings of very low safety significance (Green), two of which were also non-cited violations (NCV). The significance of most findings is indicated by their color (Green, White, Yellow, Red) using Inspection Manual Chapter (IMC) 0609, "Significance Determination Process" (SDP). Findings for which the SDP does not apply may be Green or be assigned a severity level after NRC management review. The NRC's program for overseeing the safe operation of commercial nuclear power reactors is described in NUREG-1649, "Reactor Oversight Process," Revision 3 dated July 2000.

A. NRC-Identified and Self-Revealing Findings

Cornerstone: Barrier Integrity

- Green. The team identified a finding where the licensee was not performing spray nozzle and header inspections as specified in the Updated Final Safety Analysis Report (UFSAR).

  The team determined that this finding was greater than minor because it is associated with Design Control attribute of maintaining containment functionality under the Barrier Integrity cornerstone objective to provide reasonable assurance that the containment will protect the public from radio-nuclide releases caused by accidents or events. This finding is of very low safety significance because the finding did not result in the actual loss of the safety function of the containment spray system. (Section 1R21.1)

Cornerstone: Mitigating Systems and Barrier Integrity

- Green. The team identified a non-cited violation of 10 CFR 50, Appendix B, Criterion III, Design Control, where the licensee did not maintain the containment spray system's capability to close the pump suction valves from an accessible location during the post-accident phase of a postulated accident. The controlling modification also introduced an unexpected suction valve operational anomaly and did not adequately test the completed modification.

  This finding is greater than minor because it is associated with the Design Control attribute of the Mitigating Systems cornerstone, and affected the cornerstone's objective of providing containment spray and core spray system availability, reliability and capability to respond to a large break loss of coolant initiating event. Also, the finding is associated with the System and Barrier Performance attribute of the Barrier Integrity cornerstone (containment functionality aspect) and affected the cornerstone's objective of providing reasonable assurance that the containment will protect the public from radio nuclide releases caused by accidents or events. This finding was determined to be of very low safety significance based on the low frequence of a large loss of coolant accident concurrent with a passive failure of piping. (Section 1R21.2)

Cornerstone: Mitigating Systems

C Severity Level IV. The inspectors identified a Severity Level IV non-cited violation of 10 CFR 50.59 Changes, Tests, and Experiments, requirements for the failure to perform an adequate safety evaluation of a change to the facility. Specifically, the safety evaluation did not evaluate the potential for a new type of malfunction of an installed liner associated with the 30-inch overboard discharge line on the emergency service water (ESW) system.

This finding was addressed using traditional enforcement since it potentially impacts or impedes the regulatory process in that a required 10 CFR 50.59 evaluation was not adequate. This is contrary to the regulatory process that allows licensees to make changes without a license amendment provided that licensees comply with 10 CFR 50.59 process. The finding is more than minor because there was a reasonable likelihood that the change could have required Commission review and approval prior to implementation. However, the finding has been evaluated as very low safety significance (Green) because the liner was subsequently determined to have not have introduced a new malfunction that would impact on the ESW system. (Section 1R21.3)

B. Licensee-Identified Violations

None

REPORT DETAILS

1. REACTOR SAFETY

Cornerstones: Initiating Events, Mitigating Systems, and Barrier Integrity

1R21 <u>Safety System Design and Performance Capability</u> (IP 71111.21)

a. <u>Inspection Scope</u>

In selecting systems and components for review, the team focused on risk significance and considered the risk information contained in the licensee's Probabilistic Risk Assessment (PRA) and the U.S. Nuclear Regulatory Commission's (NRC) Simplified Plant Analysis Risk (SPAR) models. Using risk insights, the team selected the Emergency Service Water (ESW) and Containment Spray (CS) systems and their respective components for review. The ESW system provides cooling for the CS heat exchangers, and together, the systems perform the torus cooling, post-accident containment heat removal and long-term decay heat removal functions. In selecting the components for review, the team also considered the maintenance and modification history as well as operating experience.

The team reviewed design and licensing basis documents for the systems to understand CS and ESW system needs, safety functions and regulatory requirements. The documents reviewed included the applicable technical specifications (TS), updated final safety analysis report (UFSAR) and design basis documents (DBD). Selected mechanical, heat transfer, hydraulic, and electrical calculations and analyses were reviewed to verify the appropriate input assumptions were used, and that the results were appropriately applied to the current system and plant configuration. The team's inspection activities were focused on verifying that the design bases were being correctly implemented for the selected systems and components to ensure that the systems can be relied upon to meet their design basis functional requirements during normal, abnormal, and accident conditions.

The team reviewed the piping and instrumentation drawings, electrical drawings and other supporting documents and conducted plant walkdowns of the accessible portions of CS and ESW systems to verify the physical installation was consistent with the design basis. In addition, during these walkdowns, the team evaluated the material condition of the plant to determine if the licensee was adequately identifying and correcting material equipment problems. The team also toured the main control room, performed control board checks and discussed CS and ESW system design and operation with the licensed operators. The team also observed operation of the system in the control room simulator during operator training.

In addition, the team interviewed cognizant system engineers and design engineers regarding the system design, operation, and performance. The team reviewed control diagrams, setpoint calculations, calibration procedures and surveillance tests to verify the capability of both CS and ESW instrumentation and controls to respond to design basis transient and accident conditions. The team reviewed a selected sample of system operating procedures, off-normal operating procedures, and valve line-up lists to determine that they adequately controlled the plant configuration and supported operator actions assumed in the design basis.

The risk significant components selected for detailed review by the team included the CS and ESW pumps, the CS pump suction and spray header motor operated isolation valves, the associated pump and valve electrical controls, and the CS heat exchangers. The team reviewed a sample of completed pump periodic surveillance test procedures to ensure the tests demonstrated the required component functions, and that the acceptance criteria were consistent with the design basis assumptions and the pump performance curves. The team also reviewed inservice testing (IST) results to verify that acceptance criteria were met or that any discrepancies for the tested components were appropriately dispositioned.

The team also reviewed a selected sample of procedures, test and maintenance records and the licensee's commitments relative to the CS system motor operated valves. The review was done to assess the implementation of the licensee's program for periodic testing of motor-operated valves and for implementing NRC Generic Letter (GL) 96-05, "Periodic Verification of Design-Basis Capability of Safety-Related Power-Operated Valves."

Relative to potential system and component degradation, the team conducted interviews with Oyster Creek inservice inspection (ISI) and design engineering personnel, and reviewed design specifications and plant design change documents regarding the material selection processes used for the CS and ESW pumps, pipe materials and coatings. The team verified the structural integrity of these components through the review of design calculations, problem reports and corrective actions, field revision notices, and test results.

A list of documents reviewed is included in the attachment to this report.

b. Findings

1. Failure to Inspect Containment Spray Header Nozzles

Introduction. A finding was identified for the failure of the licensee to perform inspections on the containment spray headers and nozzles to ensure potential blockages did not exist.

Description. The team identified that Oyster Creek's UFSAR, Section 6.2.2.4, was revised circa 1997 to state that a percentage of the spray nozzles and portions of the internal spray headers are visually inspected to ensure that potential blockages do not exist.

The containment spray system consists of two loops that provide flow to four drywell spray headers (two per loop) and a common torus spray header. All of the spray headers are made of carbon steel and are therefore susceptible to degradation caused by corrosion. These spray headers are normally dry and inerted with nitrogen during operation. However, Oyster Creek has had significant outage periods with the system exposed to an open air environment; and the system has been wetted previously (twice) due to inadvertent containment spray initiations. In addition, during surveillance testing the containment spray system is pressurized with water up to the drywell and torus spray header inlet isolation valves, which provides a potential for moisture intrusion due to valve seat leakage. The inspections would verify system integrity and assess potential corrosion degradation and nozzle blockage concerns. Periodic containment spray air tests are also performed to confirm nozzles are not blocked. However, since it is a low volume air test, the test alone may not ensure that, when subjected to high volume water flow, corrosion products would not block nozzles.

The inspectors also noted that in November 2000, two blocked nozzles on the torus spray header were identified during the periodic air test. The licensee initially identified the need to remove the nozzles, clean, and inspect portions of the nozzles and associated piping. However, the licensee subsequently performed a safety evaluation that allowed the proposed corrective actions for the plugged nozzles to be deferred until the 2002 outage. During the 2002 outage the torus spray header was flushed to clear the blocked nozzles. However, the team noted that in reviewing this event, AmerGen missed an opportunity to identify and resolve the failure to perform the inspections discussed in the UFSAR.   During the inspection AmerGen initiated a work order to perform the specified inspection of the system headers and nozzles during the next refueling outage.

Analysis. The team determined that the performance deficiency was the failure to perform inspections on the containment spray system to prevent spray nozzle blockage. The team determined that this finding was greater than minor because it is associated with design control attribute of maintaining containment functionality under the Barrier Integrity cornerstone objective to provide reasonable assurance that the containment will protect the public from radio-nuclide releases caused by accidents or events.

This finding was assessed in accordance with NRC Manual Chapter 0609, Appendix A, Attachment 1, "Significance Determination Process (SDP) for Reactor Inspection Findings for At-Power Situations," and was determined to be of very low safety significance (Green) since the failure to perform the inspections did not result in an actual adverse effect on the containment spray system performance. Therefore, this issue screened out of the Phase 1 SDP as a Green finding.

Enforcement. The failure to perform the header and nozzle inspections was associated with testing and inspection activities discussed in the UFSAR. No violations of NRC requirements were identified. The licensee entered the performance deficiency into the correction action program (CAP 2005-2178). **(FIN 05000219/2005006-01, Failure to Perform Containment Spray System Header Nozzle Inspections)**

2. Inadequate Design Control Associated with Containment Spray Suction Valves

Introduction. The team identified a finding of very low safety significance (Green) associated with the inadequate design and implementation of a modification that removed the auto-start feature of the containment spray system. The issue was determined to be a non-cited violation (NCV) of 10 CFR 50, Appendix B, Criterion III, Design Control.

Description. The team identified that the capability to shut the containment spray pump suction valves from an accessible location during post accident conditions was inadvertently eliminated during a modification to the containment spray system implemented in 1993.

The design feature to have the capability to shut the suction valves from an accessible location for leak isolation purposes was identified in an NRC safety evaluation contained in the Integrated Plant Safety Assessment/Systematic Evaluation Program (SEP) Final Report (NUREG 0822) dated January 1983. The licensee subsequently verified that the valves could be shut from the 460V switchgear room, an accessible location during post-accident conditions (including fuel failure scenarios) in 1986. In July 1988, Supplement 1 to NUREG 0822 documented that the procedures and operating location specified by the licensee were adequate to support this function.

In 1991, a design modification to remove the pump auto-start feature from the containment spray system was developed and approved. In their review of the modification documentation, the team noted that none of the documents referred to or discussed the need to be able to operate the suction valves from an accessible location post-accident. The modification changed the control circuit for the containment spray pump suction valves by eliminating some relays in the control circuit. The relays were physically located in the 460V switchgear room and, following the modification, the capability to operate the suction valves from the 460V switchgear room was eliminated. The system modification was implemented in 1993. The post-modification configuration permitted remote operation of the suction valves from either the associated reactor building corner room (local electric or manual operation) or from the associated motor control center (MCC), located in the reactor building, 23' elevation. Valve operation at the associated MCC can be accomplished only by lifting leads and installing jumpers, an action specified by station procedures. However, both of these locations are inaccessible in post-accident conditions for postulated accidents that result in fuel damage. The suction valves cannot be operated from the control room.

During further review of the modification and interviews with station personnel, the team identified that the suction valve circuit was modified such that the valve would not remain closed when operated by the local switch or the manual operator on the valve. The circuit had been inadvertently modified such that the valve automatically reopened upon reaching the closed position, an unintended result of the 1993 control circuit wiring change. The team also found that the modification test plan was inadequate in that it did not test the operation of the suction valve and therefore did not identify the suction valve wiring design discrepancy.

Analysis. The performance deficiency was a failure to ensure that the containment spray pump suction valves could be closed from an accessible location following a large break loss of coolant accident (LLOCA). The valve control circuit design change did not consider and maintain the SEP (NUREG 0822) design feature to provide the capability to shut the suction valves from an accessible location for leak isolation purposes. Specifically, while a procedure existed to close these valves in the event of identified leakage (by lifting leads and installing jumpers from the MCC), the radiological conditions that may exist following some LLOCAs would not permit access to the specific MCCs.

The issue was more than minor because it is associated with the Equipment Performance attribute of the Mitigating Systems cornerstone, and affected the cornerstone's objective of providing containment spray and core spray system availability, reliability and capability to respond to a large break loss of coolant initiating event. Also, the issue is associated with the System and Barrier Performance attribute of the Barrier Integrity cornerstone (containment functionality aspect) and affected the cornerstone's objective of providing reasonable assurance that the containment will protect the public from radio nuclide releases caused by accidents or events. Specifically, the containment spray system acts to control containment pressure and as a barrier to a radiological release to the secondary containment in the event of an LLOCA.

The Senior Risk Analyst (SRA) determined the issue to be of very low safety significance (Green) using a modified Phase 2 risk analysis in accordance with the Significance Determination Process (SDP). A Phase 2 risk analysis was needed because the issue degraded both the Mitigating Systems and the Barrier Integrity cornerstones. The risk analysis used the Oyster Creek Risk Informed Inspection Notebook, Revision 1, Table 3.4 for an LLOCA. The very low safety significance was based on the extremely low frequency (in the range of E-9 per year) of an LLOCA with an independent, concurrent (within a 24-hour period), passive failure of the approximately 300 feet of susceptible piping downstream of the four containment spray suction valves.

Enforcement. 10 CFR 50 Appendix B, Criterion III, Design Control, requires that measures be established to assure that applicable regulatory requirements and the design basis for structures, systems and components are correctly translated into specifications, drawings, procedures and instructions. Contrary to the above, during the implementation of a modification to remove the auto-start feature from the containment spray system, the licensee did not maintain the system's capability to operate the containment spray pump suction valves from an accessible location during the post-accident phase. The modification also introduced an unexpected valve operational feature in that the valve would automatically reopen upon its manual closure. Since this finding is of very low safety significance (Green) and has been entered into the licensee's corrective action program (CAP 02005-2230), this violation is being treated as a non cited violation (NCV), consistent with Section VI.A of the NRC Enforcement

Policy. **(NCV 05000219/2005006-02, Inadequate Design Control Associated with Containment Spray Suction Valves)**

3. Inadequate 10 CFR 50.59 Evaluation for Overboard Piping

Introduction. The team identified a Severity Level IV violation of 10 CFR 50.59 where the licensee did not perform an adequate safety evaluation of a change to the facility. Specifically, the licensee's safety evaluation did not assess the potential for the introduction of a new malfunction of a cured in place pipe (CIPP) liner in the 30-inch overboard discharge line on the emergency service water (ESW) system. The issue was determined to be a non-cited violation (NCV) of 10 CFR 50.59, Changes, Tests, and Experiments.

Description. The licensee installed a CIPP liner in the 30-inch overboard discharge line in accordance with modification No. OC-MD-H496-003, Rev. 2, and the associated safety evaluation, which was approved on November 30, 2000. The 30-inch overboard discharge line is not a safety-related component; however, a failure of this line could impact the ESW safety system, which discharges directly into it. The team noted that the safety evaluation for the modification package stated that there were no new components added by the modification and therefore concluded that there was no possibility of a malfunction of a different type than evaluated previously in the Safety Analysis Report. However, the team concluded new components, of a different material (the liner), had been added and questioned whether there was a possibility of a liner failure that could impact the ESW system. The licensee subsequently performed a failure modes and effects analysis on the overboard line with the installed CIPP liner; and concluded that the modification did not introduce any new malfunctions. The team determined that, while the results of the revised evaluation did not indicate the need for prior NRC approval, the original safety evaluation was inadequate.

Analysis. The team determined that the performance deficiency was that the licensee did not perform an adequate safety evaluation to assess possible malfunctions and evaluate the potential consequences of a failure of the 30-inch overboard discharge liner on the ESW system as required by 10 CFR 50.59. This finding was addressed using traditional enforcement since it potentially impacts or impedes the regulatory process in that a required 10 CFR 50.59 evaluation was not adequately performed. In accordance with Supplement 1 of the NRC Enforcement Policy the finding is more than minor because there is a reasonable likelihood that the change could have required Commission review and approval prior to implementation. However, the finding has been evaluated as very low safety significance (Green) because a subsequent detailed failure modes and effects' analysis determined that no new possible malfunction had been introduced by the modification.

Enforcement. 10 CFR 50.59 defines changes to the facility that require detailed evaluations to determine whether the changes can be implemented without obtaining prior NRC approval. Contrary to the above, the licensee implemented a change to the facility that required a detailed evaluation without performing a 10 CFR 50.59 analysis that addressed all of the criteria in the regulation. Specifically, on November 30, 2000, the licensee evaluated a change to the facility as described in the UFSAR without a determination that the liner modification did not create the possibility of a malfunction of a structure, system or component important to safety with a different result than any previously evaluated in the UFSAR. Because the failure to provide adequate written evaluation of the impact of a liner malfunction on the ESW system is of very low safety significance and has been entered into the licensees corrective action program (CAP 02005-2230), this violation is being treated as a non-cited violation (NCV), consistent with Section VI.A of the NRC Enforcement Policy. **(NCV 05000219/2005006-03, Failure to Perform an Adequate 10 CFR 50.59 Analysis)**

4. OTHER ACTIVITIES (OA)

4OA2 Problem Identification and Resolution

a. Inspection Scope

The team assessed whether AmerGen personnel were identifying issues at the proper threshold and entering them in the corrective action program by reviewing a sample of condition reports associated with the CS and ESW systems. The team's selection of items to review focused on design related issues which may have an effect on the design bases capabilities of the selected systems. In addition, the team reviewed a sample of condition report operability determinations and condition report follow-up actions to verify that problems were identified, documented, and effectively resolved.

The team also reviewed the results of the licensee's focused area self-assessment of the CS and ESW systems that was performed in March and April of 2005.

b. Findings

No findings of significance were identified.

4OA6 Meetings, including Exit

Exit Meeting Summary

On May 27, 2005, the team presented the inspection results to Mr. J. Randich and other members of the Oyster Creek staff. The licensee acknowledged the findings presented. An update to the inspection results were presented to Mr. D. Barnes by telephone on July 8, 2005. The team verified that the inspection report does not contain proprietary information.

ATTACHMENT: SUPPLEMENTAL INFORMATION

SUPPLEMENTAL INFORMATION

KEY POINTS OF CONTACT

Licensee Personnel

D. Barnes, Engineering
T. Carroll, MOV Coordinator
P. Cervenka, Operations
D. Fawcett, Licensing Engineer
M. Godknecht, Risk Analyst
J. Kandasamy, Manager, Regulatory Assurance
J. Magee, Director, Engineering
J. O'Rourke, Assistant Engineering Director
P. Procacci, Engineering
J. Randich, Plant Manager
H. Ray, Engineering
S. Schwartz, System Manager
P. Tamburro, Engineering

LIST OF ITEMS OPENED, CLOSED, AND DISCUSSED

Opened and Closed

05000219/2005006-01	FIN	Failure to Perform Containment Spray System Header Nozzle Inspections
05000219/2005006-02	NCV	Inadequate Design Control Associated with Containment Spray Suction Valves
05000219/2005006-03	NCV	Failure to Perform an Adequate 10 CFR 50.59 Analysis (ESW Overboard)

LIST OF DOCUMENTS REVIEWED

Calculations/Analysis/ECR

EXOC005-CALC-001, Suction Strainer Effects on Core Spray Pump NPSH, Rev. 0
EXOC005-CALC-002, System Acceptance Criteria for Containment Spray and ESW Flow Rates, Rev. 0
C-1302-241-E540-096, OCNGS Containment Spray/Emergency Service Water System Pressure Profile, Rev 1
C-1302-732-5350-005, Class IE Solid State Trip Device Setting for 480V USS Circuit Breakers, Rev. 5
C-1302-730-5350-004, Generic Letter 89-10 MOVs Degraded Grid Voltage Calculation, Rev. 8
C-1302-700-5350-004, OCNGS Electrical Model for Short Circuit and Voltage Drop Analyses, Revision 8
C-1302-241-5450-039, Containment Response to a DBA LOCA with 3200 gpm Containment Spray and 3000 gpm ESW Flows, Rev. 1
C-1302-741-5350-001, Loading of Emergency Diesel Generators and Unit Substations, Revision 7
C-1302-243-5450-044, OC DBA LOCA Containment Response with Reduced Containment Spray Heat Exchanger Area, Rev. 0
C-1302-241-E610-082, Containment Accident Response to the Removal of Automatic Spray Logic, Rev. 0
C-1302-241-E540-103, OC NSR Piping Analysis, Containment Spray System Inner and Outer Rings, Rev. 1
C-1302-240-5450-004, Evaluation of Peak Drywell Pressure for TRACG and RELAP5 Blowdowns, Rev. 2
C-1302-241-5450-073, Acceptable Containment Spray Heat Exchanger Fouling Resistance, Rev. 0
C-1302-241-E120-085, Containment Spray System Heat Exchanger Performance Evaluation, Rev. 1
C-1302-226-E620-379, OC Decay Heat Power with Uncertainty, Rev. 0
C-1302-241-5360-004, Containment Spray/ESW System Performance, Rev. 0
C-1302-241-5360-006, Containment Spray System Pressure Profile, Rev. 1
C-1302-241-5450-012, Suppression Chamber Spray Initiation, Rev. 3
C-1302-241-5450-044, Containment Spray System Flow Scenarios, Rev. 0
C-1302-241-5450-069, Core and Containment Spray Suction Header Flow Distribution, Rev. 1
C-1302-241-E120-086, Significance of Suppression Chamber Spray Nozzle Blockage, Rev. 0
C-1302-241-E120-109, Containment Spray Heat Exchanger Performance Evaluation, Rev. 0
C-1302-241-E320-095, Containment Spray Flow Loop Error (FT-IP0003A/B), Rev. 0
C-1302-241-E610-074, Core Spray NPSH Assessment, Rev. 2
C-1302-241-E610-080, Calculation of Torus Pool Temperature an NPSH Input, Rev. 2
C-1302-241-E610-108, BWROG EPGs/SAGs, Minimum Drywell Spray Flow, Rev. 0
C-1302-532-5310-026, Emergency Service Water RO Modification, Rev. 0
C-1302-532-5310-028, Evaluation of Loss of ESW Heat Tracing, Rev. 1
C-1302-532-5310-031, OC ESW Pump Available NPSH, Rev. 1

C-1302-700-5350-003, OC-4160V Class IE Protective Device Relay Set Points, Rev. 5
C-1302-731-E320-017, 4160V Degraded Voltage Setpoint Uncertainty
C-1302-731-E510-015, OC Degraded Grid Voltage Relay Setpoint Evaluation Study, Rev. 3
C-1302-732-E510-048, Circuit Breaker Coordination Curves, Rev. 0
C-1302-900-E540-013, MOV Delta P and Basis, GL89-10, Rev. 2
C-1302-900-E610-026, BWROG EPGs/SAGs, Appendix C Plant Specific Inputs, Rev. 0
CC-AA–309-1001, 4160V Class IE Protective Device Relay Set Points

Procedures

607.4.005, CS/ESW Pump System 2 Operability and Comprehensive / Preservice / Post-Maintenance Inservice Test, Rev. 50
607.4.004, CS/ESW System 1 Pump Operability and Comprehensive / Preservice / Post-Maintenance Inservice Test, Rev. 56
607.4.009, Containment Spray System 1 and System 2 Inservice Test Valve Position Check, 11/19/04
607.4.016, Containment Spray and Emergency Service Water System 1 Pump Operability and Quarterly Inservice Test, Rev. 4
2000-GLN-3200.01, Plant Specific Technical Guidelines for the Symptom Based Emergency Operating Procedures, Rev. 8
ER-AA-302-1001, MOV Rising Stem Motor Operated Valve Thrust and Torque Sizing and Set-up window determination Methodology, Rev. 3
2000-OPS-3024.05, Containment Spray System - Diagnostic and Restoration Actions, Rev. 13
2400-SME-3780.06, Dielectric Testing for 2.3kV and 5kV Cables and Equipment
2400-SME-3915.03, ESW 4160V Breakers Preventive Maintenance, Rev. 8
2400-SME-3915.08, CS 480V Pump Breakers Preventive Maintenance, Rev. 15
607.3.002, Containment Spray Component Calibration, Rev. 56
607.4.007, CS/ESW System 1 Pump Operability Test, Rev. 18
607.4.008, CS/ESW System 2 Pump Operability Test, Rev. 17
607.4.017, CS/ESW Pump System 2 Operability / Quarterly Inservice Test, Rev. 5
632.2.001, Normal Emergency Interlock Test, Rev. 21
665.4.010, Containment Spray Leak Reduction Procedure, Rev. 16
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LIST OF ACRONYMS

ADAMS	Agencywide Documents Access and Management System
AmerGen	AmerGen Energy Company, LLC
AR	Action Request
CAP	Corrective Action Process
CFR	Code of Federal Regulations
CS	Containment Spray
DBD	Design Basis Document
ESW	Emergency Service Water
IMC	Inspection Manual Chapter
LLOCA	Large Break Loss of Coolant Accident
MCC	Motor Control Center
NCV	Non-Cited Violation
NRC	Nuclear Regulatory Commission
PI&R	Problem Identification & Resolution
PRA	Probabilistic Risk Assessment
SDP	Significance Determination Process
SEP	Systematic Evaluation Program
SPAR	Simplified Plant Analysis Risk
SRA	Senior Risk Analyst
SSC	Systems, Structures and Components
ST	Surveillance Test
TS	Technical Specification
UFSAR	Updated Final Safety Analysis Report
WO	Work Order