

October 24, 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 05000219/2006004

Dear Mr. Crane:

On September 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 October 11, 2006, with Mr. T. 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 one NRC-identified finding and three self revealing findings of very low safety significance (Green). Two of these findings were determined to involve a violation of NRC requirements. Additionally, a licensee-identified violation which was determined to be of very low safety significance is listed in the report. 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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Mr. C. Crane

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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 05000219/2006004  
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.: 05000219/2006004

Licensee: AmerGen Energy Company, LLC (AmerGen)

Facility: Oyster Creek Generating Station

Location: Forked River, New Jersey

Dates: July 01, 2006 - September 30, 2006

Inspectors: M. Ferdas, Senior Resident Inspector  
R. Treadway, Resident Inspector  
P. Kaufman, Senior Reactor Inspector  
R. Cureton, Project Engineer  
A. Patel, Project Engineer  
R. Nimitz, Senior Health Physicist  
A. Rosebrook, Project Engineer

Approved By: Ronald R. Bellamy, Ph.D., Chief  
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## SUMMARY OF FINDINGS

IR 05000219/2006004; 07/01/06 - 09/30/06; AmerGen Energy Company, LLC, Oyster Creek Generating Station; Fire Protection, Maintenance Effectiveness, and Surveillance Testing.

The report covered a 3-month period of inspection by resident inspectors, project engineers, a regional inspector, an announced inspection by a senior radiation specialist, and an in-office review by a project engineer. Two Green non-cited violations (NCV) and two Green findings (FIN) were identified. The significance of most findings is 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 Event**

Green. A self-revealing finding was identified when AmerGen did not implement adequate work planning to ensure the availability and reliability of the #1 air compressor. This resulted in a trip of the air compressor on September 7, 2006. This finding was determined not to be a violation of NRC requirements. AmerGen's corrective actions included repairing the air compressor by replacing several valves internal to the air compressor.

The finding was more than minor because it was associated with the equipment performance attribute of the initiating events cornerstone and affected the objective to limit the likelihood of those events that upset plant stability and challenge critical safety functions during power operation. 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 that a detailed Phase 2 evaluation was required to assess the safety significance because the finding contributed to both the likelihood of a reactor trip and the likelihood that mitigation equipment would not be available. The finding was determined to be of very low safety significance based upon a Phase 2 evaluation. The performance deficiency had a human performance cross-cutting aspect. (Section 1R12)

#### **Cornerstone: Mitigating Systems**

Green. The inspectors identified that AmerGen did not implement fire protection plan requirements on August 17, 2006. Specifically, AmerGen did not identify that a low pressure condition existed on the 4160 Volt carbon dioxide (CO<sub>2</sub>) suppression system which resulted in the system being inoperable, and a continuous fire watch was not established in accordance with fire protection procedures. This finding was determined to be a non-cited violation of License Condition 2.C(3), "Fire Protection." AmerGen's proposed corrective actions included changing the analog gauge to a digital gauge,

implementing an alarm response procedure for the local alarm, and operator training on proper gauge reading.

The finding was more than minor because it was associated with the protection against external factors (fires) attribute of the mitigating systems cornerstone and affected the objective to maintain the reliability and capability of systems that respond to initiating events to prevent undesirable consequences. In accordance with IMC 0609, Appendix F, "Fire Protection Significance Determination Process," 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 assigned a degradation rating of low since the fire protection program element would have only minimally impacted the reliability and performance of the system. The performance deficiency had a human performance cross-cutting aspect. (Section 1R05)

Green. A self-revealing finding was identified regarding inadequate foreign material control during performance of a maintenance activity on the #1 emergency diesel generator (EDG) on July 10, 2006. During performance of vibration data collection, a vibration probe cable became entangled with the shaft of the EDG intake air bin blower, resulting in the unit being secured, and the EDG being unavailable for inspection and retrieval of foreign material. This finding was determined not to involve a violation of NRC requirements. AmerGen's corrective actions included taking the EDG out of service to remove all foreign material, and a subsequent post maintenance test to verify operability of the EDG.

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 a period of time greater than allowed by technical specifications, did not result in an actual loss of safety function of equipment considered risk significant in the maintenance rule program for greater than 24 hours, and was not screened as potentially risk significant for external events. The performance deficiency had a human performance cross-cutting aspect. (Section 1R22)

Green. A self-revealing finding was identified when AmerGen did not take timely corrective actions for a degraded condition on the 'A' emergency service water (ESW) pump. Specifically, a corrective action identified in February 2006 was not completed in a timely manner and resulted in the pump not starting on July 14, 2006. 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 performing resistance checks on the contacts which could impact proper operation of the other ESW pump breakers.

The finding was more than minor because it was associated with the equipment performance attribute of the mitigating systems cornerstone and affected the objective to maintain the reliability 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 a period of time greater than allowed by technical specifications, did not result in an actual loss of safety function of non-technical specification 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 had a problem identification and resolution cross-cutting aspect. (Section 1R22)

B. Licensee-Identified Violations

A violation of very low safety significance, which was identified by AmerGen was reviewed by the inspectors. Corrective actions taken or planned by AmerGen have been entered into their corrective action program. The violation and corrective actions are listed in Section 4OA7 of this report.



## REPORT DETAILS

### Summary of Plant Status

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

On several occasions during the summer months (July 3, 11, 17, 18, 26, 27, 30, 31, August 1, 2, 3, 6, and 7) operators performed unplanned power reductions in accordance with operating procedures of approximately 2% to 12% for several hours to maintain the plant's circulating water discharge temperature below Oyster Creek's environmental discharge permit requirements.

On July 16, 2006, operators performed an unplanned power reduction to 60% due to a low intake level and heavy grass buildup at the intake. The heavy grassing also affected main condenser performance, and caused vacuum to slowly degrade. In addition, the plant was experiencing high ambient temperatures, which resulted in elevated discharge temperatures in the discharge canal. In order to maintain discharge temperatures within Oyster Creek's discharge permit limits and due to degraded main condenser performance, operators reduced power to approximately 60% in accordance with procedures. The plant returned to full power on July 17, 2006.

On July 21, 2006, operators performed a planned power reduction to 75% for a rod pattern adjustment. The plant returned to full power following the rod pattern adjustment on July 22, 2006.

On August 1, 2006, operators performed an unplanned downpower to 97% and removed the 'A' reactor recirculation pump from service in accordance with abnormal and operating procedures after identifying an increase in #2 seal pressure on the pump. Operators placed the pump in idle in accordance with technical specification 3.3.F, "Recirculation Loop Operability," and engineering personnel investigated the cause of the issue. The plant returned to full power later that same day on August 1, 2006. On August 4, 2006, AmerGen decided to operate with four reactor recirculation pumps in service and the 'A' reactor recirculation loop in idle.

On August 3, 2006, operators performed an unplanned downpower to 50% in accordance with operating procedures to repair a degraded 'A' phase voltage regulator on the Bank 5 startup transformer. In order to repair the voltage regulator, offsite power was isolated, which caused a loss of power to the startup transformer and the dilution pumps. To minimize the environmental impacts associated with removing the dilution pumps from service, Oyster Creek reduced power to stabilize temperatures in the discharge canal and installed a temporary modification which supplied power to one dilution pump while repairs were made to the voltage regulator on August 5, 2006. The plant returned to full power on August 6, 2006.

On August 11, 2006, operators reduced power to 97% for a rod pattern adjustment. Following the rod pattern adjustment, operators were not able to reach full power operation until August 12, 2006, due to thermal limit restrictions.

Oyster Creek ended the inspection period at 94% power due to "end-of-cycle coastdown" as they prepared for an upcoming refueling outage.

Enclosure

## 1. REACTOR SAFETY

### Cornerstones: Initiating Events, Mitigating Systems, and Barrier Integrity

#### 1R01 Adverse Weather Protection (71111.01)

##### a. Inspection Scope (2 samples)

The inspectors reviewed AmerGen's response to two site specific weather-related conditions.

The inspectors reviewed AmerGen's response to hot weather conditions from July 31 thru August 3, 2006. During that period of time the PJM Interconnection, L.L.C. (PJM) declared a maximum emergency generation alert. The inspectors verified that operators properly monitored important plant equipment that could have been affected by the hot weather conditions. The inspectors ensured that temperatures for equipment and areas in the plant were maintained within procedural limits, and when necessary, compensatory actions (i.e., additional cooling) were properly implemented in accordance with procedures. The inspectors performed walkdowns of areas that could be potentially impacted by the hot weather conditions, such as the feedwater pump room, 4160 volt switchgear rooms, 480 volt switchgear room, and battery rooms.

The inspectors reviewed AmerGen's response to heavy rain and flash flood warnings in the vicinity of the plant on September 15, 2006. The inspectors verified that procedures were properly implemented and that actions taken to mitigate the weather condition were appropriate. Additionally, during the heavy rain, the inspectors performed a walkdown of areas within the reactor building, turbine building, and heater bay roof because of reports of standing water and water intrusion into these areas (including the control rod drive (CRD) pump room, 480V breaker room, 4160V switchgear room, and feedwater pump room). The inspectors walked down these areas to determine if the rainwater was impacting equipment in these areas.

The inspectors also verified that weather related issues were appropriately identified and dispositioned by AmerGen. 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 (4 samples)

The inspectors performed three partial and one complete equipment alignment inspections.

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

- Condensate Transfer System '1' on August 14, 2006;
- Core Spray System '1' on August 29, 2006; and
- #2 Emergency Diesel Generator (EDG) and onsite electrical distribution system on September 19, 2006.

The inspectors performed a complete system alignment inspection on the #1 EDG system to determine whether the system was aligned and capable of providing emergency electrical power in accordance with design basis requirements. The inspectors reviewed operating procedures, the surveillance test procedure, pipe and instrument drawings, and the applicable equipment lineup list, to determine if the equipment was aligned to perform its safety function upon actuation.

Documents reviewed for this inspection activity are listed in the Supplemental Information attachment to this report.

b. Findings

No findings of significance were identified.

1R05 Fire Protection (71111.05)

a. Inspection Scope (9 samples and 1 fire drill)

The inspectors performed a walkdown of nine plant areas to assess their vulnerability to fire and observed one plant fire drill. The inspectors observed an unannounced fire drill on August 10, 2006, to assess the readiness of AmerGen's fire brigade to respond to fires within the plant. The drill scenario involved a simulated oil and cable fire in the lower cable spreading room (fire area OB-FZ-4). The inspectors attended AmerGen's drill critique to evaluate its adequacy in assessing personnel performance to respond to the postulated 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:

- Auxiliary Boiler House on July 21, 2006;
- #1 EDG compartment on July 24, 2006;
- Upper Cable Spreading room on July 27, 2006;
- 'C' and 'D' 4160 Volt Switchgear rooms on August 17, 2006;
- Isolation Condenser valve area on the 51' elevation of the reactor building on August 24, 2006;
- Feed and Condensate pump room of the turbine building on August 24, 2006;
- Containment Spray system '1' pump room on the 23' elevation of the reactor building on August 31, 2004;
- Containment Spray system '2' pump room on the 23' elevation of the reactor building on August 31, 2004; and
- Turbine building lube oil bay on September 8, 2006.

b. Findings

Fire Protection Plan Requirements Not Implemented

Introduction. The inspectors identified that AmerGen did not implement fire protection plan requirements on August 17, 2006. Specifically, AmerGen did not identify a low pressure condition existed on the 4160 Volt Switchgear Room carbon dioxide (CO<sub>2</sub>) suppression system, which resulted in the system being inoperable and a continuous fire watch was not established in accordance with fire protection procedures. This finding was of very low safety significance (Green) and determined to be a non-cited violation (NCV) of License Condition 2.C(3), "Fire Protection."

Description. On August 17, 2006, at approximately 7:00 a.m., operators in the control room were informed that a low pressure alarm on the CO<sub>2</sub> suppression system was sounding for the 4160 Volt rooms. The initial reading was reported to the control room as 272 psig, and a CO<sub>2</sub> tank level of 86%. In response to the alarm, operators reviewed fire protection procedure 101.2, "Oyster Creek Site Fire Protection Program." Fire protection procedure 101.2 states that the minimum pressure and level for operability of the CO<sub>2</sub> system are 275 psig and 50%, respectively. The procedure also states that with the CO<sub>2</sub> system inoperable, within one hour establish a continuous fire watch with backup fire suppression equipment.

At 7:15 a.m., operation personnel checked the reading and reported that the pressure was rising very slowly, and at 7:30 a.m. the pressure was reading 275 psig. Operations personnel also noted that the refrigerant compressor for the CO<sub>2</sub> system was continuously running. Based on this report, operations declared the CO<sub>2</sub> system operable, and no further actions were taken to stage a continuous fire watch in accordance with the fire protection procedure. The inspectors noted that operations implemented compensatory measures which involved staging of fire extinguishers outside the 4160 Volt room, and monitored system pressure hourly.

At approximately 10:00 a.m., the inspectors noted that the CO2 system pressure was reading approximately 270 psig, the local alarm was sounding, and a continuous fire watch had not been implemented for the 4160 Volt room. The inspectors informed operations personnel that they believed the CO2 system was inoperable because system pressure was below the procedural guidance. Operations personnel did not agree with the inspectors assessment and continued to assert the system was operable and a continuous fire watch was not needed during repairs to the CO2 system. Operations personnel believed system pressure was greater than 275 psig during the maintenance activities, however the inspectors did not agree because the pressure gauge indicated at 20 psi increments and the inspectors could not validate system pressure to the accuracy needed based on the gauge increments. AmerGen completed the corrective maintenance on the CO2 system on August 17, 2006, and returned system pressure to 300 psig.

Subsequent to the repairs, the inspectors reviewed vendor manual VM-OC-5004, "Operation Services and Maintenance Management for Cardox® Storage Tank," and it stated that "... the alarm system is activated whenever tank pressure falls below 275 psig..." AmerGen issued corrective action program condition report IR 521448, which identifies the inspectors' concerns that the CO2 system was inoperable based on the conditions observed above.

Additionally, the inspectors noted that the vendor manual stated that "... the pressure switch should be tested..." The inspectors identified that testing of the pressure switch has never been done. AmerGen issued corrective action program condition report IR 521448 to perform testing on the pressure switch.

Analysis. The performance deficiency associated with this finding involved inadequate problem identification for a low pressure condition on the 4160 Volt CO2 suppression system. AmerGen did not properly implement fire protection plan requirements because they did not recognize the CO2 suppression system was inoperable. AmerGen's proposed corrective actions included changing the analog gauge to a digital gauge, implementing an alarm response procedure for the local alarm, and operator training on proper gauge reading.

The finding was more than minor because it was associated with the protection against external factors (fires) attribute of the mitigating systems cornerstone and affected the objective to maintain the reliability and capability of systems that respond to initiating events to prevent undesirable consequences. In accordance with Inspection Manual Chapter (IMC) 0609, Appendix F, "Fire Protection Significance Determination Process," the inspectors conducted a Phase I Significance Determination Process (SDP) screening utilizing Figure F.1 in Appendix F. Per the Phase I screening criteria, the finding was assigned the category of "Fixed Fire Protection Systems". The inspectors assigned a "Low Degradation Rating" to the observed CO2 suppression system condition, based upon the system pressure being only slightly below the minimum allowed pressure band. This degraded pressure condition, although out of specification, would still ensure the system would provide appropriate fire suppression for most, if not all, postulated fires. Based upon the assigned "Low Degradation Rating," and in

accordance with Appendix F, Step 1.3, "Initial Qualitative Screening," this finding screened as very low safety significance (Green).

This performance deficiency had a cross-cutting aspect in the area of human performance because AmerGen did not use conservative assumptions and decision making to demonstrate that their proposed actions were safe to proceed with indications of the Cardox<sup>®</sup> system being inoperable.

**Enforcement.** License Condition 2.C(3), "Fire Protection," requires that Oyster Creek implement and maintain in effect all provisions of the approved fire protection program. Procedure 101.2, "Oyster Creek Site Fire Protection Program," states, in part, that a continuous fire watch with backup fire suppression equipment be stationed outside the 4160 Volt room when the CO2 suppression system is inoperable. Contrary to the above, AmerGen did not implement their fire protection program, by not establishing a continuous fire watch, as required with the CO2 suppression system being inoperable on August 17, 2006. However, because the finding was of very low safety significance (Green) and has been entered in their corrective action program in condition report IR 521448, this violation is being treated as an NCV, consistent with section IV.A of the Nuclear Regulatory Commission (NRC) Enforcement Policy. **(NCV 05000219/2006004-01, Fire Protection Plan Requirements Not Implemented)**

1R11 Licensed Operator Regualification Program (71111.11)

a. Inspection Scope (1 sample)

The inspectors observed one simulator training scenario on July 31, 2006, to assess operator performance and training effectiveness. The scenario involved a stator cooling pump trip, a stuck open electromatic relief valve (EMRV), decreasing torus level, and a failure to scram event. 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 (2 samples)

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

- Condensate Storage Tank (CST) Appendix R level gauge inoperable on August 29, 2006; and
- #1 Air Compressor trip on September 7, 2006.

The inspectors verified that the systems or components were monitored in accordance with AmerGen's maintenance rule program requirements. The inspectors compared documented functional failure determinations and unavailable hours to those being tracked by AmerGen to evaluate the effectiveness of AmerGen's condition monitoring activities and determine whether performance goals were being met. 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, preventative maintenance tasks, vendor manuals, and system health reports. Documents reviewed for this inspection activity are listed in the Supplemental Information attachment to this report.

b. Findings

Inadequate Work Planning Results in #1 Air Compressor Trip

Introduction. A self-revealing finding was identified when AmerGen did not implement adequate work planning to ensure the availability and reliability of the #1 air compressor. This resulted in a trip of the air compressor on September 7, 2006. This finding was determined not to be a violation of NRC requirements. AmerGen's corrective actions included repairing the air compressor by replacing several valves internal to the air compressor.

Description. On August 1, 2006, operators received an alarm in the control room due to a trip of the #1 air compressor. Operators implemented the annunciator response procedure (RAP) for the air compressor trip, and entered abnormal operating procedure (ABN) 35, "Loss of Instrument Air." The #2 air compressor started as expected as the standby air compressor, and instrument air pressure remained above 90 psig. Maintenance personnel with the assistance from the vendor for the air compressor investigated this issue on August 2, 2006 under work order A2147430. The investigation determined that the second stage discharge check valve needed replacement, as well as several other components. AmerGen did not have the parts (2-½ inch check valve, solenoid valve, air inlet valve and gasket for the air inlet valve) available on site, and ordered them so the corrective maintenance could be completed at a later date. Several hours later, operations started the #1 air compressor, and returned it to service even though no corrective maintenance was performed.

On August 23, 2006, AmerGen received the parts to perform the required corrective maintenance. The inspectors noted that AmerGen personnel did not adequately implement their work management process as described in procedure WC-AA-101-1002, "On Line Scheduling Process." The corrective maintenance activity was not rescheduled after the problem was not resolved on August 2, 2006.

On September 7, 2006, the #1 air compressor tripped and the #2 air compressor started, and operators properly implemented the RAP and ABN-35. On September 8, 2006, maintenance personnel with the assistance of the vendor repaired the air compressor using the components that were ordered. Operations successfully completed a post maintenance test and returned the air compressor to service.

Analysis. The performance deficiency associated with this self-revealing finding involved not implementing adequate work planning to ensure the availability and reliability of the #1 air compressor. This resulted in a trip of the air compressor on September 7, 2006. Specifically, AmerGen personnel did not effectively implement their work management process and reschedule the work to be completed when the parts arrived. AmerGen's corrective actions included repairing the air compressor by replacing several components on September 8, 2006.

The finding was more than minor because it was associated with the equipment performance attribute of the initiating events cornerstone and affected the objective to limit the likelihood of those events that upset plant stability and challenge critical safety functions during power operation. 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 that a detailed Phase 2 evaluation was required to assess the safety significance because the finding contributed to both the likelihood of a reactor trip and the likelihood that mitigation equipment would not be available.

The inspectors used the "Risk-Informed Inspection Notebook for Oyster Creek Nuclear Generating Station," Revision 2, to conduct a Phase 2 evaluation. The inspectors made the following assumptions:

- The #1 air compressor was unavailable, including the time for completing corrective maintenance after the September 7, 2006 trip, for a total of 27.5 hours. Therefore, an exposure time of less than 3 days was used to identify the Initiating Event Likelihood per Table 1, "Categories of Initiating Events for Oyster Creek Nuclear Generating Station," in the Risk-Informed Inspection Notebook for Oyster Creek Nuclear Generating Station.
- Using Table 1 in the Risk-Informed Inspection Notebook for Oyster Creek Nuclear Generating Station, the specified initiating event likelihood of four (4) was increased by one order of magnitude to three (3), because the finding directly affects the likelihood of an initiating event (per usage rule 1.2, of IMC 0609, Attachment 2, Appendix A).
- Full credit was given for available mitigation capability equipment.
- No operator recovery credit was given.

The inspectors determined that the finding was of very low safety significance (Green) using Table 2, "Initiators and Dependency Table for Oyster Creek Nuclear Generating



Station,” and Table 3.4, “SDP Worksheet for Oyster Creek Nuclear Generating Station - Loss of Instrument Air (LOIA),” in the Risk-Informed Inspection Notebook for Oyster Creek Nuclear Generating Station. This analysis conservatively estimated the increase in core damage frequency at approximately 1 in 10,000,000 years (low E-7 range). The dominant core damage sequence involved the total loss of instrument air and a stuck open EMRV, with successful depressurization and a the total loss of low pressure injection or the failure to depressurize.

With the  $\Delta$ CDF for internal initiating events in the low E-7 range, the senior risk analyst (SRA) conducted a qualitative assessment of potential external event core damage frequency (CDF) initiators in accordance with IMC 0609, Appendix A and the potential increase in the large early release frequency (LERF) using IMC 0609, Appendix H, “Containment Integrity Significance Determination Process.” This assessment determined that there was no significant increase in CDF given external events and that the resulting  $\Delta$ LERF was of very low safety significance. Specifically:

- There was no external event CDF contributor associated with this finding, based on a review of the Oyster Creek IPEEE report. No fire protection or other external initiating event mitigation credit was attributed to instrument air.
- The  $\Delta$ LERF was estimated to be in the low E-8 range. Given the core damage sequences that would not result in water on the drywell floor, Appendix H initially estimated the LERF factor at 1.0. However, based on an understanding of the potential operator actions following these core damage sequences the SRA applied several LERF mitigating factors. The factors included the possibilities of injection via core spray prior to vessel breach, fire water injection, and a unique concrete berm in containment that could be effective in containing core debris. By taking these factors into consideration, the SRA determined that a more appropriate LERF multiplier would be 0.2. Therefore, the increase in LERF was estimated at  $\Delta$ CDF \* 0.2.

The performance deficiency had a human performance cross-cutting aspect because AmerGen did not plan work activities to support long-term equipment reliability on the #1 air compressor.

Enforcement. The #1 air compressor function has an impact on the overall plant risk. The air compressor is not a safety related component, and therefore no violation of regulatory requirements occurred. Nonetheless, because the finding was of very low safety significance (Green) and AmerGen entered this finding into their corrective action program in corrective action program condition report IR 515502, this is identified as a finding. **(FIN 05000219/2006004-02, Inadequate Work Planning Results in #1 Air Compressor Trip)**

1R13 Maintenance Risk Assessments and Emergent Work Control (71111.13)a. Inspection Scope (5 samples)

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

- Containment spray system #1 and turbine building closed cooling water (TBCCW) system #1 unavailable due to scheduled maintenance on July 10, 2006;
- Containment spray system #2 unavailable due to scheduled maintenance and reactor building closed cooling water (RBCCW) system #1 unavailable due to heat exchanger fouling on July 17, 2006;
- #1 air compressor unavailable due to unplanned maintenance, 'A' Reactor recirculation pump out-of-service due to excessive seal leakage, and hot weather conditions on August 1, 2006;
- Bank 5 startup transformer unavailable due to unplanned maintenance on August 5, 2006; and
- #1 EDG unavailable due to planned maintenance and the #1 dilution pump unavailable due to unplanned maintenance on September 19, 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 procedures. 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 (Paragon) 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 (1 sample)

The inspectors evaluated AmerGen's performance and response during one non-routine evolution 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 procedures to assess operator performance. Documents reviewed for this inspection activity are listed in the Supplemental Information attachment to this report.

Low Intake Levels and Heavy Grassing Condition at the Intake. On July 16, 2006, operators experienced low intake level due to heavy grass buildup at the intake. The heavy grassing affected main condenser performance, and caused vacuum to slowly degrade. In addition, the plant was experiencing high ambient temperatures, which resulted in elevated discharge temperatures in the discharge canal. In order to maintain discharge temperatures within Oyster Creek's discharge permit limits and due to degraded main condenser performance operators reduced power to approximately sixty (60) percent. The inspectors reviewed applicable operating procedures, plant computer data, and control room logs to ensure operators appropriately implemented operating and abnormal operating procedures.

b. Findings

No findings of significance were identified.

1R15 Operability Evaluations (71111.15)

a. Inspection Scope (5 samples)

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

- Foreign material found in combustion air intake blower on #1 EDG on July 11, 2006 (IR 507677);
- Containment Spray and ESW system #2 fails inservice test (IST) due to unacceptable flow conditions on July 22, 2006 (IR 512078);
- Standby gas treatment system #1 flow rate close to lower limit on July 24, 2006 (IR 512610 and 521136);
- Low coolant level in the #2 EDG on August 18, 2006 (IR 520694); and
- Degraded fuel oil relief valve on the #1 EDG on August 24, 2006 (IR 521865).

The inspectors reviewed the technical adequacy of the operability determinations to ensure the conclusions were technically justified. The inspectors also walked down accessible portions of 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.

1R19 Post-Maintenance Testing (71111.19)a. Inspection Scope (5 samples)

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

- #1 and #2 RBCCW heat exchanger on July 19, 2006 (WO A2120045 and WO A2134939);
- #2 condensate transfer pump on August 21, 2006 (WO A2107202);
- Core spray system '1' pump breaker on September 6, 2007 (WO C2013079);
- #1 air compressor on September 8, 2006 (WO A2147430); and
- #1 EDG battery (WO R0809196) on September 19, 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.

1R22 Surveillance Testing (71111.22)a. Inspection Scope (5 samples)

The inspectors observed portions of and/or reviewed the results of 5 surveillance tests:

- #1 EDG surveillance test on July 10, 2006;
- CST local level indication surveillance test on July 11, 2006;
- '52A' ESW pump in-service test (IST) on July 13, 2006;
- Redundant fire pump operability test on August 11, 2006; and
- #1 EDG surveillance test on September 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 updated final safety analysis report (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

Inadequate Foreign Material Control Results in #1 Emergency Diesel Generator Unavailability

Introduction. A self-revealing finding was identified regarding inadequate foreign material control during performance of a maintenance activity on the #1 EDG on July 10, 2006. During performance of vibration data collection, a vibration probe cable became entangled with the shaft of the EDG intake air bin blower, resulting in the unit being secured, and the EDG being unavailable for inspection and retrieval of foreign material. This finding was of very low safety significance (Green) and determined not to involve a violation of NRC requirements. AmerGen's corrective actions included taking the EDG out of service to remove all foreign material, and a subsequent post maintenance test to verify operability of the EDG.

Description. On July 10, 2006, a maintenance technician was removing vibration probes and recording vibration readings on the #1 EDG generator frame when the leads of the vibration probe became entangled in the rotating shaft of the intake air bin blower. The 42 inch vibration probe cable was shredded into many pieces, and the EDG was immediately secured by the operators. An operability evaluation was performed by engineering and determined that the EDG was operable, and a work order (A2145872) was generated to remove any foreign material from the intake blower.

On July 11, 2006, the #1 EDG was taken out of service for approximately 10 hours to remove foreign material from the intake air blower, and a load test was performed to verify the EDG operability. The licensee performed a human performance investigation and determined that breakdown of human error prevention techniques (i.e., self check, STAR, peer check), and an ineffective physical guard for the shaft of the intake air bin blower were the cause of the event.

The inspectors noted that the work order (A2144049) used to obtain vibration data for the #1 EDG listed several precautions to adhere to while performing this maintenance activity. The inspectors noted that Precaution #3 stated "use caution around rotating components to ensure that the vibration cable or accelerometer does not become dropped or entangled in rotating equipment." Additionally, the inspectors noted that in procedure MA-AA-1000, "Conduct of Maintenance Manual," states, in part, that all personnel are responsible for preventing the introduction of foreign material into systems and all components including electrical, mechanical and instrumentation, that could affect the intended operation of a system or component.

Analysis. The performance deficiency associated with this self-revealing finding involved inadequate foreign material control during a maintenance activity which resulted in unavailability of the #1 EDG. Specifically, AmerGen did not effectively implement work instruction guidance and site standards for foreign material exclusion. AmerGen's corrective actions included taking the EDG out of service to remove all foreign material, and a subsequent post maintenance test to verify operability of the EDG.

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 a time period greater than allowed by technical specifications, did not result in an actual loss of safety function of equipment considered risk significant in the maintenance rule program for greater than 24 hours, and was not screened as potentially risk significant for external events.

The performance deficiency had a cross-cutting aspect in the area of human performance (work practices) because maintenance personnel did not properly utilize human error prevention techniques to ensure that the vibration probe was not dropped or entangled in rotating equipment.

Enforcement. The EDG's function has an impact on overall plant risk. The work instruction and site standard is not a safety related procedure, therefore no violation of NRC requirements occurred. Nonetheless, because the finding was of very low safety significance (Green) and AmerGen has entered this finding into their corrective action program in condition report IR 507677 this is identified as a finding. **(FIN 05000219/2006004-03, Inadequate Foreign Material Control Results in #1 Emergency Diesel Generator Unavailability)**

#### Untimely Corrective Actions for the 'A' ESW pump breaker

Introduction. A self-revealing finding was identified when AmerGen did not take timely corrective actions for a degraded condition on the 'A' ESW pump. Specifically, a corrective action identified in February 2006, was not completed in a timely manner and resulted in the pump not starting on July 14, 2006. This finding was of very low safety significance (Green) and determined to be a NCV of 10 CFR 50, Appendix B, Criterion XVI, "Corrective Action."

Description. On July 12, 2006, the 'A' ESW pump did not start when operators attempted to place the pump in service during an IST. Maintenance personnel investigated this issue and identified that one of the four 52Y anti-pump relay contacts had a high resistance reading due to "excessive" buildup on its contact surface. Maintenance personnel cleaned (burnished) the contact and measured its resistance to ensure it was adequately cleaned. The pump was successfully started and placed in standby on July 14, 2006.

The 52Y relay is a auxiliary control device mounted on the General Electric (GE) 4160 Volt Magne-Blast circuit breaker. The 52Y contacts are normally closed and in series with the 52X closing coil. Since the contact resistance was high, the relay

operated as if it was open, and the start signal was not passed to the closing coil, which resulted in the 'A' ESW pump not starting.

The inspectors noted that a previously identified degraded condition associated with contacts on the GE 4160 Volt Magne-Blast circuit breakers occurred at Oyster Creek in December 2005. Specifically, the 'D' ESW pump did not start on December 19, 2005. The corrective action for the December 2005 issue involved identification of other safety-related systems with similar breakers and perform resistance checks on the 52Y contacts. AmerGen had scheduled this maintenance to be completed during the next available system maintenance window or the next time the system was removed from service.

Analysis. The performance deficiency associated with this self-revealing finding involved untimely corrective actions on the safety-related GE 4160 Volt Magne-Blast circuit breakers. AmerGen did not perform timely corrective actions to ensure the 52Y relay contacts for the 'A' ESW pump breaker remained reliable. This corrective action was identified by AmerGen in February 2006, and not scheduled to be performed until July 14, 2006. AmerGen's corrective actions included performing resistance checks on the contacts which could impact proper operation of the other ESW pump breakers.

The finding was more than minor because it was associated with the equipment performance attribute of the mitigating systems cornerstone and affected the objective to maintain the reliability 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 a time period greater than allowed by technical specifications, did not result in an actual loss of safety function of non-technical specification equipment considered risk significant in the maintenance rule program for greater than 24 hours, and was not screened as potentially risk significant for external events.

The performance deficiency had a cross-cutting aspect in the area of problem identification and resolution because AmerGen did not take timely corrective actions for a known degraded condition with the GE 4160 Volt Magne-Blast breakers.

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 degraded condition on the 'A' ESW pump breaker on July 12, 2006. However, because the finding was of very low safety significance (Green) and has been entered in the corrective action program in condition report IR 508367, this violation is being treated as an NCV, consistent with

section IV.A of the NRC Enforcement Policy. **(NCV 05000219/2006004-04, Untimely Corrective Actions for the 'A' ESW pump breaker)**

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 July 21, 2006. Temporary modification 2006-ECR-OC-06-00585 involved installation of a CST local level indicator gauge due to the failure of the installed gauge which is utilized as an alternate shutdown monitoring instrument. 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 impacted by the modification. The inspectors also verified that the temporary modification was installed and operated in accordance with temporary modification documents and work instructions. The inspectors reviewed the modification to verify applicable technical specifications 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.

**2. RADIATION SAFETY**

2OS1 Access Control to Radiologically Significant Areas (71121.01)

a. Inspection Scope (5 Samples)

The inspectors reviewed selected activities and associated documentation, in the area of access control to radiologically significant areas. The evaluation of AmerGen's performance was against criteria contained in 10 CFR 20 ("Standards for Protection Against Radiation"), applicable technical specifications, and AmerGen procedures.

The inspectors reviewed performance indicators (PIs) for the occupational exposure cornerstone. The inspectors toured Oyster Creek, reviewed radiological controls, and performed independent radiation surveys during the tours. The inspectors reviewed house-keeping, material conditions, radiological postings, barricades, and access controls to determine if radiological controls were acceptable. The inspectors observed and reviewed radiological controls for on-going decontamination of the reactor equipment pit. The inspectors determined if prescribed radiation work permits (RWP), procedures, and engineering controls were in place, as applicable. The inspectors reviewed conformance with applicable RWP requirements.

The inspectors reviewed and discussed internal dose assessments for 2006 (as of the time of the inspection), to identify apparent occupational internal doses greater than



50 millirem committed effective dose equivalent (CEDE). The review also included the adequacy of evaluation of airborne radioactivity controls and potential intakes associated with hard-to-detect radionuclides (e.g., transuranics). The inspectors reviewed instances of personnel contamination. The inspectors also reviewed an evaluation of the radiological source term for equipment pit work, discussed above, and the applicable controls applied to the work activity.

The inspectors reviewed self-assessments and audits since the previous inspection to determine if identified problems were entered into the corrective action program for resolution. The inspectors evaluated the database for repetitive deficiencies or significant individual deficiencies to determine if self-assessment activities were identifying and addressing deficiencies. The review also included evaluation of data to determine if any problems involved performance indicator events with dose rates greater than 25 R/hr at 30 centimeters, greater than 500 R/hr at 1 meter, unintended exposures greater than 100 millirem total effective dose equivalent (TEDE), 5 rem shallow dose equivalent (SDE), or 1.5 rem lens dose equivalent (LDE).

The inspectors reviewed selective corrective action program documents to determine if identified problems were entered into the corrective action program for resolution and to evaluate AmerGen's threshold for entering issues into the program. The review included a check of possible repetitive issues, such as radiation worker and radiation protection technician errors. The inspectors also reviewed a recently completed focused self assessment (IR 448996).

The inspectors discussed procedure changes for high radiation area access controls since the last inspection with the radiation protection personnel to determine if the changes resulted in a reduction in the effectiveness and level of worker protection. During station tours, the inspectors reviewed implementation of high radiation area controls and discussed implementation with in-field radiation protection personnel responsible for maintaining controls. Posting, barricading, and locking of high radiation areas were reviewed. A licensee identified performance deficiency, associated with control of access to high radiation areas is discussed in Section 4OA7 of this report.

Documents reviewed for this inspection activity are listed in the Supplemental Information attachment to this report.

b. Findings

No findings of significance were identified.

2OS2 ALARA Planning and Controls (71121.02)

a. Inspection Scope (5 Samples)

The inspectors reviewed activities and associated documentation in the planning and controls designed to maintain personnel occupational radiation exposure as low as reasonably achievable (ALARA) . The inspectors evaluated AmerGen's performance

against criteria contained in 10 CFR 20 (“Standards for Protection Against Radiation”), applicable industry standards, and AmerGen procedures.

The inspectors reviewed documents associated with station collective dose history, current exposure trends, and ongoing or planned activities in order to assess current performance and exposure challenges. The inspectors reviewed AmerGen’s plans in the area of source term controls. Specifically, the inspectors reviewed trends in collective exposures (using NUREG-0713 and plant historical data). The inspectors reviewed site specific procedures associated with maintaining occupational exposures ALARA.

The inspectors reviewed ALARA planning and preparation for work planned for the upcoming 2006 refueling outage. The plans for work activities expected to result in the highest aggregate occupational radiation dose and for work activities expected to present potential radiological risks were assessed. Activities reviewed included scaffolding installation, torus diving activities, in-service inspections, control rod drive work activities, and re-fueling activities. The inspectors reviewed the planning and preparation to determine if ALARA requirements were integrated into work procedures and radiation work permit documents. The inspectors toured and reviewed the CRD under vessel mock-up. The inspectors also reviewed Station ALARA Committee (SAC) Meeting information and use of lessons learned.

The inspectors evaluated the use of ALARA controls for the work associated with the equipment pit decontamination by reviewing use of engineering controls and implementation of ALARA procedures and controls. The inspectors ensured the work activities were conducted in a dose efficient manner (e.g., work crew size minimized, workers properly trained, proper tools and equipment).

The inspectors reviewed AmerGen’s evaluations associated with source term controls. In particular, the inspector reviewed AmerGen’s Co-60 source term control efforts as described in source term reduction plans (2006-2010), shutdown chemistry controls, and action plans.

The inspectors observed radiation worker and radiation protection technician performance during work activities being performed in radiation areas, airborne radioactivity areas, and/or high radiation areas. The inspectors reviewed activities that presented the greatest radiological risk to workers to determine if workers demonstrated ALARA practices (e.g., were workers familiar with the work activity scope and ALARA low dose waiting areas) and whether there were any procedure compliance issues (e.g., were work activity controls being complied with).

The inspectors reviewed self-assessments, audits, and special reports performed by AmerGen to determine if identified problems were entered into the corrective action program for resolution. The inspectors reviewed dose significant post-job reviews and post-outage ALARA report critiques of exposure performance to evaluate AmerGen’s threshold for identifying, evaluating and resolving problems. The inspectors reviewed corrective action documents to determine if identified problems were entered into the

corrective action program for resolution. The inspectors also reviewed recent audits and assessments.

Documents reviewed for this inspection activity are listed in the Supplemental Information attachment to this report.

b. Findings

No findings of significance were identified.

2OS3 Radiation Monitoring Instrumentation and Protective Equipment (71121.03)

a. Inspection Scope (4 Samples)

The inspectors reviewed activities and documentation in the area of radiation monitoring instrumentation and protective equipment. The inspectors evaluated AmerGen's performance against criteria contained in 10 CFR 20 ("Standards for Protection Against Radiation"), applicable technical specifications, and AmerGen procedures.

The inspectors reviewed radiation monitoring and measurement instrumentation used to measure radiation and radioactive contamination levels, including airborne contamination collection and/or analysis. The inspectors reviewed the calibrations and operability checks for the following portable radiological instrumentation (including radiation survey instrumentation used for the equipment pit decontamination): RO-2A-77638, Telepole-7566, RO-20-77712, Gillian-77765, ASP1-ND-710283, AMS-32 - 700029, RAS-1-701966, RM-14-77525, Ludlum -2000-700509, Ge-Li gamma spectroscopy detector, and whole body counter.

The inspectors reviewed audits and self-assessments performed by AmerGen in the area of radiation monitoring equipment and protective equipment to determine if issues in this area were entered into the corrective action program. The inspectors reviewed corrective action program condition reports to evaluate AmerGen's threshold for identifying, evaluating, and resolving problems in this area.

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 (2 samples)

The inspectors reviewed AmerGen's program to gather, evaluate, and report information on the two performance indicators (PIs) associated with the barrier integrity cornerstone of the reactor safety strategic performance area. The inspectors used the guidance provided in Nuclear Energy Institute (NEI) 99-02, Revision 4, "Regulatory Assessment Performance Indicator Guideline" to assess the accuracy of AmerGen's collection and reporting of PI data. The inspectors reviewed reactor coolant system chemistry sample analysis, operating logs, and corrective action program condition reports.

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

- "Reactor coolant system specific activity" between June 1, 2004 through June 30, 2006;
- "Reactor coolant system leak rate" between June 1, 2004 through June 30, 2006.

###### b. Findings

No findings of significance were identified.

##### 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 Annual Sample Review

###### a. Inspection Scope (1 sample)

Operator Work-Arounds (Cumulative Review). The inspectors reviewed equipment issues that were identified as operator work-arounds (OWA) and operator challenges by AmerGen during the week of August 7, 2006. The inspectors verified that OWA were being identified at an appropriate threshold, entered into the corrective action program, tracked for resolution, and the cumulative effects of OWA for mitigating systems were evaluated to determine the overall impact on the affected systems. The inspectors verified that the OWA were being properly controlled as specified by OP-AA-102-103, "Operator Work-Around Program." The current list contained one active OWA, and

nine operator challenges. The inspectors assessed the cumulative impact of the one OWA, nine operator challenges, five standing orders, eight open operability evaluations, and eleven disabled alarms by performing a detailed document review and conducting a walkdown of the main control room to determine if these deficiencies adversely affected the ability of control room operators to implement emergency operating procedures or respond to plant transients. Documents reviewed for this inspection activity are listed in the Supplemental Information attachment to this report.

b. Findings and Observations

No findings of significance were identified.

4OA3 Event Followup (71153) (5 samples)

Documents reviewed for this inspection activity are listed in the Supplemental Information attached to this report.

.1 'A' Reactor Recirculation Pump #2 Seal Degraded.

a. Inspection scope

On August 1, 2006, operators noted that the 'A' reactor recirculation pump # 2 seal pressure was at 980 psig. The seal pressure had been increasing for several weeks and operations personnel were monitoring reactor recirculation pump seal performance on a daily bases. Oyster Creek ABN-2, "Recirculation System Failure," states that if the #2 seal pressure is greater that 950 psig then #1 seal is considered failed and the pump should be removed from service. In accordance with ABN-2 and operating procedures, operators reduced power and removed the 'A' reactor recirculation pump from service and placed the pump in idle.

The inspectors responded to the control room after hearing the site announcement that the 'A' reactor recirculation pump was being removed from service. The inspectors observed the response of AmerGen personnel, including operator action in the control room. The inspectors verified that operators responded in accordance with procedures and equipment responded as intended. The inspectors further reviewed technical specification requirements to ensure that Oyster Creek was operated in accordance with its operating license. The removal of the 'A' reactor recirculation pump from service was described and evaluated in corrective action program condition report IR 515699.

b. Findings

No findings of significance were identified.

.2 Excessive Radwaste Inventory Due to Heavy Rain Water

a. Inspection scope

On September 15, 2006, Oyster Creek experienced heavy rains. The rainwater made its way into portions of the turbine building and reactor building. Once within the building, the water was routed to floor drains and sumps, and then to the radwaste system. The large amount of water was routed to the radwaste system for processing. The large amount of water in the system impacted the ability of the system to process water in a timely and effective manner. The inspectors reviewed operator logs, system drawings, and toured the radwaste building to determine the impact this could have on plant operations and assess AmerGen's performance at addressing this operational issue.

b. Findings

No findings of significance were identified.

.3 (Closed) LER 05000219/2006-001-00, Manual Scram Inserted During Planned Reactor Shutdown to Expedite Plant Cooldown.

This LER described the performance of a manual reactor scram that was not a planned activity during a forced outage shutdown. On May 6, 2006, Oyster Creek was shutting down to repair a leak from the steam packing exhaustor cooling condenser; and the leak was adding excess volume to the radwaste processing system. During the shutdown, operations personnel decided to perform a manual reactor scram to improve plant cooldown and thereby minimize the volume of leakage being sent to radwaste. The forced outage was planned to be accomplished using a full manual control rod insertion and a manual reactor scram was not a planned activity. The inspectors observed the shutdown from the control room and all systems performed as designed. Additional information on this issue is contained in NRC inspection report 05000219/2006003. The inspectors reviewed this LER and no findings were identified. This LER is closed.

.4 (Closed) LER 05000219/2006-002-00, Failure of Main Steam Isolation Valve (MSIV) Surveillance Due to Transcription Error.

This LER described a violation of technical specification 4.5F, "Containment System." On June 20, 2006, AmerGen determined that the 'A' MSIV did not stroke closed in the allowable time specified in the surveillance procedure. The failure of this surveillance test was not recognized at the time of the test and, as a result, the plant was started up with an inoperable MSIV, a condition prohibited by technical specifications. During a forced outage in May 2006, the MSIV was tested and did not meet the acceptance criteria because the valve closed too fast. The valve was declared inoperable and was adjusted and retested acceptably prior to startup in May 2006. The inspectors previously evaluated a finding associated with this LER in NRC inspection report 05000219/2006006, dated June 20, 2006. The inspectors reviewed this LER and determined that additional information was required to determine the safety significance

of operating in this condition was not clearly described. AmerGen submitted a supplement to this LER on September 22, 2006. This LER is closed.

.5 (Closed) LER 05000219/2006-002-01, Failure of MSIV Surveillance Due to Transcription Error.

This LER was a supplement to LER 2006-002-00 which provided additional information on the safety system functional failure determination associated with operating with a MSIV with a faster closure time than allowed by technical specification 4.5F, "Containment System." The inspectors reviewed this LER and no new issues were identified. This LER is closed.

4OA5 Other

a. Inspection Scope

The inspectors reviewed AmerGen's completed and proposed corrective actions associated with fitness for duty concerns related to excessive working hours by radiation protection personnel. These concerns were documented in a series of corrective action program condition reports written in March and May 2006. The inspectors reviewed AmerGen procedures and licensee correspondence related to this issue. Documents reviewed for this inspection activity are listed in the Supplemental Information attachment to this report.

b. Findings and Observations

No findings of significance were identified. However, the inspectors identified two minor violations of NRC requirements associated with fitness for duty and overtime.

The first issue occurred on March 31, 2006, when a radiation protection technician reported himself to be unfit for duty and ask to be sent home after the end of his first scheduled shift. The technician had worked two (2) consecutive twelve (12) hour shifts and was being asked to do a double shift (16hr) to cover an emergency plan (E-Plan) position because a technician had called in sick. The Shift Manager performed an assessment of the technician's level of fatigue and mental alertness as required by SY-AA-102,"Fitness for Duty" and LS-AA-119,"Overtime Controls", by conversing with the technician. The Shift Manager made the determination that the technician was Fit-For-Duty and then instructed the technician not to engage in any activities which could jeopardize his safety or the safety of the plant. Additionally, the Shift Manager assigned personnel to periodically check on the technician.

The inspectors determined that a fitness for duty evaluation was conducted by the Shift Manager for the radiation protection technician duties. However, the Shift Manager did not consider the technician's E-Plan responsibilities which he was also assigned to perform. The instructions given to the technician by the Shift Manager and the compensatory actions put in place indicate that the technician could not be relied upon to perform the assigned E-Plan duties. This issue was determined to be a violation of

procedure SY-AA-102 which is required by 10 CFR 26, "Fitness for Duty Programs," because a fitness for duty evaluation was incomplete. However, the inspectors determined through interviews and reports that the technician did not exhibit fatigue related issues during the overtime period and would have been able to perform his E-Plan duties. This issue was determined to be minor.

The second issue involved radiation protection technicians being required to work overtime in excess of the LS-AA-119, "Overtime Controls," in order to cover an E-Plan position vacancy caused by illness of the technician scheduled to work on March 11, March 31, May 12, and May 14, 2006

Appropriate procedures and checks were followed. Even though emergent illness is an unforeseeable circumstance which would justify forced overtime, AmerGen had been made aware of radiation protection technician manpower issues. Corrective action program condition report IR 465372 was written in March 2006, identifying technician manpower issues. The condition report stated that on March 13, 2006, for the third day in a row, a technician would be forced to work overtime to cover a normal E-Plan position. Since this deficiency was clearly identified and brought to AmerGen's attention in a condition report in March 2006, the fact that in May 2006 additional overtime deviations were required within a 2 day period demonstrates that this issue had not been corrected.

The inspectors determined this to be a violation of technical specification 6.8.1(j), "Procedures and Programs." However, the inspectors determined that no fatigue related performance issues resulted from these instances and corrective actions have been put in place to correct this issue. This issue was determined to be minor.

#### 40A6 Meetings, Including Exit

Commissioner Site Visit. On September 17, 2006, a site visit was conducted by Mr. Jeffrey S. Merrifield, Commissioner for the Nuclear Regulatory Commission. During Mr. Merrifield's visit, he toured the plant and met with AmerGen managers. Mr. Samuel J. Collins, Regional Administrator (RA) for the NRC Region I office accompanied Mr. Merrifield on his visit.

Resident Inspector Exit Meeting. On October 11, 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.

#### 40A7 Licensee-Identified Violations

The following violation of very low safety significance (green) was identified by Amergen and is a violation of NRC requirements which meets the criteria of Section VI of the NRC Enforcement Policy, NUREG-1600, for being dispositioned as an NCV.



- Technical Specification 6.13.2, “High Radiation Area” requires that locked doors be provided to prevent unauthorized entry to areas with a deep dose equivalent of 1000 millirem/hour at 30 cm (18.1 in.) from a source of radioactivity. Contrary to this, on June 24, 2006, AmerGen identified that the chain lock for the new radwaste truck bay roll-up door was not locked. AmerGen could not identify when the manual chain access became available and not locked. AmerGen concluded the area controlled by the door had exhibited locked high radiation levels, greater than the above stated levels. Amergen also concluded that the door could have been opened manually via the chain on several occasions with locked high radiation conditions.

The violation was of very low safety significance (Green) because AmerGen reviewed personnel exposure history and concluded that no individual dose consequences occurred due to this condition and AmerGen did not identify evidence of an unauthorized entry. This issue is described in corrective action program condition report IR 503300. Corrective actions involved locking the chain so it cannot operate the roll-up door.

ATTACHMENT: SUPPLEMENTAL INFORMATION

**SUPPLEMENTAL INFORMATION****KEY POINTS OF CONTACT**Licensee personnel

M. Button, Director Work Management  
 D. Kettering, Director, Engineering  
 R. Ewart, Security Manager (Acting)  
 S. Hutchins, Engineering, Senior Manager  
 J. Dostal, Shift Operations, Superintendent  
 J. Kandasamy, Manager, Regulatory Assurance  
 J. Magee, Director, Maintenance  
 J. Makar, Engineering, Senior Manager  
 J. Randich, Plant Manager  
 J. Renda, Radiation Protection Manager  
 T. Rausch, Site Vice President  
 J. Vaccaro, Director, Training  
 M. Wagner, CAP Coordinator  
 R. Zacholski, Director, Operations  
 J. Murphy, Radiological Engineering Manager

**LIST OF ITEMS OPENED, CLOSED, AND DISCUSSED**Opened/Closed

05000219/2006004-01	NCV	Fire Protection Plan Requirements Not Implemented (Section 1R05)
05000219/2006004-02	FIN	Inadequate Work Planning Results in #1 Air Compressor Trip (Section 1R12)
05000219/2006004-03	FIN	Inadequate Foreign Material Control Results in #1 Emergency Diesel Generator Unavailability (Section 1R22)
05000219/2006004-04	NCV	Untimely Corrective Actions for the 'A' ESW pump breaker (Section 1R22)
05000219/2006-001-00	LER	Manual Scram Inserted During Planned Reactor Shutdown to Expedite Plant Cooldown (Section 4OA3)
05000219/2006-002-00	LER	Failure of MSIV Surveillance Test Due to Transcription Error (Section 4OA3)

Enclosure

05000219/2006-002-01      LER      Supplement to Failure of MSIV Surveillance Test  
Due to Transcription Error (Section 4OA3)

### **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

328, Turbine Building Heating and Ventilation System”  
328.1, “Battery Room ‘C’ HVAC”  
329, “Reactor Building Heating, Cooling, and Ventilation System”  
331, “Office Building Heating, Ventilation, and Air Conditioning System”  
338, “480 Volt Electrical System”  
OP-OC-108-109-1001, “Preparation for Severe Weather T&RM for Oyster Creek”  
OP-AA-108-111,1001, “Severe Weather and Natural Disaster Guidelines”

##### Condition Reports (IR)

506288, 532384, 536482

##### Other Documents

Adverse Condition Monitoring Plan - Plant Monitoring During Hot Weather Conditions,  
dated August 1, 2006

#### **Section 1R04: Equipment Alignment**

##### Procedures

308, “Emergency Core Cooling System Operation”  
341, “Emergency Diesel Generator Operation”  
828.7, “Secondary System Analysis: Plant Oil”  
636.4.003, “Emergency Diesel Generator #1 load test”  
644.4.002, “Condensate Transfer Pump Operability and In-Service Test”  
MA-AA-716-230-1004, “Lubrication Sampling Guideline”  
VM-OC-2201, “Simpsons 260-8Xi Volt-Ohm-Millimeter operator manual”  
VM-OC-2356, “Chesterton/Blackner System I Pump Manual”  
VM-OC-5184, “Component Manual Dealing with Diesel Fuel Oil”

##### Drawings

3E-862-21-1000, “Emergency Diesel Generator Fuel Oil Storage and Transfer System”  
BR 2004, “Condensate Transfer System”  
BR 2015, “Main Fuel Oil Storage and Transfer”  
GE 885D781, “Core Spray System Flow Diagram”  
EM 8393039, “Emergency Diesel Generator #1 Electrical Elementary Wiring Diagram”

Condition Reports (IR)

480358, 507675, 490166, 428992, 373393, 372616, 370903, 367564, 509695, 505753, 468362, 455984, 453104, 522540, 534540

Work Orders (AR)

A2093837, A2143979, A2140614, R0809196, A2101317, A2101312, A2122647, A2145406, A2101132, A2136244, R2073088, A2135660, A2093837, A2138953, A2107202, C2010084, A2107520, A2136738, R 0809196, A0708364, R0809196

Other

Clearance #06501456

**Section 1R05: Fire Protection**

Procedures

ABN-29, "Plant Fires"  
101.2, "Oyster Creek Site Fire Protection Program"  
CC-AA-211, "Fire Protection Program"  
333, "Plant Fire Protection System"

Drawings

GU 3E-157-02-001, "General Arrangement Diesel Generator Building Plans"  
GU 3E-158-02-001, "General Arrangement Heating Boiler House"  
GU 3D-911-02-016, "Fire Area Layout Reactor Building 75' Floor Elevation"  
JC 19629, "Fire Protection CO2"

Condition Reports (IR)

480358, 425995, 468362, 455984, 453104, 505753, 521448, 528375, 528364, 528128

Work Orders (AR)

A0704262

Other Documents

OC Fire Risk Analysis-Compartment Fire Scenario Development Report (R0467050033.04)  
Oyster Creek Nuclear Generating Station Fire Hazard Analysis Report (990-1746)  
Oyster Creek Fire Plans (OP-OC-210-008)  
VM-OC-5004, "Operation Services & Maintenance Management for Cardox Storage Tank"

**Section 1R11: Licensed Operator Regualification Program**

Procedures

ABN-1, "Reactor Scram"  
ABN-11, "Loss of Generator Stator Cooling"  
ABN-40, "Stuck Open EMRV"

Drawings

EMG 3200.02, "Primary Containment Control"  
EMG 3200.01A, "Reactor Pressure Vessel Control - No ATWS"  
EMG 3200.01B, "Reactor Pressure Vessel Control - ATWS"  
EMG 3200.04A, "Emergency Depressurization- No ATWS"

Other Documents

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

**Section 1R12: Maintenance Implementation**

Procedures

ER-AA-310, "Implementation of Maintenance Rule"  
ER-AA-310-1005, "Maintenance Rule - Disposition Between (a)(1) and (a)(2)"  
201.1, "Power Operation"  
334, "Instrument and Service Air System"  
644.3.004, "Condensate Storage Tank Level Indicator LI-424-993 Calibration"  
681.4.004, "Substation Tour Sheet"

Condition Reports (IR)

508314, 508513, 508500, 516160, 528442, 515502, 530245, 496329, 507047, 509761, 528500

Work Orders (AR)

A2146691, A2093546, A2146016, A2147491, A2149730, A2147430, C2013331

Other Documents

NEI 93-01, "Industry Guideline for monitoring the Effectiveness of Maintenance at Nuclear Power Plants"  
UFSAR 9.3.1, "Service and Instrument Air"  
Technical Specification 3.7.B, "Auxiliary Power"  
Oyster Creek Work Week 0630 Work Management Schedule  
VM-OC-5134, "JFR Distribution Step Voltage Regulator & MJ-3A Regulator Control"  
VM-OC-0059, "Pennsylvania HAE-CP Air Compressor"  
Turbine building operator logs for 1-1, 1-2, and 1-3 air compressor parameters  
Service Air System Maintenance Rule Performance  
SDBD-OC-852, "Design Basis Document for Plant Compressed Air System"  
VM-OC-2771, "Ingersoll-Rand Sierra H150 Air Compressor"  
Control Room Operator Logs for 8/2/06 and 9/7/06  
OC-PSA-005.21, "Instrument Air System PSA information notebook"

**Section 1R13: Maintenance Risk Assessments and Emergent Work Control**

Procedures

607.4.014, "Containment Spray and ESW System 1 Pump Operability, IST and Containment Spray Pumps Trip"  
642.4.001, "RBCCW Inservice Test"  
ER-AA-600-1042, "On-line Risk Management"

ER-AA-600-1021, "Risk Management Application Methodologies"  
ER-AA-600-1014, "Risk Management Configuration Control"  
ER-AA-600-1011, "Risk Management Program"  
WC-OC-101-1001, "On-line Risk Management and Assessment"  
MA-AA-716-008, "Foreign Material Exclusion"

Drawings

BR 2006, "Reactor Building Closed Cooling Water system"  
BR 2006, "Turbine Building Closed Cooling Water system"  
GE 148F740, "Containment Spray system"

Condition Report (IR)

508367, 435168, 450887, 463546, 517632,

Work Orders (AR)

A2145825, A2131520, A2146019

Other Documents

Clearance #6501028  
Daily Online Work Week plan for weeks 0627, 0628 and 0630  
Oram Sentinel Risk Management profile for work week's 0627, 0628 and 0630  
Oyster Creek Operations Logs, dated February 19 thru March 8, 2006  
VM-OC-5292, "Turbine Building Component Cooling Water Heat Exchanger"

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

Procedures

202.1, "Power Operation"  
322, "Service Water System"  
OP-OC-114-101, "Compliance with Thermal Limits of the NJPDES DSW Permit"  
RAP-Q3c, "Condenser Vacuum Low 25 inches"  
RAP-K6f, "Intake Bay Lo Level"  
RAP-K7e, "Environmental Water Monitor"  
RAP-K5e, "Intake Screen Differential Pressure High"

Condition Report (IR)

509863, 509865, 509839, 509874

Work Orders (AR)

A2146358, A2146357

Other Documents

Operator logs from 7/14/06 to 7/17/06  
NJ Surface Water Permit #0005550 for discharge of main condenser  
Primary plant computer data for intake level, intake temperature, discharge temperature,  
condenser vacuum, RBCCW differential pressure, TBCCW differential pressure and  
drywell temperature on from 7/14/06 to 7/17/06

### **Section 1R15: Operability Evaluations**

#### Procedures

OP-AA-108-115, "Operability Determination"  
636.4.003, "Diesel Generator #1 Load Test"  
607.4.005, "Containment Spray and Emergency Service Water Pump System #2 Operability and Comprehensive/ Preservice/ Post-Maintenance Inservice Test"  
330, "Standby Gas Treatment System"  
651.4.001, "Standby Gas Treatment System Test"  
RAP-L2b, "Train A Flow Lo"

#### Condition Reports (IR)

CAP 2001-811, CAP 02001-0811, 445470, 507677, 512078, 521865, 520694, 521136, 512610, 517700, 531240

#### Work Orders (AR)

A2145872, A2144049, A2146783, A2130167, A2134214, A2148631, A2146956

#### Other Documents

Primary Plant Computer data containment spray and emergency service water pump discharge pressures and flows  
Operator Logs for 7/11/06, 7/22/06  
Technical Specification 3.7, "Auxiliary Electrical Power"  
Technical Specification 3.5, "Emergency Core Cooling Systems"  
ASME code for Operation and Maintenance of Nuclear Power Plants  
FSAR Table 6.2-15, "Containment Response to Minimum Containment Spray and ESW Flow"  
Oyster Creek Safety Alert for #1 EDG FME near miss  
VM-OC-0095, "Operating Manual - MU20E Power Plants (Diesel Generator)"  
VM-OC-0096, "Maintenance Manual - MU20E Power Plants (Diesel Generator)"  
OC-2006-OE-0005, "Operability Evaluation for Emergency Service Water System #2"  
Standby Gas Treatment System Test Results on February thru August 2006  
NRC Inspection Manual - Part 9900 Technical Guidance, "Operability Determinations & Functionality Assessments for Resolution of Degraded or Nonconforming Conditions Adverse to Quality or Safety"

### **Section 1R19: Post-Maintenance Testing**

#### Procedures

MA-AA-716-008, "Foreign Material Exclusion Program"  
MA-AA-716-012, "Post Maintenance Testing"  
OP-MA-109-101, "Clearance and Tagging"  
2400-GMM-3900-52, "Inspection and Torquing of Bolted Connections"  
308, "Emergency Core Cooling System"  
322, "Service Water System"  
334, "Instrument and Service Air System"  
610.4.021, "Core Spray System 1 Pump Operability and Quarterly In-Service Test"  
636.4.003, "Diesel Generator #1 Load Test"

644.4.002, "Condensate Transfer Pump Operability and In-Service Test"  
2400-GMM-3900.52, "Inspection and Torquing of Bolted Connections"  
MA-OC-741-102, "Emergency Diesel Generator 24 month Inspection"  
2400-GME-3780.52, "Installation, Inspection and Termination of Wiring and Cabling"  
MA-OC-741-101, "Diesel Generator Inspection (24 month) - Electrical"

Drawings

BR 2004, "Condensate Transfer System"  
BR 2006, "Reactor Building Closed Cooling Water system"  
GE 885D781, "Core Spray System Flow Diagram"  
EM 839039, "Emergency Diesel Generator #1 Electrical Elementary Diagram"

Condition Report (IR)

509863, 509839, 522540, 528442, 515502, 534540

Work Order (AR)

A2146358, A2120045, A2107202, C2010084, A2143516, C2013079, R2087368, A2149730,  
A2147430, C2013331, A2136738, R2082782, A0708364, R0809196, R2091413

Other

VM-OC-0095, "Operating Manual - MU20E Power Plants (Diesel Generator)"  
VM-OC-0096, "Maintenance Manual - MU20E Power Plants (Diesel Generator)"  
VM-OC-2201, "Simpsons 260-8Xi Volt-Ohm-Millimeter operator manual"  
VM-OC-2356, "Chesterton/Blackner System I Pump Manual"  
VM-OC-0059, "Pennsylvania HAE-CP Air Compressor"  
Turbine building operator logs for 1-1, 1-2, and 1-3 air compressor parameters  
Service Air System Maintenance Rule Performance  
SDBD-OC-852, "Design Basis Document for Plant Compressed Air System"  
VM-OC-2771, "Ingersoll-Rand Sierra H150 Air Compressor"  
Control Room Operator Logs and OCC logs for 8/1/06 thru 8/3/06, and 9/7/06  
OC-PSA-005.21, "Instrument Air System PSA information notebook"  
VM-OC-0354, "Instruction, Operation & Maintenance for Reactor Building Component Cooling  
Water Heat Exchanger"  
UFSAR 9.3.1, "Service and Instrument Air"

**Section 1R22: Surveillance Testing**

Procedures

SA-AA-129, "Electrical Safety"  
MA-AA-1000, "Conduct of Maintenance"  
607.4.014, "Containment Spray and ESW System 1 Pump Operability, IST and Containment  
Spray Pumps Trip"  
310, "Containment Spray system Operation"  
636.4.003, "Diesel Generator #1 Load Test"  
645.4.019, "Redundant Fire Protection Water Supply Pump Operability Test"  
644.3.004, "Condensate Storage Tank Level Indicator LI-424-993 Calibration"  
2400-GMM-3900.52, "Inspection and Torquing of Bolted Connections"



MA-OC-741-102, "Emergency Diesel Generator 24 month Inspection"  
2400-GME-3780.52, "Installation, Inspection and Termination of Wiring and Cabling"  
MA-OC-741-101, "Diesel Generator Inspection (24 month) - Electrical"

Drawings

BR 3001c, "4160 V System One Line Diagram Emergency Switchgear Bus 1C & 1D"  
GE 148F740, "Containment Spray System"

Condition Reports (IR)

508367, 517643, 508314, 508513, 508500, 534540

Work Orders (AR)

A2136368, C2012762, A2146019, A2146691, A2093546, A2146016, A2136738, R2082782,  
R0809196, A0708364, R2091413

Other Documents

Technical Specification 3.4, "Emergency Cooling"  
VM-OC-0008, "GE Magne-Blast breaker"  
Technical Specification 3.7, "Auxiliary Electrical Power"  
VM-OC-0095, "Operating Manual - MU20E Power Plants (Diesel Generator)"  
VM-OC-0096, "Maintenance Manual - MU20E Power Plants (Diesel Generator)"

**Section 1R23: Temporary Plant Modifications**

Procedures

644.3.004, "Condensate Storage Tank Level Indicator LI-424-993 Calibration"

Condition Reports (IR)

508314, 511622

Work Orders (AR)

A2146691

Other Documents

ECR Number: OC-06-00585-000, "Local Condensate Storage Tank Level Indication  
Contingency TCCP"

**Section 2OS1: Access Control to Radiological Significant Areas**

Procedures

RP-AA-4002, "Radiation Protection Refuel Outage Readiness"  
RP-AA-461, "Radiological Controls for Contaminated Water Diving"

Condition Reports (IR)

487221, 487718

Other

Focused Area Self-Assessment - 448996  
2006 Fleet lessons Learned

**Section 2OS2: ALARA Planning and Controls**

Procedures

RP-AA-400, "ALARA Program"  
RP-AA-401, "Operational ALARA Planning and Controls"

Condition Reports (IR)

511312, 503077

**Section 2OS3: Radiation Monitoring Instrumentation and Protective Equipment**

Procedures

CY-AB-120-130, "BWR Shutdown Chemistry"

Condition Reports (IR)

507086, 507546, 496172, 487718

Other

Oyster Creek Generating Station 2006-2010 Exposure Reduction Plan, Rev. 1

**Section 4OA1: Performance Indicator (PI) Verification**

Procedures

312.9, "Primary Containment Control"  
LS-AA-2090, "Monthly Data Elements for NRC Reactor Coolant System (RCS) Specific Activity"  
LS-AA-2100, "Monthly Data Elements for NRC Reactor Coolant System (RCS) Leakage"

Condition Reports (IR)

453987, 504257, 517372, 517845

Work Orders (AR)

489964

Other Documents

Reactor Coolant System Leakage PI data and verification record, July 1, 2004 - June 30, 2006  
Reactor Coolant System Activity PI data and verification record, July 1, 2004 - June 30, 2006  
Adverse Condition Monitoring and Contingency Plan for Potential #1 Seal Failure for 'C' Recirc Pump  
Adverse Condition Monitoring and Contingency Plan for Potential #1 Seal Failure for 'A' Recirc Pump  
Adverse Condition Monitoring and Contingency Plan for Increasing Unidentified Leak Rate  
Adverse Condition Monitoring and Contingency Slight Increase in 1-8 Sump Leakage

**Section 4OA2: Identification and Resolution of Problems**

Procedures

OP-AA-102-103, "Operator Work-Around Program"

Other Documents

Operability Evaluation OC-2005-OE-0001, Rev. 2, 1-1 Containment Spray Heat Exchanger

Operator Workarounds/Challenges Update List, dated August 7, 2006

Disabled Alarm List, dated August 7, 2006

Degraded Equipment List, dated August 7, 2006

Operation's Standing Orders: Number 99, 103, 104, 106, 107

**Section 4OA3: Event Followup**

Procedures

ABN-2, "Recirculation System Failures"

301.2, "Reactor Recirculation System"

Condition Reports (IR)

486781, 515261, 515699

Other Documents

NUREG-1022, "Event Reporting Guidelines 10 CFR 50.72 and 50.73"

NEI 99-02, Rev 4, "Regulatory Assessment Performance Indicator Guideline"

Control Room Narrative Logs, Dated July 31 - August 1, 2006.

**Section 4OA5: Other**

Procedures

LS-AA-119, "Overtime Controls"

SY-AA-102, "Fitness For Duty"

Condition Reports

464865, 465372, 465475, 468250, 469222, 472726, 473970, 478970

Other

NRC Generic Letter (GL) 82-12, "Nuclear Power Plant Staff Working Hours"

Oyster Creek Technical Specifications 6.2.2.2 (i) and 6.8.1 (j).

10 CFR 26 , " Fitness for Duty"

**LIST OF ACRONYMS**

ABN	Abnormal Operating Procedure
ADAMS	Agency-wide Documents Access and Management System
ALARA	As Low As Reasonably Achievable
AmerGen	AmerGen Energy Company, LLC
CAP	Corrective Action Program

CDF	Core Damage Frequency
CFR	Code of Federal Regulations
CO <sub>2</sub>	Carbon Dioxide
CRD	Control Rod Drive
CST	Condensate Storage Tank
EDG	Emergency Diesel Generator
EMRV	Electromatic Relief Valve
E-Plan	Emergency Plan
ESW	Emergency Service Water
FIN	Finding
GE	General Electric
HRA	High Radiation Area
IST	Inservice Test
IMC	Inspection Manual Chapter
IPEEE	Individual Plant Examination for External Events
LER	License Event Report
LERF	Large Early Release Frequency
LHRA	Locked High Radiation Area
MSIV	Main Stem Isolation Valve
NEI	Nuclear Energy Institute
NCV	Non-cited Violation
NRC	Nuclear Regulatory Commission
OS	Occupational Safety
OWA	Operator Workarounds
Oyster Creek	Oyster Creek Generating Station
PARS	Publicly Available Records
PI	Performance Indicator
PJM	PJM Interconnection, L.L.C.
RA	Regional Administrator
RAP	Annunciator Response Procedure
RBCCW	Reactor Building Closed Cooling Water
RCA	Radiologically Controlled Area
RWP	Radiation Work Permit
SAC	Site ALARA Committee
SDP	Significance Determination Process
SRA	Senior Risk Analyst
TBCCW	Turbine Building Closed Cooling Water
TS	Technical Specification
UFSAR	Updated Final Safety Analysis Report