

July 13, 2006

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 INTEGRATED INSPECTION
REPORT 05000219/2006003

Dear Mr. Crane:

On June 30, 2006, the US Nuclear Regulatory Commission (NRC) completed an inspection at your Oyster Creek Generating Station. The enclosed integrated inspection report documents the inspection findings, which were discussed on July 13, 2006, with Mr. Tim Rausch, Site Vice President, 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.

The report documents three self revealing findings of very low safety significance (Green). These findings were determined to involve a violation of NRC requirements. However, because of the very low safety significance and because they were entered into your corrective action program, the NRC is treating these three findings as non-cited violations (NCVs) consistent with Section VI.A of the NRC's Enforcement Policy. If you contest these NCVs, you should provide a response within 30 days of the date of this inspection report, with the basis for your denial, to the Nuclear Regulatory Commission, ATTN: Document Control Desk, Washington DC 20555-0001; with copies to the Regional Administrator, Region I; the Director, Office of Enforcement, United States Nuclear Regulatory Commission, Washington, DC 20555-0001; and the NRC Resident Inspector at Oyster Creek.

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We appreciate your cooperation. Please contact me at (610) 337-5200 if you have any questions regarding this letter.

Sincerely,

/RA/

Ronald R. Bellamy, Ph.D., Chief
Projects Branch 7
Division of Reactor Projects

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

Enclosure: Inspection Report 05000219/2006003
w/Attachment: Supplemental Information

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Mr. C. M. Crane

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U. S. NUCLEAR REGULATORY COMMISSION

REGION I

Docket No.: 50-219

License No.: DPR-16

Report No.: 05000219/2006003

Licensee: AmerGen Energy Company, LLC (AmerGen)

Facility: Oyster Creek Generating Station

Location: Forked River, New Jersey

Dates: April 01, 2006 - June 30, 2006

Inspectors: M. Ferdas, Senior Resident Inspector
R. Treadway, Resident Inspector
P. Kaufman, Senior Reactor Inspector
A. Rosebrook, Project Engineer
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Approved By: Ronald R. Bellamy, Ph.D., Chief
Projects Branch 7
Division of Reactor Projects

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SUMMARY OF FINDINGS

IR 05000219/2006003; 04/01/06 - 06/30/06; AmerGen Energy Company, LLC, Oyster Creek Generating Station; Maintenance Effectiveness, and Event Follow-up.

The report covered a 3-month period of inspection by resident inspectors, project engineers, regional inspectors, an announced inspection by regional inspectors, and an in-office review by a regional inspector. Three Green non-cited violations (NCV) were identified. The significance of most findings are indicated by their color (Green, White, Yellow, or 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: Initiating Events

Green. A self-revealing finding was identified regarding inadequate procedure adherence, when operators did not properly implement an alarm response procedure which contributed to a hydrogen detonation and the isolation of the offgas and augmented offgas (AOG) systems on February 13, 2006. This finding was determined to be a non-cited violation of technical specification 6.8.1a, "Procedures and Programs." AmerGen's corrective actions involved providing training to operations personnel on this event and communicating expectations regarding procedure usage.

The finding was more than minor because it was associated with the human performance attribute of the initiating events cornerstone and affected the cornerstone objective to limit the likelihood of those events that upset plant stability during shutdown as well as power operations. The inspectors conducted a significance determination process (SDP) Phase 1 screening in accordance with Inspector Manual Chapter (IMC) 0609, Appendix A, "Significance Determination of Reactor Inspection Findings for At-Power Situations." The finding was of very low safety significance (Green) because the finding did not contribute to both the likelihood of a reactor trip and the likelihood that mitigation equipment would not be available. The performance deficiency has a human performance cross-cutting aspect. (Section 4OA3)

Cornerstone: Mitigating Systems

Green. A self-revealing finding was identified regarding an inadequate disassembly of scaffold, which resulted in the unavailability of the 'B' core spray booster pump on June 27, 2006. During disassembly of a scaffold, a scaffold coupler fell and damaged the 'B' core spray booster pump's trico oiler reservoir. This finding was determined to be a non-cited violation of technical specification 6.8.1a, "Procedures and Programs." AmerGen's corrective actions included communicating this event to maintenance personnel and enhancing the pre-job walkdown checklist to identify potential hazards.

The finding was more than minor because it was associated with the human performance attribute of the mitigating systems cornerstone and affected the objective to maintain the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. In accordance with IMC 0609, Appendix A, "Significance Determination of Reactor Inspection Findings for At-Power Situations," the inspectors conducted a Phase I SDP screening and determined the finding to be of very low safety significance (Green). The finding was of very low safety significance because the issue was not a design or qualification deficiency that resulted in a loss of function, did not result in an actual loss of safety function for a single train of equipment for greater than allowed by technical specifications, did not result in an actual loss of safety function of one or more non-technical specification trains of equipment considered risk significant in the maintenance rule program for greater than 24 hours, and was not screened as potentially risk significant from external events. The performance deficiency has a human performance cross-cutting aspect. (Section 1R12)

Cornerstone: Barrier Integrity

Green. A self-revealing finding was identified when AmerGen did not take timely corrective actions for a non-conforming condition on the standby gas treatment (SBGT) system between March 2005 and May 2006. Specifically, sand and debris were identified in the SBGT system '1' due to a hole in the system ductwork. This finding was determined to be a non-cited violation of 10 CFR 50, Appendix B, Criterion XVI, "Corrective Action." AmerGen's corrective actions included a permanent modification which involved installing an aluminum sleeve inside the ductwork to correct the condition.

The finding was more than minor because it was associated with the barrier performance attribute of the barrier integrity cornerstone and affected the cornerstone objective to provide reasonable assurance that physical design barriers protect the public from radionuclide releases caused by accidents or events. In accordance with IMC 0609, Appendix A, "Significance Determination of Reactor Inspection Findings for At-Power Situations," the inspectors conducted a Phase I SDP screening and determined the finding to be of very low safety significance (Green). The finding was of very low safety significance (Green) because the finding only represents a degradation of the radiological barrier function provided for the SBGT system. The performance deficiency has a problem identification and resolution cross-cutting aspect. (Section 1R12)

B. Licensee-Identified Violations

None.

REPORT DETAILS

Summary of Plant Status

The Oyster Creek Generating Station (Oyster Creek) began the inspection period operating at full power.

On May 5, 2006, operators commenced an unplanned plant shutdown in accordance with operating procedures to investigate a tube leak in the steam packing exhaustor and to repair its associated steam trap. During the shutdown, operators had to manually scram the reactor to expedite a reactor shutdown, because leakage had increased from the steam packing exhaustor which impacted the radioactive waste system's ability to process waste water and transfer makeup water to the condensate storage tank. AmerGen reported this event to the NRC in event notification report 42558, "Unplanned Manual Reactor Scram During Shutdown." AmerGen personnel repaired the tube leak by inserting plugs in the damaged tubes. In addition, AmerGen performed maintenance activities during the outage: replaced the 'B' reactor recirculation pump motor with a refurbished spare; repaired a tube leak on the '1-C' high pressure feedwater heater; and replaced packing on the 'A' isolation condenser steam inlet valve and 'A' condensate pump. Operators established the reactor critical on May 10, 2006, and synchronized the main generator to the grid on May 11, 2006. The plant reached full power on May 12, 2006.

Oyster Creek operated at or near full power for the remainder of the inspection period.

1. REACTOR SAFETY

Cornerstones: Initiating Events, Mitigating Systems, and Barrier Integrity

1R01 Adverse Weather Protection (71111.01)

a. Inspection Scope (1 sample)

The inspectors reviewed AmerGen's activities associated with adverse weather preparation. Documents reviewed for this inspection activity are listed in the Supplemental Information attachment to this report.

The inspectors completed an adverse weather preparation inspection for seasonal readiness (hot weather conditions). The inspectors reviewed the updated final safety analysis report (UFSAR) for Oyster Creek to identify risk significant systems that require protection from hot weather conditions. The inspectors reviewed the condensate, feedwater, and emergency diesel generator (EDG) systems to assess their readiness for seasonal susceptibilities (extreme high temperatures). The inspectors performed a walkdown of the condensate and feedwater pump room and the EDG building. The inspectors also reviewed applicable corrective action program condition reports to assess the reliability and material condition of these systems. AmerGen's hot weather preparation activities were also reviewed to assess their adequacy; and to verify they were completed in accordance with procedure requirements.

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b. Findings

No findings of significance were identified.

1R02 Evaluation of Changes, Tests, or Experiments (IP 71111.02)

a. Inspection Scope (6 safety evaluation and 13 screening samples)

The inspectors reviewed six safety evaluations which documented changes to the Oyster Creek facility or procedures that are described in the UFSAR. The inspectors verified that the safety evaluations were documented in accordance with 10 CFR 50.59, "Changes, Tests, and Experiments," and that safety issues pertinent to the changes were properly resolved or adequately addressed. The inspectors assessed the adequacy of the safety evaluations through interviews with the AmerGen personnel and review of supporting information, such as calculations and analyses, design change documentation, procedures, the UFSAR, technical specifications and plant drawings. The inspectors also verified that the safety evaluations concluded that the changes and tests could be accomplished without obtaining license amendments.

In addition, the inspectors reviewed thirteen "screened-out" evaluations for changes, tests and experiments for which AmerGen determined that safety evaluations were not required. The inspectors verified that AmerGen's threshold for performing safety evaluations at Oyster Creek was consistent with the requirements contained in 10 CFR 50.59, "Changes, Test, and Experiments."

The inspectors also reviewed corrective action program condition reports that documented deficiencies associated with 50.59 evaluations and screens. Documents reviewed for this inspection activity are listed in the Supplemental Information attachment to this report.

b. Findings

No findings of significance were identified.

1R04 Equipment Alignment (71111.04)

a. Inspection Scope (3 samples)

The inspectors performed three partial equipment alignment inspections. Documents reviewed for this inspection activity are listed in the Supplemental Information attachment to this report.

The partial equipment alignment inspections were completed during conditions when the equipment was of increased safety significance such as would occur when redundant equipment was unavailable during maintenance or adverse conditions; or after equipment was recently returned to service after maintenance. The inspectors performed a partial walkdown of the following systems, and when applicable, the

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associated electrical distribution components and control room panels, to verify the equipment was aligned to perform its intended safety functions:

- Containment Spray System '2' on April 7, 2006;
- Containment Spray System '1' on April 25, 2006; and
- Diesel Fire Pump 2 on May 16, 2006.

b. Findings

No findings of significance were identified.

1R05 Fire Protection (711111.05)

a. Inspection Scope (10 samples)

The inspectors performed a walkdown of ten plant areas to assess their vulnerability to fire. During plant walkdowns, the inspectors observed combustible material control, fire detection and suppression equipment availability, visible fire barrier configuration, and the adequacy of compensatory measures (when applicable). The inspectors reviewed Oyster Creek's Fire Hazards Analysis Report and Individual Plant Examination for External Events (IPEEE) for risk insights and design features credited in these areas. Additionally, the inspectors reviewed corrective action program condition reports documenting fire protection deficiencies to verify that identified problems were being evaluated and corrected. Documents reviewed for this inspection activity are listed in the Supplemental Information attachment to this report. The following plant areas were inspected:

- 'A' 480 volt safety related breaker room on April 18, 2006;
- C Instrument air compressor system area on April 18, 2006;
- C 'A/B' 4160 volt switchgear room on April 18, 2006;
- C 'C' 125 volt battery room on April 18, 2006;
- C 'B' 480 volt safety related breaker room on April 18, 2006;
- C Steam Jet Air Ejector (SJAE) room on May 7, 2006;
- C Main turbine area on May 9, 2006;
- C Standby Gas Treatment (SBGT) system ventilation tunnel on June 12, 2006;
- C Refuel floor on the 119' elevation of the reactor building on June 14, 2006; and
- C 'A/B' reactor protection system motor-generator set room on June 20, 2006.

b. Findings

No findings of significance were identified.

1R06 Flood Protection Measures (71111.06)a. Inspection Scope (1 sample)

The inspectors performed one external flood protection inspection of the EDG building. The external flood protection design features of the EDG building, such as doors and penetrations were inspected. The maintenance history of flood protection equipment was reviewed to determine whether the equipment was adequately maintained to protect the EDG and related equipment during postulated external flood conditions. Documents reviewed for this inspection activity are listed in the Supplemental Information attachment to this report.

b. Findings

No findings of significance were identified

1R11 Licensed Operator Regualification Program (71111.11)a. Inspection Scope (1 sample)

The inspectors observed one simulator training scenario on May 31, 2006, to assess operator performance and training effectiveness. The scenario involved a reactor scram with loss of decay heat removal resulting in a reactor pressure vessel (RPV) flooding. The inspectors assessed whether the simulator adequately reflected the plant's response, operator performance met AmerGen's procedural requirements, and the simulator instructor's critique identified crew performance problems. Documents reviewed for this inspection activity are listed in the Supplemental Information attachment to this report.

b. Findings

No findings of significance were identified.

1R12 Maintenance Effectiveness (71111.12)a. Inspection Scope (3 samples)

The inspectors performed three maintenance effectiveness inspection activities. The inspectors reviewed the following degraded component issues in order to assess the effectiveness of maintenance by AmerGen:

- Nonconforming condition on the SGBT system '1' on May 31, 2006 (IR 495210);
- Core spray system '1' discharge valve failure on June 2, 2006 (IR 494633); and
- 'B' core spray booster pump becomes inoperable during scaffold disassembly on June 27, 2006, (IR 504275).

The inspectors reviewed completed maintenance work orders and procedures to determine if inadequate maintenance contributed to equipment performance issues. The inspectors reviewed applicable work orders, corrective action program condition reports, preventive maintenance tasks, vendor manuals, and system health reports. Documents reviewed for this inspection activity are listed in the Supplemental Information attachment to this report.

Additionally, the inspectors completed their review of AmerGen's apparent cause evaluation (IR 444410) associated with the containment spray system '1' flow instrument failure on January 21, 2006. This issue was identified as an unresolved item (URI) 05000219/2006002-01 in NRC Inspection Report 05000219/2006002, dated May 4, 2006. The inspectors reviewed AmerGen's evaluation and the maintenance history on the flow instrument.

b. Findings

Containment Spray System '1' Flow Instrumentation Failure

No findings of significance or violations of NRC requirements were identified. URI 05000219/2006002-01 is closed.

Untimely Corrective Actions for the Standby Gas Treatment System

Introduction. A self-revealing finding occurred when AmerGen did not take timely corrective actions for a non-conforming condition on the SBGT system between March 2005 and May 2006. Specifically, sand and debris were identified in the SBGT system '1' due to a hole in the system ductwork and the condition was not properly evaluated for over 12 months. This finding was of very low safety significance (Green) and determined to be a non-cited violation (NCV) of 10 CFR 50, Appendix B, Criterion XVI, "Corrective Action."

Description. On May 31, 2006, maintenance personnel performed work order C2011657 which involved a visual inspection of the SBGT system '1' to determine the source of reported debris in the ductwork downstream of the filter train. Maintenance personnel performed this inspection using an internal camera probe and discovered a hole approximately 6 inches long and 3 inches high located approximately 11 feet below the point of entry on the stack fan pad. The hole was located in a section of ductwork that comes up from the filter train to the suction of the SBGT system '1' fan. The visual inspection noted an accumulation of sand and debris at the bottom of the vertical run of the ductwork. Upon discovery of the hole in the ductwork, AmerGen performed an investigation (IR 495210) to determine the preliminary cause of the hole. AmerGen determined that the hole was caused by corrosion.

On March 29, 2005, an operator observed small gravel and dirt through a plexiglass inspection port on the downstream side of the filters of SBGT system '1'. On May 25, 2005, corrective action condition report CAP O2005-2288 was written which requested that the dirt be removed from the system. On September 7, 2005

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maintenance personnel performed work order C2010731 which removed the debris from the ductwork. The inspectors noted that AmerGen did not take actions to investigate the source of debris in September 2005 even though Oyster Creek experienced a similar condition in August 1996 (Deviation Report 1996-0950). A hole in the ductwork between SBT system '1' filters and exhaust fans caused a significant buildup of sand and gravel at the bottom of the ductwork that resulted in a reduction in system flow in August 1996.

AmerGen created work order A2116183 to perform visual inspections of the ductwork on the SBT system '1'. The inspectors noted that the work order was originally scheduled for February 2006, however, it was rescheduled for May, 2006.

On March 9, 2006, the system manager reported in corrective action program condition report IR 464595 that the presence of loose sand and pebbles were observed through the plexiglass cover on the filter train. The condition report identified that similar issues occurred at Oyster Creek in August 1996 and recommended that an inspection of the ductwork and cleaning of the debris should be performed as soon as possible.

The May 2006 visual inspection identified a hole in the SBT system '1' ductwork. The inspectors reviewed previous surveillance test results from January 2004 to May 2006 and did not identify a degraded trend in the system's performance.

Analysis. The performance deficiency associated with this self revealing finding involved a failure to take timely corrective actions. AmerGen identified a condition adverse to quality and did not take timely corrective actions to correct a non-conforming condition. AmerGen's corrective actions included a permanent modification which involved installing an aluminum sleeve inside the ductwork to correct the non-conforming, degraded condition.

The finding was more than minor because it was associated with the barrier performance attribute of the barrier integrity (radiological barrier functionality of standby gas trains cornerstone) and affected the cornerstone objective to provide reasonable assurance that physical design barriers protect the public from radionuclide releases caused by accidents or events. In accordance with Inspection Manual Chapter (IMC) 0609, Appendix A, "Significance Determination of Reactor Inspection Findings for At-Power Situations," the inspectors conducted a Phase I significance determination process (SDP) screening and determined the finding to be of very low safety significance (Green). The finding was of very low safety significance (Green) because the finding only represents a degradation of the radiological barrier function provided for the SBT system.

The performance deficiency has a cross-cutting aspect in the area of problem identification because AmerGen did not fully evaluate and take actions to address the issue in a timely manner; which resulted in AmerGen operating with a nonconforming/degraded radiological barrier for an extended period of time.

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Enforcement. 10 CFR 50, Appendix B, Criterion XVI, "Corrective Action", requires, in part, that conditions adverse to quality such as failures, malfunctions, deficiencies, deviations, defective material and equipment, and nonconformance are promptly identified and corrected. Contrary to the above, AmerGen did not take timely corrective actions to correct a condition adverse to quality associated with a non-conforming condition on the SBT system '1' from March 2005 through May 2006. However, because the finding was of very low safety significance and has been entered in to the corrective action program in condition report IR495210, this violation is being treated as an NCV, consistent with section IV.A of the NRC Enforcement Policy.

(NCV 05000219/2006003-01, Untimely Corrective Actions for the Standby Gas Treatment System)

Inadequate Scaffold Disassembly Results in Core Spray Booster Pump Unavailability

Introduction. A self-revealing finding was identified regarding an inadequate disassembly of scaffold which resulted in the unavailability of the 'B' core spray booster pump on June 27, 2006. During disassembly of a scaffold, a scaffold coupler fell and damaged the 'B' core spray booster pump's trico oiler reservoir. This finding was of very low safety significance (Green) and determined to be a non-cited violation of technical specification 6.8.1a, "Procedures and Programs."

Description. On June 27, 2006, the inspectors identified a scaffold pole was in contact with piping associated with the scram discharge volume. The scaffold was built to support work activities during a forced maintenance outage in May 2006 which had not yet been completed. The scaffold was also in close proximity to the 'B' core spray booster pump. The inspectors noted that AmerGen's scaffold procedure, "MA-OC-796-024-1001, "Scaffolding Criteria for Oyster Creek," states that scaffold shall not be in contact with safety related pipes. The inspectors discussed this observation with operations personnel and corrective action program condition report IR 504336 was generated to investigate this issue. Operations requested that maintenance personnel remove the scaffold, and engineering personnel perform an operability evaluation (A2136535).

The operability evaluation performed determined that the additional seismic load created by the scaffold against the piping was within the design capacity of the supports for the scram discharge volume. Based on the analysis, the inspectors considered the inadequately installed scaffold to be a minor violation of procedure adherence in accordance with IMC 0612, Appendix E, "Examples of Minor Issues," example 4.a.

However, during removal of the scaffold by maintenance personnel, a scaffold coupler ("knuckle") slipped from the worker's grasp, fell, and contacted and shattered the 'B' core spray booster pump's trico oiler reservoir. The reservoir was severely damaged and operations declared the pump and related core spray train inoperable. The reservoir provides oil makeup to the pump's inboard bearing reservoir. Maintenance removed the scaffold, replaced the reservoir (work order A2145135), and inspected the

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oiler for foreign material. The 'B' core spray booster pump was inoperable for approximately twelve hours.

AmerGen performed an investigation (IR 504275) to determine the cause of this human performance event. AmerGen determined that maintenance personnel did not ensure that they had a proper grip on the scaffold knuckle as it was being removed from the scaffold pole. In addition, the pre-job brief did not identify the need to protect the sight glass to the booster pump that was directly below the scaffold being disassembled. The inspectors noted that AmerGen's scaffold procedure MA-AA-796-024, "Scaffold Installation, Inspection, and Removal," states that scaffold disassembly will be performed using approved work practices and in a safe manner.

Analysis. The performance deficiency associated with this self-revealing equipment problem involved inadequate scaffold disassembly. AmerGen did not ensure that scaffold was disassembled in a safe manner to maintain the availability of the 'B' core spray booster pump. The core spray booster pump was declared inoperable and a fifteen day limiting condition for operation was entered in accordance with technical specification 3.4A, "Emergency Cooling." AmerGen's corrective actions included communicating this event to maintenance personnel and enhancing the pre-job walkdown checklist to identify potential hazards.

The finding was more than minor because it was associated with the human performance attribute of the mitigating systems cornerstone and affected the objective to maintain the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. In accordance with Inspection Manual Chapter (IMC) 0609, Appendix A, "Significance Determination of Reactor Inspection Findings for At-Power Situations," the inspectors conducted a Phase I SDP screening and determined the finding to be of very low safety significance (Green). The finding was of very low safety significance because the issue was not a design or qualification deficiency that resulted in a loss of function, did not result in an actual loss of safety function for a single train of equipment for greater than allowed by technical specifications, did not result in an actual loss of safety function of one or more non-technical specification trains of equipment considered risk significant in the maintenance rule program for greater than 24 hours, and was not screened as potentially risk significant from external events.

The performance deficiency has a cross-cutting aspect in the area of human performance because maintenance personnel did not properly utilize human error prevention techniques such as self checking, such that scaffold disassembly was not performed in a safe manner and safety related equipment was impacted.

Enforcement. Technical Specification 6.8.1a, "Procedures and Programs," requires, in part, that written procedures recommended in Appendix A of Regulatory Guide 1.33, "Quality Assurance Requirements," shall be established, implemented, and maintained. Regulatory Guide 1.33 section 9e states that general procedures for the control of maintenance should be prepared. Contrary to the above, on June 27, 2006, AmerGen did not properly implement scaffold disassembly procedure MA-AA-796-024, "Scaffold

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Installation, Inspection, and Removal,” which required the use of approved work practices to disassemble scaffold in a safe manner. Approved work practices, such as self checking was not properly performed, and resulted in the ‘B’ core spray booster pump becoming unavailable when a scaffold coupler was dropped and damaged the pump’s oiler reservoir. However, because the finding was of very low safety significance and has been entered into AmerGen’s corrective action program in condition report 504275, this violation is being treated as a non-cited violation, consistent with Section VI.A of the NRC Enforcement Policy. **(NCV 05000219/2006003-02, Inadequate Scaffold Disassembly Results in Core Spray Booster Pump Unavailability)**

1R13 Maintenance Risk Assessments and Emergent Work Control (71111.13)

a. Inspection Scope (4 samples)

The inspectors reviewed four on-line risk management evaluations through direct observation and document reviews for the following plant configurations:

- C Containment spray/emergency service water (ESW) system ‘1’ unavailable due to planned maintenance and unplanned unavailability of combustion turbine ‘2’ on April 4, 2006;
- C Containment Spray/ESW system ‘2’ unavailable due to planned maintenance and unplanned unavailability of the intake traveling screens on April 25, 2006;
- C Electromatic relief valve (EMRV) and core spray system ‘2’ unavailable due to planned maintenance on May 25, 2006; and
- C ‘C’ and ‘D’ instrument air dryer and ‘2’ EDG unavailable due to planned maintenance and unplanned unavailability of the ‘S1A’ 4160 Volt breaker on June 5, 2006.

The inspectors reviewed the applicable risk evaluations, work schedules, and control room logs for these configurations to verify the risk was assessed correctly and reassessed for emergent conditions in accordance with AmerGen’s procedure guidance. AmerGen’s actions to manage risk from maintenance and testing were reviewed during shift turnover meetings, control room tours, and plant walkdowns. The inspectors also used AmerGen’s on-line risk monitor (Sentinel) to gain insights into the risk associated with these plant configurations. Additionally, the inspectors reviewed corrective action condition reports documenting problems associated with risk assessments and emergent work evaluations. Documents reviewed for this inspection activity are listed in the Supplemental Information attachment to this report.

b. Findings

No findings of significance were identified.

1R14 Operator Performance During Non-Routine Evolutions and Events (71111.14)a. Inspection Scope (2 samples)

The inspectors evaluated AmerGen's performance and response during two non-routine evolutions to determine whether operator response was consistent with applicable procedures, training, and AmerGen's expectations. The inspectors observed control room activities and/or reviewed control room logs and applicable operating procedures to assess operator performance. Documents reviewed for this inspection activity are listed in the Supplemental Information attachment to this report

Unplanned Manual Reactor Scram During Shutdown Evolution. On May 5, 2006, operators commenced a reactor shutdown in order to repair a leak on the steam packing exhauster. Operators performed the shutdown in accordance with operating procedure 203, "Plant Shutdown," which directed operators to individually insert each control rod to shutdown the reactor. On May 6, 2006, operators received a report from engineers that the steam packing exhauster leak had increased. Operators determined that a manual reactor scram would be performed to increase the cooldown rate. The operators performed a manual reactor scram and stabilized the plant in accordance with abnormal procedure 203.4, "Plant Shutdown Following Reactor Scram." The inspectors observed the shutdown evolution from the control room and verified the operators appropriately implemented abnormal operating procedures and that 10 CFR 50.72, "Immediate Notification Requirements for Operating Nuclear Power Reactors," reporting requirements were considered.

Degraded Main Condenser Vacuum. On June 24, 2006, operators received a main condenser low vacuum alarm. Operators observed a loss of position indication for the Steam Jet Air Ejector (SJAE) '1B1' valve and a drop in off gas flow. Operators swapped SJAE '1B2' to '1B1', and condenser vacuum improved. The inspectors reviewed the control room logs and verified that operators appropriately implemented abnormal operating procedures.

b. Findings

No findings of significance were identified.

1R15 Operability Evaluations (71111.15)a. Inspection Scope (6 samples)

The inspectors reviewed six operability evaluations for degraded or non-conforming conditions associated with:

- C 'D' ESW pump housing degraded on April 5, 2006 (IR 474201);
- C 'A' core spray instantaneous overcurrent trip relays set low on April 19, 2006 (IR 457602);

Enclosure

- 'B' core spray booster pump low oil level in sight glass on May 26, 2006 (IR 494159);
- Service water leak on June 16, 2006 (IR 501458).
- Low sodium pentaborate concentration in standby liquid control tank on June 24, 2006 (IR 503231); and
- Scaffolding pole contacting scram discharge volume piping on June 27, 2006 (IR 504336).

The inspectors reviewed the technical adequacy of the operability determinations to ensure the conclusions were technically justified. The inspectors also walked down accessible equipment to corroborate the adequacy of AmerGen's operability determinations. Additionally, the inspectors reviewed other AmerGen identified equipment deficiencies during this report period and assessed the adequacy of their operability conclusions. Documents reviewed for this inspection activity are listed in the Supplemental Information attachment to this report.

b. Findings

No findings of significance were identified.

1R17 Permanent Plant Modifications (71111.17)

a. Inspection Scope (1 annual and 6 biennial samples)

The inspectors reviewed one permanent plant modification which was installed when the plant was on-line; and six permanent plant modifications which impacted risk-significant equipment, mitigating systems, and risk significant barriers. The inspectors verified that the design bases, licensing bases, and performance capability of risk significant structures, systems, and components (SSC's) had not been degraded by the installed modifications .

The inspectors reviewed a permanent plant modification (OC-06-00449) associated with installation of a sleeve to repair a hole in SBGT system '1' ductwork to exhaust fan '1-8' while the plant was on-line.

The inspectors reviewed the following six permanent plant modifications as part of their biennial review:

- Bypass of the EDG '1' starting resistors with fast start relay (OC-05-00020);
- Installation of a current sensing devices on the main steam isolation valves (MSIV), backup scram, and drywell instrument air isolation solenoid valves (OC-05-00319);
- Revision to the condensate storage tank low level alarm setpoint (OC-04-00258);
- 480 V switchgear room 10CFR50, Appendix R modification (OC-03-00851);
- Replacement of containment spray pump (OC-01-01171); and
- Replacement of service and instrument air compressors (OC-MD-G036-001).

The inspectors performed a walk down of the accessible components associated with the modifications to assess the adequacy of the modification. The inspectors verified that selected attributes were consistent with the design and licensing bases. These attributes included component safety classification, energy requirements supplied by supporting systems, instrument setpoints, and supporting electrical and mechanical calculations and analyses. The inspectors reviewed the design assumptions to verify they were technically appropriate and consistent with the UFSAR. The inspectors reviewed the 50.59 screens or evaluations as described in section 1R02 of this report for each of the permanent modifications selected for review. The inspectors verified that procedures, calculations and the UFSAR were properly updated with revised design information and operating guidance associated with the modification. The inspectors verified that post-modification testing was adequate to ensure the SSC would function in accordance with its design assumptions. The inspectors also reviewed corrective action program condition reports that documented deficiencies associated with permanent plant modifications. Documents reviewed for this inspection activity are listed in the Supplemental Information attachment to this report.

b. Findings

No findings of significance were identified.

1R19 Post-Maintenance Testing (71111.19)

a. Inspection Scope (7 samples)

The inspectors observed portions of and/or reviewed the results of seven post-maintenance tests on the following equipment:

- 'A' & 'B' ESW pump on April 6, 2006;
- '1-2' high pressure screen wash pump on April 14, 2006;
- '1-3' and '1-4' containment spray heat exchanger on April 27, 2006;
- C 'A' isolation condenser outboard steam supply valve (V-14-31) on May 10, 2006;
- C 'B' reactor recirculation pump motor on May 12, 2006;
- C 'B' and 'D' core spray pumps on May 24, 2006; and
- '2' diesel driven fire pump on June 1, 2006;

The inspectors verified that the post-maintenance tests conducted were adequate for the scope of the maintenance performed and that they ensured component functional capability. Documents reviewed for this inspection activity are listed in the Supplemental Information attachment to this report.

b. Findings

No findings of significance were identified.

1R20 Refueling and Other Outage Activities (71111.20)a. Inspection Scope (1 sample)

The inspectors monitored the outage activities described below. Documents reviewed for this inspection activity are listed in the Supplemental Information attachment to this report.

On May 5, 2006, operators initiated and completed a plant shutdown to support a forced maintenance outage to repair a tube leak on the steam packing exhausters. The inspectors observed portions of the shutdown from the control room, and reviewed plant logs to determine that technical specification requirements were met for placing the reactor in "hot shutdown" and "cold shutdown." The inspectors also monitored AmerGen's controls over outage activities to determine whether they were in accordance with procedures and applicable technical specification requirements.

The inspectors verified that cooldown rates during the plant shutdown were within technical specification requirements. The inspectors performed a walkdown of portions of the drywell (primary containment) on May 6, 2006; and the condenser bay and the main steam tunnel on May 8, 2006 to verify there was no evidence of leakage or visual damage to passive systems contained in these areas. The inspectors verified that AmerGen assessed and managed the outage risk. The inspectors confirmed on a sampling basis that tagged equipment was properly controlled and equipment configured to safely support maintenance work. During control room tours, the inspectors verified that operators maintained reactor vessel level and temperature within the procedurally required ranges for the operating condition. The inspectors also verified that the decay heat removal function was maintained through monitoring shutdown cooling (SDC) parameters and performing a walkdown of the system on May 6, 2006. The inspectors observed Oyster Creek's plant onsite review committee (PORC) startup affirmations on May 9, 2006.

The inspectors performed an inspection and walkdown of portions of the drywell prior to containment closure on May 10, 2006, to verify there was no evidence of leakage or visual damage to passive systems and determine that debris was not left which could affect drywell suppression pool performance during accident conditions. The inspectors monitored restart activities that began on May 10, 2006, to ensure that required equipment was available for operational condition changes, including verifying technical specification requirements, license conditions, and procedural requirements. Portions of the startup activities were observed from the control room to assess operator performance. The inspectors further verified that unidentified leakage and identified leakage rate values were within expected values and within technical specification requirements.

b. Findings

No findings of significance were identified.

Enclosure

1R22 Surveillance Testing (71111.22)a. Inspection Scope (6 samples)

The inspectors observed portions of and/or reviewed the results of six surveillance tests:

- Containment spray system '1' surveillance leak test on April 10, 2006;
- 'B' isolation condenser valve operability and in-service test (IST) on April 11, 2006;
- Primary containment isolation valve operability and IST on April 12, 2006;
- '1' EDG fast start functional test on May 17, 2006;
- C EMRV pressure sensor surveillance test on May 26, 2006;
- C Reactor coolant system leakage detection surveillance test on June 19, 2006.

The inspectors evaluated the test procedures to verify that applicable system requirements for operability were adequately incorporated into the procedures and that test acceptance criteria were consistent with Oyster Creek technical specification requirements and the UFSAR. The inspectors also verified that test data was complete, verified, and met procedural requirements to demonstrate that systems and components were capable of performing their intended function. The inspectors also reviewed corrective action program condition reports that documented deficiencies identified during these surveillance tests. Documents reviewed for this inspection activity are listed in the Supplemental Information attachment to this report.

b. Findings

No findings of significance were identified.

1R23 Temporary Plant Modifications (71111.23)a. Inspection Scope (1 sample)

The inspectors reviewed one temporary plant modification installed by AmerGen at Oyster Creek on June 21, 2006. Temporary modification OC 06-00506 involved rerouting chlorination system piping to the service water and ESW system due to an underground chlorination/service water pipe leak. The inspectors verified the modification was consistent with the design and licensing bases of the affected system, and the performance capability of the system was not degraded by the modification. The inspectors reviewed the modification to verify applicable technical specification and operability requirements were met during installation. Documents reviewed for this inspection activity are listed in the Supplemental Information attachment to this report.

b. Findings

No findings of significance were identified.

Cornerstone: Emergency Preparedness [EP]

1EP6 Drill Evaluation (71114.06)

a. Inspection Scope (1 sample)

The inspectors observed one emergency preparedness (EP) drill from the control room simulator and the emergency operations facility (EOF) on April 5, 2006. The inspectors evaluated the conduct of the drill, performance related to developing classifications, and protective action recommendations by AmerGen personnel. The inspectors observed AmerGen's drill critique of the EOF facility to ensure AmerGen appropriately identified performance issues. Documents reviewed for this inspection activity are listed in the Supplemental Information attachment to this report.

b. Findings

No findings of significance were identified.

4. OTHER ACTIVITIES

4OA1 Performance Indicator (PI) Verification (71151)

a. Inspection Scope (4 samples)

The inspectors reviewed AmerGen's program to gather, evaluate, and report information on the four performance indicators (PIs) associated with the reactor safety cornerstone. The inspectors used the guidance provided in Nuclear Energy Institute (NEI) 99-02, Revision 3, "Regulatory Assessment Performance Indicator Guideline" to assess the accuracy of AmerGen's collection and reporting of PI data. The inspectors reviewed licensee event reports (LERs), AmerGen's monthly operating reports, NRC inspection reports, and corrective action program condition reports.

The inspectors verified the accuracy and completeness of the reported data for the following PIs:

- "Scrams with Loss of Normal Heat Removal" between January 1, 2004 through March 31, 2006;
- "Unplanned Scrams per 7000 Critical Hours" between April 1, 2004 through March 31, 2006;
- "Unplanned Power Changes per 7000 Critical Hours" between April 1, 2004 through March 31, 2006; and
- "Safety System Functional Failures" between June 6, 2005 through March 31, 2006.

4OA2 Identification and Resolution of Problems (71152)

.1 Review of Items Entered Into the Corrective Action Program

The inspectors performed a daily screening of items entered into AmerGen's corrective action program to identify repetitive equipment failures or specific human performance issues for follow-up. This was accomplished by reviewing hard copies of each condition report, attending daily screening meetings, and/or accessing AmerGen's computerized database.

.2 Semi-Annual Review to Identify Trends

Inspection Scope (1 sample)

The inspectors performed one semi-annual trend review. The inspectors reviewed AmerGen's corrective action program documents to identify trends that could indicate the existence of a more significant safety issue. The review was focused on repetitive equipment problems, human performance issues, and program implementation issues. The results of the trend review by the inspectors were compared with the results of normal baseline inspections. The review included issues documented outside the normal corrective action system, such as in system health reports, nuclear oversight reports, and Oyster Creek monthly management reports. The review considered a six-month period of January 2006 through June 2006.

Assessment and Observations

The inspectors did not identify trends that could indicate the existence of a more significant safety issue. The inspectors noted that AmerGen has identified an adverse trend in procedure usage and adherence by personnel at Oyster Creek. The management team at Oyster Creek has identified this as a focus area for Oyster Creek and are implementing an "excellence" plan to improve performance. The inspectors have observed less than adequate procedure adherence during their inspection activities and have documented several findings in this area. The inspectors also noted that AmerGen identified in June 2006 an extensive backlog (approximately 500 condition reports) of corrective action program condition reports assigned to the operations department that had not been assigned trend codes. The inspectors commented to AmerGen's management that this condition could potentially impact their ability to accurately and effectively identify human performance trends because all data would not be considered in their analysis. AmerGen acknowledged the inspectors' concerns and stated they were in the process of developing a plan to assign the proper trend codes to the items in the backlog under corrective action program condition report IR 502002.

.3 Annual Sample Review

a. Inspection Scope (1 sample)

The inspectors reviewed AmerGen's completed and proposed corrective actions associated with the material condition and reliability of the intake structure trash racks and traveling screens. The inspector completed a detailed plant intake structure walkdown and interviewed operations personnel to understand operating procedures associated with abnormal conditions at the intake structure. The inspectors reviewed evaluations and recommendations from corrective action program condition report incident report IR 360630 associated with a grassing event in August 6, 2005. The inspectors also reviewed for adequacy the short term and longer term proposed corrective actions associated with debris challenges on equipment reliability at the intake structure.

b. Findings and Observations

No findings of significance were identified. The inspectors noted that a comprehensive intake structure improvement plan existed and was currently being evaluated for prioritization and approval of proposed equipment improvements. The equipment improvement recommendations found within the evaluation IR 360630 had been adequately prioritized and tracked for resolution within Amergen's corrective action system. The inspectors noted that Amergen had recognized that the current design of the trash rack debris removal equipment is challenged by the type of debris noted to be collecting on the racks in the last year or two, and appropriate short term and proposed longer term actions were being considered. However, the inspector noted one missed opportunity in that the evaluation recommended the implementation of data gathering to help identify trends and periods of vulnerability to the different types of incoming debris. In addition, the inspectors noted that assignment 33 of the evaluation required that the basis for actions not implemented be documented and the inspectors could not identify the basis for not performing this recommended trending. AmerGen initiated corrective action condition report IR 502561 to address this concern. The inspectors determined that the overall short term and proposed longer term corrective actions associated with the intake structure were reasonable and had been adequately prioritized.

4OA3 Event Followup (71153) (1 sample)

.1 Inadequate Procedure Adherence Contributes to Hydrogen Detonation in Augmented Offgas System

Introduction. A self-revealing finding occurred regarding inadequate procedure adherence when operators did not properly implement an alarm response procedure which contributed to a hydrogen detonation and the isolation of the offgas and augmented offgas (AOG) system on February 13, 2006. This finding was determined to be a non-cited violation of technical specification 6.8.1a, "Procedures and Programs." As of the end of this inspection period, AmerGen was determining the appropriate corrective actions for this issue.

Enclosure

Description. Approximately seventeen minutes after placing the 'B' AOG system in service on February 13, 2006, operators received an "Offgas Pressure Hi" and "Offgas Isolation" in the control room. A small rumble followed by a loud noise was heard by AmerGen personnel. This resulted in an isolation of the AOG and the offgas system. Operators implemented abnormal procedure-25, "Offgas Explosion," and once the alarm cleared, the offgas isolation valves were re-opened to restore offgas flow to the stack. Throughout this transient condition condenser vacuum remained steady.

One day prior to the event, on February 12, 2006, the plant experienced a loss of the '1E1' bus, which resulted in a loss of power to the AOG system. Operators restarted the system on February 13, 2006 and the system was in service for approximately six hours when it tripped due to high differential pressure across the moisture removal trains. Operators attempted to restore the 'B' AOG system using operating procedure 301.2, "Augmented Offgas System," however the AOG system isolated due to the presence of high hydrogen in the system. Approximately one hour later, after operators implemented annunciator response procedures RAP-10XF1f and RAP-10XF6f, due to high hydrogen indications, the system isolated a second time due to a high hydrogen condition. The annunciator response procedures allows operators to restart the AOG system after the cause of high hydrogen indication is identified and a proper system purge is established. At the time, operators attributed the cause of the high hydrogen isolations and trips of the AOG system to erroneous readings by the hydrogen analyzers in the system. The inspectors noted that AmerGen's initial evaluation (IR 453495) contained statements from operators involved in operating the AOG system on February 13, 2006. The operators stated that it was not uncommon for the system to isolate several times during a startup due to elevated hydrogen indications. Operators exited the alarm procedure and attempted to restart the 'B' AOG system in accordance with the operating procedure. However, high hydrogen alarms were received and an AOG isolation occurred five additional times over a two hour period.

The inspectors determined that the operators did not take additional actions to identify the cause of the high hydrogen condition and on each isolation attributed the cause to the hydrogen analyzers operating erroneously. The operators attempted to restart the 'B' AOG system for the eighth time on February 13, 2006 when a hydrogen detonation occurred in the AOG system and resulted in an isolation of the AOG and offgas system.

AmerGen's initial evaluation of the event determined that the hydrogen detonation in the AOG system was due to an equipment related issue and that no personnel performance issues contributed to causing the event. The inspectors reviewed the actions by operators prior to the hydrogen detonation and identified that the operators did not properly implement alarm response procedures and did not properly rely on the indication from their instrumentation (hydrogen analyzers); which contributed to the hydrogen detonation event. The inspectors discussed this observation with operations personnel and AmerGen documented this in corrective action program condition report 498049. Additional information on this event is contained in NRC inspection report 05000219/2006002, dated May 4, 2006.

Enclosure

AmerGen completed an evaluation (IR 453495) of the event in June 2006, and determined that the hydrogen detonation was caused by an inappropriate amount of catalyst beads placed in the recombiner during maintenance in October 2005 (work order C2010120) which allowed hydrogen gas to bypass the catalyst. In addition, the evaluation identified that operations personnel did not properly implement overhead alarm response procedures which would have also avoided the detonation event.

Analysis. The performance deficiency associated with this self-revealing finding involved inadequate procedure adherence. AmerGen did not follow the annunciator response procedure to correct the cause of the high hydrogen condition prior to restarting the system, which resulted in a high hydrogen detonation and an offgas and AOG system isolation. AmerGen's corrective actions involved providing training to operations personnel on this event and communicating expectations regarding procedure usage.

The finding was more than minor because it was associated with the human performance attribute of the initiating events cornerstone and affected the cornerstone objective to limit the likelihood of those events that upset plant stability during shutdown as well as power operations. The inspectors conducted a significance determination process (SDP) Phase 1 screening in accordance with IMC 0609, Appendix A, "Significance Determination of Reactor Inspection Findings for At-Power Situations." The finding was determined to be of very low safety significance (Green) because the finding did not contribute to both the likelihood of a reactor trip and the likelihood that mitigation equipment would not be available.

The performance deficiency has a cross-cutting aspect in the area of human performance because AmerGen personnel did not follow procedures when they repeatedly attempted to restart the AOG system instead of correcting or removing the 'B' train from service as required by procedures.

Enforcement. Technical Specification 6.8.1a, "Procedures and Programs," requires, in part, that written procedures recommended in Appendix A of Regulatory Guide 1.33, "Quality Assurance Requirements," shall be established, implemented, and maintained. Regulatory Guide 1.33 section 5 states that each safety related annunciator should normally contain the meaning of the annunciator, source of the signal, automatic actions, immediate operator action, and long-range actions. Contrary to the above, on February 13, 2006, AmerGen did not properly implement alarm response procedures RAP-10XF1f and RAP-10XF6f which contributed to a hydrogen detonation. However, because the finding was of very low safety significance and has been entered into AmerGen's corrective action program in condition report 453495 and 498049, this violation is being treated as a non-cited violation, consistent with Section VI.A of the NRC Enforcement Policy. **(NCV 05000219/2006003-03, Failure to Follow Procedures Results in a Hydrogen Detonation in Augmented Offgas System)**

Enclosure

4OA5 Other2. (Closed) NRC Temporary Instruction (TI) 2515/165 - Operational Readiness of Offsite Power and Impact on Plant Riska. Inspection Scope

The objective of TI 2515/165, "Operational Readiness of Offsite Power and Impact on Plant Risk," was to gather information to support the assessment of nuclear power plant operational readiness of offsite power systems and impact on plant risk. The inspectors evaluated AmerGen's procedures against the specific offsite power, risk assessment and system grid reliability requirements contained in TI 2515/165. The inspectors also discussed the attributes of the TI with AmerGen personnel.

The information gathered while completing this TI was forwarded to the Office of Nuclear Reactor Regulation (NRR) for further review and evaluation on April 3, 2006.

b. Findings

No findings of significance were identified.

4OA6 Meetings, Including Exit

Regional Administrator Site Visit. On April 24, 2006, a site visit was conducted by Mr. Samuel J. Collins, Regional Administrator (RA) for the NRC Region I office. During Mr. Collins' visit, he toured the plant and met with AmerGen managers.

Public Meetings. The NRC conducted a meeting with AmerGen on April 24, 2006, to discuss NRC's assessment of safety performance at Oyster Creek for the calendar year 2005. During the meeting Mr. Collins, RA, discussed Oyster Creek's performance with members of AmerGen's management lead by Mr. Timothy Rausch, Station Vice President. The meeting occurred at the Oyster Creek EOF in Toms River, New Jersey and was open for public observation. A copy of slide presentations and other background documents can be found in ADAMS under accession numbers ML060620130, ML061000396, and ML061000370.

Resident Inspector Exit Meeting. On July 13, 2006, the inspectors presented their overall findings to members of AmerGen's management led by Mr. Rausch and other members of his staff who acknowledged the findings. The inspectors confirmed that proprietary information reviewed during the inspection was returned to AmerGen.

ATTACHMENT: SUPPLEMENTAL INFORMATION

Enclosure

SUPPLEMENTAL INFORMATION

KEY POINTS OF CONTACT

Licensee personnel

M. Button, Director, Engineering
K. Drieher, Security Manager
J. Dostal, Shift Operations, Superintendent
J. Kandasamy, Manager, Regulatory Assurance
R. Larzo, Engineering
J. Magee, Director, Maintenance
J. O'Rourke, Assistant Engineering Director
T. Powell, Engineering Programs Manager
J. Randich, Plant Manager
T. Rausch, Site Vice President
H. Ray, Mechanical/Structural Design Engineering Manager
J. Renda, Radiation Protection Manager
J. Vaccaro, Director, Training
M. Wagner, CAP Coordinator
R. Zacholski, Director, Operations

LIST OF ITEMS OPENED, CLOSED, AND DISCUSSED

Opened

None

Opened/Closed

05000219/2006003-01	NCV	Untimely Corrective Actions for the Standby Gas Treatment System (Section 1R12)
05000219/2006003-02	NCV	Inadequate Scaffold Disassembly Results in Core Spray Booster Pump Unavailability (Section 1R12)
05000219/2006003-03	NCV	Failure to Follow Procedures Results in a Hydrogen Detonation in Augmented Offgas System (Section 4OA3)

Closed

05000219/2006002-01	URI	Containment Spray System '1' Flow Instrumentation Failure (Section 1R12)
05000219, 999/2515/165	TI	Operational Readiness of Offsite Power and Impact on Plant Risk (Section 4OA5)

Enclosure

LIST OF DOCUMENTS REVIEWED

In addition to the documents identified in the body of this report, the inspectors reviewed the following documents and records:

Section 1R01: Adverse Weather Protection

Procedures

OP-AA-108-111-1001, "Severe Weather and Natural Disaster Guidelines"
WC-AA-107, "Seasonal Readiness"
OP-OC-108-1001, "Preparation for Severe Weather T&RN for Oyster Creek"
OP-OC-108-109-1002, "Cold Weather Freeze Inspection"
OP-OC-108-109-1003, "Winter Readiness"
328, "Turbine Building Heating and Ventilation system"

Condition Reports (IR)

466767

Work Orders

C2010589, A2099833, A2104619, A2049080, A2117940, A2129904, A2122905, A2122234, A2095783, A2095909, A2095905, A2095906, A2095908, A2127259, A2127260, A2127253, A2113177, A2106405, A2091594

Other

NOS Objective Evidence Report, "OI1 Summer Readiness"
OC-2005-OE-0001, "Operability Evaluation for leakage On 1-1 Containment Spray Heat Exchanger"
System Engineering System Readiness Review for Isolation Condensers
System Engineering System Readiness Review for Core Spray/ADS
System Engineering System Readiness Review for Containment Spray
System Engineering System Readiness Review for ESW
System Engineering System Readiness Review for 230 KV distribution
System Engineering System Readiness Review for 34.5 KV distribution
System Engineering System Readiness Review for Emergency Diesel Generator
System Engineering System Readiness Review for 125 Volt Station DC
System Engineering System Readiness Review for 24/48 Volt Instrumentation DC
System Engineering System Readiness Review for 480 Volt distribution
System Engineering System Readiness Review for Condensate system
System Engineering System Readiness Review for Feedwater system

Section 1R02: Evaluation of Changes, Tests, or Experiments

Procedures

ABN-38, "Station Seismic Event,"
LS-AA-104-1001, "Special Procedure to Remove the Reactor Building Closed Cooling Water (RBCCW) Service System from Service"
NF-OC-641, "Transport and Loading of Transport Cask and Dry Shielded Canister"
SP-04-007, "RBCCW Out of Service Window in 1R20"
5059RM, "10 CFR 50.59 Resource Manual"
645.6.017, "Fire Barrier Penetration Surveillance"

636.4.015, "Diesel Generator #1 Fast Start Test"
351.2, "High Purity Waste System"
351.1, "The Chemical Waste Floor Drain System Operating Procedure"
350.1, "Augmented Offgas System Operation"
334, "Instrument and Service Air System"
333, "Plant Fire Protection System"
331, "Office Building Heating, Ventilation, and Air Conditioning System"
312.9, "Primary Containment Control"
312.3, "Operation of Reactor Building Railroad Air Lock Doors"

Drawings

BR 3002, 480 V System One Line Diagram, Revision 12

BR M608, Augmented Off-Gas, Revision 30

Condition Reports (IR)

20052171, 20052154, 2005032, 20021551, 20032222, 20041242, 20031102, 20052356,
20052346, 20052285, 20052267

Work Orders

A2045756, A2079519, A2045756, A2045756, A2079519, A2082514, C2006429, A2093634

Calculations

C-1302-424-5360-0004, CST Drain Down During A Station Blackout or An Appendix R Fire
C-1302-424-E320-11, Condensate Storage Tank Level - Loop Uncertainty Calculation
C-1302-241-E610-080, Calculation of Torus Pool Temperature as NPSH Input
CC0043704, Performance Curve Instructions, Containment Spray Pump

10 CFR 50.59 Screened-out Evaluations

OC-2006-S-0047, Revise P-2-2A\50GS Relay Setpoint
OC-2006-S-0031, Transferring Pressure Regulators
OC-2005-S-0363, Appendix R Breaker Coordination Issue for IP-4
OC-2005-S-0243, Interim Procedure Revision for Operation With One Reactor Pressure
Regulator
OC-2005-S-0207, Update UFSAR For Operation With One Main Steam Line OOS
OC-2005-S-0187, ECR OC 05-00410
OC-2005-S-0183, ECR 04-00716
OC-2005-S-0018, Temp Mod to Install 480V Heater to the A/B Battery Room
OC-2004-S-0212, Replacement of Containment Spray Pumps 1-1 and 1-2
OC-2004-S-0176, Procedure 312.2
OC-2004-S-0141, NF-OC-641
OC-2004-S-0044, Incorporate Use of Operator Aid into Fire Pump Procedures
OC-2004-S-0032, ECR 04-00049

Safety Evaluations

OC-2004-E-0007, Special Procedure to Remove the Reactor Building Closed Cooling Water
(RBCCW) Service System from Service
OC-2004-E-0003, Plant Specific Technical Guidance for the Emergency
Operating Procedures

OC-2003-E-0002, Operation of the AOG System With Greater than 40 SCFM Outlet Flow
OC-2001-E-0004, Drywell Equipment Drain Tank Integrator
OC-2001-E-0003, Alternate Replacement of Condenser Fan Motor
OC-2001-E-0002, Replacement of Service and Instrument Air Compressors

Other

Risk-Informed Inspection Notebook For Oyster Creek Station, Revision 2
Regulatory Guide 1.187; Guidance For Implementation of 10 CFR 50.59 , Changes, Tests, and Experiments; dated November 2000
NEI 96-07, Guidelines For 10 CFR 50.59 Implementation, Rev. 1
CY-OC-170-301, Offsite Dose Calculation Manual for Oyster Creek Generating Station, Revision 1
CR-2003-0290, Operability Determination - AOG, Revision 0
LT-35, Instrument Calibration: Condensate Storage Tank Level Transmitter Condensate Storage Tank Base (CAA11LL)
OC-03-00851, 480 V Switchgear Appendix R Modification
OC-05-00020, Bypass EDG-1 Starting Resistors with FSR Relay
OC-05-00319, Install Current Sensing Devices on MSIVs, Backup Scram, and Drywell Instrument Air Isolation Solenoid Valves
OC 04-00258-001, Revising the CST Low Level Alarm Setpoint from 25' to 28'
OC 05-00410-001, Provide Remote Capability to Shut Containment Spray Suction Valves
OC 04-00049-000, Contingency Temp Mod for Temp Charger on Battery A
OC 04-00716-000, Revision of Calculation C-1302-241-E-540-090
OC 04-00689-000, Intake and Discharge Water Barriers for NRC 2003 DBT
04-42, PORC Meeting Report, 11/22/2004

Section 1R04: Equipment Alignment

Procedures

116, "Surveillance Test Program"
310, "Containment Spray System Operation"
ABN 36, "Loss of Offsite Power"
665.4.010, "Containment Spray Leak Test Reduction Procedure"
OP-OC-100-1003, "Redundant System Operability Verification Checklist"

Drawings

GE 148F262, "Emergency Condenser Flow Diagram"
GE 148F740, "Containment Spray System"

Condition Reports (IR)

484514, 483216, 487458

Work Orders (AR)

A2080318, A2080320, R2083983

Other

Clearance No. 06500544, Diesel Fire Pump #1
Control Operator Logs
Primary Plant Computer data for Containment Spray system pump discharge pressure and flow

Section 1R05: Fire Protection

Condition Reports (IR)

484412, 483246

Other Documents

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Oyster Creek Nuclear Generating Station Fire Hazard Analysis Report (990-1746)

Section 1R06: Flood Protection

Procedures

ER-AA-10, "Implementation of maintenance rule"

333, "Plant Fire Protection System"

645.4.019, "Redundant Fire Pump Water Supply Operability Test"

645.4.020, "Redundant Fire Pump Water Supply Functional Test"

Drawings

GU 3D-911-02-030, "Fire Area Layout Fresh Water Pump House Redundant Fire Pump Protection Pump House and Tank"

SN 13432.02-ESK-FP1, "Elementary Diagram Redundant Fire Pump"

TP 24711, "Redundant Fire Pump Vibration Analysis"

Condition Report (IR)

446377, 441826, 386089, 377220, 362525

Section 1R11: Licensed Operator Requalification Program

Procedures

ABN-1, "Scram"

ABN- 58, "Instrument Power Failure"

ABN-36, "Loss of Off-site Power"

RAP-B7b, "Emergency Service Water Pump D Trouble"

RAP-K5e, "Intake Screen Pressure High"

RAP-S1e, "Main Breaker 1A Trip"

Other Documents

EOP User's Guide (2000-BAS-3200.02)

Section 1R12: Maintenance Effectiveness

Procedures

ER-AA-310, "Implementation of Maintenance Rule"

ER-AA-310-1004, "Maintenance Rule-Performance Monitoring"

ER-AA-310-1005, "Maintenance Rule - Disposition Between (a)(1) and (a)(2)"

651.4.001, "Standby Gas Treatment System Test"

610.4.003, "Core Spray Operability and In-Service Test"

MA-OC-796-024-1001, "Scaffolding Criteria for Oyster Creek"

MA-AA-796-024, "Scaffolding Installation, Inspection, and Removal"

308, "Emergency Core Cooling System Operation"

2400-SME-3915.01, "Motor Control Center Preventive Maintenance"

610.4.003 Rev 39,"Core Spray Valve Operability and In-Service Test."

Condition Reports (IR)

493191, 484479, 485242, 464595, 444410, 442304, 494633, 498149, 488539, 494860, 504275, 219381, 488539, 494633, 498149

Work Orders

C2011657, A2143372, C2010731, A2116183, PM241021, A0703675, A2141913, A2143182, A2141931, A2143182, R2078272 01, R2083014 01

Drawings

GU 3E-822-21-1000, "Standby Gas Treatment system"
GE 148F740, "Containment Spray system"
GU 3E-611-17-004, "Electrical Elementary Diagram - Control Panel 1F/2F annunciators"
GE 148F912, "Electrical Elementary Diagram - Containment Spray Logic"
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Other Documents

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OC-2006-S-0141, Engineering Evaluation, "Sleeve SGTS system 1 duct inlet to EF-1-8"
C-1302-822-5320-063, Repairs of Standby Gas Treatment system Adjacent to Stack,
CAP 2005-2288, "Standby Gas Treatment system degradation"
Oyster Creek Prompt Investigation for SBGTS '1' duct degradation
Deviation Report 96-960, "Hole in Ductwork for SBGTS"
Equipment Apparent Cause Evaluation (EACE) for FY-241-843 failure
Regulatory Guide 1.33, "Quality Assurance Program Requirements (Operations)"
Application Guide for Aluminum Electrolytic Capacitors, Cornell Dubiler
General Descriptions of Aluminum, Nichicon Corporation
Vendor Technical Manual VM-OC-0021/51/254/2398, "SCM I/I current tranformer"
Technical Specification 3.4.A, "Emergency Cooling"
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Section 1R13: Maintenance Risk Assessments and Emergent Work Control

Procedures

ER-AA-600-1042, "On-line Risk Management"
WC-OC-101-1001, "On-line Risk Management and Assessment"
HU-AA-1211, attachment 1, "Pre-job Brief Checklist"

CC-OC-112-1001, "Temporary Configuration Change Implementation"
101.2, "Fire Protection System"
116, "Surveillance Testing Program"
333, "Plant Fire Protection"
645.4.036, "Fire Pump #2 Operability"
602.3.004, "Electromatic Relief Valve Pressure Sensor Test"
610.4.003, "Containment Spray Valve Operability and IST"
601.4.022, "Core Spray System 2 Pump Operability and Quarterly IST"

Condition Reports (IR)

485155, 495774, 495749, 494633, 460738, 460727, 493425

Work Order

R2085998, A2141401, R2086057, R2078272, R2083014

Section 1R14: Operator Performance During Non-routine Evolutions and Events

Procedures

ABN-14, "Loss of Condenser Vacuum"

Condition Reports (IR)

503158

Section 1R15: Operability Evaluations

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LS-AA-105, "Operability Determination"

HU-AA-1212, "Technical Task Risk/Rigor Assessment, Pre-job Brief, Independent Third Party Review, and Post-Job Brief"

610.4.022, "Core Spray System 2 Pump Operability and Quarterly In-service Test"

635.2.001, "4160 Switchgear Buses and Circulating Water Pump Protective Relay Surveillance"

304, "Standby Liquid Control System Operation"

308, "Emergency Core Cooling System Operation"

CY-OC-120-530, "Liquid Poison System Sampling"

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CC-AA-320-2002, "Dynamic Screens Alphabetic D Through H"

OC-2006-OE-0001, "Core Spray System 212 Pump P-20-1A Operability Determination"

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607.4.017, "Containment Spray and Emergency Service Water Pump System 2 Operability and Quarterly IST"

Drawing

GE 103D462g, "AKD-5 Powermaster Switchgear Connection Diagram"

E1131, "Elementary Diagram 1B2-U043C CRD Feed Pump"

BR 2005, "Reactor and Turbine Building Service Water System"

Condition Reports (IR)

474201, 494159, 483953, 490928, 483961, 490736, 485067, 474201, 457602, 501458, 500493, 500556, 501072, 503231, 503017, 504336

Work Order (AR)

A2141409, A2144398, A2144700, A2120342, A2122220, A2136535

Other Documents

Technical Specification 3.2.C, "Standby Liquid Control System"

Technical Specification 3.4.C, "Emergency Cooling"

Technical Specification 4.7.D, "Auxiliary Electrical Power"

Technical Specification 4.4.D, "Emergency Cooling"

UFSAR 6.2, "Containment Systems"

UFSAR 6.3, "Emergency Core Cooling Systems"

UFSAR 7.3, "Engineered Safety Feature Systems"

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IEEE Std. C37.96-2000 "IEEE Guide for AC Motor Protection"

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Vendor Manual VM-OC-0020, "Instructions for Installation, Operation, and Maintenance of Overhung Process Pumps"

SQ Package SQ-OC-1B2-460V-USS, "460 V USS 1B2 For Reactor Building"

Oyster Creek Operations Narrative Logs, dated June 19 - June 25, 2006

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Chemistry Sample - Liquid Poison Analysis, dated June 25, 2006

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Section 1R17: Permanent Plant Modifications

Procedures

OC-2006-OE-0003, "Startup Transformer 'B' degraded condition"

Technical Specification 3.7, "Auxiliary Electrical Power"

UFSAR 3.3, "Wind and Tornado Loadings"

UFSAR 8.1, "Electrical Power"

UFSAR 8.2, "Offsite Power System"

UFSAR 8.3, "Onsite Power Systems"

LS-AA-105, "Operability Evaluation"

Drawings

BR 3000, "Electrical Power System"

Condition Reports

501458, 500556,

Other Documents

CAP 2001-1233

Section 1R19: Post-Maintenance Testing

Procedures

MA-AA-716-012, Post Maintenance Testing

108, "Equipment Control"

2400-SMM-3531.01, "ESW Pump and Motor Maintenance"

2400-SMM-3214.02, "Containment Spray Heat Exchanger Cleaning and Assembly"

116, "Surveillance Testing Program"

645.4.001, "Fire Pump #1 Operability Test"

607.4.007, "Containment Spray and ESW System 1 Pump Operability Test"

607.4.008, "Containment Spray and ESW System 2 Pump Operability Test"

645.4.036, "Fire Pump #2 Operability Test"

610.4.002, "Core Spray Pump Operability and Quarterly IST"

Drawings

BR 2005, "Emergency Service Water System Flow Diagram"

BR 3002, "480 V System One Line Diagram 460 V Substation 1A2 & 1B2"

GE 116B8328, "Screen Wash System Electrical System Diagram 460 V Unit Substation (USS)
1B3 Unit 062D Hi Pressure Screen Wash Pump 1-2, P-3-005B"

GE148F740, "Containment Spray System"

Condition Reports (IR)

474423, 495774, 495749, 460727

Work Order (AR)

A2063509, R2037165, A2080254, R2047202, R2035164, R2086057, R2078272, R2083014, A2060708

Other Documents

VM-OC-6578, "Cummins Diesel Generator"

Section 1R20: Refueling & Other Outage Activities

Procedures

201, "Plant Startup"

203, "Plant Shutdown"

203.4, "Plant Shutdown Following Reactor Scram"

305, "Shutdown Cooling System Operation"

RAP-K6c, "Storage Tank Level Hi-Lo"

OU-AA-1001, "Shutdown Safety Management Program"

OU-OC-103-1001, "Shutdown Safety Management Program"

OP-AA-108-114, "Post Transient Review"

HU-AA-104-101, "Procedure Use and Adherence"

Drawings

BR 2002, "Main Steam System Flow Diagram"

BR 2003, "Condensate/Feed System Flow Diagram"

BR 2004, "Demineralized Water Transfer System Flow Diagram"

BR 2007, Sheet 2 of 4, "Heater, Drain, Vent, and Pressure Relief Systems Flow Diagram"

BR 2007, Sheet 3 of 4, "Heater, Drain, Vent, and Pressure Relief Systems Flow Diagram"

713E802, "Turbine Steam Seal Flow Diagram"

Condition Reports (IR)

486965, 488684, 488963, 487887, 488471, 488478, 488494, 488518, 488539, 487622, 487626, 487712, 487961, 488113, 488124, 487436, 487355, 487384, 487385, 487572, 487626, 487737, 487355, 487436, 487492, 487869, 487692, 488756, 488758, 488518, 488539, 488598, 489964

Other Documents

Prompt Investigation Report, "Steam Packing Exhauster Condenser Tube Failure" (IR 486965)
NRC License Event Notification Report 42558, "Unplanned Manual Reactor Scram During Shutdown"

Section 1R22: Surveillance Testing

Procedures

116, "Surveillance Test Program"
308, "Emergency Core Cooling System"
310, "Containment Spray System Operation"
312, "Reactor Containment Integrity and Atmosphere Control"
609.4.001, "Isolation Condenser Valve Operability and In Service Test"
665.4.010, "Containment Spray Leak Reduction Procedure"
678.4.001, "Primary Containment Isolation Valve Operability and IST"
636.4.015, "Diesel Generator #1 Fast Start Test"
602.3.004, "Electromatic Relief Valve Pressure Sensor Test and Calibration"
610.4.021, "Core Spray System 1 Pump Operability In-Service Test"

Drawings

GE 148F262, "Emergency Condenser Flow Diagram"
GE 148F740, "Containment Spray System"
GE 237E726, "Drywell and Suppression System"
SN 13432.19-1, "Nitrogen Supply System Flow Diagram"
GE 885D781, "Core Spray System Flow Diagram"

Condition Reports (IR)

493425

Work Orders (AR)

A2113129, A2133266, A2080318, A2080320, R2068452, R2076702, R2085998, A2141401, R2084406, R2082604, R2080474, R2047243

Other Documents

NRC Generic Letter 96-01, "Testing of Safety-Related Logic Circuits"
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Technical Specification 3.5.A.3, "Containment"
Technical Specification 3.8, "Isolation Condenser"
Technical Specification 4.3.C, "Reactor Coolant"
Technical Specification 4.5.F.2, "Containment System"

Technical Specification 4.8.A.1, "Isolation Condenser"
Safety Evaluation 000212-036, "Core Spray System Operability Criteria Revision"
Safety Evaluation 000212-046, "Core Spray Main Pump Operability Criteria"

Section 1R23: Temporary Plant Modifications

Procedures

326, "Chlorination system"

Condition Reports (IR)

500556, 501072

Work Order (AR)

A2144398

Other Documents

ECR OC 06-00506, "Underground leak south of condensate transfer building"
Generic Letter 89-13, "Service Water System Problems Affecting Safety Related Equipment"

Section 4OA2: Identification and Resolution of Problems

Procedures

344, "Screen Wash System Evolutions"
ABN-32, " Abnormal Intake Level"

Condition Reports (IR)

360630, 472752, 475427, 502561

Work Order (AR)

A2141739

Other Documents

Oyster Creek Generating Station Business Plan Performance Report, May 2006
Nuclear Oversight Quarterly Report - January 1 - March 31, 2006 (NOSPA-OYS-06-1Q)
Oyster Creek SHIP System Summary Report, June 2006
Station Focus Area Trend Report, June 20, 2006
IR Trend Code Backlog Report, June 21, 2006
Root Cause Evaluation Report for IR 360630 (Grassing Event August 6, 2005)

Section 4OA3: Event Followup

Other Documents

NUREG-1022, "Event Reporting Guidelines 10 CFR 50.72 and 50.73"
NEI 99-02, Rev 3, "Regulatory Assessment Performance Indicator Guideline"

Section 4OA5: Other

Procedures

ABN-60, "Grid Emergency Procedure "
ABN-37, "Station Blackout"
WC-AA-101, "Accessing Transmission System Information"
WC-AA-101, "On-Line Work Control Procedure"

OP-OC-106-108-1001, "Offsite Power Availability and Switchyard Control"
 OP-OC-108-107-1002, "Interface between First Energy/JCP&L and Exelon Generation for OC Switchyard Operations"
 OP-AA-108-107-1002, "Interface between Exelon Energy Delivery and Exelon Generation for Switchyard Operations"

LIST OF ACRONYMS

ADAMS	Agency-wide Documents Access and Management System
AmerGen	AmerGen Energy Company, LLC
AOG	Augmented Off Gas
IR	Condition Report
CFR	Code of Federal Regulations
ECR	Engineering Change Request
EDG	Emergency Diesel Generator
EMRV	Electromatic Relief Valve
EOF	Emergency Operations Facility
EP	Emergency Preparedness
ESW	Emergency Service Water
IMC	Inspection Manual Chapter
IPEE	Individual Plant Examination for External Events
LER	License Event Report
MSIV	Main Steam Isolation Valve
NEI	Nuclear Energy Institute
NCV	Non-cited Violation
NRC	Nuclear Regulatory Commission
NRR	Nuclear Reactor Regulations
Oyster Creek	Oyster Creek Generating Station
PI	Performance Indicator
RA	Regional Administrator
RPV	Reactor Pressure Vessel
SBGT	Standby Gas Treatment
SDP	Significance Determination Process
SJAE	Steam Jet Air Ejector
TI	Temporary Instruction
UFSAR	Updated Final Safety Analysis Report
URI	Unresolved Item