



Mark D. Flaherty
Site Vice President

Calvert Cliffs Nuclear Power Plant
1650 Calvert Cliffs Parkway
Lusby, MD 20657

410 495 5200 Office
443-534-5475 Mobile
www.exeloncorp.com

mark.flaherty@exeloncorp.com

April 25, 2018

U. S. Nuclear Regulatory Commission
ATTN: Document Control Desk
Washington, DC 20555

Calvert Cliffs Nuclear Power Plant, Unit No. 1
Renewed Facility Operating License No. DPR-53
NRC Docket No. 50-317

Subject: Long Term Coupon Surveillance Program


Reference: 1. Letter from D. V. Pickett (NRC) to J. A. Spina (CCNPP), dated August 27, 2008, Amendment re: Long-Term Coupon Surveillance Program

This letter is submitted as required by Reference 1, the results of the coupon surveillance program are provided in Attachment (1).

There are no regulatory commitments contained in this letter.

Should you have questions regarding this matter, please contact Mr. Larry D. Smith at (410) 495-5219.

Respectfully,


for Mark D. Flaherty
Site Vice President

MDF/PSF/bjm

Attachment: (1) Long Term Coupon Surveillance Program Results

cc: NRC Project Manager, Calvert Cliffs
NRC Regional Administrator, Region I

NRC Resident Inspector, Calvert Cliffs
S. Gray, MD-DNR

ADD 1
NRR

ATTACHMENT (1)

LONG TERM COUPON SURVEILLANCE PROGRAM RESULTS

ATTACHMENT (1)
LONG TERM COUPON SURVEILLANCE RESULTS

Performance of Mechanical Functional Test Procedure 86-003R "Analysis of Neutron Absorbing Material in the Spent Fuel Storage Racks and Management of the Neutron Poison Sample Coupon Trees" was completed on February 7, 2018. Packet 23 was removed for the testing.

The results of coupon dimension and weight measurements did not meet the acceptance criteria listed in the long-term coupon surveillance program (approved by Reference 1). The acceptance criterion is that the weight loss is not predicted to exceed 26% before the end of the 70-year rack lifetime.

These results were comparable to those of the previous surveillance done in 2013. As described in Reference 2, a recovery plan was initiated in 2013 which included performing areal density testing on all subsequent coupon samples, and determining the cause of the weight loss.

Weight loss values for the coupons in packet 23 are as follows:

Coupon 23-1L weight loss: 13.45%

Coupon 23-1U weight loss: 21.60%

Coupon 23-2L weight loss: 12.86%

Coupon 23-2U weight loss: 22.58%

- Coupons 1U and 2U from packet 23 indicate 22% and 23% weight loss respectively which exceeds the projected weight loss curve to maintain less than 26% weight loss by end of life. Note: the end of life for the Spent Fuel Pool is 60 years plant operation + 10 years = 2046.
- Coupons 1L and 2L from packet 23 indicate 13% weight loss which does not exceed the acceptance criteria of 26%.

Areal density testing was performed on all 4 of the packet 23 coupons by NETCO at the Pennsylvania State General Atomics TRIGA Mark 3 Nuclear Reactor. The results below show that the measured areal density of the coupons fall within the acceptance criteria, which specifies that the sum of upper and lower areal densities for each pair be $> 0.0177 \text{ g-B}^{10}/\text{cm}^2$.

Coupon 23-1L minimum areal density $0.0132 \text{ g-B}^{10}/\text{cm}^2$

Coupon 23-1U minimum areal density $0.0127 \text{ g-B}^{10}/\text{cm}^2$

$$23-1L + 23-1U = 0.0259 \text{ g-B}^{10}/\text{cm}^2$$

Coupon 23-2L minimum areal density $0.0134 \text{ g-B}^{10}/\text{cm}^2$

Coupon 23-2U minimum areal density $0.0129 \text{ g-B}^{10}/\text{cm}^2$

$$23-2L + 23-2U = 0.0263 \text{ g-B}^{10}/\text{cm}^2$$

An evaluation of Carborundum coupons after the 2013 surveillance revealed that the majority of the coupon weight loss was due to flow induced erosion caused by an inspection hole in the coupon bracket cover. The neutron absorbing material in the spent fuel rack is not susceptible to this erosion because there are no inspection holes in the active fuel region. Note that the criticality analysis of record does not credit neutron absorbing material located outside the active fuel region of fuel assemblies seated in the rack.

ATTACHMENT (1)

LONG TERM COUPON SURVEILLANCE RESULTS

Average weight loss of the packet 23 coupons is 17.62%. Average weight loss adjusted for the erosion hole is 13.60%.

In summary, both average weight loss and areal density measurements recorded during the surveillance are within the acceptance criteria specified in the long-term coupon surveillance program.

Reference

1. Letter from D. V. Pickett (NRC) to J. A. Spina (CCNPP), dated August 27, 2008, Amendment re: Long-Term Coupon Surveillance Program
2. Letter from K. F. Robinson (CCNPP) to Document Control Desk (NRC), dated April 28, 2014, Long Term Coupon Surveillance Program