

July 16, 2007

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

SUBJECT: OYSTER CREEK - NRC EMERGENCY PREPAREDNESS SUPPLEMENTAL
INSPECTION REPORT NO. 05000219/2007007

Dear Mr. Crane:

On June 7, 2007, the US Nuclear Regulatory Commission (NRC) completed a supplemental inspection pursuant to Inspection Procedure 95001 at your Oyster Creek Generating Station. The issue inspected involved a White finding regarding operator procedure use and adherence. The enclosed inspection report documents the inspection results, which were discussed with Mr. Rausch, Site Vice President, and other members of your staff, at the exit and regulatory performance meetings conducted on June 7, 2007. The NRC was informed of your readiness for the inspection on May 10, 2007.

The inspection examined activities conducted under your license as they relate to safety and compliance with the Commission's rules and regulations and with the conditions of your license. The inspectors reviewed selected procedures and records, observed activities, and interviewed personnel.

Based on the results of this inspection, no findings of significance were identified.

In accordance with 10 CFR 2.390 of the NRC's "Rules of Practice," a copy of this letter and its enclosure will be available electronically for public inspection in the NRC Public Document Room or from the Publicly Available Records (PARS) component of NRC's document system (ADAMS). ADAMS is accessible from the NRC Website at <http://www.nrc.gov/reading-rm/adams.html> (the Public Electronic Reading Room).

Sincerely,

/RA/

James M. Trapp, Chief
Plant Support Branch 1
Division of Reactor Safety

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/RA/

James M. Trapp, Chief
Plant Support Branch 1
Division of Reactor Safety

SUNSI Review Complete: JMT (Reviewer's Initials)

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Mr. Christopher M. Crane

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

Enclosure: Inspection Report 05000219/2007007
w/ Attachment: Supplemental Information

cc w/encl:

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Site Vice President, Oyster Creek Nuclear Generating Station, AmerGen
Plant Manager, Oyster Creek Generating Station, AmerGen
Regulatory Assurance Manager, Oyster Creek, AmerGen
Senior Vice President - Nuclear Services, AmerGen
Vice President - Mid-Atlantic Operations, AmerGen
Vice President - Operations Support, AmerGen
Vice President - Licensing and Regulatory Affairs, AmerGen
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U. S. NUCLEAR REGULATORY COMMISSION REGION I
REGION I

Docket No: 50-219

License Nos: DPR-16

Report Nos: 05000219/2007007

Licensee: AmerGen Energy Company, LLC (AmerGen)

Facility: Oyster Creek Generating Station

Location: Forked River, New Jersey

Dates: June 4-7, 2007

Inspectors: S. Barr, Senior Emergency Preparedness Inspector, Region I (Lead)
J. Sullivan, Operations Engineer, Region I

Approved by: James M. Trapp, Chief
Plant Support Branch 1
Division of Reactor Safety

Enclosure

SUMMARY OF FINDINGS

IR 05000219/2007007; 06/04/2007 - 06/07/2007; Oyster Creek Generating Station; Supplemental Inspection Report.

This was an announced inspection conducted by two region-based inspectors. No findings of significance were identified. The NRC's program for overseeing the safe operation of commercial nuclear power reactors is described in NUREG-1649, "Reactor Oversight Process," Revision 4, dated December 2006.

Cornerstone: Emergency Preparedness

The NRC performed this supplemental inspection to assess AmerGen's evaluation for an issue associated with Oyster Creek operators not recognizing during an August 2005 event that plant parameters met the Emergency Action Level threshold for declaring an Unusual Event and a subsequent Alert. This performance issue was characterized as having low to moderate risk significance (White) in NRC Inspection Report No. 05000219/2005011. The licensee determined that human performance issues related to procedural compliance were a primary causal factor that led to the performance problems identified during the August 2005 event. The licensee's root cause evaluation of the issue was assessed by the NRC in June 2006, during a 95002 supplemental inspection (Report No. 05000219/2006010). During this inspection, the NRC concluded that licensed operators continued to demonstrate weaknesses associated with understanding of management expectations and site requirements for procedure use and adherence. As a result, the White finding was maintained open pending completion of an additional follow-up NRC supplemental inspection to review additional AmerGen corrective actions to improve the licensed operators' knowledge of and adherence to procedural usage requirements.

During this 95001 supplemental inspection, the inspectors determined that AmerGen had performed a comprehensive evaluation of the procedure use and adherence issue. The licensee's evaluation determined that the root cause for the issue to be that Operations Management had failed to provide clear expectations for, and had failed to consistently enforce, standards related to procedure use and adherence to all levels of the site staff. AmerGen implemented corrective actions to ensure that management expectations for procedure use are consistently communicated to, and reinforced with, licensed operators at Oyster Creek. As a result of their root cause determination, AmerGen broadened their extent-of-condition review to apply the corrective actions regarding management expectations for procedure use across all organizations at the site.

Based on the results of this inspection, the inspectors concluded that AmerGen adequately completed a root cause evaluation of the procedure use performance deficiency associated with this White finding. Additionally, the inspectors concluded that the planned and completed corrective actions appeared reasonable to address the related causes. Given AmerGen's acceptable performance in addressing the procedure use and adherence issue, the White finding associated with this issue will only be considered in assessing plant performance through the second quarter of 2007, in accordance with the guidance in IMC 0305, "Operating Reactor Assessment Program." Further implementation of the licensee's corrective actions may be reviewed during future inspections.

Report Details

01. INSPECTION SCOPE

The U.S. Nuclear Regulatory Commission (NRC) performed this supplemental inspection to assess AmerGen's evaluation associated with operator procedure use and adherence. This performance issue was characterized as having low to moderate risk significance (White), in NRC Inspection Report 05000219/2005011 and Supplemental Inspection Report 05000219/2006010, and is related to the Emergency Preparedness cornerstone in the reactor safety strategic performance area.

Oyster Creek operators failed to recognize, during an actual August 2005 circulating water system grassing event, that plant parameters met the Emergency Action Level (EAL) threshold for declaring an Unusual Event and an Alert. The licensee determined that human performance issues related to procedural compliance were a primary causal factor that led to the performance problems identified during that August 2005 event. The NRC conducted a 95002 supplemental inspection in June 2006, to review the licensee's evaluation and corrective actions for this event. During this inspection, the NRC determined that licensed operators continued to demonstrate weaknesses associated with understanding of management expectations and site requirements for procedure use and adherence. As a result, the White finding associated with procedure adherence was maintained open pending completion of an additional NRC 95001 supplemental inspection to review additional AmerGen corrective actions to improve the licensed operators' knowledge of and adherence to procedural usage requirements.

This inspection report documents the findings of the subsequent 95001 supplemental inspection conducted to review procedure use and adherence issues. The inspection scope included a review of the following: (1) root cause investigation reports (Incident Reports (IRs) 360630 and 499162); (2) corrective action process reports (CAPs); (3) program procedures; (4) extent of condition determination; (5) adequacy of both the completed and long term corrective actions; and (6) Focus Area Self-Assessment (FASA) Reports (IR Nos. 449126, 564389, and 543262). The inspectors interviewed the root cause and FASA team leaders, and several licensed operators. The inspectors also observed operator performance in the control room and the plant simulator.

02. EVALUATION OF INSPECTION REQUIREMENTS

02.01 Problem Identification

a. Determination of who identified the issue and under what conditions

The NRC identified during a 95002 supplemental inspection in June 2006 that issues related to operator procedure use and adherence had not been adequately resolved. The original finding assessed during the inspection was related to Oyster Creek operators not complying with procedures during the August 2005 grassing event.

b. Determination of how long the issue existed, and prior opportunities for identification

Licensee investigations determined that licensed operator procedure use and adherence issues had been a long standing issue at Oyster Creek. The investigations concluded that operators often lapsed into knowledge-based decision making versus rule-based decision making while performing evolutions. More recent indications of the issue had been identified in Nuclear Oversight (NOS) audits, self-assessments, and independent evaluations performed by outside organizations. The inspectors reviewed a sample of these evaluations and confirmed their validity.

- c. Determination of the plant-specific risk consequences (as applicable) and compliance concerns associated with the issue

The failure to adhere to plant procedures could result in significant safety consequences. The specific procedural use and adherence finding at Oyster Creek had low to moderate safety significance (White). The operators' failure to implement the Oyster Creek E-Plan EAL matrix during the August 2005 grassing event, a Risk Significant Planning Standard implementation problem, was significant because it prevented the activation of both onsite and offsite Emergency Response Organizations (EROs) during the event. Had the event degraded further, the onsite ERO would not have been readily available to assist in the mitigation of the event. Additionally, state and local agencies, which rely on information provided by the facility licensee, could have been prevented from taking initial offsite response measures.

Immediate corrective actions were taken in that shift crews were re-trained on the implementation of E-Plan requirements during transient events. Therefore, the immediate safety concern was mitigated by this training activity. Long-term corrective actions to prevent recurrence were developed as a result of the licensee's root cause analysis.

02.02 Root Cause and Extent of Condition Evaluation

- a. Evaluation of methods used to identify the root causes and contributing causes

The licensee's evaluation of this finding utilized a combination of structured root cause analysis techniques, including: (1) event and causal factor charting; (2) causal factor analysis; and (3) Tap Root. The root cause analysis was performed in accordance with Exelon Corporation Procedure LS-AA-125-1001, Root Cause Analysis Manual. The inspectors found the evaluation methods used by the licensee to be acceptable.

- b. Level of detail of the root cause evaluation

Although initial root cause efforts inspected by the NRC in June 2006 were narrowly focused and did not capture the breadth of the procedure use and adherence issue at the site, the inspectors determined the licensee's subsequent evaluation was thorough, detailed and commensurate with the significance of the problem. The licensee conducted an initial root cause analysis following the August 2005 event (IR 360630). In March 2006, AmerGen conducted a FASA to determine the effectiveness of corrective actions for the procedure use and adherence issue. The FASA concluded that the

operator-related causes for the NRC findings were too narrowly focused and recommended that the operations department perform an additional assessment in the area of procedure use and adherence. These conclusions were confirmed by the NRC during the 95002 inspection, and following the NRC inspection, AmerGen opened IR 499162, to broaden the scope of the corrective actions to improve operator performance in this area. In December 2006, a second FASA conducted by AmerGen concluded that operations and site management had not applied the appropriate rigor in resolving the known procedure use issues and that consistent procedure use behaviors had not been observed. That FASA recommended a number of improvements, most involving increased management oversight and operating crew accountability in the area of procedure use and adherence. A third FASA, conducted in March 2007, concluded that Oyster Creek had fully evaluated the issue and that corrective actions had been appropriately identified, assigned, tracked, and completed.

- c. Consideration of prior occurrences of the problem and knowledge of prior operating experience

The root cause and FASA efforts captured numerous examples of previously-identified procedure use and adherence problems at Oyster Creek. The FASA reports also recognized the failure to adequately address those problems. The licensee's root cause reports also identified relevant operating experience related to procedure use at other nuclear power plants. The inspectors noted that the previous occurrences and operating experience examples were considered in the licensee's corrective action plans.

- d. Consideration of potential common cause(s) and extent of condition of the problem

When the root cause effort was expanded (IR 499162) following the NRC 95002 inspection in June 2006, AmerGen considered potential common causes and the extent of the procedure use and adherence issue at the site. The expanded root cause effort, as well as a 2006 independent evaluation, determined that issues identified in the Operations area applied more broadly throughout the Oyster Creek organization. The licensee identified a gap between the Exelon standard for procedure use and the station's organizations' standards. Oyster Creek passed on the information developed as a result of their own root cause efforts to the other Exelon stations by the issuance of a report through the Exelon Nuclear Event Report Program. The inspectors concluded that AmerGen's expanded root cause evaluations properly identified the scope of the procedure use problem across Oyster Creek organizations.

- e. Consideration of safety culture components by the root cause evaluation, extent of condition, and extent of cause

The root cause report developed in conjunction with IR499162 specifically addressed the effect of safety culture on the issue of operations procedure use and adherence. The licensee's investigation concluded that there were some weaknesses in several components of the Oyster Creek safety culture that needed to be strengthened, specifically the areas of work practices and corrective action program. The work practices area was deemed to be the result of a gap between Exelon standards and the

existing station performance standard, and the corrective action program weaknesses were a contributing factor in not resolving the procedure use issue earlier than the 2005 grassing event. The IR499162 root cause report recommended corrective actions to specifically address both areas. The inspectors determined that the licensee effort adequately captured the safety culture aspects of the performance deficiency.

02.03 Corrective Actions

a. Appropriateness of corrective actions

Due to the narrow focus of the licensee's initial root cause efforts, their initial corrective actions for the operator performance issues evidenced in the August 2005 grassing event were inadequate to address the broader issue of procedure use and adherence. AmerGen's March 2006 FASA and the NRC 95002 inspection identified that the procedure use performance issue was more prevalent across station organizations. The additional root cause performed by the licensee subsequent to the 95002 inspection (IR 499162) produced recommended corrective actions to more adequately resolve the station-wide performance issues. Those corrective actions included: (1) training; (2) a human performance improvement plan; (3) improvement of station procedure quality; and (4) additional management oversight, not only for operations, but all work groups across the station. The inspectors determined the corrective actions developed through IR 499162 were well-developed and appropriate to address the performance issue.

b. Prioritization of corrective actions

The inspectors concluded that the primary approach to resolve the long-standing procedure-use behaviors of the operators as the priority was an appropriate method to influence behavior across the station. The inspectors determined that the corrective actions derived from the IR499162 root cause report were properly prioritized. The corrective actions were designed to address operator performance as the priority and then implement corrective actions for the remainder of the station work groups.

c. Establishment of a schedule for implementing and completing the corrective actions

The inspectors determined that by the time of this supplemental inspection, all of the licensee's corrective actions had been scheduled and implemented. The licensee's December 2006 FASA determined that many of the intended actions had not been completed in a timely manner nor had they been completed in a thorough manner in accordance with station procedures. That FASA concluded that Oyster Creek management had not adequately applied the appropriate rigor and urgency in resolving known procedure use and adherence behavioral issues.

The inspectors noted that subsequent to the December 2006 FASA report, Oyster Creek management involvement in regards to the issue increased. Station management's use of their Fundamental Management System (FMS) to observe in-field behaviors of their staffs, and of the Operations Management Review Meetings (MRMs) to assess and influence operator performance, had grown demonstrably in the first two quarters of 2007.

- d. Establishment of quantitative or qualitative measures of success for determining the effectiveness of the corrective actions to prevent recurrence

The inspectors determined that AmerGen's review contained sufficient methods for determining the effectiveness of their corrective actions to prevent recurrence. The most significant of these actions included: (1) the increased frequency and number of personnel in-field performance observations and assessments via the FMS; (2) the implementation of the MRM process to monitor operator and crew performance; (3) development of station metrics to track and assess such items as station-wide procedure use and adherence events, and procedure changes; and (4) continued NOS observations and FASAs. The inspectors noted that all licensee assessment measures for procedure adherence and quality were indicating appropriate trends through the first two quarters of 2007.

03. MANAGEMENT MEETINGS

40A6 Meetings, including Exit

On June 7, 2007, the inspectors presented the inspection results to Mr. T. Rausch, Oyster Creek Site Vice President, and other members of the licensee's staff. Immediately following the exit meeting, a Regulatory Performance Meeting was conducted in accordance with NRC Inspection Manual Chapter 0305, "Operating Reactor Assessment Program," to address the closure of the White finding. No proprietary information was provided to the inspectors during this inspection.

ATTACHMENT

SUPPLEMENTAL INFORMATION

KEY POINTS OF CONTACT

Licensee Personnel

P. Orphanos, Operations Director
J. Dostal, Shift Operations Superintendent
K. Poletti, Emergency Preparedness Manager

LIST OF ITEMS OPENED, CLOSED, AND DISCUSSED

Opened

None

Closed

05000219/2005011-02 AV EAL Matrix Not Reviewed For Declaring an Alert

LIST OF DOCUMENTS REVIEWED

Procedures

HR-AA-2008, Managing Personnel Information in the Fundamental Management System (FMS) (Rev. 0)
HU-AA-104-101, Procedure Use and Adherence (Rev. 1)
OP-AA-101-113-1003, Operations Department Performance Management (Rev. 8)
OP-OC-102-1001, Procedure Use and Adherence (Rev. 0)

Issue Reports (IRs)

IR 360630, Low Intake Level Results in EAL Declaration (initiation date August 6, 2005)
IR 360630 Root Cause Evaluation Report,, Grassing Event August 6, 2005, (dated September 16, 2005)
IR 449126, Focus Area Self-Assessment Report, Oyster Creek NRC Inspection (95002) Degraded Cornerstone - EP (dated March 4, 2006)
IR 499162, Procedure Use and Adherence Does Not Meet Exelon Guidelines (initiation date June 12, 2006)
IR 564389, Focus Area Self-Assessment, Operations Procedure Use and Adherence (dated December 22, 2006)

IR 543262, Focus Area Self-Assessment Report, Self Assessment in Preparation for NRC Supplemental Inspection on WHITE Finding for Procedure Use and Adherence in Operations (dated March 12, 2007)

LIST OF ACRONYMS

EAL Emergency Action Level
ERO Emergency Response Organization
FASA Focus Area Self-Assessment
FMS Fundamental Management System
IR Incident Reports
MRM Management Review Meeting
NOS Nuclear Oversight