



April 16, 2020

U.S. Nuclear Regulatory Commission
ATTN: Document Control Desk
Washington, DC 20555-0001

Calvert Cliffs Nuclear Power Plant, Units 1 and 2
Renewed Facility Operating License Nos. DPR-53 and DPR-69
Docket Nos. 50-317 and 50-318

Subject: Response to Request for Additional Information to License Amendment
Request - Revision to Technical Specification 5.5.7, Reactor Coolant Pump
Flywheel Inspection Program

- References:
1. Letter from David T. Gudger (Exelon Generation Company, LLC) to U.S. Nuclear Regulatory Commission, "License Amendment Request - Revision to Technical Specification 5.5.7, Reactor Coolant Pump Flywheel Inspection Program" (ML19325C128) dated November 21, 2019.
 2. Electronic mail from Michael Marshall (Project Manager, U.S. Nuclear Regulatory Commission) to Enrique Villar (Exelon), "CALVERT CLIFFS NUCLEAR POWER PLANT, UNITS 1 AND 2 – REQUEST FOR ADDITIONAL INFORMATION REGARDING LICENSE AMENDMENT REQUEST CONCERNING REACTOR COOLANT PUMP FLYWHEEL INSPECTION PROGRAM (EPID L-2018-LLA-0261), dated March 21, 2020.

By letter dated November 21, 2019 ((Reference 1), Exelon Generation Company, LLC (Exelon) submitted license amendment requests for Calvert Cliffs Nuclear Power Plant, Units 1 and 2 (Calvert Cliffs). The proposed amendments would revise the Reactor Coolant Pump Flywheel Inspection Program. Specifically, the proposed amendments would extend the reactor coolant pump motor flywheel examinations, to an interval not to exceed 20 years.

By electronic mail dated March 21, 2020 (Reference 2), the NRC identified areas where additional information was necessary.

Attachment to this letter contains the NRC's request for additional information immediately followed by Exelon's response.

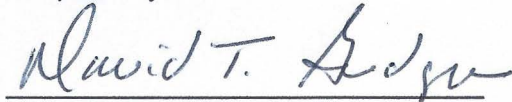
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Exelon has reviewed the information supporting a finding of no significant hazards consideration and the environmental consideration provided to the NRC in Reference 1. Exelon concludes the information attached to this letter does not affect the bases for concluding that the proposed license amendment does not involve a significant hazards consideration. Furthermore, the information attached to this letter does not affect the bases for concluding that neither an environmental impact statement nor an environmental assessment needs to be prepared in connection with the proposed amendment.

There are no new regulatory commitments contained in this response. If you should have any questions regarding this submittal, please contact Enrique Villar at 610-765-5736.

I declare under penalty of perjury that the foregoing is true and correct. Executed on the 16th day of April 2020.

Respectfully,



David T. Gudger
Sr. Manager - Licensing
Exelon Generation Company, LLC

Attachment: 1. Response to Request for Additional Information

cc: NRC Regional Administrator, Region I
NRC Senior Resident Inspector, CCNPP
NRC Project Manager, NRR, CCNPP
H. Stewart, State of Maryland

ATTACHMENT 1

Response to Request for Additional Information

License Amendment Request

Revision to Technical Specification 5.5.7,
Reactor Coolant Pump Flywheel Inspection Program
Docket Nos. 50-317 and 50-318

By letter dated November 21, 2019 (Agencywide Documents Access and Management System (ADAMS) Accession No. ML19325C128), Exelon Generation Company, LLC (Exelon; licensee) submitted license amendment requests for Calvert Cliffs Nuclear Power Plant, Units 1 and 2 (Calvert Cliffs). The proposed amendments would revise the Reactor Coolant Pump Flywheel Inspection Program. Specifically, the proposed amendments would extend the reactor coolant pump motor flywheel examinations to an interval not to exceed 20 years. The license amendment request relies on PWROG-17011-NP[-A], Revision 2, "Update for Subsequent License Renewal: WCAP-14535A, 'Topical Report on Reactor Coolant Pump Flywheel Inspection Elimination,' and WCAP-15666-A, 'Extension of Reactor Coolant Pump Motor Flywheel Examination,' " (henceforth the TR) (ADAMS Accession No. ML19318D189) and the associated NRC staff safety evaluation (SE) for the TR (ADAMS Accession No. ML19198A056).

The U.S. Nuclear Regulatory Commission (NRC) staff has reviewed the information provided in the LAR and has determined that additional information is needed to complete its review. Below is the NRC staff's request for additional information. The information being requested is needed to determine inputs to the licensee's methodologies assure compliance with Section 50.46(b)(5) of Title 10 of the *Code of Federal Regulations*. The request for additional information was discussed with you on March 18, 2020, and it was agreed that your response would be provided within 30 days of the date of this email.

REQUEST FOR ADDITIONAL INFORMATION

The NRC staff's approval of the TR included four criteria, in the Limitations and Conditions Section of the NRC Staff's SE, that needs to be confirmed by licensees requesting to apply the TR. The fourth criterion states:

[...] it is appropriate to use 70 [degrees Fahrenheit] °F as the medium temperature for design limiting event (Table 3-2) in the PFM analysis

Exelon stated in the amendment request that the Calvert Cliffs Updated Final Safety Analysis Report (UFSAR) provide the necessary information for confirmation in Section 4.1.3.3.1, "Reactor Coolant Pump Flywheel." While other sections of the Calvert Cliffs UFSAR provide some information pertaining to the medium temperature, Revision 51 of the Calvert Cliffs UFSAR did not contain the necessary information to confirm that the medium temperature is 70°F or higher during operation or event response. This is particularly significant in that a key consideration in the probabilistic fracture mechanics (PFM) approach applied in the UFSAR is the delta between medium temperature and reference temperature for nil ductility transition (RT_{NDT}) of the flywheel materials. While the TR includes

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some information concerning the nil-ductility transition temperature, this is insufficient to confirm that even if the normal operation medium temperature is lower than 70°F (as some other sections of the UFSAR posit) that the PFM would still remain bounding.

Provide a basis to confirm that the medium temperature will be 70°F or higher consistently, or provide the (RT_{NDT}) of the flywheel materials such that the medium temperature as described in the UFSAR, when coupled to (RT_{NDT}) values remain bounded by the TR.

Exelon's Response

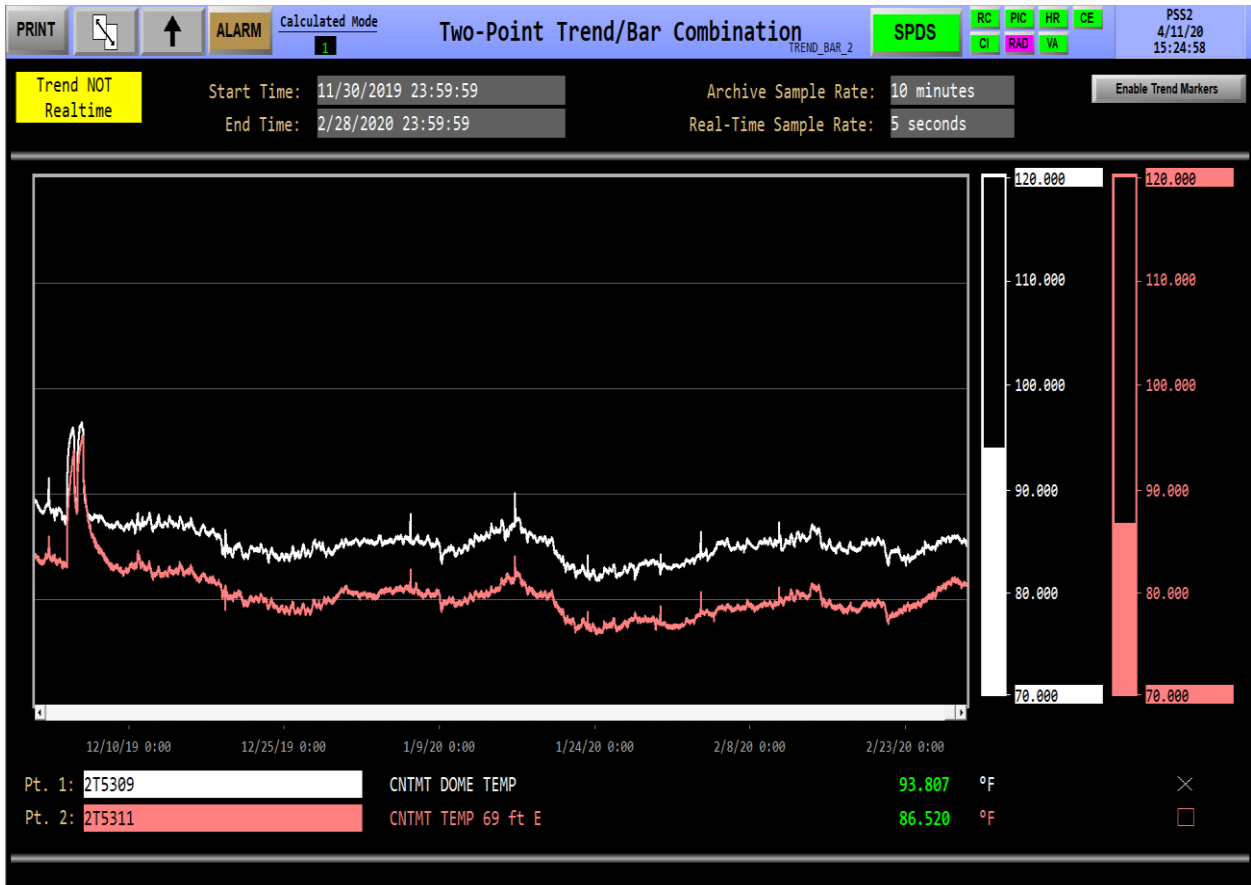
Westinghouse, in calculating non-ductile critical crack length, conservatively chose to use 70°F as representing Calvert Cliffs ambient containment temperature. This value is conservative as it is below temperatures that are experienced in containment during unit operation at any time during the year.

Attached are graphs indicating the daily containment temperature during this past winter months as well as the daily containment temperature during summer months. From these attached graphs it shows that the choice of 70°F is conservative and is well below average containment temperatures experienced during operating conditions. Even with this conservative value, the calculation resulted in large critical crack lengths.

Graph 1 is taken from Unit 2 during operation this past winter (December 2019 through February 2020) and shows temperature in containment at the 69-foot elevation in containment and temperature near the top of containment dome. Containment temperatures during the coldest part of the year remained above 70°F.

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Graph 1



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Graph 2 is taken from Unit 1 during operation last summer (June through August 2019).
Temperatures are taken from similar locations as in Unit 2.

Graph 2

