UNITED STATES
NUCLEAR REGULATORY COMMISSION
REGION I
475 ALLENDALE ROAD
KING OF PRUSSIA, PA 19406-1415

May 13, 2011

Mr. Michael J. Pacilio
Senior Vice President, Exelon Generation Company, LLC
President and Chief Nuclear Officer, Exelon Nuclear
4300 Winfield Rd.
Warrenville, IL 60555

SUBJECT: OYSTER CREEK NUCLEAR GENERATING STAION – NRC TEMPORARY INSTRUCTION 2515/183 INSPECTION REPORT (05000219/2011008)

Dear Mr. Pacilio:

On April 28, 2011, the U.S. Nuclear Regulatory Commission (NRC) completed an inspection at your Oyster Creek Nuclear generating Station, using Temporary Instruction 2515/183, "Followup to the Fukushima Daiichi Nuclear Station Fuel Damage Event." The enclosed inspection report documents the inspection results which were discussed on April 28, 2011, with Mr. M. Massaro and other members of your staff.

The objective of this inspection was to promptly assess the capabilities of Oyster Creek to respond to extraordinary consequences similar to those that have recently occurred at the Japanese Fukushima Daiichi Nuclear Station. The results from this inspection, along with the results from this inspection performed at other operating commercial nuclear plants in the United States will be used to evaluate the United States nuclear industry's readiness to safely respond to similar events. These results will also help the NRC to determine if additional regulatory actions are warranted.

All of the potential issues and observations identified by this inspection are contained in this report. The NRC's Reactor Oversight Process will further evaluate any issues to determine if they are regulatory findings or violations. Any resulting findings or violations will be documented by the NRC in a separate report. You are not required to respond to this letter.

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

Sincerely,

Lawrence T. Doerflein

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

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

Enclosure: Inspection Report 05000219/2011008

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Sincerely,

/RA/

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REGION I

Docket No:	50-219
License No:	DPR-16
Report No:	05000219/2011008
Licensee:	Exelon Nuclear
Facility:	Oyster Creek Generating Station
Location:	Forked River, NJ
Dates:	03/23/2011 – 04/28/2011
Inspectors:	J. Kulp, Senior Resident Inspector E. Keighley, Resident Inspector C. Cahill, Senior Reactor Analyst J. Schoppy, Senior Reactor Inspector
Approved by:	Lawrence T. Doerflein, Chief Engineering Branch 2 Division of Reactor Safety

SUMMARY OF FINDINGS

IR 05000219/2011008; 03/23/2011 – 04/28/2011; Oyster Creek Generating Station; Temporary Instruction 2515/183 - Followup to the Fukushima Daiichi Nuclear Station Fuel Damage Event.

This report covers an announced Temporary Instruction (TI) inspection. The inspection was conducted by two resident inspectors, a region based inspector, and a region based senior reactor analyst. 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.

INSPECTION SCOPE

The intent of the TI is to provide a broad overview of the industry's preparedness for events that may exceed the current design basis for a plant. The focus of the TI was on (1) assessing the licensee's capability to mitigate consequences from large fires or explosions on site, (2) assessing the licensee's capability to mitigate station blackout (SBO) conditions, (3) assessing the licensee's capability to mitigate internal and external flooding events accounted for by the station's design, and (4) assessing the thoroughness of the licensee's walk downs and inspections of important equipment needed to mitigate fire and flood events to identify the potential that the equipment's function could be lost during seismic events possible for the site. If necessary, a more specific followup inspection will be performed at a later date.

INSPECTION RESULTS

All of the potential issues and observations identified by this inspection are contained in this report. The NRC's Reactor Oversight Process will further evaluate any issues to determine if they are regulatory findings or violations. Any resulting findings or violations will be documented by the NRC in a separate report.

03.01 Assess the licensee's capability to mitigate conditions that result from beyond design basis events, typically bounded by security threats, committed to as part of NRC Security Order Section B.5.b issued February 25, 2002, and severe accident management guidelines and as required by Title 10 of the Code of Federal Regulations (10 CFR) 50.54(hh). Use Inspection Procedure (IP) 71111.05T, "Fire Protection (Triennial)," Section 02.03 and 03.03 as a guideline. If IP 71111.05T was recently performed at the facility the inspectors should review the inspection results and findings to identify any other potential areas of inspection. Particular emphasis should be placed on strategies related to the spent fuel pool. The inspection should include, but not be limited to, an assessment of any licensee actions to:

Licensee Action	Describe what the licensee did to test or inspect equipment.
a. Verify through test or inspection that equipment is available and functional. Active equipment shall be tested and passive equipment shall be walked down and inspected. It is not expected that permanently installed equipment that is tested under an existing regulatory testing program be retested. This review should be done for a reasonable sample of mitigating strategies/equipment.	The licensee reviewed the B.5.b equipment inspection and testing preventive maintenance tasks to ensure that the tasks were up to date and the equipment was available and functional. In addition the site conducted walkdowns to verify the adequacy of required inventories. Portable equipment such as pumps and generators were run to verify readiness. B.5.b and Severe Accident Management Guidelines (SAMG) procedures were verified current and staged in the appropriate locations. In addition to these activities, self assessments were conducted as part of preparations for a scheduled NRC triennial fire inspection.
	Describe inspectors actions taken to confirm equipment readiness (e.g., observed a test, reviewed test results, discussed actions, reviewed records, etc.).
	The inspectors evaluated the adequacy of installed and portable equipment staged explicitly for implementation of the mitigation strategies. The types of equipment examined included: interior fire water supply piping and hose stations; portable pump and associated suction and discharge hoses, adapters, and tools; portable AC/DC power supplies; portable radios and communications devices; portable gas cylinders and gas rigs; and equipment lockers and associated tools. The review included field verification and inventory checks of standby and staged equipment, and compatibility of the portable equipment with installed systems. In addition, the inspectors evaluated the staging/storage locations of B.5.b related equipment to ensure the survivability and availability of equipment. The inspectors also reviewed and discussed with responsible station

		personnel the results of any field testing of equipment performed to validate its applications in the postulated scenarios. The inspectors reviewed calculations showing that the B.5.b could meet the required flow. Documents reviewed are listed in the Supplemental Information Attachment to this report.
		Discuss general results including corrective actions by licensee.
		No deficiencies were identified by the inspectors or licensee. Based on the reviews and the samples conducted, the inspectors determined that the required equipment is available and functional.
Licensee Action		Describe the licensee's actions to verify that procedures are in place and can be executed (e.g. walkdowns, demonstrations, tests, etc.)
b. Verify through walkdowns or demonstration that procedures to implement the strategies associated with B.5.b and 10 CFR 50.54(hh) are in place and are executable. Licensees may choose not to connect or operate permanently installed equipment during this verification. This review should be done for a reasonable sample of mitigating strategies/equipment.		Licensee operators and engineers walked down the procedures for B.5.b and SAMGs. Additionally, as part of scheduled training, the site has walked down the procedures as part of equipment operator and licensed operator training during training cycles 11-01 and 11-02, respectively. In preparation for the March 2011, NRC fire triennial inspection, the licensee conducted additional walkdowns of several selected procedures. Specifically, operator walked down EDMG-SPX2, which employs makeup to the spent fuel pool using portable equipment and EDMG-SPX8 which provides alternate power to the electro-magnetic relief valves.
		Describe inspectors actions and the sample strategies reviewed. Assess whether procedures were in place and could be used as intended.

The inspectors examined the station's established guidelines and implementing procedures for the B.5.b mitigation strategies. The inspectors assessed how the licensee coordinated and documented the interface/transition between existing off-normal and Emergency Operating Procedures (EOPs) with the mitigation strategies. The inspectors selected a number of mitigation strategies and conducted plant walk downs with a licensed operator and responsible plant staff to assess: the adequacy and completeness of the procedures; familiarity of operators with the procedure objectives and specific guidance; staging and compatibility of equipment; and the practicality of the operator actions prescribed by the procedures, consistent with the postulated scenarios. Specifically, the inspectors walked down EDMG-SPX11, which addresses adding water to the spent fuel pool using a portable pump and a fire truck and EDMG-SPX9, which addresses the use of the hardened containment vent. The inspectors reviewed engineering flow calculations for the portable pump to verify it was adequate to respond to the scenarios where it is required.

As a result of the NRC inspection one potential finding of very low significance was identified. The finding involved procedural deficiencies the challenged a strategy to depressurize and inject water into the reactor. The licensee entered these issues into their corrective action program. The licensee took immediate corrective action to restore the mitigation strategy. Details on this finding are documented in Oyster Creek inspection report 05000219/2011009.

The inspectors also reviewed the Emergency Operating Procedure (EOP) support procedures that would be utilized for venting the primary containment drywell and torus air spaces using the hardened vent system. The procedure directs venting to the plant stack via the hardened vent path when primary containment atmosphere hydrogen concentration is less than 1.5 percent. When hydrogen concentration is above this level, the procedure has the operator align the vent path to the standby gas treatment system or the reactor building ventilation systems which subsequently discharge to the plant stack for release into the outside atmosphere.

		The inspectors identified an apparent (beyond design and licensing basis) vulnerability, in that, if AC power is not available, or if equipment failures occur, air flow in the ventilation systems may be lost and the use of the second vent path described above could result in hydrogen accumulation in the reactor building. The licensee entered the issue in the CAP as IR 1215193, "IER 11-1 Followup Action, NRC TI-183 Vulnerabilities," for review and resolution. The NRC has established an agency task force following the events in Japan, to conduct a near term evaluation of the need for agency actions, which includes containment venting issues.
		Discuss general results including corrective actions by licensee.
		The licensee did not identify any deficiencies as part of the original walkdown. As a result of the finding identified by the NRC, as described above, the licensee conducted an additional walkdown of all of the relevant procedures. Based on the extent-of-condition review, the licensee identified several additional minor discrepancies and enhancements and entered them into their corrective action program (IR 01195171). The inspectors reviewed these actions and determined them to be appropriate. At the conclusion of the review the inspectors concluded that the procedures to implement the strategies associated with B.5.b and 10 CFR 50.54(hh) were in place and are executable.

Licensee Action	Describe the licensee's actions and conclusions regarding training and qualifications of operators and support staff.
c. Verify the training and qualifications of operators and the support staff needed to implement the procedures and work instructions are current for activities related to Security Order Section B.5.b and severe accident management guidelines as required by 10 CFR 50.54 (hh).	The licensee conducts initial and continuing B.5.b training and verified that training was completed. Additionally, the licensee verified that all required operations personnel have received initial and continuing SAMG training. Both B.5.b and SAMG training is an annual training requirement in accordance with the Long Range Training Plan. The licensee reviewed training records and documentation to ensure that the training was up to date and verified that there was a sufficient number trained personnel on-site and throughout Exelon to implement the severe accident mitigation guidelines.
	Describe inspectors actions and the sample strategies reviewed to assess training and qualifications of operators and support staff.
	The inspectors examined the introductory and periodic/refresher training provided to the Operations and Security Department staffs most likely to be tasked with the implementation of the B.5.b mitigation strategies. The inspectors' review consisted of examination of training presentations, lecture notes, and training records, as well as, interviews with station personnel. Documents reviewed are listed in the Attachment to this report.
	Discuss general results including corrective actions by licensee.
	No deficiencies were identified by the licensee. Based upon the inspectors' review of formal training, interviews, and observations of plant staff during the walk down of mitigating strategies in the field, the inspectors concluded that overall B.5.b and SAMG training provided by Oyster Creek was appropriate and consistent with industry guidelines.

Licensee Action		Describe the licensee's actions and conclusions regarding applicable agreements and contracts are in place.
d. Verify that any applicable agreements and contracts are in place and are capable of meeting the conditions needed to mitigate the consequences of these events. This review should be done for a reasonable sample of mitigating strategies/equipment.		The licensee verified that agreements from the municipal fire departments and other commitments for various pieces of support equipment required to implement the strategies were in place and active. Additionally, the licensee reviewed current interface agreements for support, and contracts with suppliers and vendors to ensure that they were capable of meeting the conditions needed to mitigate the consequences of large fire or explosion type event.
		For a sample of mitigating strategies involving contracts or agreements with offsite entities, describe inspectors actions to confirm agreements and contracts are in place and current (e.g., confirm that offsite fire assistance agreement is in place and current).
		The inspectors verified that the licensee had in place current memoranda of understanding (MOU) or a letters of agreement (LOA) with off-site agencies to provide assistance in mitigation strategies. The inspectors visited the Forked River Volunteer Fire Department to verify that they had a copy of and understood the requirements of the MOU. The inspectors verified they had adequate lifting capability (e.g., crane or fire truck with an extension ladder) to elevate the monitor or spray nozzles to allow spraying into the spent fuel pool and/or pumping capacity to charge the fire header or provide spray into the spent fuel pool. The inspectors also verified that the portable pump and hoses used by the licensee were compatible with the fittings on the fire trucks. Documents reviewed are listed in the Attachment to this report.
		Discuss general results including corrective actions by licensee.
		No deficiencies were identified by the licensee. The inspectors concluded that the agreements and contracts in place were appropriate for the strategies evaluated.

Licensee Action	Document the corrective action report number and briefly summarize problems noted by the licensee that have significant potential to prevent the success of any existing mitigating strategy.
e. Review any open corrective action documents to assess problems with mitigating strategy implementation identified by the licensee. Assess the impact of the problem on the mitigating capability and the remaining capability that is not impacted.	As described in section 03.01.b, above, one potential finding of very low significance was identified that challenged the success of a reactor mitigation strategy. The licensee took immediate corrective actions to restore the strategy. The inspectors reviewed these actions and found them to be appropriate. No additional problems were identified that had significant potential to prevent the success of any existing mitigating strategy.

03.02 Assess the licensee's capability to mitigate station blackout (SBO) conditions, as required by 10 CFR 50.63, "Loss of All Alternating Current Power," and station design, is functional and valid. Refer to TI 2515/120, "Inspection of Implementation of Station Blackout Rule Multi-Plant Action Item A-22" as a guideline. It is not intended that TI 2515/120 be completely reinspected. The inspection should include, but not be limited to, an assessment of any licensee actions to:

Licensee Action	Describe the licensee's actions to verify the adequacy of equipment needed to mitigate an SBO event.
a. Verify through walkdowns and inspection that all required materials are adequate and properly staged, tested, and	The licensee verified through walkdown and inspection that the station blackout combustion turbines (CT), the SBO transformer, and SBO Panel were available and adequate to mitigate an SBO event. The licensee validated that their MOU with Maxim Power Corporation, the owner/operator of the CTs, would provice adequate power to mitigate an SBO.

maintained.		Describe inspectors actions to verify equipment is available and useable.
		The inspectors walked down the CT facility and both CTs. The inspectors interviewed Maxim Power Corporation operators concerning operations and maintenance of the CTs. The inspectors reviewed the last 2 years of issue reports generated for the SBO system as well as reliability data provided by the licensee. The inspectors verified that an appropriate amount of fuel was available on site for the CTs to provide power for a SBO of 4 hours duration, in accordance with the SBO coping analysis. The inspectors performed a cable vault inspection sample and reviewed the licensee's latest testing results for the last two years to verify that the cabling between the CTs and the SBO transformer have not been degraded. No deficiencies were identified. Documents reviewed are listed in the Attachment to this report.
		Discuss general results including corrective actions by licensee.
		The licensee noted no equipment deficiencies during their walkdown. Based on the above actions, the inspectors concluded that equipment needed to mitigate an SBO event was adequately tested and maintained.
Licensee Action		Describe the licensee's actions to verify the capability to mitigate an SBO event.
b. Demonstrate through walkdowns that procedures for response to an SBO are executable.		The licensee demonstrated through walkdown that the procedures that would be used to mitigate an SBO event were executable, specifically: Procedure 307, "Isolation Condenser," Procedure 308, "Emergency Core Cooling System Operation," and Abnormal Procedure (ABN) 37, "Station Blackout."
		Describe inspectors actions to assess whether procedures were in place and could be used as intended.

The inspectors walked down ABN 37, "Station Blackout," with a qualified Oyster Creek operator to assess whether the procedure could be accomplished within the one hour time requirement referenced in the licensee's SBO coping strategy. The inspectors identified that there were minor differences between the instructions for starting the CT contained in ABN-37 and ABN-36, "Loss of Offsite Power." The licensee entered these discrepancies into the corrective action program as IRs 1203165 and 1203212.

The inspectors reviewed the last performance of the SBO Functional Test (678.4.005) that demonstrated that the credited alternate AC source was able to provide power to the plant in one hour. However, the inspectors noted that the test showed there was a very small margin to meeting the one hour requirement.

During review of the SBO Functional Test (678.4.005) results, the inspectors identified several issues associated with the adequacy of this test to demonstrate the alternate AC source can provide power to the site within one hour of the onset of an SBO.

Specifically, the inspectors noted the licensee's SBO coping analysis stated, in part, that:

- There were three ways to start the CTs:
  1. Remotely via microwave signals;
  2. locally by a Maxim Power Corporation operator; and,
  3. locally by an Oyster Creek operator dispatched from the plant to the CT site.
- The CTs can be operated on two fuel sources, natural gas or fuel oil; and,
- The capability to start the CTs within 1 hour had been proven by test.

The inspectors also noted the following during the review of the Station Blackout Functional Test (678.4.005):

- little margin exists (37 seconds) in demonstrating the capability to start and provide power from the alternate AC source within one hour;
- the test is run using either fuel source;
- the test is performed by an operator stationed at the CT controls; and,
- the licensee could not locate records that show how the initial test, discussed in the SBO coping analysis, was performed.

		The inspectors questioned whether, given the current test method demonstrated very little margin, the test was sufficient to show that the CTs can be started under the credited conditions that could be encountered during an SBO event and still meet the one hour time requirement. These included: adverse weather could affect starting the CTs using the microwave controls; the CTs are not continually manned and may require dispatch of a Maxim operator from a remote location or an Oyster Creek operator from the nuclear station to the CTs to perform a local start; dispatch of an operator could be impacted by adverse weather; and, natural gas system pressure may be too low to support operation of the CTs during periods of high demand on the system (i.e. high residential gas use during winter). 10CFR50.63 requires that "The time required for startup and alignment of the alternate ac power source(s) and this equipment shall be demonstrated by test." The inability of the licensee to locate a record of the completion of such a test is a performance deficiency. The licensee has entered this issue into the corrective action program as IR 1205775. This issue is unresolved pending NRC review of additional information from the licensee to address the above questions. **(URI 05000219/2011008-01, Testing Documentation for Black Start Time Demonstration of SBO Alternate AC Source)** Documents reviewed are listed in the Attachment to this report.
		Discuss general results including corrective actions by licensee.
		The inspectors concluded the operating procedures were executable to mitigate an SBO event. However, additional reviews are necessary to verify that the alternate AC power source can be started and aligned within the one hour time requirement.

03.03 Assess the licensee's capability to mitigate internal and external flooding events required by station design. Refer to IP 71111.01, "Adverse Weather Protection," Section 02.04, "Evaluate Readiness to Cope with External Flooding" as a guideline. The inspection should include, but not be limited to, an assessment of any licensee actions to verify through walkdowns and inspections that all required materials and equipment are adequate and properly staged. These walkdowns and inspections shall include verification that accessible doors, barriers, and penetration seals are functional.	
Licensee Action	Describe the licensee's actions to verify the capability to mitigate existing design basis flooding events.
a. Verify through walkdowns and inspection that all required materials are adequate and properly staged, tested, and maintained.	The licensee performed systematic walkdowns of the Reactor Building, Turbine Building and other areas of the site to verify the capability to mitigate existing design basis internal and external flooding events. The licensee identified vulnerabilities and areas for improvement which are discussed below.
	Describe inspectors actions to verify equipment is available and useable. Assess whether procedures were in place and could be used as intended.
	The inspectors verified the elevations of the Reactor Building, Turbine Building, Emergency Diesel Generator building and other equipment required for plant safe shutdown were above the level of the probable maximum flood as described in the Oyster Creek Updated Final Safety Analysis Report (UFSAR) by reviewing a survey map of the site. The inspectors verified that the guidance in ABN-32, "Abnormal Intake Level," is adequate to place the plant in a safe condition prior to losing lower lying areas of the plant, such as the intake structure. The inspectors verified that measures to mitigate flooding of risk significant structures due to ponding of water caused by probable maximum precipitation rates were in place and at the height specified in the UFSAR. The inspectors performed an internal flooding sample of the northwest corner room and noted no deficiencies. Documents reviewed are listed in the Attachment to this report.

		Discuss general results including corrective actions by licensee.
		The inspectors concluded that all required materials are adequate and properly staged, tested, and maintained to respond to an internal or external flood within the plant's design basis. While no operability or significant concerns were identified, the licensee identified several additional minor discrepancies and enhancements and entered them into their corrective action program, as listed in the Attachment to this report. The inspectors reviewed the associated condition reports and determined that the licensee's initial responses, including their assessment and prioritization, were appropriate.

03.04 Assess the thoroughness of the licensee's walkdowns and inspections of important equipment needed to mitigate fire and flood events to identify the potential that the equipment's function could be lost during seismic events possible for the site. Assess the licensee's development of any new mitigating strategies for identified vulnerabilities (e.g., entered it in to the corrective action program and any immediate actions taken). As a minimum, the licensee should have performed walkdowns and inspections of important equipment (permanent and temporary) such as storage tanks, plant water intake structures, and fire and flood response equipment; and developed mitigating strategies to cope with the loss of that important function. Use IP 71111.21, "Component Design Basis Inspection," Appendix 3, "Component Walkdown Considerations," as a guideline to assess the thoroughness of the licensee's walkdowns and inspections.

Licensee Action		Describe the licensee's actions to assess the potential impact of seismic events on the availability of equipment used in fire and flooding mitigation strategies.
a. Verify through walkdowns that all required materials are adequate and properly staged, tested, and maintained.		The licensee walked down all areas covered by the Oyster Creek Fire Plans (OP-OC-201-008), and walked through implementation of ABN-29, "Plant Fires." The licensee also walked down plant areas potentially susceptible to external and internal flooding. The licensee did identify a few minor vulnerabilities, which are discussed below.
		Describe inspectors actions to verify equipment is available and useable. Assess whether procedures were in place and could be used as intended.
		The inspectors reviewed the licensee's assessment of fire fighting capability following a seismic event and identified no additional issues or concerns. The inspectors verified that the memoranda of understanding with the local fire departments would be adequate to provide additional fire fighting capabilities to the site post-seismic event. In addition, the inspectors walked down procedure 308 attachment 12, "Core Spray Makeup to the Isolation Condensers," with a licensed operator to verify that a source of water was available for the secondary side of the isolation condenser to provide extended decay heat removal capability. The inspectors also reviewed the licensee's evaluation of their response to high intake water level, and sampled their internal flood protection measures. The inspectors determined that the licensee meets the current licensing and design bases for fire protection and flooding. Documents reviewed are listed in the Attachment to this report.
		Discuss general results including corrective actions by licensee. Briefly summarize any new mitigating strategies identified by the licensee as a result of their reviews.

		The inspectors noted the licensee meets the current licensing and design bases requirements for B.5.b, fire protection, and flooding. The licensee identified that the fire fighting system is designed as a non-seismic system. The Fire Pond Pump House, which houses the electric pond pumps and the diesel fire pumps, is a non-seismically qualified building. The earthen dam which constitutes the east (downstream) wall of the fire pond is a non-seismically qualified structure. The condensate storage tank, piping and condensate transfer pumps are not seismically qualified. The licensee noted several additional minor material degradations and entered these and the above noted non-siesmically designed structures into the corrective action program (IR 1215168) for resolution or development of associated mitigation strategies.

Meetings

4OA6 Exit Meeting

The inspectors presented the inspection results to Mr. M. Massaro and other members of licensee management at the conclusion of the inspection on April 28, 2011. Proprietary information reviewed by the inspectors during the inspection was returned to the licensee. The inspectors verified the inspection report does not contain proprietary information.

SUPPLEMENTAL INFORMATION

KEY POINTS OF CONTACT

Licensee

M. Massaro	Site Vice President
J. Dostal	Plant Manager (Acting)
J. Barstow	Licensing Manager
J. Chrisley	Licensing Engineer
C. Taylor	Licensing Engineer
H. Tritt	Senior Reactor Operator
J. Sisak	Senior Reactor Operator
D. Griener	Operations Support Manager
M. Dragoo	PURENERGY Operating Services, LTD.
K. Flynn	Forked River Volunteer Fire Company

Other

R. Pinney, New Jersey Department of Environmental Protection, Bureau of Nuclear Engineering

LIST OF ITEMS OPENED OR CLOSED

Opened

05000219/2011008-01	URI	Testing Documentation for Black Start Time Demonstration of SBO Alternate AC Source

LIST OF DOCUMENTS REVIEWED

The following is a list of documents reviewed during the inspection. Inclusion on this list does not imply that the NRC inspectors reviewed the documents in their entirety but rather that selected sections of portions of the documents were evaluated as part of the overall inspection effort. Inclusion of a document on this list does not imply NRC acceptance of the document or any part of it, unless this is stated in the body of the inspection report.

Issue Reports with an asterisk (*) indicate the document was written as a result of the inspection effort.

03.01 Assess the licensee's capability to mitigate conditions that result from beyond design basis events

Procedures:

EDMG-01, Extensive Damage Mitigating Guidelines, Rev. 33
EDMG-SPX11, Spraying the Plume/Fuel Pool Using Portable Pump and Ladder Truck, Rev. 3
EDMG-SPX9, Manually Opening Containment Vent Valves in a B.5.b Event, Rev. 2

Drawings:

SN12432.19, PID: Nitrogen Supply System, Rev. 16

Issue Reports:

IR 570994, B.5.b Computation Technical Evaluation

Other:

95-0004-0000, Operator Handbook: Dri-Prime Bareshaft Pumps, Rev. 4
G0000742, Yearly Training with Off-Site Fire Department (2008)
G0000921, Yearly Training with Off-Site Fire Department (2009)
G0001026, Fire Drill with Off-Site Fire Department
G0001031, Yearly Training with Off-Site Fire Department (2010)
LIX-630, Operators Manual: Blitzfire Monitor Series, 1/15/07
MOU Between OC Generating Station & Bayville Fire Department, 2/18/10
MOU Between OC Generating Station & Community Medical Center, 12/21/09
MOU Between OC Generating Station & Forked River Volunteer Fire Company, 12/13/10
MOU Between OC Generating Station & Lacey First Aid Squad, 5/4/10
MOU Between OC Generating Station & Lanoka Harbor Emergency Medical Services, 3/15/10
MOU Between OC Generating Station & Lanoka Harbor Fire Department, 12/29/09
MOU Between OC Generating Station & Waretown First Aid Squad, 1/5/10
MOU Between OC Generating Station and Southern Ocean County Hospital, 12/31/09
Pipe Flow Printouts for B.5.b Pump Scenarios, 4/21/11
UFSAR 6.2.7, Hardened Vent System, Rev. 16

03.02 Assess the licensee's capability to mitigate station blackout (SBO) conditions

Procedures:

ABN-37, Station Blackout, Rev. 16
EMG-SP36, Venting the Drywell via the Hardened Vent, Rev. 0
SAM-3200.01, RPV & Primary Containment Flooding, Rev. 1
SAM-3200.02, Containment & Radioactivity Release Control, Rev. 3
SAM-3200.03, Combustible Gas Control, Rev. 0

Completed Tests:

678.4.005, Station Blackout Functional Test, 11/22/10

Drawings:

SN12432.19, PID: Nitrogen Supply System, Rev. 16

Calculations/Evaluations:

OC-10-00175-000, ECR for calculation on Combustion Turbine Tank Oil Level

Issue Reports:

IR 1143867, CT-2 Failed to Black Start during SBP Functional, 11/22/10
IR 1143791, SBO Functional Test Discrepancies, 11/22/10
IR 1203165, Procedure Enhancement ABN-36/ABN-37 – Procedure Differences, 4/15/11
IR 1203212, Procedure Enhancement ABN-36/37 – Specify Which Start Button to Use, 4/15/11

Other:

NRC Letter: Safety Evaluation, SBO Analysis Oyster Creek Nuclear Generating Station, 8/22/91
1205775, NRC Identified Potential Issue – Inability to Meet 1 Hour Commitment for SBO
NUMARC 87-00, Guidelines and Technical Bases for NUMARC Initiatives Addressing Station Blackout at Light Water Reactors, 11/87
NSAC-108, Reliability of EDGs at US Nuclear Power Plants, September 1986
Morgan, Lewis & Bockius LLP Ltr: OCNGS Station Blackout Agreement, 5/10/00
2010-74, Cable System Assessment Provided for OC Nuclear Generating System, 8/4/10
2010-122, Cable System Assessment Provided for OC Nuclear Generating System, 11/20/10
First Amendment to SBO Agreement between Forked River Power LLC and Exelon Generation Company, LLC, 5/12/10
NRC Letter, "Supplemental Safety Evaluation (SSE) Oyster Creek Nuclear Generating Station Station Blackout Rule", 11/20/92
NRC Letter, "Supplemental Safety Evaluation (SSE) Oyster Creek Nuclear Generating Station Station Blackout Rule", 2/10/92
GPU Nuclear Letter, "Oyster Creek Nuclear Generating Station Hardened Vent", 8/31/90
MDD-OC-822A Div 2, Modification Design Description for Oyster Creek Nuclear Generating Station Hardened Vent System, 5/22/92
117.3, Alternate AC System Reliability Monitoring, Rev. 2
RG 1.155, Station Blackout, 8/1988
NRC GL 89-16, Installation of a Hardened Wetwell Vent, 9/1/89
UFSAR 6.2.7, Hardened Vent System, Rev. 16
2009-04, Cable System Assessment Provided for OC Nuclear Generating System, 1/29/09
2009-09, Cable System Assessment Provided for OC Nuclear Generating System, 3/5/09
TDR 1099, Station Blackout Evaluation Report, 8/2/10
UFSAR 15.9, Station Blackout, Rev. 14

03.03 Assess the licensee's capability to mitigate internal and external flooding events required by station design

Procedures:

308 Att. 12, Core Spray Makeup to the Isolation Condensers, Rev. 88
ABN-32, Abnormal Intake Level, Rev. 17

Drawings:

4020-1, PID: Emergency Diesel Generator Vault, 8/1/67

Issue Reports:

IR 1209187, Question Answered for NRC on Red NER 11-009 – Concerns Reference to Water Tight Doors for 4160V Switchgear Room and the 'C' Battery Room

Other:

06-121-203, PID: As-built Survey Diesel Generator Building Security, Rev. 0
19701, Site Plan-Topographic Survey Oyster Creek Nuclear Generating Station, Sh. 7, 8, 9, and 11
IPEEE Appendix B: Effects of Probable Maximum Precipitation External Flood Portion of the Oyster Creek IPEEE, 8/16/00
NUREG-0822, Integrated Plant Safety Assessment, Systematic Evaluation Program, Oyster Creek Nuclear Generating Station, 1/83
OC 09-00549-001, Security Force-on-Force Changes for EDG Bldg Protection, 12/19/09
Oyster Creek IPEEE Section 5.2, "External Floods", 11/14/95
UFSAR 2.4.2, Floods, Rev. 16

03.04 Assess the thoroughness of the licensee's walkdowns and inspections of important equipment needed to mitigate fire and flood events to identify the potential that the equipment's function could be lost during seismic events

Procedures:

308 Att. 12, Core Spray Makeup to the Isolation Condensers, Rev. 88

Issue Reports:

IR 1215168, IER 11-01 Vulnerability – OCNGS Fire System not Seismically Rated

Other:

UFSAR 3.2, Classification of Structures, Components and Systems

LIST OF ACRONYMS USED

AAC	Alternate AC Source
ABN	Abnormal Procedure
ADAMS	Agencywide Documents Access and Management System
CFR	Code of Federal Regulations
CT	Combustion Turbine
MOU	Memorandum of Understanding
NRC	U. S. Nuclear Regulatory Commission
RG	Regulatory Guide
RPV	Reactor Pressure Vessel
SBO	Station Blackout
UFSAR	Update Final Safety Analysis Report