Nathan Lafferty

From:	John Richmond, RI
Sent:	Tuesday, January 13, 2009 4:07 PM
To:	Nancy McNamara; Richard Barkley
Cc:	Richard Conte; Doug Tifft
Subject:	DRAFT In-Prog OC 2008-07
Attachments:	OC 2008-07 LRI_rev-7.doc

as requested, to support Comm Plan Development

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Exemptions 5
FOIA/PA 2009-0070

J. 140

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To: Nancy McNamara <Nancy.McNamara@nrc.gov>, Richard Barkley
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CC: Richard Conte <Richard.Conte@nrc.gov>, Doug Tifft <Doug.Tifft@nrc.gov>
Date: Tue, 13 Jan 2009 16:06:55 -0500
Subject: DRAFT In-Prog OC 2008-07
Thread-Topic: DRAFT In-Prog OC 2008-07
Thread-Index: Acl1wt2Q/+GEvwRwSMKi4tlPe8LPiw==
Message-ID: <2856BC46F6A308418F033D973BB0EE72AA61375C58@R1CLSTR01.nrc.gov>
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TO BE WITHHELD FOR EXEMPTION 5

Mr. Charles G. Pardee
Chief Nuclear Officer (CNO) and Senior Vice President
Exelon Generation Company, LLC
200 Exelon Way
Kennett Square, PA 19348

SUBJECT: OYSTER CREEK GENERATING STATION - NRC LICENSE RENEWAL FOLLOW-UP INSPECTION REPORT 05000219/2008007

Dear Mr. Pardee

On December 23, 2008, the U. S. Nuclear Regulatory Commission (NRC) completed an inspection at your Oyster Creek Generating Station. The enclosed report documents the inspection results, which were discussed on December 23, 2008, with Mr. T. Rausch, Site Vice President, Mr. M. Gallagher, Vice President License Renewal, and other members of your staff.

The inspection examined activities conducted under your license as they relate to safety and compliance with the Commission's rules and regulations and with the conditions of your license. Particular focus occurred on the inservice inspection of the drywell containment. Based on the results of the NRC's inspection, the NRC staff identified that there were no safety significant conditions with respect to the drywell containment that effected current operations.

With respect to 10 CFR 54 activities and the NRC staff's Final Safety Evaluation Report (SER) for License Renewal - NUREG 1845 (Volume 1 ml 071290023 & Volume 2 ml 071310246), we observed that you are implementing the proposed license conditions of that document and the associated regulatory commitments as though they were in effect. As you well know, an appeal of a licensing board decision regarding the Oyster Creek application for a renewed license is pending before the Commission related to the adequacy of the aging management program for the Oyster Creek drywell. The NRC's Reactor Oversight Process mid-cycle letter of September 2, 2008 indicated that we would be conducting inspections (outage and non-outage) related to license renewal prior to the period of extended operations. The NRC is conducting these inspections using the guidance of Inspection Procedure (IP) 71003 "Post-Approval Site Inspection for License Renewal" as a prudent measure in order to take the opportunity to make such observations of Oyster Creek license renewal activities during the last refuel outage prior to entering the period of extended operations.

The inspectors reviewed selected procedures and records, observed activities, and interviewed personnel. The enclosed report records the inspector's observations only. We are doing this because the proposed license conditions and associated regulatory commitments made as a part of the 10 CFR 54 application are not in effect. These conditions and commitments are not in effect because the application for a renewed license remains under Commission review for final decision, and a renewed license has not been approved for Oyster Creek

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 Web-site at http://www.nrc.gov/reading-rm/adams.html (the Public Electronic Reading Room).

We appreciate your cooperation. Please contact me at (610) 337-5183 if you have any questions regarding this letter.

[(b)(5)]

Sincerely,

Darrell Roberts, Director
Division of Reactor Safety

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

Enclosure: Inspection Report No. 05000219/2008007
w/Attachment: Supplemental Information

C. Crane, President and Chief Operating Officer, Exelon Corporation
M. Pacilio, Chief Operating Officer, Exelon Nuclear
T. Rausch, Site Vice President, Oyster Creek Nuclear Generating Station
J. Randich, Plant Manager, Oyster Creek Generating Station
J. Kandasamy, Regulatory Assurance Manager, Oyster Creek
R. DeGregorio, Senior Vice President, Mid-Atlantic Operations
K. Jury,Vice President, Licensing and Regulatory Affairs
P. Cowan, Director, Licensing
B. Fewell, Associate General Counsel, Exelon
Correspondence Control Desk, AmerGen
Mayor of Lacey Township
P. Mulligan, Chief, NJ Dept of Environmental Protection
R. Shadis, New England Coalition Staff
E. Gbur, Chairwoman - Jersey Shore Nuclear Watch
E. Zobian, Coordinator - Jersey Shore Anti Nuclear Alliance
P. Baldauf, Assistant Director, NJ Radiation Protection Programs

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 Web-site at http://www.nrc.gov/reading-rm/adams.html (the Public Electronic Reading Room).

We appreciate your cooperation. Please contact me at (610) 337-5183 if you have any questions regarding this letter.

[(b)(5)]

Sincerely,

Richard Conte, Chief
Engineering Branch 1
Division of Reactor Safety

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

Enclosure: Inspection Report No. 05000219/2008007
w/Attachment: Supplemental Information

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DATE	01/ /09		01/ /09		01/ /09		01/ /09			

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U. S. NUCLEAR REGULATORY COMMISSION

REGION I

Docket No.:	50-219
License No.:	DPR-16
Report No.:	05000219/2008007
Licensee:	Exelon Generation Company, LLC
Facility:	Oyster Creek Generating Station
Location:	Forked River, New Jersey
Dates:	October 27 to November 7, 2008 (on-site inspection activities) November 13, 15, and 17, 2008 (on-site inspection activities) November 10 to December 23, 2008 (in-office review)
Inspectors:	J. Richmond, Lead M. Modes, Senior Reactor Engineer G. Meyer, Senior Reactor Engineer T. O'Hara, Reactor Inspector J. Heinly, Reactor Engineer J. Kulp, Resident Inspector, Oyster Creek
Approved by:	Richard Conte, Chief Engineering Branch 1 Division of Reactor Safety

SUMMARY OF FINDINGS

IR 05000219/2008007; 10/27/2008 - 12/23/2008; Exelon, LLC, Oyster Creek Generating Station; License Renewal Follow-up

The report covers a multi-week inspection of license renewal follow-up items. It was conducted by five region based engineering inspectors and the Oyster Creek resident inspector. The inspection was conducted in accordance with Inspection Procedure 71003 "Post-Approval Site Inspection for License Renewal."

[(b)(5)]

Because the application for a renewed license remains under Commission review for final decision, and a renewed license has not been approved for Oyster Creek, [(b)(5)]

[(b)(5)]

In accordance with the NRC's memorandum of understanding with the State of New Jersey, Department of Environmental Protection, Bureau of Nuclear Engineering, state engineers observed portions of the NRC inspection activities.

This report documents inspection observations, ??? [absent any conclusions of adequacy, pending the final decision of the Commissioners on the appeal of the renewed license.]

REPORT DETAILS

Summary of Plant Status

The Oyster Creek Generating Station was in a scheduled refueling outage during the on-site portions of this inspection.

At the time of the inspection, AmerGen Energy Company, LLC was the licensee for Oyster Creek Generating Station. As of January 8, 2009, the OC license was transferred to Exelon Generating Company, LLC by license amendment No. 271 (ML082750072).

4. OTHER ACTIVITIES (OA)

4OA5 License Renewal Follow-up (IP 71003)

1. Purpose of Inspection and Sample Selection Process

Background and Purpose

An appeal of a licensing board decision regarding the Oyster Creek application for a renewed license is pending before the Commission related to the adequacy of the aging management program for the Oyster Creek drywell. The NRC's Reactor Oversight Process mid-cycle letter of September 2, 2008 indicated that we would be conducting inspections (outage and non-outage) related to license renewal prior to the period of extended operations. The NRC is conducting these inspections using the guidance of Inspection Procedure (IP) 71003 "Post-Approval Site Inspection for License Renewal" as [(b)(5)] in order to take the opportunity to make such observations of Oyster Creek license renewal activities during the last refuel outage prior to entering the period of extended operations.

Inspection observations were considered, in light of pending 10 CFR 54 license renewal commitments and license conditions, as documented in NUREG-1875, "Safety Evaluation Report (SER) Related to the License Renewal of Oyster Creek Generating Station," (Volume 1 ml 071290023 & Volume 2 ml 071310246) as well as programmatic performance under on-going implementation of 10 CFR 50 current licensing basis (CLB) requirements.

Normally IP 71003 verifies that license renewal activities are implemented in accordance with Title 10 of the Code of Federal Regulations (CFR) Part 54, "Requirements for the Renewal of Operating Licenses for Nuclear Power Plants." The license renewal activities are generally related to: 1) license conditions added as part of a renewed license and the associated license renewal commitments; 2) selected aging management programs and implementing procedures; 3) license renewal commitments revised after the renewed license was granted; 4) need to revise the updated Safety Analysis Report; and, 5) newly identified structures, systems and components. What was not completed in this inspection for the reasons stated below was the implementation of guidance sections 03.01.b.1 and 03.01.b.3 of the procedure which calls for a review of appropriate actions and evaluation for enforcement and

Ex. 5

significance. Also items 4) and 5) above were not applicable for this inspection.

For 10 CFR 54 activities, the report records the inspector's observations only. We are doing this because the proposed license conditions and associated regulatory commitments made as a part of the 10 CFR 54 application are not in effect. These conditions and commitments are not in effect because the application for a renewed license remains under Commission review for final decision, and a renewed license has not been approved for Oyster Creek.

Sample Selection Process

The reviewed SER proposed commitments and license conditions were selected based on several attributes including: the risk significance using insights gained from sources such as the NRC's "Significance Determination Process Risk Informed Inspection Notebooks," revision 2; the extent and results of previous license renewal audits and inspections of aging management programs; the extent or complexity of a commitment; and the extent that baseline inspection programs will inspect a system, structure, or component (SSC), or commodity group.

For each commitment and on a sampling basis, the inspectors reviewed supporting documents including completed surveillances, conducted interviews, performed visual inspection of structures and components including those not accessible during power operation, and observed selected activities described below. The inspectors also reviewed selected corrective actions taken as a consequence of previous license renewal inspections.

2. NRC Unresolved Item

Ex 5

3. Detailed Reviews

3.1 Reactor Refuel Cavity Liner Strippable Coating

a. Scope of Inspection

Proposed SER Appendix-A Item 27, ASME Section XI, Subsection IWE Enhancement (2), stated, in part:

> A strippable coating will be applied to the reactor cavity liner to prevent water intrusion into the gap between the drywell shield wall and the drywell shell during periods when the reactor cavity is flooded. Refueling outages prior to and during the period of extended operation.

The inspector reviewed work order R2098682-06, "Coating application to cavity walls and floors."

b. Observations

From Oct. 29 to Nov. 6, the cavity liner strippable coating limited cavity seal leakage into the cavity trough drain at less than 1 gallon per minute (gpm). On Nov. 6, in one area of the refuel cavity, the liner strippable coating started to de-laminate. Water puddles were subsequently identified in sand bed bays 11, 13, 15, and 17 (see section 3.2 below for additional details). This issue was entered into the corrective action program as Issue Report (IR) 841543. Exelon's initial evaluations identified several likely or contributing causes, including:

- A portable water filtration unit was improperly placed in the reactor cavity, which resulted in flow discharged directly on the strippable coating.
- A [(b)(5)] oil spill into the cavity may have affected the coating integrity.
- No post installation inspection of the coating had been performed.

Ex 5

3.2 Reactor Refuel Cavity Seal Leakage Monitoring

a. Scope of Inspection

Proposed SER Appendix-A Item 27, ASME Section XI, Subsection IWE Enhancement (3), stated, in part:

> The reactor cavity seal leakage trough drains and the drywell sand bed region drains will be monitored for leakage, periodically.

The inspectors observed Exelon's cavity seal leakage monitoring activities. The inspectors independently checked the cavity trough drain flow immediately after the reactor cavity was filled, and several times throughout the outage. The inspectors also reviewed the written monitoring logs.

In addition, the inspectors reviewed Exelon's cavity trough drain flow monitoring plan and pre-approved Action Plan. Exelon had established an administrative limit of 12 gpm

on the cavity trough drain flow, based on a calculation which indicated that cavity trough drain flow of less than 60 gpm would not result in trough overflow into the gap between the drywell concrete shield wall and the drywell steel shell.

b. Observations

Exelon monitored reactor refuel cavity seal leakage by monitoring and recording the flow in the drain line from the cavity concrete trough to a plant drain system funnel.

On Oct. 27, Exelon isolated the cavity trough drain line to install a tygon hose to allow drain flow to be monitored. On Oct. 28, the reactor cavity was filled. Drain line flow was monitored frequently during cavity flood-up, and daily thereafter. On Oct. 29, a boroscope examination of the drain line identified that the isolation valve had been left closed. When the drain line isolation valve was opened, about 3 gallons of water drained out. The drain flow then subsided to about an 1/8 inch stream (less than 1 gpm). This issue was entered into the corrective action program as Issue Report (IR) 837647.

[(b)(5)]
On Nov. 6, the reactor cavity liner strippable coating started to de-laminate. The cavity trough drain flow took a step change from less than 1 gpm to approximately 4 to 6 gpm. Exelon increased monitoring of the trough drain to every 2 hours and sand bed poly bottles to every 4 hours. All sand bed bays were originally scheduled to be closed out by Nov. 2. However, due to a coating problem, personnel working in sand bed bay 11 identified dripping water on Nov. 8. After the cavity was drained, all sand bed bays were inspected for any water or moisture damage; no deficiencies were identified. Exelon stated follow-up ultrasonic test (UT) examinations will be performed to evaluate the drywell shell during the next refuel outage. In addition, on Nov. 15, after cavity was drained, water was found in the sand bed bay 11 poly bottle. These issues were entered into the corrective action program as Issue Report (IR) xxx.

Ex 5

The inspectors observed that Exelon's pre-approved action plan was inconsistent with the actual actions taken in response to increased cavity seal leakage. The plan did not direct increased sand bed poly bottle monitoring, and would not have required a sand bed entry or inspection until Nov 15, when water was first found in a poly bottle. The pre-approved action plan directed:

- If the cavity trough drain flow exceeds 5 gpm, then increase monitoring of the cavity drain flow from daily to every 8 hours.
- If the cavity trough drain flow exceeds 12 gpm, then increase monitoring of the sand bed poly bottles from daily to every 4 hours.
- If the cavity trough drain flow exceeds 12 gpm and any water is found in a sand bed poly bottle, then enter and inspect the sand bed bays.

3.3 Drywell Sand Bed Region Drain Monitoring

a. Scope of Inspection

Proposed SER Appendix-A Item 27, ASME Section XI, Subsection IWE Enhancement

(3), stated, in part:

> The sand bed region drains will be monitored daily during refueling outages.

The inspectors observed Exelon's activities to monitor sand bed drains. The inspectors independently checked drain line poly bottles and accompanied Exelon personnel during routine daily checks. The inspectors also reviewed the written monitoring logs.

b. Observations

There is one sand bed drain line for every two sand bed bays (i.e., total of five drains). Exelon remotely monitored the sand bed drains by checking poly bottles attached via tygon tubing to a funnel hung below each drain line. The sand bed drains were not directly observed and were not visible from the outer area of the torus room, where the poly bottles were located.

On Nov. 10, Exelon found 2 of the 5 tygon tubes disconnected and laying on the floor (bays 3 and 7). Exelon personnel could not determine when the tubing was last verified to be connected to the funnel. Both tubes were reconnected. This issue was entered into the corrective action program as Issue Report (IR) 843209.

xxx need IR ##

On Nov. 15, during a daily check of sand bed bay 11 drain poly bottle, Exelon found the poly bottle full (greater than 4 gallons). Exelon sampled the water, but could not positively determine the source based on radiolytic or chemical analysis. The inspectors noted that Exelon had found the poly bottle empty during each check throughout the outage, until Nov 15 (cavity was drained on Nov 12). The inspectors also noted that the funnel, to which the tygon tubing was connected, had a capacity of about 6 gallons. Bay 11 was entered within a few hours, visually inspected, and found dry. This issue was entered into the corrective action program as Issue Report (IR) xxx.

3.4

3.4 Reactor Cavity Trough Drain Inspection for Blockage

a. Scope of Inspection

Proposed SER Appendix-A Item 27, ASME Section XI, Subsection IWE Enhancement (13), stated, in part:

> The reactor cavity concrete trough drain will be verified to be clear from blockage once per refueling cycle. Any identified issues will be addressed via the corrective action process.

The inspector reviewed a video recording record of a boroscope inspection of the cavity trough drain line, performed by work order R2102695.

b. Observations

[(b)(5)]

See observations in section 3.4 below.

3.5 Moisture Barrier Seal Inspection (inside sand bed bays)

a. Scope of Inspection

Proposed SER Appendix-A Item 27, ASME Section XI, Subsection IWE Enhancements (12 & 21), stated, in part:

> Inspect the [moisture barrier] seal at the junction between the sand bed region concrete [sand bed floor] and the embedded drywell shell. During the 2008 refueling outage and every other refueling outage thereafter.

The purpose of the moisture barrier seal is to prevent water from entering a gap below the concrete floor in the sand bed region. Exelon performed a 100% visual test (VT) inspection of the seal in the sand bed region (total of 10 bays). The inspectors directly observed as-found conditions in portions of 6 sand bed bays, and as-left conditions in 4 sand bed bays.

The inspectors reviewed VT inspection records for each sand bed bay, and compared their direct observations to the recorded VT inspection results. The inspectors reviewed Exelon VT inspection procedures, interviewed non-destructive examination (NDE) supervisors and technicians, and observed field collection and recording of VT inspection data. The inspectors also reviewed a sample of NDE technician visual testing qualifications.

The inspectors observed Exelon's activities to evaluate and repair the moisture barrier seal in sand bed bay 3.

b. Observations

The inspectors observed that NDE visual inspection activities were conducted in accordance with approved procedures. The inspectors verified that Exelon completed the inspections, identified condition(s) in the moisture barrier seal which required repair, completed the seal repairs in accordance with engineering procedures, and conducted appropriate re-inspection of repaired areas.

The VT inspections identified moisture barrier seal deficiencies in 7 of the 10 sand bed bays, including surface cracks and partial separation of the seal from the steel shell or concrete floor. Exelon determined the as-found moisture barrier function was not impaired, because no cracks or separation fully penetrated the seal. All deficiencies were entered into the corrective action program and repaired (IRs are listed in the Attachment).

[(b)(5)]

The VT inspection for sand bed bay 3 identified a seal crack and a surface rust stains

below the crack. When the seal was excavated, some drywell shell surface corrosion was identified. A laboratory analysis of removed seal material determined the epoxy seal material had not adequately cured, and concluded it was an original 1992 installation issue. The seal crack and surface rust were repaired.

The inspectors compared the 2008 VT results to the 2006 results and noted that in 2006 no seal deficiencies were identified in any sand bed bay.

3.6 Drywell Shell External Coatings Inspection (inside sand bed bays)

a. Scope of Inspection

Proposed SER Appendix-A Item 27, ASME Section XI, Subsection IWE Enhancements (4 & 21), stated, in part:

> Perform visual inspections of the drywell external shell epoxy coating in all 10 sand bed bays. During the 2008 refueling outage and every other refueling outage thereafter.

The inspectors observed portions of Exelon's activities to perform a 100% visual inspection of the epoxy coating in the sand bed region (total of 10 bays). In addition, the inspectors directly observed as-found conditions of the epoxy coating in portions of 6 sand bed bays, and the as-left condition in sand bed bay 11, after coating repairs. The inspectors also observed field collection, recording, and reporting of visual inspection data.

The inspectors reviewed VT inspection records for each sand bed bay and compared their direct observations to the recorded VT inspection results. The inspectors reviewed Exelon VT inspection procedures, interviewed non-destructive examination (NDE) supervisors and technicians, and observed field collection and recording of VT inspection data. The inspectors also reviewed a sample of NDE technician visual testing qualifications.

The inspectors directly observed Exelon's activities to evaluate and repair the epoxy coating in sand bed bay 11. In addition, the inspectors reviewed Technical Evaluation 330592.27.46, "Coating Degradation in Sand Bed bay 11."

b. Observations

The inspectors observed that NDE visual inspection activities were conducted in accordance with approved procedures. The inspectors verified that Exelon completed the inspections, identified condition(s) in the exterior coating which required repair, completed the coating repairs in accordance with engineering procedures, and conducted appropriate re-inspection of repaired areas.

In sand bed bay 11, the NDE inspection identified one small broken blister, about 1/4 inch in diameter, with a 6 inch surface rust stain, dry to the touch, trailing down from the blister. During the initial investigation, three additional smaller surface irregularities (initially described as surface bumps) were identified within a 1 to 2 square inch area

near the broken blister. The three additional bumps were subsequently determined to be unbroken blisters. This issue was entered into the corrective action program as IR 838833 and 839053; all four blisters were evaluated and repaired. On Nov. 13, the inspectors conducted a general visual observation (i.e., not a qualified VT inspection) of the repaired area and the general condition in bay 11. The inspectors verified that Exelon's inspection data reports appeared to accurately describe the conditions observed by the inspectors.

To confirm the adequacy of the coating inspection, Exelon re-inspected 4 sand bed bays (bays 3, 7, 15, and 19) with a different NDE technician. No additional deficiencies were identified. In Technical Evaluation 330592.27.46, Exelon determined, by laboratory analysis using energy dispersive X-ray spectroscopy, that the removed blister material contained trace amounts of chlorine. Exelon also determined that the presence of chlorine, in a soluble salt as chloride, can result in osmosis of moisture through the epoxy coating. The analysis also concluded there were no pinholes in the blister samples. In addition, the analysis determined approximately 0.003 inches of surface corrosion had occurred directly under the broken blister. Exelon concluded that the corrosion had taken place over approximately a 16 year period. In addition, UT dynamic scan thickness measurements under the four blisters, from inside the drywell, confirmed the drywell shell had no signrificant degradation as a result of the corrosion. On Nov. 13, the inspectors conducted a general visual observation (i.e., not a qualified VT inspection) of the general conditions in bay 5 and 9. The inspectors observed that Exelon's inspection data reports adequately described the conditions observed by the inspectors.

xxx ADD IR ###
In follow-up, Exelon reviewed a 2006 video of the sand beds, which had been made as a general aid, not as part of an NDE inspection. The 2006 video showed the same 6 inch rust stain in bay 11. The inspectors compared the 2008 VT results to the 2006 results and noted that in 2006 no coating deficiencies were identified in any sand bed bay. This apparent deficiency with the 2006 coating inspection was entered into the corrective action program as Issue Report (IR) xxx.

During the final closeout of bays 3, 5, and 7, minor chipping in the epoxy coating was identified, and described as incidental mechanical damage from personnel entry for inspection or repair activities. All deficiencies were entered into the corrective action program and repaired (IRs are listed in the Attachment).

During the final closeout of bay 9, an area approximately 8 inches by 8 inches was identified where the color of the epoxy coating appeared different than the surrounding area. Because each of the 3 layers of the epoxy coating is a different color, Exelon questioned whether the color difference could have been indicative of an original installation deficiency. This issue was entered into the corrective action program as IR 844815, and the identified area was re-coated with epoxy.

3.7 Drywell Floor Trench Inspections

a. Scope of Inspection

Proposed SER Appendix-A Item 27, ASME Section XI, Subsection IWE Enhancements (5, 16, & 20), stated, in part:

> Perform visual test (VT) and ultrasonic test (UT) examinations of the drywell shell inside the drywell floor inspection trenches in bay 5 and bay 17 during the 2008 refueling outage, at the same locations that were examined in 2006. In addition, monitor the trenches for the presence of water during refueling outages.

The inspectors observed non-destructive examination (NDE) activities and reviewed UT examination records. In addition, the inspectors directly observed conditions in the trenches on multiple occasions during the outage. The inspectors compared UT data to licensee established acceptance criteria in Specification IS-318227-004, revision 14, "Functional Requirements for Drywell Containment Vessel Thickness Examinations," and to design analysis values for minimum wall thickness in calculations C-1302-187-E310-041, revision 0, "Statistical Analysis of Drywell Sand Bed Thickness Data 1992, 1994, 1996, and 2006," and C-1302-187-5320-024, revision 2, "Drywell External UT Evaluation in the Sand Bed." In addition, the inspectors reviewed Technical Evaluation 330592.27.43, "2008 UT Data of the Sand Bed Trenches."

The inspectors reviewed Exelon UT examination procedures, interviewed NDE supervisors and technicians, reviewed a sample of NDE technician UT qualifications. The inspectors also reviewed records of trench inspections performed during two non-refueling plant outages during the last operating cycle.

b. Observations

In Technical Evaluation 330592.27.43, Exelon determined the UT thickness values satisfied the general uniform minimum wall thickness criteria (e.g., average thickness of an area) and the locally thinned minimum wall thickness criteria (e.g., areas 2 inches or less in diameter), as applicable. For UT data sets, such as 7x7 arrays, the TE calculated statistical parameters and determined the data set distributions were acceptable. The TE also compared the data set values to the corresponding 2006 values and concluded there were no significant differences and no observable on-going corrosion. The inspectors independently verified that the UT thickness values satisfied applicable acceptance criteria.

During two non-refueling plant outages during the last operating cycle, both trenches were inspected for the presence of water and found dry by Exelon's staff and by NRC inspectors (NRC Inspection Reports 05000219/2007003, 05000219/2007004, and memorandum ML071240314).

During the initial drywell entry on Oct. 25, the inspectors observed that both floor trenches were dry. On subsequent drywell entries for routine inspection activities, the inspectors observed the trenches to be dry. On one occasion, Exelon observed a small amount of water in the bay 5 trench, which they believed was from water spilled nearby on the drywell floor; the trench was dried and the issue entered into the corrective action program as IR 843190. On Nov. 17, during the final drywell closeout inspection, the inspectors observed the following:

- Bay 17 trench was dry and had newly installed sealant on the trench edge where concrete meets shell, and on the floor curb near the trench.

xxx ADD IR ##

- Bay 5 trench had a few ounces of water in it. The inspector noted that within the last day there had been several system flushes conducted in the immediate area. Exelon stated the trench would be dried prior to final drywell closeout.

- Bay 5 trench had the lower 6 inches of grout re-installed and had newly installed sealant on the trench edge where concrete meets shell, and on the floor curb near the trench.

3.8 Drywell Shell Thickness Measurements

a. Scope of Inspection

Proposed SER Appendix-A Item 27, ASME Section XI, Subsection IWE Enhancements (1, 9, 14, and 21), stated, in part:

> Perform full scope drywell inspections [in the sand bed region], including UT thickness measurements of the drywell shell, from inside and outside the drywell. During the 2008 refueling outage and every other refueling outage thereafter.

Proposed SER Appendix-A Item 27, ASME Section XI, Subsection IWE Enhancements (7, 10, and 11) stated, in part:

> Conduct UT thickness measurements in the upper regions of the drywell shell. Prior to the period of extended operation and two refueling outages later.

The inspectors directly observed non-destructive examination (NDE) activities and the drywell shell conditions both inside the drywell, including the floor trenches, and in the sand bed bays (drywell external shell). The inspectors reviewed UT examination records and compared UT data results to licensee established acceptance criteria in Specification IS-318227-004, revision 14, "Functional Requirements for Drywell Containment Vessel Thickness Examinations," and to design analysis values for minimum wall thickness in calculations C-1302-187-E310-041, revision 0, "Statistical Analysis of Drywell Vessel Sand Bed Thickness Data 1992, 1994, 1996, and 2006," and C-1302-187-5320-024, revision 2, "Drywell External UT Evaluation in the Sand Bed." In addition, the inspectors reviewed the Technical Evaluations (TEs) associated with the UT data, as follows:

- TE 330592.27.42, "2008 Sand Bed UT data - External"
- TE 330592.27.45, "2008 Drywell UT Data at Elevations 23 & 71 foot"
- TE 330592.27.88, "2008 Drywell Sand Bed UT Data - Internal Grids"

The inspectors reviewed UT examination records for the following:

- Sand bed region elevation, inside the drywell

- All 10 sand bed bays, drywell external
- Various drywell elevations between 50 and 87 foot elevations
- Transition weld from bottom to middle spherical plates, inside the drywell
- Transition weld from 2.625 inch plate to 0.640 inch plate (knuckle area), inside the drywell

The inspectors reviewed Exelon UT examination procedures, interviewed NDE supervisors and technicians, and observed field collection and recording of UT data. The inspectors also reviewed a sample of NDE technician UT qualifications.

b. Observations

The inspectors observed that NDE UT examination activities were conducted in accordance with approved procedures.

In Technical Evaluations 330592.27.42, 330592.27.45, and 330592.27.88, Exelon determined the UT thickness values satisfied the general uniform minimum wall thickness criteria (e.g., average thickness of an area) and the locally thinned minimum wall thickness criteria (e.g., areas 2 inches or less in diameter), as applicable. For UT data sets, such as 7x7 arrays, the TEs calculated statistical parameters and determined the data set distributions were acceptable. The TEs also compared the data set values to the corresponding 2006 values and concluded there were no significant differences and no observable on-going corrosion. The inspectors independently verified that the UT thickness values satisfied applicable acceptance criteria.

3.9 Moisture Barrier Seal Inspection (inside drywell)

a. Scope of Inspection

Proposed SER Appendix-A Item 27, ASME Section XI, Subsection IWE Enhancement (17), stated, in part:

> Perform visual inspection of the moisture barrier seal between the drywell shell and the concrete floor curb, installed inside the drywell during the October 2006 refueling outage, in accordance with ASME Code.

The inspector reviewed structural inspection reports 187-001 and 187-002, performed by work order R2097321-01 on Nov 1 and Oct 29, respectively. The reports documented visual inspections of the perimeter seal between the concrete floor curb and the drywell steel shell, at the floor elevation 10 foot. In addition, the inspector reviewed selected photographs taken during the inspection

b. Observations

No noteworthy observations.

3.10 One Time Inspection Program

a. Scope of Inspection

Proposed SER Appendix-A Item 24, One Time Inspection Program, stated, in part:

> The One-Time Inspection program will provide reasonable assurance that an aging effect is not occurring, or that the aging effect is occurring slowly enough to not affect the component or structure intended function during the period of extended operation, and therefore will not require additional aging management. Perform prior to the period of extended operation.

The inspector reviewed the program's sampling basis and sample plan. Also, the inspector reviewed ultrasonic test results from selected piping sample locations in the main steam, spent fuel pool cooling, domestic water, and demineralized water systems.

b. Observations

No noteworthy observations.

3.11 "B" Isolation Condenser Shell Inspection

a. Scope of Inspection

Proposed SER Appendix-A Item 24, One Time Inspection Program Item (2), stated, in part:

> To confirm the effectiveness of the Water Chemistry program to manage the loss of material and crack initiation and growth aging effects. A one-time UT inspection of the "B" Isolation Condenser shell below the waterline will be conducted looking for pitting corrosion. Perform prior to the period of extended operation.

The inspector observed NDE examinations of the "B" isolation condenser shell performed by work order C2017561-11. The NDE examinations included a visual inspection of the shell interior, UT thickness measurements in two locations that were previously tested in 1996 and 2002, additional UT tests in areas of identified pitting and corrosion, and spark testing of the final interior shell coating. The inspector reviewed the UT data records, and compared the UT data results to the established minimum wall thickness criteria for the isolation condenser shell, and compared the UT data results with previously UT data measurements from 1996 and 2002

b. Observations

No noteworthy observations.

3.12 Periodic Inspections

a. Scope of Inspection

Proposed SER Appendix-A Item 41, Periodic Inspection Program, stated, in part:

Activities consist of a periodic inspection of selected systems and components to verify integrity and confirm the absence of identified aging effects. Perform prior to the period of extended operation.

The inspectors observed the following activities:

- Condensate expansion joints Y-2-11 and Y-2-12 inspection (WO R2083515)
- 4160 V Bus 1C switchgear fire barrier penetration inspection (WO R2093471)

b. Observations

No noteworthy observations.

3.13 Circulating Water Intake Tunnel & Expansion Joint Inspection

a. Scope of Inspection

Proposed SER Appendix-A Item 31, Structures Monitoring Program Enhancement (1), stated, in part:

> Buildings, structural components and commodities that are not in scope of maintenance rule but have been determined to be in the scope of license renewal. Perform prior to the period of extended operation.

On Oct. 29, the inspector directly observed the conduct of a structural engineering inspection of the circulating water intake tunnel, including reinforced concrete wall and floor slabs, steel liners, embedded steel pipe sleeves, butterfly isolation valves, and tunnel expansion joints. The inspection was conducted by a qualified structural engineer. After the inspection was completed, the inspector compared his direct observations with the documented visual inspection results.

b. Observations

No noteworthy observations.

3.14 Buried Emergency Service Water Pipe Replacement

a. Scope of Inspection

Proposed SER Appendix-A Item 63, Buried Piping, stated, in part:

> Replace the previously un-replaced, buried safety-related emergency service water piping prior to the period of extended operation. Perform prior to the period of extended operation.

The inspectors observed the following activities, performed by work order C2017279:

- Field work to remove old pipe and install new pipe
- Foreign material exclusion (FME) controls

- External protective pipe coating, and controls to ensure the pipe installation activities would not result in damage to the pipe coating

b. Observations

No noteworthy observations.

3.15 Electrical Cable Inspection inside Drywell

a. Scope of Inspection

Proposed SER Appendix-A Item 34, Electrical Cables and Connections, stated, in part:

> A representative sample of accessible cables and connections located in adverse localized environments will be visually inspected at least once every 10 years for indications of accelerated insulation aging. Perform prior to the period of extended operation.

The inspector accompanied electrical technicians and an electrical design engineer during a visual inspection of selected electrical cables in the drywell. The inspector observed the pre-job brief which discussed inspection techniques and acceptance criteria. The inspector directly observed the visual inspection, which included cables in raceways, as well as cables and connections inside junction boxes. After the inspection was completed, the inspector compared his direct observations with the documented visual inspection results.

b. Observations

No noteworthy observations.

3.16 Drywell Shell Internal Coatings Inspection (inside drywell)

a. Scope of Inspection

Proposed SER Appendix-A Item 33, Protective Coating Monitoring and Maintenance Program, stated, in part:

> The program provides for aging management of Service Level I coatings inside the primary containment, in accordance with ASME Code.

The inspector reviewed a vendor memorandum which summarized inspection findings for a coating inspection of the as-found condition of the ASME Service Level I coating of the drywell shell inner surface. In addition, the inspector reviewed selected photographs taken during the coating inspection and the initial assessment and disposition of identified coating deficiencies. The coating inspector was also interviewed. The coating inspection was conducted on Oct. 30, by a qualified ANSI Level III coating inspector. The final detailed report, with specific elevation notes and photographs, was not available at the time the inspector left the site.

b. Observations

No noteworthy observations.

3.17 Inaccessible Medium Voltage Cable Test

a. Scope of Inspection

Proposed SER Appendix-A Item 36, Inaccessible Medium Voltage Cables, stated, in part:

> Cable circuits will be tested using a proven test for detecting deterioration of the insulation system due to wetting, such as power factor or partial discharge. Perform prior to the period of extended operation.

The inspector observed field testing activities for the 4 kV feeder cable from the auxiliary transformer secondary to Bank 4 switchgear and independently reviewed the test results. A Doble and power factor test of the transformer, with the cable connected to the transformer secondary, was performed, in part, to detect deterioration of the cable insulation. The inspector also compared the current test results to previous test results from 2002. In addition, the inspector interviewed plant electrical engineering and maintenance personnel.

b. Observations

No noteworthy observations.

3.18 Fatigue Monitoring Program

a. Scope of Inspection

Proposed SER Appendix-A Item 44, Metal Fatigue of Reactor Coolant Pressure Boundary, stated (in part):

> The program will be enhanced to use the EPRI-licensed FatiguePro cycle counting and fatigue usage factor tracking computer program.

The inspectors interviewed the fatigue program manager and determined that the FatiguePro program, although in place and ready-to-go, has not been implemented. Exelon stated the FatiguePro program will be implemented after final industry resolution of a concern regarding a mathematical summation technique used in FatiguePro. The FatiguePro program was evaluated by the inspectors in March of 2006 (Report 05000219/20006007). The inspectors determined that Exelon's proposed implementation had not changed in the interim.

b. Observations

The inspectors determined that Exelon's proposed implementation had not changed the since the NRC reviewed it in March of 2006.

4. Commitment Management Program

a. Scope of Inspection

The inspectors evaluated current licensing basis procedures used to manage and revise regulatory commitments to determine whether they were consistent with the requirements of 10 CFR 50.59, NRC Regulatory Issue Summary 2000-17, "Managing Regulatory Commitments," and the guidance in Nuclear Energy Institute (NEI) 99-04, "Guidelines for Managing NRC Commitment Changes." In addition, the inspectors reviewed the procedures to assess whether adequate administrative controls were in-place to ensure commitment revisions or the elimination of commitments altogether would be properly evaluated, approved, and annually reported to the NRC. The inspectors also reviewed Exelon's current licensing basis commitment tracking program to evaluate its effectiveness. In addition, the following commitment change evaluation packages were reviewed:

- Commitment Change 08-003, OC Bolting Integrity Program
- Commitment Change 08-004, RPV Axial Weld Examination Relief

b. Observations

The inspectors observed that the commitment change activities were conducted in accordance with approved procedures, which required an annual update to the NRC with a summary of each change.

4OA6 Meetings, Including Exit Meeting

Exit Meeting Summary

The inspectors presented the results of this inspection to Mr. T. Rausch, Site Vice President, Mr. M. Gallagher, Vice President License Renewal, and other members of Exelon's staff on December 23, 2008. NRC Exit Notes from the exit meeting are located in ADAMS within package ML090120726.

No proprietary information is present in this inspection report.

ATTACHMENT

SUPPLEMENTAL INFORMATION

KEY POINTS OF CONTACT

Licensee Personnel

C. Albert, Site License Renewal
J. Cavallo, Corrosion Control Consultants & labs, Inc.
M. Gallagher, Vice President License Renewal
C. Hawkins, NDE Level III Technician
J. Hufnagel, Exelon License Renewal
J. Kandasamy, Manager Regulatory Affairs
S. Kim, Structural Engineer
M. McDermott, NDE Supervisor
R. McGee, Site License Renewal
D. Olszewski, System Engineer
F. Polaski, Exelon License Renewal
R. Pruthi, Electrical Design Engineer
S. Schwartz, System Engineer
P. Tamburro, Site License Renewal Lead
C. Taylor, Regulatory Affairs

NRC Personnel

S. Pindale, Acting Senior Resident Inspector, Oyster Creek
J. Kulp, Resident Inspector, Oyster Creek
L. Regner, License Renewal Project Manager, NRR
D. Pelton, Chief - License Renewal Projects Branch 1
M. Baty, Counsel for NRC Staff
J. Davis, Senior Materials Engineer, NRR

Observers

R. Pinney, New Jersey State Department of Environmental Protection
R. Zak, New Jersey State Department of Environmental Protection
M. Fallin, Constellation License Renewal Manager
R. Leski, Nine Mile Point License Renewal Manager

LIST OF ITEMS OPENED, CLOSED, AND DISCUSSED

Opened/Closed

None.

Opened

05000219/2008007-01	URI	xxx

Closed

None.

LIST OF DOCUMENTS REVIEWED

License Renewal Program Documents

Drawings

Plant Procedures and Specifications

Incident Reports (IRs)
* = IRs written as a result of the NRC inspection

Maintenance Requests (ARs) & Work Orders (WOs)

Ultrasonic Test Non-destructive Examination Records

Visual Test Inspection Non-destructive Examination Records

NDE Certification Records

Miscellaneous Documents

NRC Documents

Industry Documents
* = documents referenced within NUREG-1801 as providing acceptable guidance for specific aging management programs

LIST OF ACRONYMS

ASME	American Society of Mechanical Engineers
EPRI	Electric Power Research Institute
NDE	Non-destructive Examination
NEI	Nuclear Energy Institute
SSC	Systems, Structures, and Components
SDP	Significance Determination Process
TE	Technical Evaluation
UFSAR	Updated Final Safety Analysis Report
UT	Ultrasonic Test
VT	Visual Testing