

April 19, 2001

Mr. Ron J. DeGregorio  
Vice President Oyster Creek  
AmerGen Energy Company, LLC  
P.O. Box 388  
Forked River, New Jersey 08731

SUBJECT: OYSTER CREEK GENERATING STATION - NRC INSPECTION  
REPORT 05000219/2001-003

Dear Mr. DeGregorio:

On March 16, 2001, the NRC completed a team inspection at the Oyster Creek Generating Station. The enclosed report presents the results of that inspection. The preliminary results of this inspection were discussed on March 16, 2001, with you and other members of your staff.

The inspection was an examination of activities conducted under your license as they relate to the identification and resolution of problems, and compliance with the Commission's rules and regulations, and with the conditions of your license at Oyster Creek Generating Station. Within these areas, the inspection consisted of a selected examination of procedures and representative records, observations of activities, and interviews with personnel.

On the basis of the sample selected for review, the team concluded that the overall implementation of the corrective action program at Oyster Creek was adequate. Problems were generally properly identified, evaluated and corrected. However, the team identified instances where problems associated with the performance of maintenance activities were not identified by plant personnel. Consequently these problems were not considered for entry in your corrective action process until identified by the NRC during the inspection. The team also identified instances where evaluations of longer term problems have not resulted in effective corrective actions being completed.

The team identified three green findings during the inspection associated with problem identification and corrective action effectiveness. The first finding involved the failure to adhere to procedures for controlling lubricant applied to electrical equipment under nuclear safety related job orders. The second finding involved a plant configuration in the 4160 volt switchgear area where compensatory measures were not adequate to maintain the manual fire suppression system capability in both 4160 volt vital switchgear rooms. The third finding is associated with two instances where evaluations of longer term problems have not resulted in effective corrective actions being identified and completed. One instance involved the evaluation of a containment spray piping issue and the second issue involved a potentially non-conservative assumption in the main steam line break analysis. These three green findings were determined to be three violations of NRC requirements. Based on their very low safety significance and because each issue is being addressed within your corrective action process, the NRC is treating these issues as Non-Cited violations, in accordance with Section VI.A.1 of the NRC's Enforcement Policy. If you deny these non-cited violations, you should provide a

Mr. Ron J. DeGregorio

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response with the basis for your denial, within 30 days of the date of this inspection report, to the Nuclear Regulatory Commission, ATTN.: Document Control Desk, Region I; the Director, Office of Enforcement, United States Nuclear Regulatory Commission, Washington, D.C. 20555-0001; and the NRC Resident Inspector at the Oyster Creek facility.

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Sincerely,

**/RA/**

Wayne D. Lanning, Director  
Division of Reactor Safety

Docket No: 05000219

License No: DPR-16

Enclosure: NRC Inspection Report No. 05000219/2001-003

cc w/encl:

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Mr. Ron J. DeGregorio

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**U. S. NUCLEAR REGULATORY COMMISSION**

**REGION I**

Docket No. 05000219

License No. DPR-16

Report No. 05000219/2001-003

Licensee: AmerGen Energy Company, LLC

Facility: Oyster Creek Generating Station

Location: Forked River, New Jersey

Dates: February 26, 2001 to March 2, 2001  
March 12, 2001 to March 16,2001

Inspectors: Mel Gray, Reactor Inspector, Team Leader  
Thomas Hipschman, Resident Inspector  
Paul Kaufman, Senior Reactor Inspector

Approved By: David C. Lew, Chief  
Performance Evaluation Branch  
Division of Reactor Safety

## SUMMARY OF FINDINGS

### Oyster Creek Generating Station NRC Inspection Report 05000219/2001-003

IR 05000219-01-003; on 2/26 - 3/16/2001; AmerGen Energy Company, LLC; Oyster Creek; annual baseline inspection of identification and resolution of problems.

The inspection was conducted by two region-based inspectors and one resident inspector. The inspection identified three Green findings which were also Non-Cited Violations. The significance of the findings is indicated by their color (Green, White, Yellow, Red) using NRC Inspection Manual Chapter 0609 "Significance Determination Process" (SDP). Findings for which the SDP does not apply are indicated by "no color" or by the severity level of the applicable violation. (Attachment 1)

#### Identification and Resolution of Problems

The inspectors concluded that, based on the samples reviewed, the overall implementation of the corrective action program at Oyster Creek Generating Station was adequate. In general, problems were properly identified, evaluated and corrected. The inspectors observed the licensee entered problems into the corrective action program at an appropriate threshold and generally prioritized and evaluated issues in a timely fashion. The inspectors concluded the licensee's evaluations generally were of adequate depth to identify the causes and appropriately broad in considering the extent of the problem. The inspectors further concluded the licensee tracked corrective actions to completion and appropriately managed the backlog of issues.

However, the inspectors identified instances where problems associated with the performance of maintenance activities were not identified by plant personnel. Consequently these problems were not considered for entry in the corrective action process until identified by the NRC during the inspection. These issues resulted in two Green findings. The inspectors also identified instances where evaluations of longer term problems have not resulted in effective corrective actions being completed. These instances resulted in a third Green finding.

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

- Green. The inspectors identified a Non-Cited Violation for failure to follow procedures (Technical Specification 6.8.1) regarding three job orders (JO), classified as nuclear safety related work, which did not include documentation of the lubrication applied to electrical equipment. JO#00547049 and JO#00547116 involved reactor building recirculation fan motor control center breaker contactors. JO#00541019 involved the racking mechanism for a containment spray pump motor 480 volt breaker. The issue affects the mitigating cornerstone since the reliability of nuclear safety related electrical equipment could be affected. However the failure to document the lubrication used in these job orders was considered to have very low safety significance using the SDP since the post maintenance testing was successfully completed, and there were no indications that the incorrect lubrication was applied in these instances. **(NCV 05000219/2001-003-01)**

- Green. The inspectors identified two examples of a Non-Cited Violation of 10CFR50 Appendix B, Criterion XVI for failure to promptly identify and correct a condition adverse to quality. The first example was in regard to a containment spray (CS) pipe support clamp that periodically rotated out of alignment. While this condition had been identified in numerous corrective action program documents since 1985, effective corrective action had not been implemented. Additionally, the evaluation did not identify the cause, which was determined to be a water hammer condition, or assess the affect on containment spray piping. The second example was in regard to a potential non-conservative assumption in the main steam line break (MSLB) analysis. While the issue was identified in 1996 and again in 1998, the evaluation had not been completed to support prompt corrective actions. These issues were considered to have very low safety significance because the licensee subsequently evaluated both issues and determined the CS piping remained operable and the plant remained within its design basis for the MSLB analysis. **(NCV 05000219/2001-003-02)**
- Green. The inspectors identified a Non-Cited Violation for failure to maintain in effect all provisions of the of the approved fire protection program as described in the Updated Final Safety Analysis Report (SAR) as required by Oyster Creek Facility Operating License Condition 2.C.3. On February 26 through February 28, 2001, the licensee opened and mechanically blocked the two large roll-up fire doors separating the common A and B non-vital switchgear fire area from the individual C and D vital switchgear fire areas. Opening these doors created an expanded fire area enveloping all 4160 volt switchgear. The capability of the carbon dioxide system to achieve and maintain the gas concentration required to suppress a smoldering fire could not be confirmed as described in the SAR and Fire Hazards Analysis Report referenced in the SAR. Although the licensee instituted a continuous fire watch for this area, this compensatory measure was not adequate to maintain prompt manual fire suppression capability to the vital switchgear since the fire watch was not prepared with adequate instruction, specific training, or staged tools to unblock and close both roll-up doors with a reasonable probability of success in the event of a switchgear fire. Additionally compensatory back up suppression capability was not provided, and the fire brigade response was not preplanned to ensure responders would have the tools required to unblock and close the roll-up doors in the event of a fire. This issue was assessed using the SDP phase two evaluation and determined to have very low safety significance, in part, due to mitigating equipment not dependant on power from the 4160 volt switchgear or station batteries. **(NCV 05000219/2001-003-03)**

## Report Details

### **4. OTHER ACTIVITIES (OA)**

#### 4OA2 Identification and Resolution of Problems (71152)

##### .1 Effectiveness of Problem Identification

###### a. Inspection Scope

The inspectors reviewed items selected from various licensee processes and activities to determine if the licensee was properly identifying, characterizing and entering problems into the corrective action program for evaluation and resolution. The inspectors noted that the corrective action program was the licensee's primary process for identifying and resolving problems. Problems were entered into this program as corrective action program items, or CAPs. The inspectors reviewed the CAPs listed in Attachment 2 to determine the licensee's threshold for identifying problems and entering them into the corrective action process.

The inspectors also reviewed items from the licensee's operating, maintenance and quality assessment processes to determine if personnel appropriately initiated CAPs when problems were identified via these processes. Specifically the inspectors reviewed a sample of work requests, preventive and corrective maintenance job orders, plant equipment deficiency tags, electronic task tracking system (ETTS) items, self assessments, nuclear safety assessment department reports, control room deficiency lists, operator logs, design modifications, and System Team Performance meeting notes. The inspectors also walked down selected plant areas and interviewed plant personnel to identify other processes that may exist where problems and issues could be identified.

###### b. Issues and Findings

The inspectors determined that, in general, the licensee was identifying problems and entering them into the corrective action program at an appropriate threshold. The inspectors also determined that when licensee personnel identified issues through other processes, they initiated CAPs at a proper threshold to document and evaluate the problem. The inspectors did not identify instances where other processes were incorrectly used in place of the corrective action process. However, the inspectors identified several problems associated with maintenance activities which were missed by licensee personnel. Consequently the problems were not corrected using the corrective action program or other applicable process until identified during the inspection.

One problem identified by the inspectors involved two fire barrier roll-up doors in the 4160 volt switchgear area that were blocked open to support a maintenance activity. The fire doors provide a fire barrier between the vital and non-vital 4160 volt switchgear cabinets. Opening the roll-up doors removed the fire barrier between the vital and non-vital switchgear busses and degraded the manual carbon dioxide (CO<sub>2</sub>) fire suppression system's capability to suppress a fire in the area. Although the licensee instituted a continuous fire watch in this area, this compensatory measure was not adequate to

maintain the manual fire suppression system capability since the fire watch was not prepared with the adequate instruction, specific training, or staged tools to unblock and close both roll-up doors with a reasonable probability of success in the event of a switchgear fire. This performance issue was not identified by personnel who approved the fire impairment forms or by personnel completing the weekly fire protection tour. This issue is discussed in more detail in Section R05 of this report and resulted in a non-cited violation.

A second problem involved three job orders (JO) where maintenance personnel did not document the lubrication applied to electrical equipment. JO#00547049 and JO#00547116 involved lubricating reactor building re-circulation fan 480 volt motor control center breaker contractors. JO#00541019 involved inspecting and lubricating the racking mechanism of a containment spray pump motor 480 volt breaker. These JO's were classified as nuclear safety related work. The inspectors identified that although the job orders identified the type of lubricant to be applied, maintenance personnel did not document in the JOs the lubricant type used or include a material slip to document the type of lubricant used. This performance issue was not identified by personnel approving these completed job orders.

This issue is considered to be more than minor since inadequate documentation of lubricant applied to electrical equipment could be a precursor to the use of incorrect lubricant. The issue affects the mitigating cornerstone since the reliability of nuclear safety related electrical equipment could be affected. However the failure to document the lubrication used in these job orders was considered to have very low safety significance (Green) using the SDP phase 1 assessment since the post maintenance testing was successfully completed, and there were not indications that the incorrect lubrication was applied in these instances. Licensee Procedure 2400-ADM-1220.08, "Job Order," Section 4.6.1.9 directs maintenance personnel to document all parts used in the materials section of the job order, using either the PQA (procurement quality assurance) or purchase order number. The failure to document in these job orders the lubrication applied is a violation of TS 6.8.1, which requires that written procedures shall be established, implemented and maintained. This violation is being treated as a Non-Cited Violation consistent with Section VI.A of the NRC Enforcement Policy, issued on May 1, 2000 65FR 25368). The licensee initiated CAP-2001-0389 during the inspection to evaluate this problem. **(NCV 05000219/2001-003-01)**

The inspectors identified two minor instances where personnel missed opportunities to identify and correct problems during maintenance activities. During a plant walkdown the inspectors identified that the reactor building isolation sump valve V-24-38 stem and position limit switches were severely corroded. The valve closes on high sump level to prevent flooding of safety related equipment. The inspectors determined that while maintenance personnel observed successful operation of the valve in November 2000, they did not initiate a job order at that time to address the material condition deficiency. During the inspection the licensee initiated work request 786024 to correct this issue. An instance was also identified by the inspectors where, in completing a periodic maintenance (PM) task to verify the correct emergency operating procedures were maintained in the control room, personnel approving task completion did not ensure the PM task list of required procedures, noted to be out of date, was revised. During the



inspection the licensee initiated PM change request (PMCR) #102014 to correct the PM task list of procedures.

## .2 Prioritization and Evaluation of Issues

### a. Inspection Scope

The inspectors reviewed the CAP items listed in Attachment 2 to determine whether the licensee was adequately prioritizing and evaluating issues within their corrective action program. CAP items were selected to cover the seven cornerstones of safety listed in Attachment 1. The inspectors considered risk insights from the Oyster Creek Individual Plant Examination (IPE) in selecting CAPs. A sample of CAPs associated with Non-Cited Violations (NCVs) and Licensee Event Reports (LERs) was also selected. The inspectors assessed the licensee's priority in evaluating these issues, the technical adequacy and depth of the evaluations, the licensee's assessment for reportability and operability, and the completeness of the licensee's cause determinations.

### b. Issues and Findings

The inspectors concluded that the licensee generally prioritized and evaluated issues entered into the CAP in a timely fashion. The team determined the licensee's evaluations were of adequate depth to identify the causes and appropriately broad in considering the extent of the problem. The licensee's assessments properly considered operability and reportability requirements. However, the team identified one instance associated with containment spray piping where the licensee's evaluations were not sufficient to identify the cause of a repetitive problem and provide effective corrective actions. The team also identified one instance where the licensee had not completed an evaluation regarding the main steam line break (MSLB) analysis in a timely fashion to provide for effective corrective actions.

The inspectors reviewed CAP-1999-0534 which evaluated a problem regarding a containment spray (CS) pipe support clamp on the outlet of the "A" containment spray pump. The licensee identified that this pipe support clamp periodically rotated out of alignment. The inspectors noted that while this condition had been identified in numerous corrective action program documents since 1985, effective corrective action had not been implemented. The inspectors further noted the evaluation did not identify the cause of the problem. In discussion with the system engineer, the inspectors determined the most probable cause was a water hammer condition that develops after the containment spray pump is stopped, possibly due to the piping configuration or degassing in the system piping. Considering the cause, the inspectors observed the licensee's evaluation only assessed the impact of this condition on containment spray pipe support 241-BP-433-R7-0077 and not the system piping or components. In response to inspector questions, the licensee revised their evaluation to identify the apparent cause of the problem and assess the impact of the hydrodynamic loads on the containment spray system piping. The licensee concluded the containment spray system piping and supports remained operable. The inspectors reviewed the additional information in the CAP, such as satisfactory results of in-service inspection (ISI) weld inspections of the piping, and concluded the licensee provided an adequate basis for the operability assessment.

The failure to correct a condition identified since 1985 is a violation of 10 CFR 50, Appendix B, Criterion XVI, in that Criterion XVI requires, in part, that conditions adverse to quality be promptly identified and corrected. The issue is more than minor since the repetitive water hammer condition on the "A" containment spray pump piping could degrade the piping integrity. The issue affects the mitigating systems cornerstone since it could affect the reliability of a containment spray train. However, since ISI pipe weld inspection results have been acceptable and the containment spray piping has retained its pressure integrity, the issue has been determined to have very low safety significance (Green) in accordance with the NRC SDP for mitigating systems, phase 1 assessment. This violation is being treated as a NCV, consistent with Section VI.A of the NRC Enforcement Policy, issued May 1, 2000 (65FR25368). **(NCV 05000219/2001-003-02)**

The licensee received Operating Experience (OE) item 7966 in August 1996 regarding a potential non-conservative assumption in the MSLB analysis. The item identified that another boiling water reactor (BWR) facility determined that the calculated mass flow from a MSLB may be greater at hot shutdown conditions than the full power condition assumed in the accident analysis. The licensee distributed OE 7966 for information; however no action was taken. In August 1998 the licensee received a second OE item (OE 9211) regarding the same issue at a different BWR facility. In December 1999 plant staff concluded that mass flow during a postulated MSLB would increase during hot shutdown conditions. The licensee initiated CAP-1999-1547 to further evaluate the issue and track corrective actions. Licensee management indicated that this issue should be evaluated with an urgent priority. However, at the time of this inspection the evaluation remained open with the due date extended multiple times.

The inspectors observed the licensee's operability assessment used significant engineering judgement to conclude the plant remained within their design basis. Additionally the inspectors noted that operations personnel reviewing the operability assessment concluded in CAP-1999-1547 that the MSLB accident analysis remained valid since the plant was operating at full power. However, the licensee indicated that remaining at full power conditions was not the basis for operability. Considering the issue was identified in 1996 and again in 1998, and that completion of the evaluation would be required to confirm the qualitative judgement used in the operability assessment, the inspectors concluded the licensee had not evaluated the issue commensurate with its potential significance, and therefore had not established effective corrective actions.

In response to inspector questions, the licensee provided further information to support the operability assessment which indicated that, notwithstanding the potential increase in mass flow release from an MSLB, the overall energy release may not be increased since the mass flow would have significant moisture content at hot standby conditions. Additionally, the licensee concluded that while the mass flow may increase, the liquid portion of the mass flow would retain radionuclides that would otherwise be available for release in steam mass flow. During the inspection the licensee identified a firm date when the detailed analysis and evaluation would be completed.

The failure to correct a condition identified in 1996 and again in 1998 is a second example of violation of 10 CFR 50, Appendix B, Criterion XVI, in that Criterion XVI

requires, in part, that conditions adverse to quality be promptly identified and corrected. The issue is more than minor since the non-conservative assumption in the MSLB analysis may change the consequences calculated for a MSLB accident. The issue affects the mitigating systems cornerstone since the calculated increase in mass flow from a postulated MSLB could affect environmental qualification assumptions, main steam line tunnel structural analyses and calculated release results. However, based on information provided by the licensee that indicates, upon completion of the evaluations, the equipment environmental qualification assumptions and steam tunnel design pressure assumptions would most likely remain valid, and the accident results would most likely remain within the design basis, the issue has been determined to have very low safety significance (Green) in accordance with the NRC SDP for mitigating systems, phase 1 assessment. This violation is being treated as an NCV, consistent with Section VI.A of the NRC Enforcement Policy, issued May 1, 2000 (65FR25368). **(NCV 05000219/2001-003-02)**

.3 Effectiveness of Corrective Actions

a. Inspection Scope

The inspectors reviewed the corrective actions associated with the CAPs listed in Attachment 2 to determine whether the corrective actions addressed the identified causes and were scheduled or completed in a timely fashion. The inspectors also reviewed the backlog of corrective actions to determine if there were items that individually or collectively represented an adverse effect on plant risk or an adverse trend in the implementation of the corrective action program.

b. Issues and Findings

The inspectors determined that the licensee specified corrective actions to address each of the causes of problems identified in their evaluations. The inspectors determined that the licensee appropriately scheduled and tracked these corrective actions to completion. The inspectors did not identify combinations of corrective actions in the licensee corrective action process that represented an adverse effect on plant risk. No issues or findings were identified.

.4 Assessment of Safety-Conscious Work Environment

a. Inspection Scope

The inspectors interviewed plant personnel to determine if personnel were hesitant to identify safety issues.

b. Issues and Findings

No issues or findings were identified.

RO5 Fire Protection

On February 28, 2001 the inspectors observed that two fire barrier roll-up doors were blocked open between the common 4160 volt A and B non-vital switchgear bus room and the individual C and D vital switchgear bus rooms. The licensee initially blocked open the roll-up doors on February 26, 2001 to support maintenance activities in the area. The job was worked during the day shift and the doors were closed at the end of the shift. Scaffolding poles were located to block the roll-up doors open to prevent personnel injury in the event the doors inadvertently closed. A manual CO2 fire suppression system is provided in the C and D vital bus switchgear rooms. With the roll-up doors open, the CO2 system capability to suppress a fire was degraded due to the expanded area and ventilation flows in the non-vital switchgear room. The inspectors noted the licensee stationed a continuous fire watch in the area in accordance with the fire protection program.

The inspectors discussed the watch duties with the fire watch. The fire watch stated that their primary duty was to inform the control room in the event of a fire, evacuate personnel, and if possible, fight the fire with a portable CO2 extinguisher in the area. In regard to the blocked open roll-up doors, the fire watch stated that although not an assigned duty, if possible, they would attempt to close the doors. However, during the discussion the inspectors determined that the fire watch was unaware that the doors were blocked open, and did not have a tool at the job site staged to unblock the doors. The inspectors reviewed the fire impairment document for the job issued on February 28, 2001, and determined the fire impairment did not instruct the fire watch to close the roll-up doors.

The inspectors reviewed the prior fire impairment documentation issued for the previous two days. The impairments instructed the continuous fire watch to close the roll-up doors in the event of a fire to maintain the fire suppression system capability for the vital switchgear busses. However, the fire watch was not provided with instructions or tools to ensure the roll-up doors could be unblocked in the event of a fire. Additionally, the inspectors observed that with the roll-up doors open, the vital and non-vital switchgear cabinets were separated by approximately 3 feet. Therefore the opportunity for personnel to unblock and close both roll-up doors during a postulated fire in an adjacent switchgear cabinet was limited.

The inspectors discussed the fire impairment with control room personnel on February 28, 2001. A control room operator (CRO) assigned to the fire brigade stated that a continuous fire watch was stationed as a compensatory action and that no back-up suppression was required. The inspectors interviewed fire brigade personnel to assess the fire brigades likely response to a postulated fire in the vital switchgear bus rooms. Licensee fire brigade personnel indicated that while they would respond with personal protective equipment and self-contained breathing devices donned, the tools normally brought to the scene would be limited to a fire-ax, halogen tool, and spanner wrench for coupling a fire hose. While a tool box was available in the fire brigade turnout room with

tools that may have been used to remove the scaffolding polls, brigade personnel did not indicate these tools would be brought to the fire scene during an initial response.

Although the licensee instituted a continuous fire watch for the area, the inspectors concluded that this compensatory measure was not adequate to maintain prompt manual fire suppression capability to the vital switchgear busses since in the event of a fire, the fire watch was not prepared with adequate instruction, specific training, or staged tools to unblock and close both roll-up doors with a reasonable probability of success to restore CO<sub>2</sub> suppression system capability. Additionally the initial fire brigade response was not preplanned to ensure responders could unblock and close the roll-up doors. In response to the inspector questions, the licensee stopped this maintenance activity on February 28, closed the roll-up doors, and initiated CAP-2001-0306 to evaluate the condition.

The inspectors assessed the risk significance of this issue using the NRC fire protection SDP (Reference NRC Manual Chapter 0609, Appendix F). The SDP phase two assessment was completed with support from the regional senior reactor analyst (SRA) and NRC headquarters personnel. The inspectors conservatively considered a fire scenario originating in the A and B non-vital switchgear rooms which spread to the C and D vital switchgear rooms through the blocked open roll-up doors as the dominant risk scenario. Using the SDP, the inspectors calculated the fire mitigation frequency (FMF) as follows:

$$\text{FMF} = \text{IF} + \text{FB} + \text{MS} + \text{AS} + \text{CC}$$

Where

- FMF = fire mitigation frequency
- IF = fire ignition frequency
- FB = fire barrier
- MS = manual suppression/detection
- AS = automatic suppression/detection
- CC = dependancies/common cause contribution

The IF term for the A and B non-vital switchgear was obtained from the licensee's independent plant examination for external events (IPEEE) analysis. The FB term was assumed to be zero since the roll-up doors were open. No credit was given for the continuous fire watch to unblock and close these roll-up doors. With regard to the manual detection and suppression (MS) term, the inspectors determined that three fire brigade drills were witnessed in the past twelve months. Two of these drills did not meet licensee's expectations and required additional training. Consequently the inspectors considered the manual fire fighting capability outside the control room to be in the "moderate" level of degradation category. However, crediting a continuous fire watch in the area, the inspectors increased the MS term to reflect a "normal" operating state for manual fire fighting effectiveness outside the control room (MS = -1). The AS term was assigned a zero value since the open roll-up doors degraded the CO<sub>2</sub> suppression system capability to flood the room with CO<sub>2</sub> of adequate concentration to suppress a fire. The CC term was assigned a zero value since no common cause issues were identified.

The fire mitigating frequency (FMF) for this condition was calculated to equal -3.48. Using Table 5.6 of the SDP, the fire mitigation frequency was determined to be 1 in 1000 to 10,000 years. Both roll-up doors were open during the day shift on February 26, 27 and a portion of February 28, 2001. This corresponds to an exposure time to this condition of less than three days. Using SDP Table 5.7, the estimated likelihood of a fire occurring when the roll-up doors were open was in the "F" category.

To complete the SDP assessment, the inspectors determined the equipment available to place the plant in a hot shutdown condition. The licensee provided information that indicates at least one isolation condenser and two fire pumps would remain available to reach and maintain hot shutdown conditions. One isolation condenser is capable of removing sufficient decay heat to decrease reactor coolant system (RCS) pressure and allow one fire pump to inject adequate make up water to the RCS. A fire pump would also be available to provide make up water to the isolation condenser to maintain decay heat removal. Based on the information, the inspectors assigned a remaining mitigation capability of -1. SDP Table 5.8 indicates that for an estimated likelihood rating of F, and a remaining mitigation capability of -1, the issue has a very low safety significance and results in a Green finding.

Oyster Creek Facility Operating License Condition 2.C.3 requires the licensee to maintain in effect all provisions of the approved fire protection program as described in the Updated Final Safety Analysis Report (SAR). The Oyster Creek SAR references the Oyster Creek Fire Hazards Analysis Report (FHAR) as part of the fire protection program. FHAR Section 6.2.5 describes the manual CO<sub>2</sub> system and 3-hour fire rated fire barriers in the vital 4160 switchgear vault. FHAR Section 7.1 indicates that the plant is divided into fire areas, each which is bounded by fire barriers designed to contain a fire to that area without reliance on automatic or manual suppression activities. The FHAR describes the individual C and D vital switchgear fire areas, the common A and B switchgear fire area, and the two fire barrier roll-up doors.

Contrary to the above, on February 26 through February 28, 2001, the licensee periodically opened and mechanically blocked the two large roll-up fire doors separating the common A and B non-vital switchgear fire area from the individual C and D vital switchgear fire areas. Opening these doors created an expanded fire area enveloping all 4160 volt switchgear. Consequently the capability of the CO<sub>2</sub> system to achieve and maintain the gas concentration required to suppress a smoldering fire could not be confirmed. Although the licensee instituted a continuous fire watch for this area, this compensatory measure was not adequate to maintain prompt manual fire suppression capability to the vital switchgear as described in the FHAR, since the fire watch was not prepared with adequate instruction, specific training, or staged tools to unblock and close the roll-up doors with a reasonable probability of success in the event of a switchgear fire. Additionally, compensatory back up suppression capability was not provided and the fire brigade response was not preplanned to ensure responders would have the tools required to unblock and close the roll-up doors in the event of a fire.

The issue affects the mitigating cornerstone since the manual fire suppression system capability for both vital 4160 volt switchgear rooms was not maintained. However the issue was evaluated using an NRC SDP phase two assessment and determined to have very low safety significance (Green). This violation is being treated as a Non-Cited

Violation consistent with Section VI.A of the NRC Enforcement Policy, issued on May 1, 2000 65FR 25368). **(NCV 05000219/2001-003-03)**

The licensee initiated CAP-2001-0306 to address this condition within their corrective action process. The licensee placed restrictions to ensure only one roll-up door was blocked open at a time, briefed the fire watch on closing the blocked open door, staged a wrench to remove the bolts holding the scaffold pole in place, provided six additional CO2 extinguishers for backup suppression, and briefed the lead fire brigade member on the configuration. The licensee subsequently resumed the maintenance activity in the 4160 volt switchgear area.

#### 4OA6 Meetings, Including Exit

##### .1 Exit Meeting Summary

On March 16, 2001, the NRC inspectors presented the inspection results to Mr. Ron J. DeGregorio and other members of the Oyster Creek staff. The licensee acknowledged the results of the inspection. No information examined or reviewed during the inspection was considered to be proprietary. The inspectors asked the licensee whether any materials examined during the inspection should be considered proprietary. No proprietary information was identified.

## ATTACHMENT 1

# NRC's REVISED REACTOR OVERSIGHT PROCESS

The federal Nuclear Regulatory Commission (NRC) recently revamped its inspection, assessment, and enforcement programs for commercial nuclear power plants. The new process takes into account improvements in the performance of the nuclear industry over the past 25 years and improved approaches of inspecting and assessing safety performance at NRC licensed plants.

The new process monitors licensee performance in three broad areas (called strategic performance areas): reactor safety (avoiding accidents and reducing the consequences of accidents if they occur), radiation safety (protecting plant employees and the public during routine operations), and safeguards (protecting the plant against sabotage or other security threats). The process focuses on licensee performance within each of seven cornerstones of safety in the three areas:

### **Reactor Safety**

- Initiating Events
- Mitigating Systems
- Barrier Integrity
- Emergency Preparedness

### **Radiation Safety**

- Occupational
- Public

### **Safeguards**

- Physical Protection

To monitor these seven cornerstones of safety, the NRC uses two processes that generate information about the safety significance of plant operations: inspections and performance indicators. Inspection findings will be evaluated according to their potential significance for safety, using the Significance Determination Process, and assigned colors of GREEN, WHITE, YELLOW or RED. GREEN findings are indicative of issues that, while they may not be desirable, represent very low safety significance. WHITE findings indicate issues that are of low to moderate safety significance. YELLOW findings are issues that are of substantial safety significance. RED findings represent issues that are of high safety significance with a significant reduction in safety margin.

Performance indicator data will be compared to established criteria for measuring licensee performance in terms of potential safety. Based on prescribed thresholds, the indicators will be classified by color representing varying levels of performance and incremental degradation in safety: GREEN, WHITE, YELLOW, and RED. GREEN indicators represent performance at a level requiring no additional NRC oversight beyond the baseline inspections. WHITE corresponds to performance that may result in increased NRC oversight. YELLOW represents performance that minimally reduces safety margin and requires even more NRC oversight. And RED indicates performance that represents a significant reduction in safety margin but still provides adequate protection to public health and safety.

The assessment process integrates performance indicators and inspection so the agency can reach objective conclusions regarding overall plant performance. The agency will use an Action Matrix to determine in a systematic, predictable manner which regulatory actions should be taken based on a licensee's performance. The NRC's actions in response to the significance (as represented by the color) of issues will be the same for performance indicators as for inspection findings. As a licensee's safety performance degrades, the NRC will take more and increasingly significant action, which can include shutting down a plant, as described in the Action Matrix.

More information can be found at: <http://www.nrc.gov/NRR/OVERSIGHT/index.html>.



**ATTACHMENT 2**  
**LIST OF DOCUMENTS REVIEWED**

Procedures

2000-ADM-7216.01, Corrective Action Process, Revision 8  
1000-ADM-7216.02, Root Cause Evaluation Procedure, Revision 1  
2400-ADM-1220.08, Work Procedures Manual, Job Order, Revision 7  
Procedure 105, Conduct of Maintenance, Revision 42  
Work Performance Standard, OC-2, Operability Review and Analysis, Revision 4  
2000-ADM-1200.01, Nuclear Network, Revision 5  
1000-ADM-1291.03, Self-Assessment Program Guide, Revision 3  
607.4.005, Containment Spray and Emergency Service Water Pump System 2 Operability and Inservice Test Procedure  
2400-SME-3915.03, 4160 Volt Breaker Preventive Maintenance, Revision 5  
105, Conduct Of Maintenance, Revision 42  
108.3, Plant Equipment Deficiency Tags, Revision 11  
106, Conduct of Operations, Revision 119  
108, Equipment Control, Revision 81

CAPs (Problem Identification and Resolution Documents) - Numbers Only

**SPR (Significant Problem Response) CAPs**

01999-1119	02000-0811	02000-1793
02000-0062	02000-0852	02000-1884
02000-0093	02000-0902	02000-1918
02000-0269	02000-0946	02000-2075
02000-0319	02000-1029	02001-0072
02000-0384	02000-1075	02001-0251
02000-0386	02000-1093	02001-0306
02000-0424	02000-1232	02001-0319

**PR (Problem Response) CAPs**

O1998-0585	02000-0288	02000-0779
O1999-0534	02000-0302	02000-0789
O1999-1015	02000-0429	02000-0938
O1999-0986	02000-0437	02000-1026
O1999-1235	02000-0480	02000-1244
O1999-1399	02000-0481	02000-1291
O1999-1547	02000-0580	02000-1330
O1999-1660	02000-0652	02000-1332
O1999-0534	02000-0657	02000-1415
O2000-0029	02000-0703	02000-1551
O2000-0043	02000-0721	02000-1737
O2000-0129	02000-0759	02000-1764

**PR (Problem Response) CAPs - Continued**

02000-1772	02000-2113	02001-0216
02000-1790	02000-2156	02001-0293
02000-1831	02001-0020	02001-0299
02000-1955	02001-0027	02001-0315
02000-1977	02001-0137	02001-0336
02000-2002	02001-0204	02001-0395
02000-2061	02001-0280	

**Material Nonconformance Report, Directed Action or Close (No action required) CAPS**

O1999-0298	02000-0703	02000-1777
O2000-0401	02000-0968	02000-1884
O1999-0720	02000-1460	02000-1894
O1999-1619	02000-1531	02000-2127

Electronic Task Tracking System (ETTS)

38982-2

Work Requests/Job Orders

JO#00528637	JO#00544509	JO#00548529
JO#00531771	JO#00544681	JO#00548727
JO#00533537	JO#00544854	JO#00548728
JO#00537876	JO#00545257	JO#00548772
JO#00538093	JO#00545342	JO#00548906
JO#00538169	JO#00545380	JO#00548232
JO#00538230	JO#00545469	JO#00549622
JO#00538698	JO#00545704	WR#785148
JO#00539090	JO#00545801	WR#781917
JO#00539519	JO#00545811	WR#785208
JO#00540158	JO#00546539	WR#785209
JO#00540399	JO#00546644	WR#785308
JO#00540456	JO#00546924	WR#785430
JO#00540589	JO#00547049	WR#785482
JO#00540640	JO#00547116	WR#785607
JO#00540644	JO#00547121	WR#785712
JO#00540859	JO#00547156	WR#785754
JO#00541019	JO#00547198	WR#785659
JO#00542060	JO#00547347	WR#785760
JO#00542724	JO#00547692	WR#785819
JO#00543823	JO#00547809	WR#785883
JO#00543958	JO#00547888	WR#785901

Nuclear Safety Assessment Audit Reports

S-OC-00-06, Security  
 S-OC-99-09, Maintenance/Special Processes/Modifications  
 S-COM-00-001, Corrective Action Program

Departmental Self Assessments

1930-PA-00-003, Problem Identification Ability  
 1930-PA-00-004, Preventive Maintenance Program  
 2400-PA-00-005, Maintenance Effectiveness  
 D710-OB-00-04, Vehicle Barrier System  
 SA-2001-5031, System Health Indicator Program  
 SA-2001-5032, Quality Review Team Evaluations  
 SA-2001-5046, Safety Evaluations

Non-Cited Violations (NCV)

NCV 2000-001-02 (CAP-2000-0006, 2000-0008)  
 NCV 2000-001-03 (CAP-2000-0136)  
 NCV 2000-002-02 (CAP-2000-0424)  
 NCV 2000-002-01 (CAP-2000-0290)  
 NCV 2000-007-01 (CAP-2000-0902)  
 NCV 2000-009-01 (CAP-2000-2028)

Licensee Event Reports

2000-008-00

Other Documents Reviewed

Reactor Building Operating Logs, January 1, 2001 - March 13, 2001  
 Turbine Building Operator Logs, January 1, 2001 - March 13, 2001  
 Intake Structure Operators Logs, January 1, 2001 - March 13, 2001  
 Control Room Operating Logs; LCO/ACO Entries, January 1, 2000 - March 1, 2001  
 Oyster Creek Information Tag Log  
 Oyster Creek Main Control Room Deficiencies  
 Standing Order 21, Allowable Bypass Configuration for APRM/LPRM System, Attachments SO21-1, SO21-2  
 Calculation C-1302-532-E540-036, ESW System Performance with Keepfill Line Failure, Revision 0  
 High Purity Discharge Line Modification, C307698  
 Engineering Evaluation EE-0062-00  
 Safety/Environmental Determination and 50.59 Review, SE-000232-062  
 Safety/Environmental Determination and 50.59 Review, SE-000223-010  
 Safety/Environmental Determination and 50.59 Review, SE-000661-039  
 Setpoint Change for V-16-0076, Transmittal Number 304135  
 Oyster Creek Maintenance Rule Evaluation 00-013, Reactor Building Ventilation

Oyster Creek Maintenance Excellence Plan 2001  
PMCR Change/Deletion Request#102014  
Technical Data Report 612, Reactor Water Inventory Study for Oyster Creek Appendix R  
Evaluation, Revision 0

### ATTACHMENT 3

#### SUPPLEMENTAL INFORMATION

#### KEY POINTS OF CONTACT

Licensee (in alphabetical order)

V. Aggarwal, Director, Engineering  
S. Ames, Operations Support Manager  
R. Baran, CAP Coordinator  
R. Brown, Manager, Experience Assessment  
A. Cipolla, Manager, Maintenance Support Group  
R. DeGregorio, Vice President  
E. Harkness, Plant Manager  
R. Larzo, Manager, Design & Drafting  
D. McMillan, Senior Manager, Plant Engineering  
J. Magee, Director, Maintenance  
R. Porrino, Manager, Maintenance Mechanical/Electrical  
J. Rogers, Licensing Engineer  
P. Scallon, Manager, Nuclear Oversight  
B. Tilton, Staff Support

#### LIST OF ITEMS OPENED, CLOSED, AND DISCUSSED

Opened and Closed

05000219/2001-003-01	NCV	Failure to follow procedures (Technical Specification 6.8.1) to document material used in nuclear safety related job orders.
05000219/2001-003-02	NCV	Failure to promptly identify and correct conditions adverse to quality associated with containment spray piping and main steam line break analysis.
05000219/2001-001-03	NCV	Failure to maintain vital switchgear room manual fire suppression system capability in accordance with Fire Hazards Analysis Report.

**LIST OF ACRONYMS**

ADAMS	Agency-Wide Documents Access and Management System
AmerGen	AmerGen Energy Company, LLC
CAP	Corrective Action Program
CFR	Code of Federal Regulations
ETTS	Electronic Task Tracking System
FHAR	Fire Hazards Analysis Report
JO	Job Order
NCV	Non-Cited Violation
PMCR	Periodic Maintenance Change Request
PQA	Procurement Quality Assurance Number
IPE	Individual Plant Examination
IPEEE	Individual Plant Examination for External Events
ISI	Inservice Inspection
LER	License Event Report
MSLB	Main Steam Line Break
NRC	Nuclear Regulatory Commission
PARS	Publicly Available Records
PM	Periodic Maintenance
RCS	Reactor Coolant System
SDP	Significance Determination Process
SRA	Senior Reactor Analyst