

From: <john.hufnagel@exeloncorp.com>
To: <dja1@nrc.gov>
Date: 04/12/2006 6:16:55 PM
Subject: Update to Drywell related response AMP-141

Donnie and Roy,

Attached is an update to the response to AMP-141. We realized that we did not provide the nominal drywell thicknesses as requested in part b of the question. Therefore, we have revised the response to part b to include these. Sorry for not getting it in there the first time, but hope this is helpful.

- John.

<<Q & A Response update AMP-141 4-12-06.pdf>>

This e-mail and any of its attachments may contain Exelon Corporation proprietary information, which is privileged, confidential, or subject to copyright belonging to the Exelon Corporation family of Companies. This e-mail is intended solely for the use of the individual or entity to which it is addressed. If you are not the intended recipient of this e-mail, you are hereby notified that any dissemination, distribution, copying, or action taken in relation to the contents of and attachments to this e-mail is strictly prohibited and may be unlawful. If you have received this e-mail in error, please notify the sender immediately and permanently delete the original and any copy of this e-mail and any printout. Thank You.

CC: <donald.warfel@exeloncorp.com>, <ahmed.ouaou@exeloncorp.com>

Mail Envelope Properties (443D7C53.BCB : 20 : 27595)

Subject: Update to Drywell related response AMP-141
Creation Date: 04/12/2006 6:16:47 PM
From: <john.hufnagel@exeloncorp.com>

Created By: john.hufnagel@exeloncorp.com

Recipients

nrc.gov

OWGWPO01.HQGWDO01

DJA1 (D. Ashley)

exeloncorp.com

ahmed.ouaou CC

donald.warfel CC

Post Office

OWGWPO01.HQGWDO01

Route

nrc.gov

exeloncorp.com

Files

MESSAGE

Size

1270

Date & Time

12 April, 2006 6:16:47 PM

TEXT.htm

1935

Q & A Response update AMP-141 4-12-06.pdf

84701

Mime.322

121891

Options

Expiration Date:

None

Priority:

Standard

Reply Requested:

No

Return Notification:

None

Concealed Subject:

No

Security:

Standard

NRC Information Request Form

Item No
AMP-141

Date Received:
10/ 6/2005

Source
AMP Audit

Topic:
IWE

Status:
Open

Document References:
B.1.27

NRC Representative Morante, Rich

AmerGen (Took Issue): Hufnagel, Joh

Question

AMP B.1.27 IWE

a. Visual inspection of the coatings in the former sandbed region of the drywell is currently conducted under the applicant's protective coatings monitoring and maintenance program; only this AMP is credited for managing loss of material due to corrosion for license renewal. Visual inspection of the containment shell conducted in accordance with the requirements of IWE is typically credited to manage loss of material due to corrosion.

The applicant is requested to provide its technical basis for not also crediting its IWE program for managing loss of material due to corrosion in the former sandbed region of the drywell.

B. During discussions with the applicant's staff on 10/04/05 about augmented inspection conducted under IWE, the applicant presented tabulated inspection results obtained from the mid 1980s to the present, to monitor the remaining drywell wall thickness in the cylindrical and spherical regions where significant corrosion of the outside surface was previously detected.

The applicant is requested to provide (1) a copy of these tabulated inspection results, (2) a list of the nominal design thicknesses in each region of the drywell, (3) a list of the minimum required thicknesses in each region of the drywell, and (4) a list of the projected remaining wall thicknesses in each region of the drywell in the year 2029.

AMP B.1.27 IWE Question on Remaining Wall Thickness in the Former Sandbed Region of the Drywell

c. During discussions with the applicant's staff on 10/05/05, the applicant described the history and resolution of corrosion in the sandbed region. After discovery, thickness measurements were taken from 1986 through 1992, to monitor the progression of wall loss. Remedial actions were completed in early 1993. At that time, the remaining wall thickness exceeded the minimum required thickness. The applicant concluded that it had completely corrected the conditions which led to the corrosion, and terminated its program to monitor the remaining wall thickness. At that time, the remaining years of operation was expected to be no more than 16 years (end of the current license term).

NRC Information Request Form

The applicant's aging management commitment for license renewals is limited to periodic inspection of the coating that was applied to the exterior surface of the drywell as part of the remedial actions. The applicant has not made a license renewal commitment to measure wall thickness in the sandbed region in order to confirm the effectiveness of the remedial actions taken.

Assigned To: Ouaou, Ahmed

Response:

a) Visual inspection of the containment drywell shell, conducted in accordance with ASME Section XI, Subsection IWE, is credited for aging management of accessible areas of the containment drywell shell. Typically this inspection is for internal surfaces of the drywell. The exterior surfaces of the drywell shell in the sand bed region for Mark I containment is considered inaccessible by ASME Section XI, Subsection IWE, thus visual inspection is not possible for a typical Mark I containment including Oyster Creek before the sand was removed from the sand bed region in 1992. After removal of the sand, an epoxy coating was applied to the exterior surfaces of the drywell shell in the sand bed region. The region was made accessible during refueling outages for periodic inspection of the coating. Subsequently Oyster Creek performed periodic visual inspection of the coating in accordance with an NRC current licensing basis commitment. This commitment was implemented prior to implementation of ASME Section XI, Subsection IWE. As a result inspection of the coating was conducted in accordance with the Protective Coating Monitoring and Maintenance Program. Our evaluation of this aging management program concluded the program is adequate to manage aging of the drywell shell in the sand bed region during the period of extended operation consistent with the current licensing basis commitment, and that inclusion of the coating inspection under IWE is not required. However we are amending this position and will commit to monitor the protective coating in the exterior surfaces of the drywell in the sand bed region in accordance with the requirements of ASME Section XI, Subsection IWE during the period of extended operation. For details related to implementation of this commitment, refer to the response to NRC AMP Question #188.

b) A tabulation of ultrasonic testing (UT) thickness measurement results in monitored areas of the drywell spherical region above the sand bed region and in the cylindrical region is included in ASME Section XI, Subsection IWE Program Basis Document (PBD-AMP-B.1.27) Notebook. The tabulation contains information requested by the Staff and is available for review during AMP audit. The tabulation is also provided in Table -1, and Table-2 below.

1. See Table-1 and Table-2 for UT inspection results.

2. Nominal design thicknesses of each region of the drywell are:

- Embedded shell below the sand bed region : 0.676 inches
- Sand bed region shell : 1.154 inches
- Spherical region El. 23' to El. 51' : 0.770 inches
- Spherical region El. 51' to El. 65' : 0.722 inches
- Transition from spherical to cylindrical region: 2.625 inches
- Cylindrical region : 0.640 inches

3. For the minimum required General thicknesses of the drywell shell above the sand bed region, see Table-1. The minimum required general thickness for the sand bed region is 0.736 inches. The

NRC Information Request Form

minimum required local thickness is 0.490 inches. For additional details, see Question #AMP-210.
4. Based on 2004 engineering analysis the minimum projected remaining general wall thickness of the drywell shell above the sand bed region through 2029 is shown in Table-1. The minimum projected remaining wall thickness for the sand bed region through 2029 is 0.800 inches. For additional details, see Question #AMP-210

c) In December 1992, with approval from the NRC a protective epoxy coating was applied to the outside surface of the drywell shell in the sand bed region to prevent additional corrosion in that area. UT thickness measurements taken in 1992, and in 1994, in the sand bed region from inside the drywell confirmed that the corrosion in the sand bed region has been arrested. Periodic inspection of the coating indicates that the coating in that region is performing satisfactorily with no signs of deterioration such as blisters, flakes, or discoloration, etc. Additional UT measurements, taken in 1996 from inside the drywell in the sand bed region showed no ongoing corrosion and provided objective evidence that corrosion has been arrested.

As a result of these UT measurements and the observed condition of the coating, we concluded that corrosion has been arrested and monitoring of the protective coating alone, without additional UT measurements, will adequately manage loss of material in the drywell shell in the sand bed region. However to provide additional assurance that the protective coating is providing adequate protection to ensure drywell integrity, Oyster Creek will perform periodic confirmatory UT inspections of the drywell shell in the sand bed region. The initial UT measurements will be taken prior to entering the period of extended operation and then every 10 years thereafter. The UT measurements will be taken from inside the drywell at the same locations where the UT measurements were taken in 1996. This revises the license renewal commitment communicated to the NRC in a letter from C. N. Swenson Site Vice President, Oyster Creek Generating Station to U. S. Nuclear Regulatory Commission, "Additional Commitments Associated with Application for renewed Operating License - Oyster Creek Generating Station", dated 12/9/2005. This letter commits to one-time inspection to be conducted prior to entering the period of extended operation. The revised commitment will be to conduct UT measurements on a frequency of 10 years, with the first inspection to occur prior to entering the period of extended operation.

This response was revised to incorporate additional commitments on UT examinations for the sand bed region discussed with NRC Audit team on 1/26/2006.

This response was revised to reference response to NRC Question #AMP-188 and RAI 4.7.2-1(d). AMO 4/1/2006.

The response was revised to add Table-1, and Table-2, and delete reference to RAI 4.7.2-1(d) AMO 4/5/2006.

The response was revised to add design nominal thickness and clarify response to item B. AMO 4/12/06

LRCR #: 229

LRA A.5 Commitment #: 27

IR#:

Approvals:

NRC Information Request Form

Prepared By: Ouaou, Ahmed 4/12/2006

Reviewed By: Muggleston, Kevin 4/12/2006

Approved By: Warfel, Don 4/12/2006

NRC Acceptance (Date):