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June 18, 2019  
NRC-19-0039

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

Fermi 2 Power Plant  
NRC Docket No. 50-341  
NRC License No. NPF-43

**Subject:       Response to NRC Request for Additional Information for License Amendment  
Request to Revise Technical Specification 3.3.5.3, Reactor Pressure Vessel (RPV)  
Water Inventory Control Instrumentation**

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**References:    1) DTE Electric Letter to NRC, "License Amendment Request to Revise  
Technical Specification 3.3.5.3, Reactor Pressure Vessel (RPV) Water  
Inventory Control Instrumentation," NRC-19-0001, dated February 27, 2019  
(ML19058A251)**

In Reference 1, DTE Electric Company (DTE) submitted a license amendment request (LAR) to revise existing Technical Specification (TS) 3.3.5.3 "Reactor Pressure Vessel (RPV) Water Inventory Control Instrumentation" with a Note prior to the Surveillance Requirements (SR) section of TS 3.3.5.3 that allows delayed entry into the associated conditions and required actions when a channel is placed in an inoperable status solely for testing, provided the associated Function maintains Emergency Core Cooling System (ECCS) initiation capability. In an email from Ms. Sujata Goetz to Mr. Jason Haas dated May 20, 2019, the NRC sent DTE a Request for Additional Information (RAI) regarding this LAR. The response to the RAI is included in the Enclosure.

No new commitments are being made in this submittal.

Should you have any questions or require additional information, please contact Mr. Jason Haas, Manager – Nuclear Licensing, at (734) 586-1769.

I declare under penalty of perjury that the foregoing is true and correct.

Executed on June 18, 2019

A handwritten signature in black ink, appearing to read "P Fessler". The signature is written in a cursive style with a large initial "P" and "F".

Paul Fessler  
Senior Vice President and CNO

Enclosure: Response to Request for Additional Information

cc: NRC Project Manager  
NRC Resident Office  
Reactor Projects Chief, Branch 5, Region III  
Regional Administrator, Region III  
Michigan Public Service Commission  
Regulated Energy Division (kindschl@michigan.gov)

**Enclosure to  
NRC-19-0039**

**Fermi 2 NRC Docket No. 50-341  
Operating License No. NPF-43**

**Response to NRC Request for Additional Information for License Amendment Request to  
Revise Technical Specification 3.3.5.3, Reactor Pressure Vessel (RPV) Water  
Inventory Control Instrumentation**

**Response to Request for Additional Information**

## Response to Request for Additional Information

### RAI-1

*10 CFR 50.36(c)(2) states Limiting Conditions for Operation (LCOs) are the lowest functional capability or performance level of equipment required for safe operation of the facility and further requires that, when an LCO of a nuclear reactor plant is not met, the licensee shall shut down the reactor or follow any remedial action permitted by the technical specification until the condition can be met.*

*10 CFR 50.36(c)(3) states surveillance requirements (SRs) are requirements relating to test, calibration, or inspection to assure that the necessary quality of systems and components is maintained, that facility operation will be within safety limits, and that the LCOs will be met.*

*The LAR proposes a NOTE which would modify the SRs in a manner which would not require performance of remedial actions (entering associated ACTIONS Conditions) when the LCO is not met due to SR performance.*

*Section 3.0 of the LAR contains a justification for a six hour allowance for non-entry into associated Conditions during SRs. This justification appears to be based on NEDC-30936-P-A, "BWR Owners' Group Technical Specification Improvement Analyses for ECCS Actuation Instrumentation, Part 2," Dated December 1988.*

*By letter dated September 17, 2018, NRC issued Amendment 211 (ADAMS Accession No. ML18247A452), where DRAIN TIME was explicitly defined in Fermi 2 TS. Fermi's TS now have a DRAIN TIME definition and a new TS 3.5.2 describing Conditions when DRAIN TIME is less than 6 hours, specifically Condition D of TS 3.5.2, DRAIN TIME < 8 hours. It is not clear that NEDC-30936-P-A can be used as a justification for non entry into Conditions when DRAIN TIME is less than 6 hours. Please provide:*

- a.) An explanation of why DTE's evaluation of proposed note is appropriate when the DRAIN TIME is shorter (i.e., less than 6 hours.) Otherwise, please consider revising the proposed note and;*
- b) a description of how the injection permissive function is maintained without placing the inoperable channel in trip as is currently required in Fermi 2 TS 3.3.5.3 Condition C (i.e., describe how the injection permission functions for low pressure coolant injection and core spray are maintained during testing.)*

### RESPONSE

The response to part a) of the RAI is based on the information provided in the response to part b) of the RAI. Therefore, the response to part b) of the RAI is presented first below.

- b) The proposed Note added prior to the Surveillance Requirements (SR) in Technical Specification 3.3.5.3 will be applicable to the following two functions:
1. Core Spray (CS) system, TS Table 3.3.5.3-1, Function 1.a, Reactor Steam Dome Pressure – Low (Injection Permissive)
  2. Low Pressure Coolant Injection (LPCI) system, TS Table 3.3.5.3-1, Function 2.a, Reactor Steam Dome Pressure – Low (Injection Permissive)

The required channels per function for both of these functions is four, with a reference to footnote (a) which states: “Associated with an ECCS subsystem required to be OPERABLE by LCO 3.5.2, ‘Reactor Pressure Vessel Water Inventory Control.’”

LCO 3.5.2 states that “One low pressure ECCS injection/spray subsystem shall be OPERABLE” with the clarifying note that “A Low Pressure Coolant Injection (LPCI) subsystem may be considered OPERABLE during alignment and operation for decay heat removal if capable of being manually realigned and not otherwise inoperable.”

The following discussion of the reactor steam dome pressure injection permissive applies to both Functions 1.a (CS) and 2.a (LPCI).

Two separate reactor steam dome pressure – low (injection permissive) instrumentation channels are provided in each of the two divisions that perform the injection permissive Function for the CS and LPCI Systems. Each injection permissive channel is duplicated to both divisions of the respective low pressure ECCS subsystems actuation logics, providing a one out-of-two taken twice logic arrangement in each division. Figure A illustrates this logic arrangement generically for ECCS initiation and is representative of the reactor steam dome pressure injection permissive logic arrangement. Assuming normal power is available with no channel failure, the logic arrangement allows the two channels from one division of reactor steam dome pressure – low (injection permissive) to actuate both divisions of both low pressure ECCS systems, CS and LPCI. As a result, the injection permissive Function can be maintained with only two OPERABLE channels, provided the two OPERABLE channels are in one division. Note that injection permissive Function is assured with three total OPERABLE channels, regardless of which division the channels are in.

In this configuration, where two channels in one division are OPERABLE, the injection permissive Function is maintained to both divisions of both CS and LPCI systems. Inoperability of the other two channels in the opposite division would not prohibit the injection permissive Function. Maintaining two channels for each division and two divisions (i.e. four total channels as indicated in TS Table 3.3.5.3-1) provides capability for the CS and LPCI systems to accommodate single failures.

In the case of surveillance testing, only a single instrumentation channel is made inoperable by the test. The remaining three channels are OPERABLE, including two channels in one of the divisions. Since two channels in one division are assured to be OPERABLE, the

Function is assured to be maintained. In this testing configuration, there are certain single failures, but not all, which would prevent the Function. Therefore, the surveillance testing configuration ensures the Function is maintained, but is at a small increased risk of preventing the Function (due to single failure) relative to the configuration where all four channels are OPERABLE in accordance with TS Table 3.3.5.1-1.

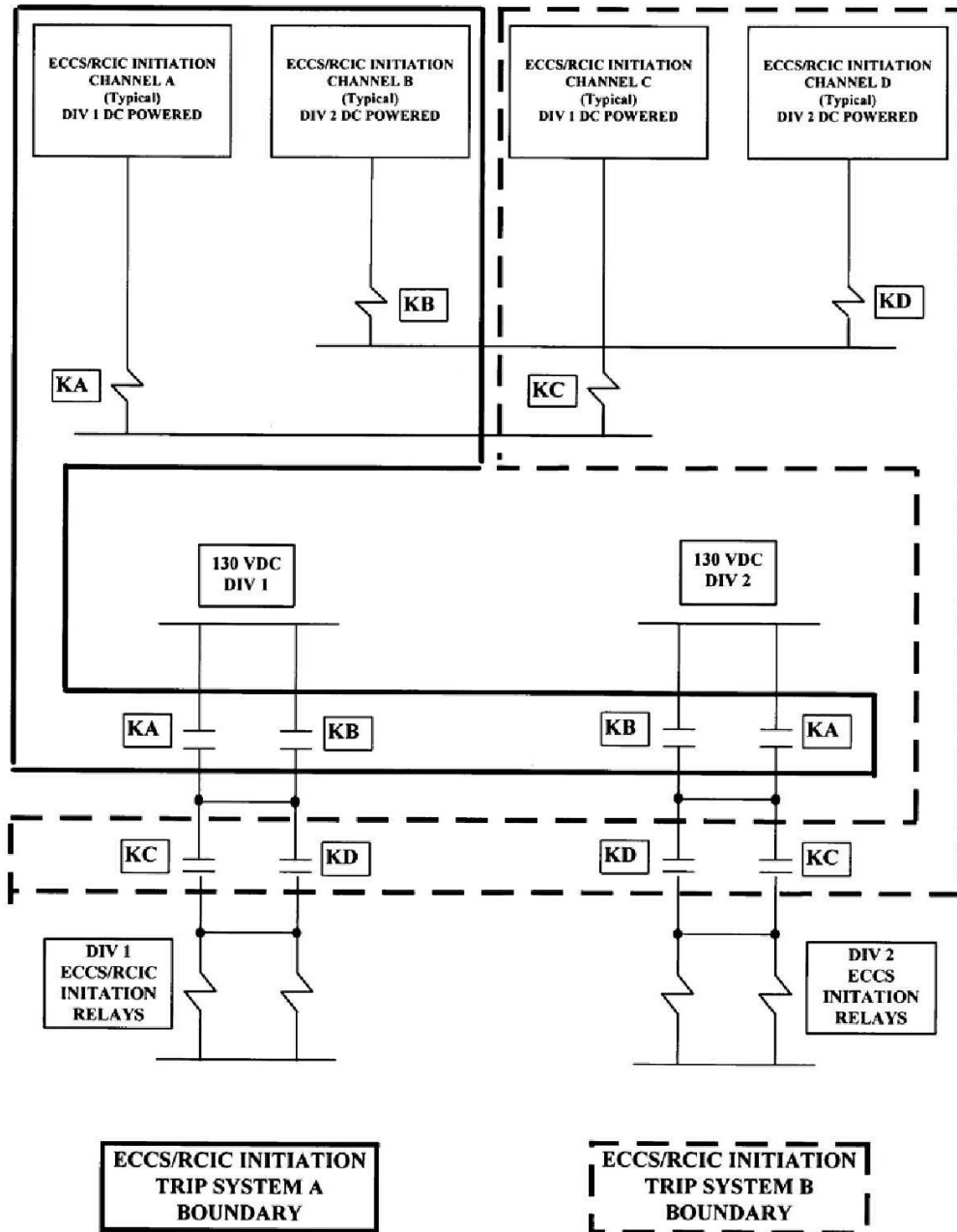
- a) NEDC-30936-P-A provides justification for a short time allowance (i.e. 6 hours) in the configuration where one channel is inoperable to support testing and the function is maintained. Nothing has changed in plant design relative to the plant-specific analysis performed by NEDC-30936P-A. The results of NEDC-30936P-A analysis were based on the potential effect on safety in support of changing the ECCS surveillance periodicities to 90 days, and the allowable out-of-service times from 2 hours to 6 hours. The NEDC-30936P-A analysis is specific to BWR plant design, and was evaluated considering the low pressure ECCS subsystems injection permissives. Therefore, the NEDC-30936-P-A justification is applicable to the injection permissive Functions for CS and LPCI in Modes 4 and 5. As noted in the License Amendment Request, the 6 hour allowance per NEDC-30936-P-A was previously applied to Modes 4 and 5 prior to License Amendment 211.

The results of NEDC-30936-P-A are not dependent on RPV water inventory or on DRAIN TIME since no loss of Function would occur that would impact the ability to respond to a potential draining event. The six hour allowance for the proposed note is therefore not related to the time limits placed on DRAIN TIME in LCO 3.5.2. Typically, surveillance testing would not be performed in conjunction with other plant activities that would result in entry to TS LCOs. It is expected that surveillance testing would always be performed when DRAIN TIME was above the 36 hours in LCO 3.5.2, but this would not be a requirement as long as all applicable TS LCO 3.5.2 Conditions and Required Actions were met for a shorter DRAIN TIME.

In conclusion, placing a channel in an inoperable status solely for the purpose of performing required surveillances does not prevent the injection permissive Function from being performed. In this way, it is ensured that the OPERABLE ECCS subsystem required by LCO 3.5.2 will be able to inject as needed. NEDC-30936P-A remains fully applicable for the 6-hour allowable out-of-service time because it was, and is, based on existing plant design.

**FIGURE A**

**ECCS/RCIC INITIATION TRIP SYSTEM DEFINITION**



END